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Unemployment

(A study based on the Census of 1931 and supplementary data)

by

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derived from the data of 1931 really represents an evolution in time, then it follows that this has been going on as a secular trend. As already stated it is not so heavy as the cyclical unemployment but it is additive to this and is apt to exist in good as well as in bad times. Most important of all, it makes it more difficult for the person thrown out of work in a period of depression to be re-employed on the resumption of normal activity. To this is added the probability that a depression after a boom serves to hasten this rise in the scale, *e.g.*, an expensive plant built up during a boom may not go out of existence in a depression, but it is operated by as few hands as possible. On the resumption of normal activity there is almost certain to be a lag in taking on more staff, a forced efficiency having been generated during the slack time. If benevolence is ruled out of the question, what inducement is there to restore the worker before he is absolutely necessary? Furthermore, there were many adventitious occupations during the building of the plant which, like scaffolding, are no longer necessary once the plant is built. This applies particularly to boom industries, but something analogous happens in the general rise in the scale of industries. The selectivity is becoming greater as occupations once regarded as a part of the industry come to be regarded as scaffolding. As the plant is perfected this scaffolding is discarded. Logically, mechanism in industry would be expected to hasten this process. This discard is thrown back into lower and lower industries until at last it lands at the bottom of the scale, or rather below the scale—in a large class designated as "unskilled labour not attached to any industry." Even the members of a profession who, out of a job, were forced to work at manual labour, would be "unskilled" labour.

An important line of reasoning emerging from these findings will be discussed in connection with the trend of unemployment. Meanwhile the picture that appears is not yet clear. While the scale described is probably descriptive of what has happened in the evolution of industries, this does not necessarily mean that industries which are now at the bottom of the scale will ascend in time, or even that they were always at the bottom of the scale. This is suggested by the idea that industries at the top are ministering to the necessities of the population while those at the bottom are ministering to sporadic wants—in other words, that the rise in the scale tends to reflect the wants of the population which are supplied. So long as the population have these varied wants it is difficult to see how a rise of those now low in the scale can come about. On the other hand, the wants of the population may change. Conceivably some of these sporadic wants may become necessities and the industry supplying them will then rise.

It is interesting in the study of unemployment by industries to find statistical evidence of what is usually spoken of as "part-time" work and that this evidence is found in some of the higher-scaled rather than the lower-scaled industries. These industries seem to be so strong that on the whole they lose very little time but they spread the lost time among several of their workers. As pointed out in the list of conclusions to Chapter III, there are two kinds of part-time: (1) where the worker is kept attached to the industry in slack times and part-time work is given to several workers instead of a few being dismissed; (2) the part-time work of the person who is taken on only for part-time work, *i.e.*, all the work he gets is part-time work. The second kind is probably much more common than the first, but these part-time workers are usually overlooked except by a census. In reports, annual or monthly, by industries showing their staff, they may or may not be included, *e.g.*, a day's job given to a casual worker may be entered on the books as miscellaneous expenditure, the more or less permanent staff alone being reported as the persons employed. No doubt this has been a source of confusion of thought regarding unemployment. It leaves out of the reckoning a very large body of workers. It has been shown that nearly a third of the wage-earners received less than $450 in the year preceding the census, their average being $220, *i.e.*, at best they had only part-time work and not enough to live on. The conclusion seems to be that there is a tendency for these to increase in proportion to the others with the passage of time. It goes without saying, then, that the proper picture of the employment situation is not given when viewed from the standpoint of the industry. From the latter standpoint it is expansion and contraction that are emphasized. It is taken for granted that increase in employment means decrease in unemployment. From the standpoint of the census of workers this does not follow. Decrease in employment may merely mean that a considerable proportion of the workers are a little worse off than before, while the remainder are very much worse off.

The *distribution* of unemployment has been interfered with much more than the *quantity*. An industry as a whole loses time if B loses a great deal of time while A loses no more than before.

If A = B and A loses no time while B loses 28 weeks, then the average loss in the whole industry (A + B) is 14 weeks—a marked shrinkage. Now if the industry reports a loss of an average of only 7 weeks, it might be considered as greatly improved, *i.e.*, it was active on an average 45 weeks of the year. Nevertheless A, as before, lost no time while B lost 14 weeks and would still be a subject for relief. Even if A pays this relief and to that extent suffers more in the bad times than in the good, it is clear that B is the greater sufferer. Worse, it is not the same B that lost the 28 and the 14 weeks—this would be assuming that the industry took B back on the resumption of good times. A is not really equal to B. A is growing slowly in the industry and B is shrinking rapidly, *i.e.*, going to industries lower in the scale. The industry loses only 7 weeks instead of 14 partly because more man-weeks were worked but also partly because A is a larger proportion of the industry than before—the industry is doing without its B's. Consequently in the good times, the B's, if collected together, would probably be found to lose much more than 14 weeks. In the industry (as distinguished from occupation, etc.) good years are characterized by smaller proportions regarding themselves as having lost *any* time but this is not because some B's are converted into A's but because the industry has selected a few new A's. This is proved by the fact that as we go up the scale the class losing no time and the class losing time become more and more widely differentiated.

Another point in connection with unemployment in industries has a strong bearing upon what has just been said. Among the tests of the industries was one called in Chapter III "degree of eradication of the independent worker." By this is meant the degree to which the industry has become a body of wage-earners instead of being composed of wage-earners *and* independent workers, etc. Now it so happens that the higher in the scale one goes the greater is the degree of eradication. For several reasons particularly the abnormal distribution of eradication due to such industries as "farming," the correlation is not high, but such as there is shows that the stronger the industry the more that industry is composed of wage-earners. In considering this fact along with the fact that the higher in the scale the greater the selectivity of the worker, it becomes obvious that the worker thrown out by this selectivity has fewer chances of becoming an independent worker in his own line of occupation. The unemployed farm labourer may become a farmer and thus rise, but in an industry at the top of the scale B has nowhere to go except in a downward direction. Now in the interval between 1921 and 1931 this eradication proceeded at a rapid rate—probably largely in the boom period of 1926-29. The total number gainfully occupied but not wage-earners did not increase as fast as the population, but the wage-earners increased half again as fast. Some of this was due to immigration and some to incomers from the younger age groups but some of it also was due to independent workers becoming wage-earners. Still more was due to persons from the young ages who would normally have formed the ranks of independent workers going into the ranks of wage-earners. The seriousness of this step may be assessed in the light of the above.

UNEMPLOYMENT IN OCCUPATIONS

In Chapter IV a study is made of the incidence of the occupational structure upon unemployment. The main purpose of the chapter is to discover whether there are definite points of difference between the behaviour of the *occupation* and that of the *industry*.

From an *a priori* standpoint the industry is the *demanding* agent, the occupation the *supplying* agent—or if it is preferred, the buying and the selling agents of labour. From this point of view, the occupation is the true home of the worker; it alone has a paternal interest. This is only partly true because, as shown in the preceding section, some—indeed a large part—of the children are owned by neither, in so far as either may be regarded as an effective agent. Still the concept may be considered as sound in the abstract. The occupation sends the worker to many different industries, and when he comes back he is unemployed. He may not stay all his life in the one occupation, but so long as present conditions remain he is apt to stay there longer than in the industry. The difference between his length of stay in the industry and in the occupation is by no means the full measure of unemployment, but this is the measure accepted by the occupation in so far as its interest in the worker extends. The occupation is indeed more paternal than the industry, but it is not perfectly paternal, and the great bulk of unemployment falls upon the worker who is not fathered by either.

Now, is such difference as exists between the two in their interest in the worker sufficient to become apparent in statistical data on unemployment? Be it once more noticed that the census data tell the story of the worker as a member of the population, not the story of either the industry or the occupation.

The same care was taken in Chapter IV as in Chapter III to effect a break-up into homogeneous groups and to rely upon dispersions and correlations rather than averages of large and heterogeneous aggregates. Similar tests of behaviour were also applied.

It was found that the industry and occupation differed in that the data on occupations disclosed what we regard as a fundamental principle, which principle was lacking in the data on industries. Three criteria of unemployment were taken: (1) the proportion not at work on a given day (June 1) as a sample of the year; (2) the time lost during the year by all the wage-earners and those not at work; (3) the proportion of the wage-earning aggregate losing any time during the year, *i.e.*, the relationship between those who lost no time and those who lost some time—the employed class and the unemployed class.

The fundamental principle disclosed by the data on occupations is that the duration of unemployment is predictable from the size of the body who lost some time as compared with the size of that losing no time. Thus if on a given day, M is employed and N unemployed, and if this is a true sample of the year, it follows that N will lose more time than M in that year. This is true but it is not the whole truth. Some of the M's will also lose some time during the year. The larger is N compared to M the more of the M's will lose some time. Conversely if we take the data for the whole year instead of the day, there are two groups of employees—A who lost no time and B who lost some time. *The larger is B compared to A the more time B loses during the year.* We may call this the *direct* instead of the converse situation since it is what we are best able to analyse, but probably the reason will become more apparent if we consider the indirect—the situation on a single day taken as representative of the whole year. *The greater is N in proportion to M on that day, the more liable M is to some unemployment.* Viewed in this way the principle is easily intelligible. The fact that N is unemployed on this day reflects a weakness which is apt to affect the whole body (M + N). M partakes of some of the weakness of N and the whole body has some interest in N.

It is remarkable that this is true of occupations but not of industries. In industries, the fact that on that day N is unemployed means nothing to M. It is reasonable to consider this as a proof that the industry has thrown N out. The only weakness that the industry shows on that day is in containing N which it remedies by discarding him. Some N's may still consider themselves a part of the industry and so report to the census enumerator, but the industry does not consider them at all. On the other hand the occupation regards them still as among its members.

Of course this principle is not entirely lacking in the industries or everywhere present in the occupation, but the distinction between the industry and the occupation in this matter is so great that there is no doubting it (see Chart 5). Where it is lacking in an occupation is where this occupation is really an industry and at or near the top of the scale. The occupation then has ceased to be the seller and becomes the buyer—it has ceased to be paternal. Furthermore, the more highly unionized the occupation, the more this principle is violated.

All this merely reinforces the arguments of the previous section. Indeed this principle alone might well be considered a proof of what was previously said about the relation of the industry to the worker—the discarding of some workers and the difference in class between the *employed* and the *unemployed*, the selectivity and consequent concentration. It should further be said that the more homogeneous the occupation, the more pronounced appears the principle; in addition to taking a cross-section of the occupation a test was made with the forty leading occupations taking them regionally but in the same broad age groups; the correlation between the percentage losing *any* time during the year and the number of weeks lost by those losing time was higher than when this standardization for age was not made. On the other hand, the more homogeneous the industry—the higher in the scale—the less pronounced is the principle.

This principle was also tested with the occupations data of 1921 and found pronounced. It gives rise to an interesting mathematical calculation bearing upon prediction of unemployment: the chances of a person who loses a certain time during the year to lose this time consecutively. The calculation being of a technical nature will be found in Appendix 1.

It would seem, however, that the principle itself is at least as important as such deduction therefrom. The above interpretation of it is that it reflects, probably is entirely caused by, the permanency of attachment of the worker to the group under which he is found enrolled. As banishing doubt in the matter, it may be said that while it is absent in industry and present in occupation it is also present in age groups. Now the age group may be regarded as rigid; roughly it is almost absolutely the same at the beginning as at the end of the year. There is no discarding of B by his age group. One age group is weak from the employment point of view as compared with another age group, *i.e.*, the whole group is weak, not M strong and N weak. If N is found unemployed on a certain day this shows that the group is weak and M is thereby apt to be unemployed on another day. The M contains a number of B's. If a stronger age group shows a smaller number unemployed on that day than a weaker one, this is simply because the M contains more A's and fewer B's. In neither case are the B's discarded—they are there the whole year.

The fact that an occupation ignores this principle once it becomes an industry deserves more than passing mention. The same appears to be true of the highly-unionized as compared with the weakly-unionized and non-unionized occupations. This is brought out in the array of occupations in Chapter IV but more particularly in Chapter VI on trend. Here we have the history of unemployment and labour unions over a period of years. The unemployment as shown among the reporting members of labour unions does not coincide with the general unemployment situation. This may be attributed to the following fact: as the general unemployment situation becomes worse (affecting the union as well as the non-union workers), the union workers affected drop their membership and when thus dropped are no longer regarded as a part of the union. The result is that in bad times the union unemployment situation *appears* much better than the general unemployment situation—the unemployed are out. On the other hand in good times the labour unions with fuller memberships are apt to suffer from strikes, etc., and show *more* unemployment than the general. It illustrates the same principle of selectivity mentioned in the industries, only this time more or less fictitious. The unions do not seem to be any more paternal than the industries. The distinction is still maintained between A (the permanently employed) and B (the permanently unemployed).

UNEMPLOYMENT AND AGE STRUCTURE

Chapter V is a study not only of the incidence of age structure upon specific forms of unemployment but also of the behaviour with a view to explanation of the general unemployment situation. Thus the conclusions of this chapter help to explain and reinforce the findings of the previous chapters. This is particularly true in connection with two principles already discussed at length, *viz.*, selectivity and relationship of the duration of unemployment of those who lose time to the proportion they constitute of their particular group. In the matter of selectivity, it is demonstrated in the chapter that, in industries especially, the unemployed have a different age structure from the employed. Here also a greater similarity between the unemployed and the employed was found in occupations than in industries.

Coming to the question of functions of age in unemployment many interesting conclusions are reached. The most important would seem to be that there is an optimum age of employment very nearly coinciding with one of maximum earnings. This age is a period of years in middle life (after 40) on either side of which the chances of both employment and higher earnings decline progressively. This is particularly important in view of the present age structure of Canada's population. Owing to the heavy wave of immigration in the early part of this century centering around the age of 24, we have now an abnormal concentration of population in the middle age groups. To this age stucture emigration contributed as well as immigration. At a time when employment was scarce (1931) there was an abnormally high proportion of the Canadian population at the fittest ages for employment. This was the situation in Canada as a whole but it was much accentuated in certain regions, for an immigrant population is also a mobile population and as such includes interprovincial migrants as well as immigrants from abroad. Although not mentioned in Chapter V it is probable (this probability is discussed in a monograph on ages and in *Canadian Life Tables 1931*) that a mobile population is more vigorous than a static. If so, this mobility would reinforce, if it does not actually create, the "fitness" disclosed. Ordinarily the resumption of a normal age distribution would in time somewhat modify the situation created

by the age structure and the present tendency of the population to congregate at the fittest ages, but this particular fitness of the mobile may or may not delay the process. Meanwhile the tendency to congregate exists and without a doubt aggravates the hardships of unemployment during the depression. It is more abnormal to have the employable out of work than the unemployable.

This idea is reinforced by another finding in the same chapter, *viz.*, that boys and old men are somewhat out of line in the trend just mentioned (*i.e.*, of a maximum fitness around the age of 40, this fitness declining progressively as we depart from this age). The trend is only true when we cut off the boys and old men. These display individuality. *They are less apt to lose any time but once they lose time they are more apt to lose a long time.* This is interpreted to mean that once they are employed they are more secure in their jobs, but once they lose their jobs they have greater difficulty in finding others and in getting back into employment. This points to a process of elimination of boys and old men from employment. First we have to consider the type of occupations or industries using boys and old men; they would naturally be either particularly suitable to the young or old, or such that these workers can perform the duties as well as those at the fitter ages. If we consider this process of selection and discarding as we go up the scale of industries as referring to whole occupations which are becoming obsolescent, rather than to individual workers, we have a ready explanation of the behaviour of boys and old men in employment. So long as their occupations are used by the industry the old men and boys hold their jobs—lose no time—but once their occupation is discarded they can not find another job. In jobs outside their own occupation they come into competition with the fitter ages. This situation was aggravated by the arrival in Canada of a large body of immigrants at fit working ages who were ready to take on any kind of job especially those not requiring a great amount of skill. The boys were meanwhile at school, kept at school, or prevented from engaging in certain kinds of occupations, by certain regulations, while apprenticeship was discouraged. These inexperienced boys when finally they could engage in these occupations came into competition with older and fitter men and were thus prevented from obtaining a foothold. They were thus confined to obsolescent occupation. There is little or no doubt that the young especially lost ground in the depression but there is just as little doubt that this was merely an acceleration of a process that had been going on for some time. There can be no better proof of this discarding than the finding already discussed, that the employed and unemployed are different age classes and are becoming more and more different, the stronger the employment condition of the industry.

Still to the point is another finding, *viz.*, that the variation between provinces increases towards the older and younger ages. This is interpreted as being due to the fact that the intermediate ages are the ages of greatest mobility. The mobile ages, obviously, go elsewhere for a job when they lose their present job. This is another condition under which the very old and the young fail to obtain a new job once they lose their old one.

Another useful finding was the appearance of a tendency for the unemployment of older persons to be least where the industry was largest—other things being equal. This was probably due to a tendency for the largest establishments to have the greatest variety of occupations, including such occupations as are composed of old men. Then, of course, there is the possibility that the larger establishments are the older and tend to keep on their old hands. This, however, is more doubtful; it depends upon the channel through which the establishment became large—was it through expansion during the recent boom or in the process of time?

THE TREND OF UNEMPLOYMENT

Chapter VI deals with the *trend* of unemployment in Canada. This study encounters real difficulties arising out of the fact that classification of industries and occupations has not been comparable from census to census, and that in the case of outside sources different classifications seem to be used for every different purpose for which data are designed. Data on unemployment were collected by the Census of Canada for the first time in 1921. In the meantime we have had monthly data of unemployment in labour unions, while the Dominion Bureau of Statistics has a Census of Industries and a monthly survey of employment in industrial establishments employing 15 persons or more, including all industries except agriculture, domestic services, professional services and unskilled labour not attached to specific industries.

Mention has been made repeatedly that surveys, whether of members of labour unions or of staffs of business firms reporting periodically, are intrinsically different in their outlook from surveys made by a census. The census is first and foremost the source of information on the *population*—the human or social side of whatever subject it covers. No matter whether the subject appears to refer to an economic or technological feature, the information on this subject obtained by the census is through the medium of the population in the country on the date of the census. Some of this population arrived in the country only a few months before the census. Their employment, their conjugal condition, etc., really reflect conditions in another country, but so long as we accept them as a part of the Canadian population, their condition and location on the date of the census is the only concern of the census. Studies from the census must be sociological, based on aggregates of individuals. On the other hand, data from the other sources mentioned are not "population" data. To the business establishment the number of employees is merely an item comparable to other items. If the number is M one month and the same another, no change has occurred. The real truth may be that in one month M is, let us say A + B + C; in another month it is A + B + D and so on, though employment from the establishment's point of view is the same in both months. The census says that the number employed was A + B + C + D and that both C and D lost a month so that during the two months worked there were 6 man-months of actual work for four persons, so that 2 out of a possible 8 were lost, *i.e.*, 25 p.c. unemployment. The establishment's report shows nothing of this unemployment. From the business side the establishment's data are correct; from the human side the census data are correct. In our studies, since they are census studies, the human side alone is dealt with.

Another feature, already mentioned, is that business establishments in their reports are apt so far to forget the human side that casual employees working for a day or two are likely to be entered among miscellaneous expenditures instead of personnel. This is quite logical, but to the census, enumerating as it does every individual, these must be taken into account as well as the others.

It is clear, then, that census information can not be expected to coincide perfectly with information from these other sources. Yet the degree of coincidence is extraordinary. As a matter of fact we find that in industries where there is not much shifting the coincidence is almost perfect. This has a strong bearing upon points brought up in the preceding sections. As we proceed up the scale of industries the coincidence between the two sources of information improves. This could not happen if we were wrong in concluding that the small unemployment shown by the stronger industries was fictitious in the same way as the lower unemployment shown by reporting members of labour unions in depression times is fictitious. The latter show lower unemployment because the unemployed have ceased to be members; the former because into the ranks of their closed membership the unemployed can not hope to enter—they were discarded permanently in the past. The earnings reported by those still claiming attachment to these higher-scaled industries coincided with the wages and salaries reported by these industries as having been paid out. As we go down the scale there is less and less coincidence, signifying that the worker reporting his earnings to the census gave his earnings from all the industries in which he worked during the year while the industry to which he reported himself as pertaining was probably the last industry in which he worked—at any rate he only gave one industry while his total year's earnings were sometimes from many industries.

Our difficulty, then, is that while, from the human side, the census is our true source of information on the trend of unemployment, we are deprived of this source through want of comparable data. We know some things from past censuses, *e.g.*, we know the number of wage-earners, the number of independent workers, the number unemployed on the census date, the number losing any time during the year and the number of weeks lost during the year in 1921 as well as in 1931; but when we compare the data by industries or occupations we are handicapped by incomparability of classification. Without suitable break-ups we can not make fine analyses; we must be content for the time being with averages based on large aggregates. Efforts are being made to have the 1921 data recompiled according to the 1931 code but this valuable piece of work is as yet unfinished.

We are thus obliged to fall back, for our study of trend, on outside sources with all their aforementioned defects. The chief task in dealing with these data was to discover methods by which the human side of these data could be arrived at or estimated. Such an estimate has been made and they together with their bases and the methods used are explained in Chapter VI.

In the case of data derived from estimates, their use, in arriving at conclusions, is hampered by fear of falling into the error of begging the question. The estimates should be based upon the conclusions rather than conversely, and as a matter of fact conclusions otherwise arrived at were used in making the estimates. The legitimate use of estimates would seem to be as a description or barometer to give timely warnings of what is probably happening or about to happen; the fact that such an estimate was subject to a margin of error would not seriously matter providing the errors were casual, since action taken on the warning does not involve exact steps, general directions being all that are needed. On the other hand, if the estimates are to be used to back or formulate theories we are deprived of the use of these theories in making the estimate. In such a case the estimate itself has to be made out of nothing. We can not take an estimate based upon past events to prove that these events occurred.

According to this reasoning we can not take the figures of the estimates in Chapter VI to prove that certain things happened from 1920 to 1936. They are merely descriptive of what was otherwise ascertained to have happened. Care must be taken in describing the trend to avoid such vagaries as have not known facts to back them. They are merely a diagramatic picture of a collection of tabular material but this material is factual, not estimated. However, certain corrections in this tabular material may be taken as sound, *e.g.*, where labour union figures of unemployment were corrected for the observed trend of a decrease in unemployment according as reporting membership decreased, this correction may be regarded as so strongly justified that the corrected figures should be taken as the accurate figures. This is not an estimate but a measurement.

Remembering that we are observing the above-mentioned rules of caution, the trend itself may now be shown.

Around the date of the 1921 Census and during the year immediately preceding it (this year more properly belonging to 1920 than 1921 as it contained 7 months of it) unemployment was not great, though for the calendar year 1921 it was great. For this reason emphasis is laid upon the fact that the census refers to 7 months of the year 1920 and the first 5 months of 1921. Unemployment grew steadily worse until December, 1921, after which the trend went down temporarily and then became again worse in 1924. From this time it steadily declined till 1926 when conditions were as normal as can be expected.

Now, from immigration reports of both Canada and the United States we have certain phenomena accompanying this trend. We had heavy immigration to Canada (147,502) in 1920, followed by heavy emigration from Canada to the United States in 1924. In the Census of the United States the Canadian born arriving there from 1920 to 1930 consisted of 284,180 who arrived from 1920 to 1926 and 81,827 arriving from 1927 to (3 months of) 1930. Needless to say these *Canadian born* were only part of the emigration from Canada to the United States in those years. In the United States immigration reports we see the occupational composition of the Canadians who emigrated. They were of many different occupations—not specialized occupations reflecting the United States demand during that period. Principally, however, they were young persons who had had no previous occupation. In other words it was a population that was moving.

Now although this knowledge of the immigration and emigration figures was in no sense used in the estimates, the rises and falls of the unemployment above-mentioned correspond to the migration movements. The immigration occurred during low unemployment but kept up until unemployment rose almost to the peak. Emigration then started and it was accompanied (or followed) by decreasing unemployment. This, of course, introduces a widely different concept of unemployment from that generally accepted, *viz.*, that unemployment is merely the opposite of employment. Unemployment only partly declined with increasing employment. As noticed it also *increased with increasing numbers of wage-earners and decreased with decreasing numbers of wage-earners.*. Immigration was no doubt accompanied by other inward movements into the ranks of wage-earners—from farms, small owned establishments and from school; emigration was accompanied by return to these sources, so that immigration and emigration were only symptoms of more general movements. The conclusion is that unemployment (in so far as the population is concerned) can be caused by two things (1) decline or shrinkage in business and (2) increase in the number of wage-earners; it can be cured by (1) increase in business activities but only if accompanied by (2) exodus from the ranks of the wage-earners. The lowest point of unemployment would logically be not at the point of greatest business activity but at a point

where activity becomes normal after a period of exodus and before a period of in-rush. Such was 1926. This in no way refers to the economic condition of the employed and unemployed at different periods—it refers solely to their numbers. After 1926 the number of persons employed increased very rapidly with increasing activities but unemployment did not shrink correspondingly because the number of wage-earners increased still more rapidly. As a symptom of this, immigration was resumed on a large scale and, reasonably, other in-movements such as described accompanied immigration. Meanwhile the United States placed restrictions on *their* immigration. This at first did not affect the Canadian born but it affected potential emigrants from Canada who were not Canadian citizens. The number of wage-earners seems to have come to a peak in June, 1930, which was months after employment came to a peak. No great stress should be placed on the exactness of these figures but they are probably close. Employment then shrank rapidly, coming to a nadir in March, 1933, since when it has risen fairly steadily. Unemployment increased at first *pari passu* with the shrinkage in employment but gradually slowed up because the number of wage-earners began to decrease. This is borne out by the 1936 Census of the Prairie Provinces.

Meanwhile let us glance at what was happening on the industrial side. Data on this point are obtained from the Census of Industries which shows the production in dollars and the personnel separately as "salaried" and "wage-earner" staffs. Taking the production aspect of the data from 1926 till the peak in 1929 we find a peculiar sort of increase. If we fit a third degree parabola through the data we notice a deceleration in the increase, gradually followed by a decrease. If such a parabola had been fitted to the data of 1926 to 1928 it would have predicted a decrease in production in 1931 or less than a year later than this decrease actually happened. If such prediction had been made in the spring of 1928 it would have availed nothing as no one would have believed it. None the less such a prediction was possible. It would not be going too far to say that such a prediction can be made in the case of most booms. While production is to all appearances increasing rapidly there is a decelerating force at work which is not readily visible but which comes out in measurements. The process of deceleration thus measured can be relied upon because it is logical. There is no logical basis for believing that any business boom can gain momentum as it goes on—rather it loses momentum, it is certain to. We are apt to be deceived by looking at the absolute figures only. Suppose production in an industry increased from 20 million in one year to 40 in the next, to 65 in the next and to 91 in the next; the size of the 91 compared with the previous 65 would deceive us. Let us take these figures:—

	1st difference	2nd difference	3rd difference
20.....	—	—	—
40.....	20	—	—
65.....	25	5	—
91.....	26	1	−4

It is now apparent that the seeds of decrease are contained in the figures. A series like this would not have to be continued very far before the decrease would become apparent.

Now, while the increase was going on in the case of output there was no commensurate increase in the size of the staff. There was some increase, but at a slower rate, and slowing more rapidly. After making all allowance for error there is no doubt that the output was increasing faster than the personnel.

Let us now see how this affects the employment situation. A period of boom *creates* workers, *i.e.*, it brings rapidly into the wage-earning class persons who ordinarily would either never enter this class at all (*i.e.*, they would either stay out of the country or enter—and stay in—some gainful occupation that would not depend upon wage), or they would enter this class leisurely, maintaining some balance between the number of entrants and the number leaving in the ordinary course of events. Now in boom times not only do existing industries expand abnormally but new industries—some of them adventitious—are created, and it is a matter of record that such industries are short-lived although a few may survive. Besides the new industries thus created there are of course new establishments in existing industries. In these new industries or establishments there is certain to be a greater variety of occupations (doing preparatory work) than when they have reached final working order. This means temporary work in occupations which ordinarily would never attract persons who were fit for anything else. Casual labourer becomes an occupation, and under these temporary conditions some men

would rather follow this than farm or work on their own account. Thus persons crowd into the wage-earning market. Further, the process has the effect of localizing the population, which crowds into certain centres depleting other centres. Now it has been shown that a boom in production contains the seed of decay at a very early stage and long before superficial examination reveals anything but rapid increase. This seed is deceleration. Synchronizing with this deceleration comes completion of jobs, *i.e.*, the *building* part of the expansion and creation is being completed and permanent working conditions are being reached. The result is that the personnel increases more slowly than the output, but the output itself deceives the aspirant worker and in any case there obtains the principle of inertia in accordance with which the applicant still keeps crowding to the industrial centres. The gap between the supply of labour and the demand widens and this spells unemployment before there is any obvious manifestation of a slackening in output. Before the manifestations of slackening are visible in the gross output of the whole country, they are, of course, visible in certain localities and in certain occupations. There follows a long period of, first deceleration, then cessation of growth, then depression. Before the depression is apparent there is an accumulation of unemployed who with the aid of seasonal flurries have probably managed to live since the first invisible slackening. The time lost accumulates as well as the number losing their jobs, for the first to be let out can not expect to re-enter when others are losing their jobs. There are, of course, exceptions to all this in the case of individuals who have lost their jobs but who are fitter than other individuals, but either the amelioration of conditions for these individuals is very slight or it is hidden in such a way that it does not appear in statistics. One of the probable characteristics of these fitter individuals is that they *move*.

The localization first of population then of unemployment by the process mentioned is very important. It had interesting manifestations in the Census of 1931. Taking unemployment by centres, the worst and the best centres (from the unemployment standpoint) were the small ones, the large being average. The cause of this could be definitely fixed—the best centres had decreased or remained stationary in population since 1921; the worst had increased. In other words the best were good because the unemployed had left; the worst because they had remained. There were, of course, individual exceptions, but this was the rule. Some large centres, such as Vancouver, were worse than other large centres, but they had grown very rapidly—they had received among others the workers who had left the small centres. The repercussions of this process since that date may be one of the major events of the period. With the instituting of relief, localities placed restrictions on movements of population. The badly-stricken centres were caught with a large element of unemployed who were prevented by these restrictions from moving freely. The result is one that may be considered serious. In a vast area like Canada the population is, at best, situated in spots instead of being evenly distributed and this leads to intensification of the unemployment situation in any case. A great deal could be said—though little has been—about the influence of this situation upon the consumption of Canada's products. A large body of consumers through immobility of labour further complicated by the question of relief is forced to locate or remain where employment, *i.e.*, production, is least. The greater the distance between the two the greater the cost. This would work against the interests of the producer as well as the consumer. Ideally a population should be spread as much as possible; only in this way can the possibilities of the country be exploited. Congestion of humanity, when looked at in its final analysis, is only a defence mechanism—the banding of the human being against nature as though the latter were an enemy instead of a friend.

SEX IN RELATION TO UNEMPLOYMENT

The chapters already discussed all refer to the sex influence in unemployment. Chapter VII collects these references and adds descriptive and informative material, besides making certain classifications. It would seem that while the sex aspect is important in its results, it is not significant in explaining unemployment. According to the findings of Chapter III, it is not the sex content that causes more or less unemployment in the industry or occupation; the industries least subject to unemployment happen to employ larger proportions of females. Females suffer less from unemployment than males, but this is not because they are females, or because feminized industries suffer less unemployment. The latter suffer just as much; in the same industries females suffer as much unemployment as males. The reason for any apparent

advantage on the part of females is because they are taken on by the industries which are strongest. A further cause gives them a fictitious superiority. Unemployment is the difference between (1) the number of wage-earners and (2) the number employed. If we reduce the first or increase the second we reduce unemployment. Females are more subject to a reduction of the number of wage-earners than are males, principally through marriage. This is brought out in Chapter III. The males are more permanent wage-earners. In all other respects than the nature of the industry and permanency in the wage-earning class, the difference between the two sexes, if any, fails to appear in the data.

It must be remembered that this does not touch the question of whether the male is suffering more unemployment because of female competition, or the national aspect of deferred marriage because of this competition. The census data do not lend themselves to an analysis of this question. Probably a comparison between censuses, providing the classifications were comparable, would bring this out.

JUVENILE UNEMPLOYMENT

Chapter VIII deals with juvenile (under 20 years of age) unemployment in the same way as the preceding chapter deals with sex unemployment. Almost the same principles apply here as were mentioned in the preceding section. An analysis of this aspect of the subject is even more dependent on the trend shown by different censuses than in the case of sex.

REGIONAL UNEMPLOYMENT

Chapter IX collects features on regional unemployment contained in previous chapters, particularly Chapter II where basic data on this subject are given. However, in the matter of the significance of regional distribution as a *cause* of unemployment, the same thing may be said as was said concerning sex in relation to unemployment. The significance of regional distribution as a *result* of unemployment has already been discussed in the section on trend.

Probably the most important aspect of regional unemployment is that summarized in Statement XIII, Chapter I. There it is shown that the average unemployment is found in the large centres while the best and worst are about equally distributed among the small centres. Already it has been suggested that the best small centres are those abandoned by the unemployed before the date of the census (although there are some exceptions). In other words, the small centres which showed the worst unemployment were those in which the unemployed were "caught," being still there on the date of the census. This is a feature of booms and their aftermaths—new industries of temporary duration starting up during booms. It is suggested that a study of bankruptcies by the size and recent rate of increase in the population of the centre where they occur would be relevant on this point.

If the wage-earner leaving these small centres drifted only into the large centres, unemployment in the large centres would be rendered worse than normal. We have cases of this kind, *e.g.*, Vancouver. However, the fact that the largest centres are only average is evidence that those leaving the small go elsewhere as well; in any case the aggregate number of unemployed affected by these small centres is very small—it is the large centres that count. The small centres, bad and good, average the same unemployment *per capita* as the large. There is a tendency for different sizes to average the same *per capita* unemployment, only there is greater variety in the small.

It is obvious that regional aspects, *i.e.*, the fixing of responsibility for unemployment upon any geographical area, are complicated by the phenomena just described. They are not really regional, though they can not be dissociated from the regional. The region suffers, but it is as a victim; it is not to any marked extent a culprit.

UNEMPOYMENT IN RELATION TO RACIAL ORIGIN

This is studied in a special monograph on the origins and nativity of the Canadian people,* and a short summary of the findings of the study is given in Chapter X. The conclusion is that there is no evidence that origin as such has any bearing upon unemployment. The occupation entered, the time in Canada, etc., seem to be the only conditions under which unemploy-

* Hurd, W. B.: *Racial Origins and Nativity of the Canadian People.* Dominion Bureau of Statistics.

ment varies as between different racial origins. Of course if there is an inherent tendency of certain races to drift into certain occupations and certain regions it is difficult to decide whether or not (the occupation, etc., being racial) it is the occupation, etc., or the race that is responsible.

SEASONAL ASPECTS OF UNEMPLOYMENT

The seasonal aspects of unemployment enter into the other studies, but a brief *résumé* is given in Chapter XI. The responsibility of seasonality for unemployment is difficult to fix. If we admit that there are two factors in unemployment, *viz.*, the number at risk and the shrinkage in employment, the question resolves itself into whether seasonal industries create workers or merely employ seasonally those already created. It is difficult to imagine any person leaving a steady occupation to become a seasonal worker unless he were forced out of that occupation. If seasonal industries merely provide work for a wage-earner already created it would seem that they are highly beneficial. The odium attached to seasonal industries in the popular mind is probably due to the fact that seasonal industries are so often cyclical as well, *e.g.*, construction; the seasonal aspect is over-emphasized while the cyclical is forgotten. However, it is the cyclical—with its expansion and contraction—that is really the causal factor.

This raises the question as to whether the worker would be benefitted if these seasonal industries could be made less seasonal, the cyclical aspect being controlled. It is exceedingly doubtful. Certain workers would no doubt benefit, but the main result would be contraction in the number of workers engaged, leaving those who now get some work during the year without any work. It is doubtful whether it is along these lines that a cure for unemployment can be effected.

CONFIRMATION FROM THE 1936 CENSUS

Supplementary data on unemployment in the Prairie Provinces will be found in Volume II of the 1936 Census. A summary with interpretation of this data is given here in Chapter XII.

CONCLUSION

The chief conclusion of this monograph is by way of establishing a fundamental principle in unemployment that is additional to and not necessarily invalidating principles founded on non-census data. This principle concerns the purely human side of the problem, which comes out only in census data, and is hidden in data from other sources. In simplest terms this principle is that there is a class differentiation between the employed and the unemployed and that this is created in part by the industrial structure, in part by extraneous forces. There is also a rational law governing the natural relationship between the employed and the unemployed, which may be stated as follows: if a group of workers is composed of M + N persons and on a certain date M are found employed and N unemployed, then the larger is N in proportion to M, the more liable is M to be unemployed on some other date, *i.e.*, the fact that N is large is a manifestation of the weakness of the whole group, not of N alone, and M and N are continuously interchangeable. This rational law is found in the census data, the condition being that when N is unemployed it does not drop out of the group. In a permanent group like an age group we have the law clearly exemplified; also in occupations which are not industries in themselves and which are not highly unionized. Now industrial and labour organizations act in direct opposition to this law, the stronger these organizations the less operative the law. It can be proved, mathematically that the result of this is to make M a permanently employed class and N a permanently unemployed, the two never being interchangeable. In this case the fact that M + N is strong or weak, is not manifested on a certain date—it merely signifies that N has dropped out of the group and is found in some lower group. The ultimate result is to find one group of workers with few N's and another group with few M's. Unemployment as a national problem is concerned with the latter group which is completely submerged and is difficult to diminish by means of increase in employment owing to the tendency of the principle of organization to increase it.

It has just been said that this does not invalidate the view that unemployment is increased by shrinkage and decreased by expansion of business. Obviously a condition of the validity of this position is that business must increase steadily, but this condition is recognized both here and by the economist as probably the greatest factor conditioning unemployment. However, the addendum made herein is that there is a feature in unemployment which the purely economic view does not take into account, *viz.*, that there are unemployed who never appear in the data upon which economic theories are founded; that these form the greater proportion and are the worst off among the unemployed—in short that they form a class which tends to be increased not only by "boom" conditions, but by the steady approach of business toward greater efficiency. The usual view of unemployment assumes that the person who is unemployed to-day may be employed to-morrow, and that in general if A is employed to-day and B not employed the situation will be reversed another day. The present findings are that this is not so.

It is not individuals that are thus discarded but occupations. It is common knowledge that some individuals are more capable of employment than others, and that some may be discarded as unfit. When it comes to whole groups being thus discarded these groups may contain individuals of high efficiency. The specialist in an occupation which is discarded may be the more unfit, by reason of his specialization, for anything but unskilled labour.

The conclusion appears inevitable that there is a growing body of workers who have nothing to depend upon but casual employment, these forming the bulk of the serious cases of unemployment. There is a fallacy in the view that activity which *a priori* increases employment for the working body as a whole will benefit these in the same proportion as it benefits the aggregate of workers. Such activity does not penetrate into all parts of the working body with equal intensity, but rather improves conditions for those already not badly off—at least it effects this before penetrating to the class of unemployed just mentioned.

Now if increase in efficiency and organization increases this class of unemployed, what is the remedy? Efficiency and the interests of the whole must not be sacrificed, but can the same degree of efficiency be reached at a smaller cost? There are two principles that might be more carefully examined than hitherto in this connection: (1) that a concentration of the workers in such a way that in a large country like Canada they are found in spots, not evenly distributed, increases the distance between the producer and consumer and thereby decreases consumption; (2) that any activity which tends to create workers for temporary work is injurious. But another principle must be recognized first, *viz.*, that the Euclidian axiom "The whole is greater than its parts" is not true when applied to humanity. Rather humanity must be looked upon as an aggregate of individuals to each of whom his daily bread is more important than what happens to the whole; moreover, the satisfaction of this need of the individual will determine what will happen to the race.

PART I

INTRODUCTION

Purpose of Study.—The chief purpose of this study is to analyse and interpret the statistics of unemployment compiled at the 1931 Census, the main body of which are contained in Volume VI, Census of Canada, 1931. It is not its purpose to re-state in even general terms what has been written on the theory and causes of unemployment in our modern industrial system nor to review remedies put forward to control this evil. Notes, however, on contemporary opinion are to be found in Appendix 10. It is hoped that this effort to reveal the facts of unemployment in 1931, to measure and appraise their significance, will be of interest and value to those who are concerned with the formulation of policies to relieve unemployment or to prevent its recurrence.

The 1931 unemployment returns furnished information under two heads: (a) wage-earners not at work on the date of the census, June 1, 1931; (b) wage-earners losing time and weeks lost during the period June 1, 1930 to June 1, 1931. The information thus obtained made possible a comparison of unemployment as it existed at a particular date, June 1, 1931, with the unemployment characteristic of a fixed period of time, the twelve months prior to this date.

It is certain that generous allowance for the time element is of importance in estimating "average" unemployment. In order to obtain such an average and at the same time to view unemployment in Canada against the broad background of the past decade, roughly the period of the trade cycle, it is the second purpose of this study (a) to correlate the census statistics on unemployment for 1921 with the 1931 figures and (b) to estimate the volume of unemployment for single years over the intervening period.

Materials used for estimating unemployment over this period, other than census data, include the Dominion Bureau of Statistics' monthly index of employment and the Federal Department of Labour's monthly statement of unemployment as reported by trade unions together with its employment office reports. An explanation of the scope of these supplementary data will be found in Chapter VI.

Before describing in greater detail the nature of the 1931 Census inquiry on unemployment it might be explained why it was decided to collect the unemployment data at the census in the following manner: (a) as of a particular date, June 1, 1931, and (b) as of the census year, *i.e.*, over the twelve-month period prior to that date. In the first place, there was the desire for comparability as between census years—the 1921 data on unemployment having been gathered on the same basis. In the second place, it was believed that the two types of information would serve separate uses.

The June 1 statistics, it was thought, would be valuable, first, as giving a true picture of the unemployment situation on a particular date (as the day chosen, June 1, 1931, was within a week or two of the date that the enumerator completed his census taking), and secondly, as having, therefore, relevance to the basic population figures for the same date. The June 1 census data would also be useful in estimating, by means of a comparison with the census year figures, the effect of the seasonal factor in unemployment. Further, they could be utilized for the purpose of determining the accuracy of the unemployment statistics covering the twelve-month period. Finally, the data for June 1 would be necessary in calculating the trend of unemployment over the decennial period June 1, 1921 to June 1, 1931, and subsequent thereto.

On the other hand, unemployment statistics for the census year ended June 1, 1931 would be more typical of the incidence of unemployment by industry, occupation, age, sex, etc., than the figures for the single date. Secondly, data on unemployment for the year period would be required in calculating time worked and rates of earnings. Thirdly, this type of information would provide a measure of the duration of unemployment as distinct from the rate of unemployment derived from the June 1 inquiry.

It might be stated at this point that what was characteristic of unemployment in Canada over the period June 1, 1930 to June 1, 1931 in respect to differences as between localities, or as between occupations, or ages, or sexes, etc., in the degree to which they were separately subject

to unemployment, may have no direct application to a future time. Undoubtedly there will be differences of degree though many qualities will probably remain unaltered. For example, the relative amount of unemployment as between sexes, or wage-earners at different age periods, or workers in unskilled as compared with skilled occupations, may vary considerably at another date though the nature of unemployment to be greater among males than among females, among older workers than among those at the prime of life, or among the unskilled than among wage-earners in skilled occupations, will likely persist irrespective of variations in the total amount of unemployment from year to year.

Scope of the 1931 Census of Unemployment.—A clear understanding of the scope of the 1931 Census statistics of unemployment is a necessary preliminary to any appraisal of the conclusions arrived at in subsequent chapters. What they comprehend, their potentialities and their limitations are the subject matter of this Introduction. Perhaps a detailed description of the section of the population schedule devoted to unemployment will best serve to define the scope of the unemployment census:—

UNEMPLOYMENT

Class of worker.	Total earnings in the past twelve months (since June 1, 1930).	If an employee, were you at work Monday, June 1, 1931.	If answer to previous question is NO, why were you not at work on Monday, June 1, 1931? (For example, no job, sick, accident, on holidays, strike or lockout, plant closed, no materials, etc.)	Total number of weeks unemployed from any cause in the last 12 months.	Of the total number of weeks reported out of work in column 34, how many were due to—					
					No Job	Illness	Accident	Strike or Lockout.	Temporary Lay-off	Other Causes (See instructions 194)
30	31	32	33	34	35	36	37	38	39	40

It will be noted that every person working for wage or salary was first asked to report the amount of his earnings over the twelve-month period prior to the census date, June 1, 1931. He was then required to answer a number of questions in respect to unemployment. The first question related to unemployment on the first of June. Was he at work on that day? If not, why not? The reasons that might be given for not being at work on June 1, 1931 were indicated in the inquiry that followed dealing with unemployment over the period June 1, 1930 to June 1, 1931. In regard to this inquiry it will be observed that the wage-earner was first asked how many weeks he had lost during the twelve months prior to June 1, 1931, the same period as was covered by the inquiry regarding earnings, and then how much of this time was lost owing to "no job," to "illness," to "accident," to "strike or lockout," to "temporary lay-off," and to "other causes." In brief, the unemployment inquiry at the 1931 Census was intended to find out the number of wage-earners not at work June 1, 1931 for specified reasons and the number losing time during the preceding twelve months, together with total weeks lost by causes.

While on the subject of the unemployment inquiry, it might be of interest to summarize the Instructions to Enumerators, dealing with unemployment:—

General.—The purpose of the inquiries under the heading Unemployment, columns 32 to 40, (see above) is to elicit information on the problem of the economic insecurity of the worker and to ascertain as far as possible the causes which make for unemployment. The value of the information entered on the schedule under this heading will depend entirely upon the care exercised by the enumerator. If, when he starts the work of enumeration, he finds there is any point upon which he is not clear he should communicate immediately with his Commissioner.

(a) *June 1, 1931.*

Column 32.—The enumerator must make an entry in this column for every person who is recorded with an occupation in column 28 and is reported in column 30 with the letter "W" for "employee" or "wage-earner." The inquiry in this column is to be answered by "yes" or "no" as the case may be. If the entry in this column is "no" there must also be an entry in column 33.

Persons out of employment on June 1, may state that they have no occupation, when the fact is that they have an occupation but happen to be idle or unemployed at the time of the visit. In such cases the entry should be the occupation followed when the person is employed or the occupation in which last regularly employed, and the fact that the person was not at work should be recorded in column 32 and the reason for being out of employment stated in column 33.

In certain occupations, such as the running trades on railways, Monday, June 1, 1931 may be the day when certain men are off duty between runs. In such cases the person is not to be reported as "not at work," consequently the proper answer in column 32 will be "yes." There may be other instances where Monday, June 1 will not be an ordinary working day, the person having worked perhaps on the Sunday previous or overtime and being entitled to Monday as his rest day. For all such cases the proper answer in column 32 will be "yes."

Column 33.—The enumerator should enter in this column the exact reason why the person was not at work on June 1, 1931. The following may be cited as examples:—

No Job.—If the person was not at work on Monday, June 1, 1931 and had no expectation of returning to his or her former job the entry in column 33 should be "no job."

Illness.—In the case of absence from work because of illness, the enumerator should differentiate between the sickness of the person enumerated and that of the members of the family. If the person is idle because of personal illness the enumerator should enter in this column "ill" or "sick" but if the person is not at work because of others who are ill, the entry should be "sickness in family."

Accident.—Careful distinction should be made between personal accident to the wage-earner and that which forces the closing of part or all of the plant where he is employed. If it is a personal accident to the wage-earner the words "injury by accident" should be entered. For closing of plant due to a breakdown the enumerator will enter "machinery broken down," "wreck" or some similar expression. The enumerator should endeavour to obtain a clear statement as to cause and enter it in column 33.

Lay-off.—There are two kinds of "lay-off," voluntary and involuntary, and they should be carefully distinguished. If the worker has taken days for personal reasons, the enumerator will enter in this column "vol. lay-off," but if the person is laid off at the orders of the employers the enumerator will enter the cause, such as "mill closed," "work completed," "plant burned," or whatever the cause of the "lay-off" may have been.

There are many other causes such as weather conditions, floods, lack of materials, supplies or equipment, strike or lockout, etc., and the enumerator should be very explicit as it is better to give too much detail than to have the record incomplete. He should avoid general expressions such as "not at work," "slack work," "no work," etc.

(b) *Time Lost during Year Ending June 1, 1931.*

Column 34.—The enumerator will inquire of every person who was described as an "employee" or "wage-earner" (W) in column 30, the number of weeks out of work for any cause during the twelve months preceding the census date, June 1, 1931. No entry should be made in this column for teachers on annual salary who receive school holidays. The number of weeks in this column must be equal to the total number of weeks entered in columns 35-40. If a period of less than one week was lost from work, the answer should be stated in days with the word "days" written in.

Column 35—*No Job.*—This inquiry has reference to persons who during some portion of the twelve months preceding the census were out of work and had no reasonable prospect of returning to their former jobs. A "no job" person may be described as one who has no job, nor a promise nor understanding that he or she will be employed. It includes also all idle persons who are planning to change their occupation as well as those formerly attached to plants closed with no probability of re-opening. For such persons the enumerator will enter in column 35 the number of weeks they were out of employment. The term "no job" does not, however, include persons temporarily out of work.

Column 36—*Illness.*—The entry in this column will be the number of weeks lost through illness of the worker and which resulted in his not going to work at his regular job.

Column 37—*Accident.*—If the period of unemployment was due to personal accident to the wage-earner, the enumerator will enter in this column the number of weeks out of work because of an accident. When the unemployment was the result of an accident to the plant, mine, factory, etc., the entry will be made in column 39 (temporary lay-off) and not in column 37. Enter only weeks lost through accident to the worker in column 37.

Column 38—*Strike or Lockout.*—If the worker was idle because the plant was closed owing to disagreement of the management with employees or because of refusal of workers to continue under current working conditions the number of weeks lost will be entered in column 38.

Column 39—*Temporary Lay-off.*—Generally speaking a "lay-off" is one of two kinds, "voluntary" or "involuntary." A "voluntary lay-off" refers to instances where the employee quits to take holidays, while an "involuntary lay-off" includes instances where a plant is closed for repairs, lack of orders, reorganization, etc., and where the employees may return to work upon the re-opening of the plant, mine, factory, etc. The number of weeks "out of work" which the worker considered as a "temporary lay-off" will be entered in column 39 whether the "lay-off" was owing to his own action or whether due to plant conditions.

Column 40—*Other Causes.*—If the total period of "unemployment" entered in column 34 is not covered by the causes entered in columns 35, 36, 37, 38 and 39, the enumerator should make diligent inquiry as to any "other cause" and endeavour to obtain a definite statement as to the "other cause" which was responsible for the person being "out of work." The enumerator will enter the number of weeks "out of work" for the "other cause" in column 40 and write the cause in the margin opposite the line on which the entries are made.

When the enumerator has completed making the entries on the schedule for this person he will total the number of weeks entered in columns 35 to 40 to see if they agree with the number of weeks entered in column 34 and if there be a difference he will at once call the attention of the person to the discrepancy and require him or her to make readjustment so that the figures will balance.

The Meaning of Unemployment in the Census.—It will be noted that some of the causes of lost time mentioned in the preceding paragraphs would not be considered as causes of unemployment if by the word "unemployment" was meant idleness due to economic reasons only.

Unemployment in its commonly accepted meaning has been defined by Pigou as follows: "A man may be said to be unemployed when he is both not employed and also desires to be employed. This assumes that the conditions of work as to hours and wages, are not such as to deter a man from seeking employment. It also assumes that the would-be wage-earner is fit and able to work."* The last two sentences make it quite clear that, according to Pigou, such causes of lost time as "strike or lockout," on the one hand, and "illness" and "accident," on the other, are not associated with the causes of unemployment.

Hence the only causes of not being at work on June 1, 1931 or of losing time during the census year that strictly connoted unemployment were "no job" and "temporary lay-off"; though even for the latter a small proportion of the cases was probably due to voluntary lay-off and thus would not fall within the definition of unemployment. (It might be noted that in the United States Unemployment Census of 1930 the number of persons reported as "having jobs but voluntarily idle, without pay" amounted to 84,595, while persons "having jobs but on lay-off without pay, excluding those sick and voluntarily idle" numbered 758,585. Judging from the United States' experience a little more than 10 p.c. of persons on lay-off at the census date were probably voluntarily so.)

However, the census survey, though intended primarily to be a census of unemployment, was really somewhat more comprehensive in scope. The aim was to comprehend all causes of lost time that reduce earning power. With this in view the revision of the unemployment section of the schedule involved a careful check of the consistency of time-loss reported in relation to earnings given and also in relation to the occupation, age and sex of the wage-earner. The earnings test, with due allowance for the influence of occupation, industry, locality, age and sex, was quite thoroughly applied in order to establish the validity of unemployment returns. Thus unemployment in the census has actually implied any loss of time among wage-earners involving a reduction in earnings.

* Pigou, A. C.: *The Theory of Unemployment*, Chap. I

A final word in regard to the census inquiry on "cause" of unemployment is necessary. The term "cause," as used in the census, was intended to denote the immediate reason for the wage-earner's idleness. It was not expected that the unemployment returns would always disclose the more important or the basic cause or causes of the worker's idleness. On this point Beveridge has expressed the following opinion: "It is manifest from the start, that any one unemployed individual may represent, and commonly does represent, the concurrence of many different forces, some industrial, some personal. A riverside labourer..... might be suffering at one and the same time from chronic irregularity of employment, from seasonal depression of his trade, from exceptional or cyclical depression of trade generally, from permanent shifting of work lower down the river, and from his own deficiencies of character or education. His distress could not be attributed to any one of these factors alone. Classification of men according to the causes of their unemployment is, strictly speaking, an impossibility. The only possible course is to classify the causes or types of unemployment themselves."* In subsequent chapters an examination of the census statistics on unemployment will be made with the object of measuring the influence of such causes as seasonal fluctuations in business activity, the trade cycle, and so on, upon the volume of unemployment in Canada.

Gainfully Occupied and Wage-Earner Defined.—It has been said that the census of unemployment covered only persons working for a wage or salary whether such a person be the general manager of a bank or a day labourer. In other words, it was confined to "wage-earners." The wage-earning class represented 2,570,097 persons in 1931, or about 24·80 p.c. of the total population and 65·44 p.c. of the population in gainful occupations. A "gainful occupation," according to the census, is an occupation by which a person earns money or money equivalent. Children working at home on general housework or chores were not considered as gainfully occupied. Similarly women doing housework in their own homes without wages, and having no other employment, were not included among the gainfully occupied. It should be added that the occupation inquiry applied only to persons 10 years of age and over.

The other classes, which together with the wage-earners, compose the gainfully occupied population are:—

(a) *"employers," i.e.*, those who employ others in the conduct of their business;

(b) *"own account"* consisting of persons pursuing their profession, trade or other occupation independently and who do not engage paid assistants; and

(c) *"unpaid family workers"* or persons employed without money payment on work which contributes to the family income.

The relative importance of the wage-earning class in the composition of the gainfully occupied varies considerably as between localities, industries, occupations, etc., and this phenomenon is important in any analysis of unemployment in which its incidence by locality, industry, occupation, etc., is examined. Hence, a separate chapter has been devoted to a general survey of the gainfully occupied by locality, industry, occupation, etc., in relation to industrial status, *i.e.*, in relation to the relative proportion of wage-earners, employers, own accounts and unpaid family workers, as a preliminary to the analysis of unemployment among the wage-earning element in the population in gainful occupations.

The unemployment census, therefore, did not include persons reporting such occupations as "farmer," "manufacturer," "dealer," "contractor," all of whom were employers or on own account. Secondly, it did not cover a large proportion of the persons engaged in such professional occupations as "lawyers," "doctors" and "dentists," as only a relatively small number in these professions were employees on salary. The great majority were reported as on their own account. Likewise, most of the gainfully occupied in such primary pursuits as hunting and fishing were on own account. Similarly, a substantial proportion of persons reporting themselves as "barbers," "blacksmiths," "tailors" and "shoe repairers," operating small shops, were returned as on own account. A smaller but nevertheless a significant percentage of males in the building trades were "own accounts." Thirdly, the unemployment census did not include unpaid "farm labourers" most of whom were farmers' sons, the "sales clerk" working without pay in his father's store, or the domestic receiving no wage but exchanging her services for board and room. Members

* Beveridge, W. H.: *Unemployment: A Problem of Industry*, p. 3. Longmans, Green & Co., Toronto, 1930.

of religious orders reporting an occupation but not in receipt of salary were likewise not included. (A complete list of the occupations which were excluded in whole or part from the census of unemployment, and the number of persons affected, will be found in Table 17, page 331.)

Procedure Governing Special Classes.—Certain decisions made during the revision of the schedules concerned classes of persons the unemployment census should or should not include.

In the first place, inmates of institutions at the date of the census were not counted as wage-earners even if returned as having some paid occupation therein.

Secondly, persons 70 years of age and over reported as wage-earners unemployed for the full twelve months prior to the census owing to illness or accident were treated as unemployable and were not included in the unemployment figures.

Women living at home reporting themselves as dressmakers, seamstresses, etc., and earning very small sums of money during the census year were not included where it appeared that the economic position of the family rendered it unnecessary for them to be continuously seeking employment.

In the case of young persons not attending school and for whom no occupation was reported, an attempt was made by means of an additional inquiry to the enumerator to ascertain whether such persons really had no gainful occupation, or whether they had been previously employed but were now remaining at home owing to there being little prospect of employment elsewhere. The result of this inquiry, especially as it affected boys 16 years and over, was to add to the number having an occupation and reporting "no job" at the date of the census. No doubt there was not the same economic necessity for many of these boys living at home to be continuously in search of employment as for unemployed heads of families, and as a consequence the period of unemployment they reported was probably longer than it might otherwise have been had they been wholly self-dependent. Incidentally, juveniles who appeared to have just left technical or commercial schools frequently reported occupations, as, for example, "automobile mechanic" or "stenographer," even though they may never have had a job, because they could state some definite occupation for which they had been prepared while at school. Those who reported no industry in which they might have been employed were not counted among the wage-earners.

Furthermore, in dealing with the counting of time lost as distinct from persons, short periods of time-loss (not more than 8 weeks) owing to illness or accident reported by salaried classes were disregarded as it was considered that such idleness would not involve any reduction in earnings. Similarly, where it was possible to determine that brief lay-offs for such classes represented holidays, and earnings appeared unaffected by such a lay-off, this time-loss was not counted.

It is not possible to say whether odd days of unemployment suffered by wage-earners working on a part-time basis were usually taken into account in reporting the total number of weeks of time-loss incurred during the period June 1, 1930 to June 1, 1931. Persistent part time, on account of its noticeable effect on earning capacity, was more likely to have been remembered. However that may be, there was no information on the schedules by which involuntary part-time employment could be distinguished for the purpose of applying rules of revision or coding procedure.

Problems of Interpretation.—Difficulties encountered in the attempt to interpret the unemployment statistics of the 1931 Census might be discussed in some detail here because they influence the conclusions reached in this study. They were largely the result of known but non-measurable inaccuracies in the census data. Some of them originated in faulty reporting or careless enumeration, others were due to errors that crept in as the raw material was put through revision, coding and punching stages preparatory to the compilation of the final tables. Many of these mechanical errors, and certainly any types that were sufficiently numerous to have some statistical significance, were removed during the process of tabulation. It was with the types of error inherent in the original material as it came in from the field that more difficulty was met. An effort was made to minimize the effect they might produce on the validity of the final figures. This was partially successful.

What types of error were found in the unemployment part of the schedules? There were inaccuracies in reporting the amount of unemployment, and additional ones in reporting its cause. Evidence of the former occurred where there was lack of consistency between occupation, amount of annual earnings and weeks of unemployment. Sometimes occupation or earnings

were at fault but inquiry frequently proved that the error was in the unemployment column of the schedule. The individual in reporting unemployment may have over-stated, more often than not, the total number of weeks lost during the census year, but this tendency to over-statement, if it did exist, was more than counterbalanced by under-enumeration of unemployment by the census taker. Where there was persistent neglect in enumerating unemployment, and these cases were not numerous, a lengthy inquiry was sent out to the enumerator for more complete information. Except in certain districts it is believed that original deficiencies in the census material in respect to the amount of unemployment recorded were largely accounted for during the revision of the population schedule. In boarding-house districts of larger cities, however, where the enumerator frequently secured the information from lodging-house keepers there was more evidence of incomplete and inconsistent enumeration than elsewhere. Wholly satisfactory revision of the schedules from such districts was impossible. Particularly was this true where language difficulty was encountered, in districts in which the foreign-born predominated.

It has been said that individuals may have over-stated more often than not the total number of weeks lost during the census year. It is not our purpose to examine this contention here though it might be noted in passing that it is questionable whether this was true for those who had experienced several brief periods of lay-off during the year. Recurrent short time would not be easy to remember *in toto*. However, we do know that in some rural areas weeks of unemployment were reported which should not have been accepted by the enumerator as time lost. This over-enumeration of lost time occurred chiefly in Northern Ontario and Quebec where it was customary for farmers' sons and other labourers on farms, who had earned stated sums of money at pulpwood cutting, road work, etc., during part of the year, to report as weeks unemployed the time spent on the home farm. In these alternative employments they had received fixed money payments and so probably concluded that the period of the year spent on the farm should, from the point of view of money earnings, be considered as lost time. For the same reason the time-loss shown for farm labourers is too high even in other provinces. Furthermore, in the case of those farmers' sons who were at home at the time of the census because of lack of employment in nearby cities, loss of time reported probably covered the whole period they had been home even though they were more or less fully employed on the farm.

It was apparent that many enumerators had not properly distinguished individual causes of unemployment. "Temporary lay-off" was often confused with "no job." What was seasonal unemployment in such industries as "mining," "clothing," etc., was probably as often reported "no job" as "temporary lay-off." On account of the depressed condition of business it is true that some who at first believed they were on lay-off may have subsequently learned that they had no job. Nevertheless, the inconsistency in enumeration for a specific industrial area, say, a mining district, in the distribution of unemployment between "no job" and "temporary lay-off" would suggest that some enumerators endeavoured far more than others to determine what unemployment was due to a temporary lay-off at the mine and what was actually caused by the worker losing his job.

It would also appear from comparison of 1931 results with 1921 figures that time-loss due to "illness" was not reported as such in 1931 in numerous cases where prolonged unemployment owing to "no job" had been incurred. Time-loss due to "illness" was absorbed in "no job" in these cases. In 1921 "illness" occupied a relatively more important place as a cause of lost time owing to the fact that the average period of unemployment was much shorter than in 1931. In 1921, 10 p.c. of all wage-earners and 30 p.c. of those losing time gave "illness" as the cause, as compared with 4 p.c. and 11 p.c. respectively in 1931.

It has been stated that incomplete enumeration of unemployment was pretty generally accounted for during the revision of the schedules. The same can not be said with regard to errors in the enumeration of causes of unemployment or lost time. In interpreting the census results allowance has to be made for inaccuracies of this kind.

Another type of error in the census statistics of unemployment, which it has not been possible to remove, concerns the relationship of time-loss to the occupation or industry of the wage-earner. At the census persons in gainful occupations were asked to report their usual occupation. Wage-earners unemployed at the date of the census returned either their usual occupation or the occupation and industry in which last regularly employed. They were not required to state how much of their time-loss during the preceding twelve months was due to loss of employment in other

occupation or occupations than that given the enumerator at the date of census. The same was true as regards industry. Hence, the amount of unemployment shown for certain occupations and, more particularly, for certain industries is not strictly accurate. The expression "more particularly" is used for it is generally true that a man is able to change his *place* of employment, *i.e.*, his industry, more readily than his trade or occupation.

As an example of this type of error in the unemployment figures one might refer to the time-loss appearing under "Municipal service" in the industry tables. It is rather high as compared, say, with "Federal and Provincial service"—total males in the former averaging 8·3 weeks of lost time as against 1·8 weeks in the latter. Putting it in another way 47,986 male wage-earners in "Municipal service" lost 396,459 weeks during the census year while 52,986 males in "Federal and Provincial service" lost only 96,438 weeks. This disproportionately heavy unemployment in municipal service is accounted for by the fact that men on city relief work were commonly enumerated as working for the "City." Hence the lost time they had contracted during the census year was classified under "Municipal service" in the census tables though it was caused by lack of employment in a number of other industries. Similarly, unemployment under "Construction" is perhaps too high as it includes the time-loss reported by wage-earners on public works projects undertaken as relief measures necessitated by lack of work in other industries.

To a much less degree than in the cases related, but nevertheless to an extent worth mentioning, total wage-earners and total unemployment for industries seasonally active at the date of the census are excessive to the degree that they include weeks of unemployment lost by wage-earners not usually connected with such industries. The opposite was true of industries whose slack season occurred at this time. This subject will be more fully dealt with in the chapter *Unemployment in Relation to the Industrial Structure.*

Owing to the fact that time-loss during the census year was linked to the industry or occupation reported to the enumerator at the date of the census, types, as well as amounts, of lost time were sometimes incorrectly associated with one industry or occupation rather than with another. This was obvious where such a cause of lost time as "strike or lockout," for example, was reported by wage-earners employed at the date of the census in industries or services not subject to a stoppage of this kind. This type of error was readily detected so it is not expected that interpretation will be rendered more difficult as a result of a few defects of this character in the unemployment statistics of the census.

Other imperfections in the census data on unemployment that must be taken into account in the analysis and interpretation of the figures mainly concern specific occupations and industries. These imperfections are the result of inexact descriptions of the occupation and, to a lesser degree, the industry of the wage-earner.

It should be recalled that the enumerators were dependent chiefly upon housewives for the descriptions of occupations of earning members of the family. Consequently vague and general answers to the census inquiry dealing with occupation and industry were sufficiently common to cause some inaccuracy in the figures for certain classes. For example, the number of "labourers" recorded at the census not including those in agriculture, mining, fishing and logging, was undoubtedly greater than would have been the case had a more exact enumeration of the occupations of wage-earners been obtained. Out of a total of 2,022,260 male wage-earners 422,284, or a little over one-fifth were reported as "labourers," and this figure does not include the number in primary industries. In Quebec and New Brunswick the percentage was even higher—24·63 and 34·33 respectively as compared with 20·88 p.c. for Canada. The higher percentage in these provinces was in no small measure due to the common occurrence of the vague occupational term *"ouvrier"* on the schedule from districts where the enumeration was in the French language.

Incidentally, a substantial proportion of the "labourers" were really casual labourers. Many of these when asked by the enumerator to give the industry in which they were employed at the date of the census, or, if unemployed, the industry in which usually employed, could name no definite industry. Entries such as "odd jobs," "general" and other vague returns were common enough in the industry column of the population schedule. Those who were thus enumerated were likely casual labourers in the majority of cases. Industrially they were assigned to the class "unspecified" in industry tables. Of the 165,172 males in this class probably 150,000 were fairly casual labourers. This accounts for the high percentage of unemployment in the industry class, "unspecified," as will be noted in the chapter dealing with the incidence of unemployment by industry.

From what has been said in regard to "labourers" it will be apparent that analysis of the incidence of unemployment by occupation or by industry can not disregard the factor of imperfect reporting of the occupation-industry inquiry on the part of wage-earner heads or members of their households. It is not intended in this Introduction to specify in detail the occupations or industries to which such cautions apply; these will be dealt with in the chapters devoted to the analysis of unemployment by (a) industry and (b) occupation. It is sufficient here to draw the reader's attention to a type of imperfection in the census data on unemployment that will present a problem of some proportions when a more elaborate interpretation of the census statistics is required.

Occupational *vs.* Industrial Classification of Wage-Earners.—In a number of summary tables appearing in subsequent chapters, wage-earners have been classified according to industrial and occupational groups. The terminology used to describe the groups or divisions into which industries or occupations have been arranged is much the same, though the meaning attached is somewhat different. The term "manufacturing," for example, will be found in both industry and occupation tables. Under this group in the industry tables are classified all persons employed by manufacturing firms whether engaged in the production, sale or transport of the product, bookkeeping, or other occupations associated with the industry. On the other hand, in the occupation tables only such persons as were following so-called "fabricating" occupations, *i.e.*, directly engaged in the process of manufacture or repair, are included under the group "manufacturing," and all persons in these occupations are thus grouped irrespective of whether they were employed in factories or in commercial service, etc., establishments.

It might be mentioned that persons in clerical occupations have been assigned a separate group in the occupation tables, while "labourers" in all but the primary industries have been brought together in a single group. No attempt has been made to classify the latter occupationally under group headings on account of the vagueness of the term as a description of the nature of the work performed, nor does the industry in which employed always indicate the type of work done. A labourer in a furniture factory, for example, may not be following a woodworking occupation nor a labourer employed by a steam railway, a transport occupation.

CHAPTER I

ACCURACY AND PERMANENT VALUES IN CENSUS DATA ON UNEMPLOYMENT

Introduction.—It is obvious that to arrive at any valid conclusions, we must first establish the fact that there are permanent values to be found in unemployment data, both current and periodical as obtained at the census. Without such permanent values current data are no more valuable than periodical. The popular conception that census data are out of date in a year or two, if sound, applies almost as well to monthly data, for the changes implied in such a conception take place every moment. The bug-bear *timeliness* must be removed if we are to obtain full results from statistics. That careful study and planning must be sacrificed to the popular demand for an early appearance of figures is one of the chief difficulties statistics has to face. Statistics should be independent of journalism except in so far as the latter's demand is for the day's contribution to knowledge.

PART A—RELIABILITY* OF CENSUS DATA

No progress can be made in investigating permanent relationships in the census data on unemployment until it is established that the data are reliable. The source of doubt is as follows: on June 1 of the census year, the person (if a wage-earner) is asked whether he was at work on June 1. He is also asked how many weeks he lost in the year up to that date. Now there can be no question that he (or his wife) is able, if willing, to tell the truth as to the June 1 status, but it has been doubted that he is able to remember the number of weeks he lost during the year. One point must immediately be conceded. The individual is not able (or is not willing) to state *exactly* the number of weeks lost. This is evident from the fact that his answer tends strongly to even numbers. However, the census is not concerned with individuals but with aggregates. If the information is required for any particular individual it is not difficult to obtain it from local records. The question of census reliability refers only to aggregates, while it is important to know also how small the aggregate may be and still be reliable. The immediate task, then, is to investigate these two questions.

***A Priori* Expectations of the Data of Idleness on June 1.**—First of all it is taken for granted that the answer to the question "Were you at work on June 1?" is reliable. There is no reason for a wrong answer except a deliberate falsehood or the carelessness of an enumerator. Next, the purpose of such a question is to obtain a cross-section of the year, *i.e.*, a sample. If June 1 were a perfectly representative sample of the year then the percentage idle on June 1 would be the average percentage idle during the year. Further, if we regarded the specific date June 1 as perfectly representative of the week around that date, then the percentage idle June 1, say, 18 p.c., would correspond to 18 p.c. of 52 weeks or an average 9·36 weeks idle during the year on the part of all wage-earners (*i.e.*, of those losing some and those losing no time). Now a number of wage-earners replied to the question "How many weeks did you lose during year?" "None." This must be interpreted as "no weeks" not "no time." That is, a day or two lost here and there would not, in all probability, be recorded in the person's mind. This gives us another figure, *viz.*, percentage (of the wage-earners) losing "some" time, so that we have three sets of data: (1) percentage (of the wage-earners) idle, (week of) June 1; (2) percentage losing any time (*i.e.*, any weeks) and (3) number of weeks lost by those losing time, from which we deduce the average number of weeks lost by all wage-earners as well as of those losing time. These sets of data are compiled by industries, occupations, ages, etc., each occupation, etc., being by provinces, cities, etc.

Now take the two sets—*idle on June 1* and *losing any time*; still suppose 18 p.c. to have been idle on June 1, *i.e.*, on a specific date, and suppose 50 p.c. of the wage-earners lost some time during the year. What are the probabilities that those who were idle at any time during the year were idle on June 1? If everybody lost some time during the year, then the probabilities that a certain individual percentage found idle at any time was the one found idle on June 1, would be 18/100; but since only 50 p.c. lost time the probability is larger, *viz.*, 18/50 since the 18 could only come out of the 50 idle. But the chance of a person being idle on a specific date depends upon the

* It must be definitely understood that "reliability" here refers only to the question of whether a person *can* report the weeks lost. It has nothing to do with possible inaccuracies to which unemployment data are subject in common with all other census data.

number of weeks he lost during the year. If the person losing time, lost, say 18·72 weeks in the year, then the chance that he was idle a specific week, say the week of June 1, would be 18·72/52. Consequently 18/50 should be equal to 18·72/52, *i.e., the percentage idle June 1; to the percentage losing any time should be the equivalent of the average number of weeks lost by those losing any time to 52 weeks, i.e.:—*

$$\frac{\text{p.c. idle June 1}}{\text{p.c. idle any time}} = \frac{\text{average weeks lost by idle}}{52}.$$

If this probability is tested with a large number of actual sets of data and found to hold, the reliability of the answer to the question "How many weeks lost?" is established; for this equation could not possibly be satisfied by a random answer as to weeks lost nor can we conceive any individual or enumerator using the equation to calculate his answer.

The equation as stated above could only be true if June 1 was a perfect sample of the year, *i.e.*, if the week of June 1 was a perfectly representative week, but we know it is not, for there are not only seasonal variations but also trends, *e.g.*, employment was decreasing and unemployment increasing throughout the year ended June 1, 1931. The trend was somewhat different in the year up to June 1, 1921. Consequently on June 1, 1931 unemployment would be expected to be greater than the average of the year while in 1921 it would be expected to be about the same as the year. So long, however, as the trend throughout the year was constant or *in so far* as it was constant the idleness of June 1 would be a fixed multiple (or fraction) of the idleness of the year—say B. We may call this B the constant *bias*. The equation now becomes:—

$$\frac{\frac{1}{B} \times \text{p.c. idle June 1}}{\text{p.c. idle any time}} = \frac{\text{average weeks lost by idle}}{52}.$$

If this equation is satisfied by the actual data under different conditions, then the reliability is established even more firmly than if the bias had not existed, for it would be very improbable indeed that the average person would make this calculation before answering the enumerator.

We do not expect *perfect* agreement between the two sides of the equation, for besides the constant bias we expect individual variations between occupations, etc., *e.g.*, in the case of some occupations, June 1 would be better than the average of the year; in others worse. Consequently we expect an error, but if this error is calculable, small, and found to be mainly due to idiosyncrasy in occupations, etc. (*i.e.*, if the occupations showing less unemployment during the year than that calculated by the equation are found to be those which are usually worse in June than at other times, while those showing more unemployment in the year than that calculated are found to be those usually better in June), then these errors instead of indicating unreliability in the data, establish the reliability still more strongly since the probability of a calculation by the enumerated or enumerator so nice as to bring out these points would be practically *nil*.

Let us now add another condition that must be satisfied to establish reliability. Persons change their occupations, industries, etc., during the year. Furthermore, current data on the employment in industries as reported by these industries month by month do not necessarily refer to the same persons as those reporting themselves belonging to that industry on a specified date like June 1 of the census year. Those reporting on this specified date give their history for the year, and when they state that the industry in which they are working is, say, the textile, they mean that this was their industry on that date. Certain persons who were reported by the industry on a certain other date may either be dead, in another industry or have left the country by June 1; while certain persons reporting on June 1 may have been in another industry, have since come into the country, been unemployed or not come of age for employment on the other specified date. Consequently perfect agreement can not be expected between the current reports and the census data and any seeming discrepancy does not reflect upon the reliability of either. *If, then, the more stable industries or occupations show better agreement than the less stable, the less seasonal than the more seasonal and so on, this goes further to establish reliability than if perfect accord were found in all cases.*

Tests of Reliability of Year's Statement of Idleness.—The task to be undertaken is to investigate whether the above conditions are fulfilled by the census data. The method that will be used is to attempt to calculate the weeks lost during the year from the data on June 1. If the calculation is satisfactorily close, the year's data will be considered reliable and June 1 will be considered a representative cross-section to the extent of the approximation. The nature of

the divergencies will be examined and if found to conform to certain conditions mentioned, *viz.*, the seasonal nature of the industry, occupation, etc., will be regarded as further evidence of reliability. Moreover three independent witnesses will be called in: (1) 1921 (census) data will be calculated by means of the formula derived on the basis of the 1931 data. If the divergence of the results from the reported year's data for 1921 turns out to be proportional to the bias between June 1, 1921 and the year 1921, and that between June 1, 1931 and the year 1931, this will be considered a very strong point in establishing reliability. (2) Monthly reports of firms will be taken to check the bias of the June 1 month as compared with the year. (3) The unemployment shown by the labour unions as reported currently in the *Labour Gazette* will also be used as a check.

Duration Calculated from June 1 Data.—At the outset it must be made clear that reliance is not to be placed on the existence of a correlation. A correlation between June 1 and the year's figure is almost inevitable for reasons which will presently be set forth. Reliance will be placed entirely upon the *closeness* of the calculation. If June 1 is found to be nearly as closely representative of the year as an actual random sample of 100 persons, or if the number of days' error in calculating the year's idleness from June 1 is not great enough to matter one way of the other, this will be regarded as establishing reliability, especially if the errors are distributed

I.—PERCENTAGES NOT AT WORK JUNE 1, 1931 CORRELATED WITH AVERAGE NUMBER OF WEEKS LOST BY ALL MALE WAGE-EARNERS DURING THE YEAR, BY INDUSTRY, OCCUPATION AND AGE GROUPS, CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1931

No.	Industry Group	P.C. Not at Work June 1, 1931	Average Weeks Lost during Year			Occupation Group	P.C. Not at Work June 1, 1931
			Actual	Calculated	Error		
	PRINCE EDWARD ISLAND						
1	Agriculture	3·01	1·89	2·49	−0·60	Agriculture	3·01
2	Forestry, fishing, and trapping	5·76	4·65	3·65	1·00	Fishing and logging	4·67
3	[1]					[1]	
4	Manufacturing	3·97	2·54	2·90	−0·36	Manufacturing	5·00
5	Electric light and power	4·55	3·07	3·14	−0·07	Clerical	4·47
6	Construction	13·53	9·75	6·91	2·84	Construction	14·55
7	Transportation	7·94	4·70	4·56	0·14	Transportation	9·85
8	Trade	4·33	2·31	3·05	−0·74	Commercial	3·19
9	Finance	3·91	0·85	2·87	−2·02	Finance	3·95
10	Service	4·73	2·28	3·22	−0·94	Service	5·53
11	Unspecified	22·75	14·11	10·79	3·32	Labourers	17·00
	NOVA SCOTIA						
1	Agriculture	10·20	5·46	5·51	−0·05	Agriculture	10·16
2	Forestry, fishing, and trapping	18·57	7·65	9·03	−1·38	Fishing and logging	18·11
3	Mining	36·41	19·80	16·52	3·28	Mining	38·79
4	Manufacturing	18·87	11·24	9·16	2·08	Manufacturing	17·53
5	Electric light and power	8·01	4·59	4·59	–	Clerical	8·05
6	Construction	28·79	14·44	13·32	1·12	Construction	25·24
7	Transportation	15·81	7·37	7·87	−0·50	Transportation	13·51
8	Trade	7·92	4·30	4·56	−0·26	Commercial	6·32
9	Finance	3·97	1·66	2·90	−1·24	Finance	3·01
10	Service	7·63	4·35	4·43	−0·08	Service	7·10
11	Unspecified	44·18	18·15	19·79	−1·64	Labourers	36·13
	NEW BRUNSWICK						
1	Agriculture	14·46	7·63	7·30	0·33	Agriculture	14·58
2	Forestry, fishing, and trapping	36·98	15·87	16·76	−0·89	Fishing and logging	37·20
3	Mining	16·60	12·31	8·20	4·11	Mining	17·20
4	Manufacturing	17·05	9·98	8·39	1·59	Manufacturing	14·60
5	Electric light and power	10·82	3·69	5·77	−2·08	Clerical	6·57
6	Construction	30·03	15·44	13·84	1·60	Construction	21·19
7	Transportation	13·65	6·42	6·96	−0·54	Transportation	11·20
8	Trade	7·38	4·05	4·33	−0·28	Commercial	5·16
9	Finance	2·45	1·17	2·26	−1·09	Finance	1·80
10	Service	7·18	4·20	4·25	−0·05	Service	8·85
11	Unspecified	48·46	19·89	21·58	−1·69	Labourers	39·75
	QUEBEC						
1	Agriculture	11·49	5·77	6·06	−0·29	Agriculture	11·21
2	Forestry, fishing, and trapping	39·89	13·61	17·98	−4·37	Fishing and logging	40·05
3	Mining	31·07	12·95	14·28	−1·33	Mining	33·13
4	Manufacturing	15·50	8·77	7·74	1·13	Manufacturing	16·21
5	Electric light and power	9·53	4·38	5·23	−0·85	Clerical	7·63
6	Construction	29·42	16·44	13·59	2·85	Construction	23·89
7	Transportation	12·84	7·21	6·62	0·59	Transportation	12·10
8	Trade	10·31	5·49	5·56	−0·07	Commercial	8·63
9	Finance	5·50	2·53	3·54	−1·01	Finance	4·24
10	Service	10·58	5·96	5·67	0·29	Service	8·72
11	Unspecified	47·85	21·06	21·33	−0·27	Labourers	34·40

[1] No mining in Prince Edward Island.

according to the conditions set forth above. We ought to be able to ascertain not only whether the year's figures are at all reliable, but also *how reliable* they are. Going back to the equation:—

$$\frac{\frac{1}{B} \times \text{p.c. idle June 1}}{\text{p.c. idle any time}} = \frac{\text{average weeks lost by idle}}{52}.$$

The reciprocal of B is used because it is desired to express the bias in terms of June 1, instead of the year. This decribes the first *a priori* condition that must be satisfied. Now multiplying across we have: $\frac{52}{B} \times$ p.c. idle June 1 = p.c. idle any time $\times$ average weeks lost by idle.

But the right side of this equation is the average number of weeks idle for *all* the wage-earners. Let $\frac{52}{B} = K$, p.c. idle June 1 $= x$ and average weeks idle for all wage-earners $= y$; then $y = Kx$.

Let us then assume a linear equation $y = A + Kx$ and fit this by least squares to the data of the Census of 1931. Three sets of data were taken, *viz.*, 98 industry groups, 98 occupation groups and 99 age groups. The percentage idle June 1, and weeks idle for all wage-earners in these groups with the description of the groups are shown in Statement I.

I.—PERCENTAGES NOT AT WORK JUNE 1, 1931 CORRELATED WITH AVERAGE NUMBER OF WEEKS LOST BY ALL MALE WAGE-EARNERS DURING THE YEAR, BY INDUSTRY, OCCUPATION AND AGE GROUPS, CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1931

Average Weeks Lost during Year			Age Group	P.C. Not at Work June 1, 1931	Average Weeks Lost during Year					No.
Actual	Calculated	Error			Actual (10 years and over)	Calculated (10 years and over)	Error (10 years and over)	Calculated (16 years and over)	Error (16 years and over)	
PRINCE EDWARD ISLAND										
1·91	2·19	−0·28	10–13	–	1·65	2·85	−1·20	–	–	1
3·78	2·92	0·86	14–15	4·17	4·01	4·39	−0·38	–	–	2
			16–17	8·76	6·59	6·09	0·50	4·55	2·04	3
3·66	3·07	0·59	18–19	8·54	5·35	6·01	−0·66	4·45	0·90	4
1·89	2·84	−0·95	20–24	7·74	5·01	5·71	−0·70	4·07	0·94	5
10·65	7·27	3·38	25–34	6·56	4·23	5·28	−1·05	3·50	0·73	6
3·86	5·20	−1·34	35–44	5·50	3·51	4·89	−1·38	2·99	0·52	7
1·72	2·27	−0·55	45–54	6·42	4·55	5·23	−0·68	3·43	1·12	8
1·37	2·61	−1·24	55–64	10·55	5·95	6·75	−0·80	5·41	0·54	9
2·07	3·30	−1·23	65–69	11·89	6·49	7·25	−0·76	6·06	0·43	10
11·07	8·35	2·72	70 and over	21·51	11·30	10·81	0·49	10·67	0·63	11
NOVA SCOTIA										
5·52	5·34	0·18	10–13	9·52	11·83	6·37	5·46	–	–	1
7·59	8·84	−1·25	14–15	14·89	9·12	8·36	0·76	–	–	2
20·86	17·94	2·92	16–17	22·97	13·04	11·35	1·69	11·38	1·66	3
10·14	8·58	1·56	18–19	25·33	13·22	12·22	1·00	12·51	0·71	4
3·58	4·41	−0·83	20–24	24·92	12·51	12·07	0·44	12·31	0·20	5
13·17	11·98	1·19	25–34	22·46	11·08	11·16	−0·08	11·13	−0·05	6
6·74	6·81	−0·07	35–44	19·64	10·07	10·12	−0·05	9·78	0·29	7
3·27	3·65	−0·38	45–54	20·48	10·62	10·43	0·19	10·18	0·44	8
2·02	2·19	−0·17	55–64	23·16	11·50	11·42	0·08	11·47	0·03	9
3·39	3·99	−0·60	65–69	26·96	12·83	12·83	–	13·29	−0·46	10
16·73	16·77	−0·04	70 and over	27·89	12·00	13·17	−1·17	13·74	−1·74	11
NEW BRUNSWICK										
7·69	7·29	0·40	10–13	25·93	17·93	12·44	5·49	–	–	1
15·96	17·24	−1·28	14–15	25·27	13·68	12·20	1·48	–	–	2
12·59	8·44	4·15	16–17	30·32	15·18	14·07	1·11	14·90	0·28	3
7·76	7·29	0·47	18–19	30·25	14·31	14·04	0·27	14·87	−0·56	4
3·43	3·76	−0·43	20–24	27·88	13·07	13·17	−0·10	13·73	−0·66	5
11·49	10·19	1·30	25–34	21·92	10·35	10·96	−0·61	10·87	−0·52	6
5·51	5·80	−0·29	35–44	17·47	8·29	9·31	−1·02	8·74	−0·45	7
2·97	3·14	−0·17	45–54	18·68	8·95	9·76	−0·81	9·32	−0·37	8
1·17	1·66	−0·49	55–64	23·30	10·87	11·47	−0·60	11·53	−0·66	9
4·01	4·76	−0·75	65–69	28·20	13·43	13·28	0·15	13·89	−0·46	10
17·87	18·36	−0·49	70 and over	29·98	14·62	13·94	0·68	14·74	−0·12	11
QUEBEC										
5·84	5·80	0·04	10–13	7·26	6·04	5·54	0·50	–	–	1
13·83	18·49	−4·66	14–15	14·96	9·56	8·39	1·17	–	–	2
14·18	15·45	−0·27	16–17	20·68	11·26	10·50	0·76	10·28	0·98	3
8·84	8·00	0·84	18–19	23·93	12·15	11·70	0·45	11·84	0·31	4
3·39	4·23	−0·84	20–24	22·51	11·21	11·18	0·03	11·15	0·06	5
13·41	11·38	2·03	25–34	18·86	9·49	9·83	−0·34	9·40	0·09	6
6·97	6·19	0·78	35–44	16·42	8·55	8·93	−0·38	8·23	0·32	7
4·41	4·67	−0·26	45–54	18·00	9·35	9·51	−0·16	8·99	0·36	8
2·23	2·74	−0·51	55–64	20·99	10·80	10·62	0·18	10·43	0·37	9
4·32	4·71	−0·39	65–69	24·36	12·18	11·86	0·32	12·04	0·14	10
17·40	16·01	1·39	70 and over	24·49	11·74	11·91	−0·17	12·11	−0·37	11

I.—PERCENTAGES NOT AT WORK JUNE 1, 1931 CORRELATED WITH AVERAGE NUMBER OF WEEKS LOST BY ALL MALE WAGE-EARNERS DURING THE YEAR, BY INDUSTRY, OCCUPATION AND AGE GROUPS, CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1931—Con.

No.	Industry Group	P.C. Not at Work June 1, 1931	Average Weeks Lost during Year			Occupation Group	P.C. Not at Work June 1, 1931
			Actual	Calculated	Error		
	ONTARIO						
1	Agriculture	9·63	5·94	5·27	0·67	Agriculture	9·58
2	Forestry, fishing, and trapping	33·57	16·92	15·33	1·59	Fishing and logging	34·24
3	Mining	15·34	9·39	7·67	1·72	Mining	16·70
4	Manufacturing	18·61	10·90	9·05	1·85	Manufacturing	18·57
5	Electric light and power	8·69	4·73	4·88	−0·15	Clerical	8·45
6	Construction	35·34	19·19	16·07	3·12	Construction	29·69
7	Transportation	12·74	7·48	6·58	0·90	Transportation	11·50
8	Trade	10·68	5·81	5·72	0·09	Commercial	8·56
9	Finance	6·16	3·04	3·82	−0·78	Finance	4·90
10	Service	9·37	5·45	5·17	0·28	Service	7·91
11	Unspecified	56·91	25·27	25·13	0·14	Labourers	37·20
	MANITOBA						
1	Agriculture	22·46	9·97	10·66	−0·69	Agriculture	22·35
2	Forestry, fishing, and trapping	42·26	15·14	18·98	−3·84	Fishing and logging	41·72
3	Mining	23·86	14·27	11·25	3·02	Mining	28·06
4	Manufacturing	17·50	9·05	8·58	0·47	Manufacturing	19·40
5	Electric light and power	13·13	7·01	6·74	0·27	Clerical	11·00
6	Construction	41·51	23·09	18·66	4·43	Construction	36·17
7	Transportation	18·06	8·96	8·82	0·14	Transportation	16·41
8	Trade	14·59	6·72	7·36	−0·64	Commercial	12·25
9	Finance	6·73	2·95	4·06	−1·11	Finance	4·35
10	Service	13·07	6·76	6·72	0·04	Service	11·15
11	Unspecified	67·50	28·12	29·58	−1·46	Labourers	47·58
	SASKATCHEWAN						
1	Agriculture	20·98	9·96	10·04	−0·08	Agriculture	20·96
2	Forestry, fishing, and trapping	22·67	8·37	10·75	−2·38	Fishing and logging	21·90
3	Mining	38·73	16·39	17·50	−1·11	Mining	46·80
4	Manufacturing	18·27	8·16	8·90	−0·74	Manufacturing	21·90
5	Electric light and power	16·69	6·44	8·24	−1·80	Clerical	9·85
6	Construction	37·00	19·96	16·77	3·19	Construction	44·02
7	Transportation	15·74	7·73	7·84	−0·11	Transportation	15·12
8	Trade	13·94	5·60	7·08	−1·48	Commercial	11·35
9	Finance	6·03	2·39	3·76	−1·37	Finance	4·74
10	Service	11·12	5·25	5·90	−0·65	Service	8·43
11	Unspecified	66·44	25·83	29·13	−3·30	Labourers	46·39
	ALBERTA						
1	Agriculture	19·56	10·71	9·45	1·26	Agriculture	19·43
2	Forestry, fishing, and trapping	41·10	14·83	18·49	−3·66	Fishing and logging	34·86
3	Mining	52·34	19·81	23·21	−3·40	Mining	57·38
4	Manufacturing	16·78	8·55	8·28	0·27	Manufacturing	21·64
5	Electric light and power	14·31	5·67	7·24	−1·57	Clerical	11·16
6	Construction	40·47	20·06	18·23	1·83	Construction	39·37
7	Transportation	16·44	8·15	8·13	0·02	Transportation	15·55
8	Trade	13·61	5·75	6·95	−1·20	Commercial	10·46
9	Finance	8·21	3·26	4·68	−1·42	Finance	6·34
10	Service	11·39	6·37	6·01	0·36	Service	10·13
11	Unspecified	64·16	26·59	28·18	−1·59	Labourers	43·48
	BRITISH COLUMBIA						
1	Agriculture	23·15	13·52	10·95	2·57	Agriculture	22·52
2	Forestry, fishing, and trapping	42·70	22·59	19·16	3·43	Fishing and logging	44·77
3	Mining	35·67	17·23	16·21	1·02	Mining	39·83
4	Manufacturing	21·97	11·66	10·46	1·20	Manufacturing	22·74
5	Electric light and power	14·63	6·44	7·37	−0·93	Clerical	11·96
6	Construction	42·11	21·11	18·92	2·19	Construction	37·19
7	Transportation	20·21	9·92	9·72	0·20	Transportation	18·29
8	Trade	13·91	6·62	7·07	−0·45	Commercial	11·18
9	Finance	9·50	4·16	5·22	−1·06	Finance	6·75
10	Service	13·46	7·06	6·88	0·18	Service	13·56
11	Unspecified	63·82	27·91	28·03	−0·12	Labourers	44·13

NOTE:—

$\bar{y} = 10{\cdot}10$ $\quad \bar{x} = 21{\cdot}11$

$\sigma_y^2 = 45{\cdot}94$ $\quad \sigma_x^2 = 248{\cdot}38$

$\sigma_y = 6{\cdot}77$ $\quad \sigma_x = 15{\cdot}75$

$\overline{xy} = 103{\cdot}51$

$r = {\cdot}97$

$y = 0{\cdot}42\,x + 1{\cdot}23$

$S = 1{\cdot}65$

$\bar{y} = 9{\cdot}24$ $\quad \bar{x} = 19{\cdot}03$

$\sigma_y^2 = 37{\cdot}91$ $\quad \sigma_x^2 = 184{\cdot}20$

$\sigma_y = 6{\cdot}16$ $\quad \sigma_x = 13{\cdot}57$

$\overline{xy} = 80{\cdot}76$

$r = {\cdot}97$

$y = 0{\cdot}44\,x + 0{\cdot}87$

$S = 1{\cdot}52$

I.—PERCENTAGES NOT AT WORK JUNE 1, 1931 CORRELATED WITH AVERAGE NUMBER OF WEEKS LOST BY ALL MALE WAGE-EARNERS DURING THE YEAR, BY INDUSTRY, OCCUPATION AND AGE GROUPS, CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1931—Con.

Average Weeks Lost during Year			Age Group	P.C. Not at Work June 1, 1931	Average Weeks Lost during Year					No.
Actual	Calculated	Error			Actual (10 years and over)	Calculated (10 years and over)	Error (10 years and over)	Calculated (16 years and over)	Error (16 years and over)	
ONTARIO										
6·07	5·09	0·98	10–13	4·65	3·31	4·57	−1·26	–	–	1
17·28	15·94	1·34	14–15	12·32	8·08	7·41	0·67	–	–	2
10·14	8·22	1·92	16–17	17·34	10·75	9·27	1·48	8·67	2·08	3
10·75	9·04	1·71	18–19	20·29	11·43	10·36	1·07	10·09	1·34	4
4·12	4·59	−0·47	20–24	20·29	11·06	10·36	0·70	10·09	0·97	5
16·06	13·93	2·13	25–34	18·64	10·26	9·75	0·51	9·30	0·96	6
6·91	5·93	0·98	35–44	16·40	9·17	8·92	0·25	8·22	0·95	7
4·58	4·64	−0·06	45–54	18·03	9·76	9·52	0·24	9·00	0·76	8
2·81	3·03	−0·22	55–64	20·69	10·81	10·51	0·30	10·28	0·53	9
4·29	4·35	−0·06	65–69	24·97	12·44	12·09	0·35	12·34	0·10	10
19·23	17·24	1·99	70 and over	23·77	11·77	11·64	0·13	11·76	0·01	11
MANITOBA										
10·01	10·70	−0·69	10–13	–	4·45	2·85	1·60	–	–	1
14·53	19·23	−4·70	14–15	16·41	9·19	8·92	0·27	–	–	2
16·73	13·22	3·51	16–17	22·23	12·16	11·08	1·08	11·02	1·14	3
9·68	9·41	0·27	18–19	24·95	12·30	12·08	0·22	12·33	−0·03	4
4·64	5·71	−1·07	20–24	26·02	12·23	12·48	−0·25	12·84	−0·61	5
18·06	16·78	1·28	25–34	27·00	12·81	12·84	−0·03	13·31	−0·50	6
8·41	8·09	0·32	35–44	21·08	10·26	10·65	−0·39	10·47	−0·21	7
5·39	6·26	−1·19	45–54	20·70	10·03	10·51	−0·48	10·29	−0·26	8
2·28	2·78	−0·50	55–64	25·36	11·91	12·23	−0·32	12·52	−0·61	9
5·44	5·78	−0·34	65–69	29·06	13·89	13·60	0·29	14·30	−0·41	10
22·75	21·81	0·94	70 and over	27·87	11·77	13·16	−1·39	13·73	−1·96	11
SASKATCHEWAN										
9·97	10·09	−0·12	10–13	11·11	3·33	6·96	−3·63	–	–	1
7·62	10·51	−2·89	14–15	20·52	10·09	10·44	−0·35	–	–	2
18·68	21·46	−2·78	16–17	23·45	11·77	11·53	0·24	11·61	0·16	3
9·82	10·51	−0·69	18–19	23·43	11·32	11·52	−0·20	11·60	−0·28	4
3·87	5·20	−1·33	20–24	22·59	10·37	11·21	−0·84	11·19	−0·82	5
19·92	20·24	−0·32	25–34	22·89	10·70	11·32	−0·62	11·34	−0·64	6
7·71	7·52	0·19	35–44	20·69	9·19	10·51	−1·32	10·28	−1·09	7
4·17	5·86	−1·69	45–54	20·91	9·13	10·59	−1·46	10·39	−1·26	8
2·32	2·96	−0·64	55–64	24·40	10·93	11·88	0·95	12·06	−1·13	9
3·95	4·58	−0·63	65–69	29·01	13·04	13·58	−0·54	14·27	−1·23	10
20·73	21·28	−0·55	70 and over	25·62	11·04	12·33	−1·29	12·65	−1·61	11
ALBERTA										
10·71	9·42	1·29	10–13	20·00	8·00	10·25	−2·25	–	–	1
14·20	16·21	−2·01	14–15	14·45	8·41	8·20	0·21	–	–	2
21·73	26·12	−4·39	16–17	21·87	11·77	10·94	0·83	10·85	0·92	3
9·84	10·39	−0·55	18–19	23·30	11·51	11·47	0·04	11·53	−0·02	4
4·41	5·78	−1·37	20–24	23·17	11·09	11·42	−0·33	11·47	−0·38	5
18·28	18·19	0·09	25–34	25·53	12·04	12·30	−0·26	12·60	−0·56	6
7·68	7·71	−0·03	35–44	23·44	10·69	11·52	−0·83	11·60	−0·91	7
4·41	5·47	−1·06	45–54	22·59	10·26	11·21	−0·95	11·19	−0·93	8
2·84	3·66	−0·82	55–64	24·98	11·40	12·09	−0·69	12·34	−0·94	9
5·22	5·33	−0·11	65–69	29·94	13·20	13·93	−0·73	14·72	−1·52	10
20·43	20·00	0·43	70 and over	26·39	12·00	12·61	−0·61	13·02	−1·02	11
BRITISH COLUMBIA										
13·32	10·78	2·54	10–13	34·62	6·54	15·66	−9·12	–	–	1
22·92	20·57	2·35	14–15	14·01	9·82	8·03	1·79	–	–	2
19·03	18·40	0·63	16–17	22·59	12·65	11·21	1·44	11·19	1·46	3
11·66	10·88	0·78	18–19	27·69	13·94	13·10	0·84	13·64	0·30	4
5·39	6·13	−0·74	20–24	27·52	13·89	13·03	0·86	13·56	0·33	5
18·01	17·23	0·78	25–34	25·61	13·21	12·33	0·88	12·64	0·57	6
9·17	8·92	0·25	35–44	24·84	12·43	12·04	0·39	12·27	0·16	7
5·24	5·79	−0·50	45–54	28·13	13·76	13·26	0·50	13·85	−0·09	8
3·46	3·84	−0·38	55–64	33·37	16·16	15·20	0·96	16·37	−0·21	9
6·86	6·84	0·02	65–69	40·69	19·15	17·91	1·24	19·88	−0·73	10
21·53	20·29	1·24	70 and over	38·88	18·77	17·24	1·53	19·01	−0·24	11

$\bar{y}=10·62$ $\bar{x}=20·99$
$\sigma_y^2=10·46$ $\sigma_x^2=58·90$
$\sigma_y=3·23$ $\sigma_x=7·67$
$\overline{xy}=21·92$
$r=·88$
$y=0·37\,x+2·85$
$S=1·50$

Omitting 10–15 years

$\bar{y}=11·18$ $\bar{x}=22·56$
$\sigma_y^2=7·86$ $\sigma_x^2=40·79$
$\sigma_y=2·80$ $\sigma_x=6·39$
$\overline{xy}=17·19$
$r=·96$
$y=0·48\,x+0·35$
$S=0·78$

As shown in the notes at the foot of Statement I, the coefficient of correlation in the industry and occupation groups is ·97 and in age groups (omitting 10–15 years) is ·96. This alone is so high that it is not likely that we are deceived by certain features which so often trick the investigator of data of this kind. However, no point is made on the score of this coefficient of correlation. What will be shown now is the closeness of the fit of the average number of weeks idle, as calculated on the basis of the fitting, to the actual number of weeks reported to the enumerator, also the *nature of the discrepancies in this fit.*

Remembering the *a priori* equations laid down, *viz.*, $y = A + Kx$ where y = average number of weeks idle for all wage-earners; x = p.c. idle June 1, and $K = \frac{52}{B}$; B being the bias of June 1 over the average of the year, the following equations were obtained:—

(1) For industries, $y = \cdot 42\,x + 1 \cdot 23$; standard error of fit = 1·65 wks.; $\sigma_y = 6 \cdot 77$ wks.;
(2) For occupations, $y = \cdot 44\,x + 0 \cdot 87$; standard error of fit = 1·52 wks.; $\sigma_y = 6 \cdot 16$ wks.;
(3) For age,* $y = \cdot 48\,x + 0 \cdot 35$; standard error of fit = 0·78 wks.; $\sigma_y = 2 \cdot 80$ wks.

The standard error shows the closeness of the fit. The fact that it is closer for the age groups than for either of the others is obviously due to the smaller standard deviation of the age groups, *i.e.*, there is not the same individuality differentiating the idleness of persons of different ages running through all occupations and industries that there is differentiating industries and occupations. The idleness of a group of persons at a certain age could be predicted much more closely than that of a similar-sized group in a given industry or occupation. However, the application of this point will be postponed.

Bias of June 1 over Year.—Examining first the bias of June 1 over the year,

in (1) $\frac{52}{B} = \cdot 42$, so that B = 1·24;

in (2) $\frac{52}{B} = \cdot 44$, so that B = 1·18;

in (3) $\frac{52}{B} = \cdot 48$, so that B = 1·08.

That is, the bias of June 1 varied very slightly in the case of the three sets and a slight difference was to be expected; moreover, a part of this difference is due to the incompleteness of the investigation. There is possibly still a trend hidden in the arbitrary constants 1·23, 0·87 and 0·35.

Index of Employment in Firms.—At this point independent evidence will be invoked. Was June 1 worse than the average of the year? We can not, from this outside evidence, measure exactly how much worse, because as already explained, monthly records from the reports of firms do not deal with the same persons or categories as the census on June 1. It is enough to establish the fact that there was a bias. Taking the Dominion Bureau of Statistics' monthly index of employment in firms, we have the following (base 1926):—

	Index		Index
June, 1930	118·9	January, 1931	100·7
July	118·8	February	100·2
August	116·6	March	99·7
September	116·2	April	102·2
October	112·9	May	103·6
November	108·5	Average for year (unweighted)	108·3
December	101·7		

Thus the employment of the year was $\frac{108.3}{103.6}$ or 1·05 times as good as the employment of June 1 (May 31, 1931 being taken as the equivalent of June 1). Naturally it would follow that the unemployment on June 1 was worse than that of the year.

* Ages 10-15 are omitted.

Since the number unemployed is much smaller than the number employed, naturally the 1·05 for employment would mean a much larger figure for unemployment. Clearly the bias deduced by the equation is confirmed by the index of employment in firms.

Unemployment in Labour Unions.—Now the figures of unemployment in labour unions will be considered. Taking the figures as they are, we have:—

	P.C. Unemployed Reporting Members		P.C. Unemployed Reporting Members
June, 1930	10·6	January, 1931	16·0
July	9·2	February	15·6
August	9·3	March	15·5
September	9·4	April	14·9
October	10·8	May	16·2
November	13·8		
December	17·0	Average for year	11·9

The bias of June over the average of the year was $\frac{16.2}{11.9}$ or 1·36—very nearly that shown by the equation. There seems to be little doubt that one of the *a priori* conditions laid down is satisfied.

Discrepancies Accounted for by Individuality of Various Groups.—The next condition is that the calculation be so close that the discrepancies between the calculated and the actual prove small enough to be easily accounted for by individuality in the occupations, seasonal features, etc. The closeness of the calculation is seen in Statement I under the headings "calculated weeks" and "error." The table reveals the particular occupations, industries and ages that show wide discrepancies. It is noticeable that for the calculation in the case of occupations, 68 p.c. is expected to be less than 1·52 weeks, or say 9·12 days out; in the case of the industries 1·65 weeks or 9·90 days and in the case of the ages 0·78 or 4·68 days out. The fact that the calculation by ages shows the closest approximation of the three sets is quite reasonable. It is entirely due to a smaller spread or variability in unemployment as between ages than as between, say, occupations (since the coefficient of correlation is the same in all three cases). Ages are crossed with both occupations and industries as well as other conditions. It is a clear indication that the nature of the occupation differentiates the chances of employment more than the individuality of the person, and this point is perhaps important.

To show how far the calculation satisfies the conditions laid down, Statement II below gives in day intervals (1 week being taken as equivalent to 6 days) the probabilities of accurately predicting the time idle during the year from the percentage idle on June 1. The first column shows this probability on the basis of the standard error of fit; the third column shows the actual proportion of the 98 occupation groups in each interval. The two probabilities should coincide but a perfect coincidence was not to be expected in as small a number of cases as 98. Clearly the correlation would have been higher than ·97 if it had not been for four extreme cases which appear on the last row of intervals. The predictability of the time lost during the year is really greater than that shown by the coefficient ·97 but it did not seen right to omit these four cases, *viz.*, mining, New Brunswick (+ 4·15 weeks); forestry, fishing, and trapping, Quebec (−4·66); forestry, fishing, and trapping, Manitoba (−4·70) and mining, Alberta (−4·39). The plus sign indicates under-calculation and the minus sign over-calculation. The last three show that unemployment conditions on June 1 were much better (not only absolutely but also as compared with other occupations) than the average for the year, while mining in New Brunswick was much worse. The last columns of the table show the number of persons affected (the original calculation was based upon the number of occupation groups affected). The fit to theory is much closer in this case. These columns show that the size of the group can have had no effect upon the closeness of the prediction. However, the "average size of the group" is hardly a test of this point since these averages are all large.

II.—OCCUPATION GROUPS: FIT OF THE CALCULATION OF THE AVERAGE WEEKS LOST BY ALL MALE WAGE-EARNERS ON THE BASIS OF JUNE 1, TO THE REPORTED WEEKS LOST, CANADA, 1931

Probability on Basis of Standard Error of Fit	Not More than "z" Days Out[1]	Accumulated Number of Groups	Probability on Basis of Actual Groups	Number of Wage-Earners Represented by Each Interval	Average Wage-Earners per Group	Accumulated Number of Wage-Earners	Probability on Basis of Wage-Earners	Average Size of Accumulated Groups
·0876	1	12	·1224	301,450	25,121	301,450	·1498	25,121
·1742	2	23	·2347	157,299	14,300	458,749	·2280	19,946
·2586	3	36	·3673	197,331	15,179	656,080	·3260	18,224
·3400	4	45	·4592	66,865	7,420	722,945	·3593	16,065
·4176	5	54	·5510	150,878	16,764	873,823	·4342	16,182
·4908	6	61	·6224	322,386	46,055	1,196,209	·5944	19,610
·5588	7	63	·6429	20,284	10,142	1,216,493	·6045	19,309
·6212	8	74	·7551	115,901	10,536	1,332,394	·6621	18,005
·6778	9	78	·7959	149,359	37,340	1,481,753	·7363	18,997
·7286	10	79	·8061	10,369	10,369	1,492,122	·7415	18,888
·7738	11	81	·8265	174,786	87,393	1,666,908	·8283	20,579
·8132	12	83	·8469	156,663	78,332	1,823,571	·9062	21,971
·8472	13	86	·8776	114,908	38,303	1,938,479	·9633	22,540
·8764	14	86	·8776	–	–	1,938,479	·9633	22,540
·8990	15	87	·8878	15,116	15,116	1,953,595	·9708	22,455
·9198	16	88	·8980	12,951	12,951	1,966,546	·9772	22,347
·9372	17	90	·9184	2,527	1,264	1,969,073	·9785	21,879
·9512	18	92	·9388	15,250	7,625	1,984,323	·9861	21,569
·9624	19	92	·9388	–	–	1,984,323	·9861	21,569
·9714	20	92	·9388	–	–	1,984,323	·9861	21,569
·9786	21	93	·9490	639	639	1,984,962	·9864	21,344
·9840	22	94	·9592	1,240	1,240	1,986,202	·9870	21,130
·9882	23	94	·9592	–	–	1,986,202	·9870	21,130
1·0000	Total	98	1·0000	26,129	6,532	2,012,331	1·0000	20,534

[1] *e.g.*, ·0876 of the total are not more than 1 "days out" and so on.

As a matter of interest, Statement III makes the same analysis as Statement II, using age groups instead of occupation groups. As already mentioned the prediction in the case of age groups is much closer. This does not seem to serve any practical purpose except perhaps as indicating that for a random group of individuals from all occupations, the June 1 data are apt to be more representative of the year than for occupations or industry groups, and this, if true, is very important knowledge. This has no bearing upon the reliability of the census year's data. It merely means that there is less variability between random groups of individuals than between occupation or industry groups. For example if we take ages 35-64 in the nine provinces, our errors of calculation are:—

Prince Edward Island	0·73 weeks	Manitoba	−0·36 weeks
Nova Scotia	0·25 "	Saskatchewan	−1·16 "
New Brunswick	−0·49 "	Alberta	−0·93 "
Quebec	0·35 "	British Columbia	−0·05 "
Ontario	0·75 "		

The root of the mean square error is 0·66 weeks or 3·96 days, *i.e.*, 68 p.c. of the cases of weeks idle during the year could be calculated from June 1 to within 3·96 days which, of course, is unnecessarily close.

III.—AGE GROUPS: FIT OF THE CALCULATION OF THE AVERAGE WEEKS LOST BY MALE WAGE-EARNERS 16 YEARS OF AGE AND OVER ON THE BASIS OF JUNE 1, TO THE REPORTED WEEKS LOST, CANADA, 1931

Probability on Basis of Standard Error of Fit	Not More than "z" Days Out	Accumulated Number of Groups	Probability on Basis of Actual Groups	Number of Wage-Earners Represented by Each Interval	Average Wage-Earners per Group	Accumulated Number of Wage-Earners	Probability on Basis of Wage-Earners	Average Size of Accumulated Groups
·1664	1	13	·1605	411,565	31,659	411,565	·2048	31,659
·3328	2	25	·3086	293,675	24,473	705,240	·3509	28,210
·4778	3	37	·4568	216,397	18,033	921,637	·4586	24,909
·6046	4	50	·6173	247,985	19,076	1,169,622	·5820	23,392
·7154	5	55	·6790	156,595	31,319	1,326,217	·6599	24,113
·7994	6	65	·8025	554,748	55,475	1,880,965	·9360	28,938
·8664	7	70	·8642	36,806	7,361	1,917,771	·9543	27,397
·9128	8	72	·8889	18,074	9,037	1,935,845	·9633	26,887
·9452	9	74	·9136	43,168	21,584	1,979,013	·9847	26,743
·9676	10	77	·9506	5,292	1,764	1,984,305	·9874	25,770
·9812	11	78	·9630	1,764	1,764	1,986,069	·9883	25,462
·9896	12	79	·9753	1,073	1,073	1,987,142	·9888	25,154
1·0000	Total	81	1·0000	22,540	11,270	2,009,682	1·0000	24,811

To make still more certain, another set of figures was tested, *viz.*, the number not at work on June 1 and the average weeks idle during the year in 534 different urban localities, *i.e.*, all incorporated places over 1,000. The material for this was compiled by hand count and is available only for male wage-earners 20 years and over. The test, in addition to the increased reliability from using a large number of groups (534 instead of 98), enables us to examine the situation from the point of view of locality.

Statement IV shows in the form of a correlation table the distribution of weeks idle during the year according to the percentage idle June 1.

IV.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF 532[1] URBAN CENTRES, ACCORDING TO INTERVALS OF PERCENTAGE OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931 IN RELATION TO AVERAGE WEEKS LOST DURING YEAR ENDED JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																							Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1........		2	2	1																																				5
2........		2	5	1	1		1																																	10
3........		1	2	7	2	5		1	1																															19
4........	1	2	1	2	2	5	2	2				1																												18
5........		1	3	5	6	7	5	1	1		1																													30
6........			3	5	6	7	7	2	4	3	1	1	1					1																						41
7........					4	5	10	3	4	5	3		2	3	1		1																							41
8........			2	2	6	3	5	11	7	6	3		3	1	1						1																			51
9........					3	6	10	3	9	4	3	5	3	1		1	1																							49
10........		1	2	4	1	4	5	4	6	1	6	4	5	3						1																				47
11........					1	4	3	4	5	6	7	4	1	8	2		2	1	1	1	1			1																52
12........				1			1	1	1		1	7	4	4	4	1	2	1	1																					29
13........			1			2	1	4	3	2	2	4	2	4	3	3	2	1	3		3																			40
14........				1								2	2	2	2	3	1	2	1	1	1			1																19
15........							1		1	2		2	1	1	3	4		2	1	1	2																			21
16........				1			1			1	1			1	1	1	1			3				2			1													14
17........			1									1		1				1		2	1	1			1	1						1								11
18........									2	1				1		1								1	1	1									1					9
19........							1	1		1					1		1															1								6
20........						1			1						1		1					2	1						1										1	9
21........																1																	1			1				3
22........																1											1													2
23........													1																											1
24........																													1											1
25........				1															1																					2
26........																										1														1
27........																																								
28........																																								
29........																																								
30........																															1									1
Total....	1	9	22	31	32	49	53	37	45	32	28	31	25	30	19	16	12	9	8	9	9	3	1	5	2	3	2		2		1	2	1		1	1			1	532

[1] 2 urban centres, with average weeks lost less than 1, are omitted.

It remains to examine the third condition, *viz.*, that the occupations or industries which show the widest divergencies between the calculated and the actual weeks lost show these divergencies for good reasons, *e.g.*, being more seasonal than the others. The industries with divergencies exceeding the standard error were as follows:—

Over-estimated industry (A)		Under-estimated industry (B)	
Finance	P.E.I.	Construction	P.E.I.
Electric light and power	N.B.	General labour	P.E.I.
General labour	N.B.	Mining	N.S.
Forestry	Que.	Manufacturing	N.S.
Forestry	Man.	Mining	N.B.
Forestry	Sask.	Construction	Que.
Electric light and power	Sask.	Mining	Ont.
General labour	Sask.	Manufacturing	Ont.
Forestry	Alta.	Construction	Ont.
Mining	Alta.	Mining	Man.
		Construction	Man.
		Construction	Sask.
		Construction	Alta.
		Agriculture	B.C.
		Forestry, fishing, and trapping	B.C.
		Construction	B.C.

Prediction Applied to 1921.—A still further test is to see if the figures of another census year bear out the testimony of those of 1931. The same facts for June 1 and the year were obtained in 1921 as in 1931. Instead of testing the 1921 figures exactly as above, it was decided to subject them to a more rigid test. The relationship between June 1 and the year in 1931 (as already seen) in the case of the occupation groups (1921 was compiled by occupation rather than by industry groups) was: $y = 0{\cdot}44\,x + 0{\cdot}87$ where y = average weeks lost by all wage-earners and x = the percentage of wage-earners idle June 1. Now if this equation were applied to the June figures of 1921 to calculate the average weeks idle of that year, the relationship of the resulting number of weeks idle to the actual number of weeks idle (in 1921) should be proportional to the bias of June in 1931 to that in 1921. The results are to be seen in Statement V. These results were then correlated with the actual average weeks idle in 1921 giving the following equation:—

$$y_{1921} = 0{\cdot}90\,y_{\text{calc.}} + 0{\cdot}09.$$

This means that a calculation of 1921 on the basis of the 1931 relationship was $\frac{1{\cdot}00}{0{\cdot}90}$ or 11 p.c. too high. Now is this borne out by extraneous testimony?

Taking the *Labour Gazette* figures for the year up to June 1, ~~1931~~ 1921 (since each month's figures are as on the last day of the month, the May figure is taken here as representative of June 1) we have:—

	P.C. Unemployed Reporting Members		P.C. Unemployed Reporting Members
June, 1920	2·5	January, 1921	13·1
July	2·6	February	16·1
August	3·2	March	16·5
September	3·3	April	16·3
October	6·0	May	15·5
November	10·0		
December	13·4	Average for year	9·9

$$\text{Bias of June 1} = \frac{15{\cdot}5}{9{\cdot}9} = 1{\cdot}57.$$

Bias of June 1, 1931 over year 1931 (as already seen) = 1·36.

$\text{Bias} \frac{\text{June 1, 1921}}{\text{June 1, 1931}} = 1{\cdot}15$. This is so near to the bias indicated by the 0·90 of the equation, *viz.*, 1·11 that there can be no doubt that the condition is satisfied. As already mentioned this was a very rigid test so that the results must be regarded as eminently satisfactory.

Another source of verification is the index numbers of employment as collected by the Dominion Bureau of Statistics. Of course, since these figures are for *employment* instead of *unemployment*, the process of measuring the bias of June over the year will have to be reversed. The comparative indices of the years 1921 and 1931 were as follows:—

1st of month	1920–21	1930–31
July	109·1	118·9
August	109·7	118·8
September	108·8	116·6
October	108·6	116·2
November	107·1	112·9
December	101·5	108·5
January	88·8	101·7
February	91·2	100·7
March	89·1	100·2
April	85·1	99·7
May	85·1	102·2
June	87·7	103·6
Total	1,171·8	1,300·0
Average	97·65	108·3
Bias of June 1	1·113	1·045

$$\text{Bias } \frac{\text{June 1, 1921}}{\text{June 1, 1931}} = \frac{1{\cdot}113}{1{\cdot}045} = 1{\cdot}07.$$

This bias corresponds to that obtained from the labour union figures (1·15) and also to that obtained from the equation (1·11), *i.e.*, two outside sources and two sets of census figures give the same story. This would seem to demonstrate the accuracy of the data. Incidentally we have thus discovered some great possibilities from these current data on labour union and employment indices.

V.—AVERAGE NUMBER OF WEEKS LOST BY MALE WAGE-EARNERS, BY OCCUPATION GROUP, CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1921 CALCULATED FROM EQUATION BASED UPON 1931 DATA

Province and Occupation Group	(1) Average Number of Weeks Lost during Year, 1921 Calculated from 1931 Equation	(2) Actual Average Number of Weeks Lost during Year, 1921	(3) Weeks Lost 1921[1] Calculated from Correlation of Col. 1 and Col. 2	(4) Error
Prince Edward Island—				
Agriculture	1·96	2·37	1·85	0·52
Fishing and logging	6·02	4·28	5·51	−1·23
Manufacturing	4·05	3·59	3·74	−0·15
Construction	5·96	6·20	5·45	0·75
Transportation	4·14	3·37	3·82	−0·45
Commercial	2·49	1·24	2·33	−1·09
Finance	1·53	0·69	1·47	−0·78
Service	2·72	1·92	2·54	−0·62
Clerical	1·90	1·68	1·80	−0·12
Labourers	6·13	5·88	5·61	0·27
Nova Scotia—				
Agriculture	3·31	2·75	3·07	−0·32
Fishing and logging	8·14	6·32	7·42	−1·10
Mining	7·41	6·46	6·76	−0·30
Manufacturing	8·54	6·69	7·78	−1·09
Construction	9·45	8·74	8·60	0·14
Transportation	6·69	4·86	6·11	−1·25
Commercial	3·66	2·63	3·38	−0·75
Finance	1·64	0·84	1·57	−0·73
Service	4·39	3·12	4·04	−0·92
Clerical	3·67	2·20	3·39	−1·19
Labourers	11·62	8·94	10·55	−1·61
New Brunswick—				
Agriculture	3·59	2·82	3·32	−0·50
Fishing and logging	11·96	6·84	10·85	−4·01
Mining	11·10	11·47	10·08	1·39
Manufacturing	6·32	5·15	5·78	−0·63
Construction	7·89	7·38	7·19	0·19
Transportation	6·28	4·71	5·74	−1·03
Commercial	3·25	2·20	3·02	−0·82
Finance	2·15	1·50	2·03	−0·53
Service	4·32	2·99	3·98	−0·99
Clerical	3·25	2·12	3·02	−0·90
Labourers	12·38	8·55	11·23	−2·68

V.—AVERAGE NUMBER OF WEEKS LOST BY MALE WAGE-EARNERS, BY OCCUPATION GROUP CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1921 CALCULATED FROM EQUATION BASED UPON 1931 DATA—Con.

Province and Occupation Group	(1) Average Number of Weeks Lost during Year, 1921 Calculated from 1931 Equation	(2) Actual Average Number of Weeks Lost during Year, 1921	(3) Weeks Lost 1921[1] Calculated from Correlation of Col. 1 and Col. 2	(4) Error
Quebec—				
Agriculture	2·42	2·21	2·27	−0·06
Fishing and logging	6·00	4·07	5·49	−1·42
Mining	6·08	4·91	5·56	−0·65
Manufacturing	5·66	5·83	5·18	0·65
Construction	6·08	7·46	5·56	1·90
Transportation	4·67	4·65	4·29	0·36
Commercial	2·79	2·34	2·60	−0·26
Finance	2·06	1·22	1·94	−0·72
Service	2·85	2·14	2·66	−0·52
Clerical	2·86	2·08	2·66	−0·58
Labourers	7·35	7·30	6·71	0·59
Ontario—				
Agriculture	2·97	3·17	2·76	0·41
Fishing and logging	6·59	6·32	6·02	0·30
Mining	6·17	5·27	5·64	−0·37
Manufacturing	6·96	6·20	6·35	−0·15
Construction	8·10	8·80	7·38	1·42
Transportation	4·43	4·60	4·08	0·52
Commercial	3·40	2·78	3·15	−0·37
Finance	2·24	1·69	2·11	−0·42
Service	3·69	3·24	3·41	−0·17
Clerical	3·24	2·59	3·01	−0·42
Labourers	8·68	8·57	7·90	0·67
Manitoba—				
Agriculture	3·35	3·78	3·11	0·67
Fishing and logging	8·60	6·71	7·83	−1·12
Mining	10·44	7·71	9·49	−1·78
Manufacturing	5·64	5·57	5·17	0·40
Construction	7·74	9·92	7·06	2·86
Transportation	5·06	4·30	4·64	−0·34
Commercial	3·46	2·86	3·20	−0·34
Finance	2·02	1·62	1·91	−0·29
Service	3·95	3·46	3·65	−0·19
Clerical	2·96	2·32	2·75	−0·43
Labourers	8·72	8·56	7·94	0·62
Saskatchewan—				
Agriculture	2·16	3·37	2·03	1·34
Fishing and logging	3·23	4·05	3·00	1·05
Mining	4·27	4·63	3·93	0·70
Manufacturing	3·84	4·03	3·55	0·48
Construction	6·34	8·25	5·80	2·45
Transportation	3·90	3·52	3·60	−0·08
Commercial	2·05	1·70	1·94	−0·24
Finance	1·18	0·67	1·15	−0·48
Service	1·96	2·16	1·85	0·31
Clerical	2·09	1·50	1·97	−0·47
Labourers	5·35	6·69	4·91	1·78
Alberta—				
Agriculture	3·12	4·82	2·90	1·92
Fishing and logging	6·06	5·59	5·54	0·05
Mining	14·10	10·99	12·78	−1·79
Manufacturing	5·16	5·40	4·73	0·67
Construction	9·11	9·54	8·29	1·25
Transportation	4·11	4·17	3·79	0·38
Commercial	2·82	2·40	2·63	−0·23
Finance	2·09	1·14	1·97	−0·83
Service	3·95	3·62	3·65	−0·03
Clerical	2·82	2·02	2·63	−0·61
Labourers	8·00	8·37	7·29	1·08
British Columbia—				
Agriculture	6·18	6·94	5·65	1·29
Fishing and logging	6·12	12·49	5·60	6·89
Mining	7·71	9·72	7·03	2·69
Manufacturing	8·11	8·02	7·39	0·63
Construction	12·25	12·92	11·12	1·80
Transportation	7·34	6·90	6·70	0·20
Commercial	3·75	4·16	3·47	0·69
Finance	4·31	2·44	3·97	−1·53
Service	6·48	5·24	5·92	−0·68
Clerical	5·27	3·97	4·83	−0·86
Labourers	10·08	10·63	9·16	1·47

[1] Calculation referred to in Column 3—

$\bar{y} = 4{\cdot}87$ $\quad \overline{xy} = 7{\cdot}31$

$\bar{x} = 5{\cdot}31$ $\quad r_{xy} = 0{\cdot}89$

$\sigma_y = 2{\cdot}87$ $\quad y = 0{\cdot}90x + 0{\cdot}09$

$\sigma_x = 2{\cdot}85$ $\quad S = 1{\cdot}31$

Behaviour of Duration Data.—There is still one condition to be satisfied. One is always afraid, in calculations of this kind, that something is assumed which causes figures to work in the way one wants them to work. It is true that the testimony of independent evidence such as the index numbers of employment in firms reporting monthly and the labour union figures obviates this danger to a large extent, but there is still an element of distrust which arises from the very nature of data.

If June 1 had happened to be a perfectly definite fraction of the number idle at any time during the year, and this fraction perfectly representative of the time lost during the year, it would mean that everybody who lost time, must have lost the same number of weeks. We know it is not a constant, but it seems that the closer the approximation to perfection in the correlation the closer the approach to constancy. Does this mean that we have the high correlations shown because everybody reporting weeks idle tends to say the same thing? That is, is there a tendency for the person's answer to the question to depend upon psychology or chance so that the answers tend to a general average, varying from the average in a symmetrical manner? The only way to settle this point is to examine what the person actually says. The census compilations give the number of weeks lost reported by each person in the following manner: "number losing 1 week, 2 weeks, etc." Now do all persons tend to answer in such a manner that the general average is independent of the occupation, industry, etc., of the person, or are the answers governed strongly by external rather than internal conditions? It is necessary, therefore, to describe the manner in which the person enumerated answers the question "number of weeks lost during the year." First let us examine males and females in 1921 (Canada as a whole).

VI.—PERCENTAGES OF THOSE LOSING TIME AND PERCENTAGES OF THOSE LOSING TIME DIVIDED BY LENGTH OF INTERVAL, BY WEEK INTERVALS AND SEX, CANADA, YEAR ENDED JUNE 1, 1921

Interval of Duration of Idleness	Males		Females	
	P.C. of Those Losing Time	P.C. Losing Time Divided by Length of Interval	P.C. of Those Losing Time	P.C. Losing Time Divided by Length of Interval
1– 4 weeks	19·77	4·94	23·56	5·89
5– 8 "	17·79	4·45	19·18	4·80
9–13 "	18·51	3·70	16·98	3·40
14–17 "	10·75	2·69	8·01	2·00
18–26 "	20·61	2·29	16·26	1·81
27 " and over	12·57	0·48	16·02	0·62

Obviously, in the case of both males and females in 1921 the tendency was a very definite decrease from interval to interval. There is a trifling tendency for the interval 18-26 weeks to fall out of line and be over-represented, and this is possibly psychological. Indeed it is probably largely due to the fact that there are five even numbers in this interval (of 9 weeks) while there are only two in the other intervals (of 4 or 5 weeks). Furthermore it contains the half-year durations. There is a remarkable symmetry in the decrease from interval to interval. The only way in which the behaviour of these duration periods can be understood is by showing them in their various relations to another feature, with which, as will presently appear, it has a close connection, *viz.*, the percentage losing any time. In the following statement the figures for the different provinces, separately for males and females (as there seems to be some difference in behaviour between the sexes) are shown in ascending order of the percentages losing time. The duration of time lost by those losing time is shown by averages of intervals, since the intervals are of unequal length. It is questionable whether the interval "27 weeks and over" should be regarded as 26 weeks, but this can not be helped.

VII.—PERCENTAGES LOSING TIME AND PERCENTAGE DISTRIBUTION BY WEEK INTERVALS OF THOSE LOSING TIME (PERCENTAGE IN EACH INTERVAL DIVIDED BY LENGTH OF INTERVAL), BY SEX, CANADA AND PROVINCES (ARRANGED IN ASCENDING ORDER OF PERCENTAGES LOSING TIME), YEAR ENDED JUNE 1, 1921

Province	P.C. Losing Any Time	P.C. of Those Losing Time Divided by Length of Interval					
		1-4 Weeks	5-8 Weeks	9-13 Weeks	14-17 Weeks	18-26 Weeks	27 Weeks and over
MALES							
Prince Edward Island	23·13	4·01	4·82	3·98	2·81	2·46	0·44
Saskatchewan	23·90	4·62	4·17	3·80	3·22	2·47	0·41
Manitoba	32·09	4·17	4·04	4·26	2·64	2·48	0·50
Alberta	34·15	3·73	3·89	4·00	3·13	2·63	0·52
Quebec	35·34	5·45	4·83	3·57	2·52	2·20	0·43
Canada	*37·50*	*4·94*	*4·45*	*3·70*	*2·69*	*2·29*	*0·48*
Ontario	39·75	5·67	4·67	3·62	2·56	2·07	0·45
New Brunswick	40·62	4·77	4·73	4·05	2·67	2·31	0·40
Nova Scotia	41·01	4·34	4·46	4·27	2·73	2·37	0·43
British Columbia	44·94	2·68	3·26	3·35	3·16	2·94	0·79
FEMALES							
Prince Edward Island	16·34	4·90	5·70	3·01	1·93	1·61	0·79
Saskatchewan	18·89	5·01	4·47	3·33	2·06	1·83	0·80
Nova Scotia	19·08	4·95	4·75	3·40	1·93	1·82	0·77
Alberta	19·96	4·82	4·29	3·31	2·11	1·91	0·82
New Brunswick	23·09	5·70	4·44	3·81	2·09	1·67	0·66
Manitoba	23·72	5·52	4·24	3·33	1·96	1·95	0·73
Canada	*24·39*	*5·89*	*4·80*	*3·40*	*2·00*	*1·81*	*0·62*
Quebec	24·39	5·55	5·17	3·45	2·16	1·91	0·54
British Columbia	25·96	4·17	3·51	2·91	2·08	2·33	0·98
Ontario	26·48	6·66	4·89	3·41	1·89	1·65	0·55

The important feature of the above statement is that there is no apparent connection between the manner in which the reported weeks idle decreases from interval to interval and the percentage losing any time. The arrangement is based upon the *total* wage-earners in the different provinces and while the provinces have somewhat different industrial or occupational structures, this difference in structure is not very definite. The differentiation in the statement is not much more than a differentiation between random aggregates of individuals, *i.e.*, the differential in percentage idle any time is due to many other causes as well as to industrial or occupational structure. On the other hand, when we make a similar arrangement of percentages idle but using occupational aggregates instead of provincial, we have a very different story. From the 1921 figures, 100 occupations were thus listed and arranged in ascending order of the percentages idle at any time, and the duration of idleness in intervals of 1-4 weeks, etc., was shown for each of them as above. It is not necessary here to show the results for the whole 100. Instead, certain representative groups will be taken from the figures for Canada as a whole instead of the various provinces.

VIII.—PERCENTAGES LOSING TIME AND PERCENTAGE DISTRIBUTION BY WEEK INTERVALS OF THOSE LOSING TIME (PERCENTAGE IN EACH INTERVAL DIVIDED BY LENGTH OF INTERVAL) IN CERTAIN OCCUPATIONS (ARRANGED IN ASCENDING ORDER OF PERCENTAGES LOSING TIME), CANADA, YEAR ENDED JUNE 1, 1921

Occupation	P.C. Losing Any Time	P.C. of Those Losing Time Divided by Length of Interval					
		1-4 Weeks	5-9 Weeks	10-13 Weeks	14-17 Weeks	18-26 Weeks	27 Weeks and over
Salesmen	21·5	7·01	3·72	3·55	2·02	1·78	0·52
Manufacturers—milk and cream products	28·3	5·06	4·78	4·62	3·36	2·15	0·36
Locomotive engineers	31·0	7·75	5·00	3·92	2·20	1·33	0·27
Linemen	31·5	6·51	3·64	3·04	2·52	2·42	0·44
Teamsters	38·2	5·71	3·92	4·02	2·51	2·16	0·45
Harness makers	38·5	5·76	4·58	3·90	2·61	2·00	0·56
Stonecutters	55·5	3·65	3·80	5·93	2·40	2·65	0·48
Roofers and slaters	60·6	3·18	5·49	4·18	2·68	2·80	0·42

There is no doubt whatever that the behaviour in this case is connected with the percentage losing any time. The two where more than 50 p.c. lost some time have the first interval smaller than the second and third. The behaviour will be further manifested in the following statement which first shows the duration periods of the different industrial groups in Canada in 1921 according to the percentage losing any time. In the second part of the statement the duration periods

are divided by the length of the duration interval (since the intervals are of unequal length) and arranged in ascending order of the percentages idle any time. These are then re-arranged into three groups, *viz.*, (1) finance, clerical, commercial and service with 18·92 p.c. idle any time; (2) agriculture, transportation and manufacturing with 36·11 p.c. idle any time; (3) fishing, unspecified labourers, mining and building with 54·09 p.c. idle any time. These last three groups are then charted.

The chart shows that in the case of the first group (with 18·92 p.c. idle any time) the first interval (1-4 weeks) is much the largest, the succeeding intervals decreasing rapidly. In the case of the second group (with 36·11 p.c. idle) the first interval is smaller than in the case of the first group while the decrease from interval to interval is less rapid. In the case of the third group (where the number idle is more than half the wage-earners) the first interval is smaller than the second. Now if we went on increasing the percentage idle any time and charted each group, we would find the first interval becoming relatively smaller and the succeeding intervals larger until we came to such occupations as "longshoremen," where about three-quarters of the workers were idle at some period. In this case the largest group would not be the first or second but the middle group.

IXa.—PERCENTAGES LOSING TIME AND PERCENTAGE DISTRIBUTION BY WEEK INTERVALS OF THOSE LOSING TIME, BY OCCUPATION GROUP, CANADA, YEAR ENDED JUNE 1, 1921

Occupation Group	P.C. Losing Any Time	P.C. of Those Losing Time Losing					
		1-4 Weeks	5-8 Weeks	9-13 Weeks	14-17 Weeks	18-26 Weeks	27 Weeks and over
Agriculture	24·00	19·58	17·31	19·40	11·85	20·63	11·22
Fishing and logging	51·07	15·47	18·59	18·68	14·01	22·73	10·53
Mining	56·37	18·93	19·59	22·77	10·56	17·93	10·22
Manufacturing	45·12	22·64	19·60	18·66	9·98	17·85	11·28
Building	56·41	14·93	16·56	19·45	12·35	23·98	12·73
Transportation	34·49	23·30	18·03	17·78	10·26	19·57	11·06
Commercial	19·51	27·76	17·39	16·04	8·25	17·07	13·50
Finance	10·44	28·30	15·46	16·15	8·43	15·75	15·92
Service	21·02	20·49	17·02	17·32	9·72	19·30	16·12
Clerical	17·99	28·05	17·80	15·74	8·45	16·67	13·33
Labourers	53·27	16·31	16·80	18·42	11·06	23·22	14·19

IXb.—PERCENTAGES LOSING TIME AND PERCENTAGE DISTRIBUTION BY WEEK INTERVALS OF THOSE LOSING TIME (PERCENTAGE IN EACH INTERVAL DIVIDED BY LENGTH OF INTERVAL), BY OCCUPATION GROUP (ARRANGED IN ASCENDING ORDER OF PERCENTAGES LOSING TIME), CANADA, YEAR ENDED JUNE 1, 1921

Occupation Group	P.C. Losing Any Time	P.C. of Those Losing Time Divided by Length of Interval					
		1-4 Weeks	5-8 Weeks	9-13 Weeks	14-17 Weeks	18-26 Weeks	27 Weeks and over
Finance	10·44	7·08	3·87	3·23	2·11	1·75	0·61
Clerical	17·99	7·01	4·45	3·15	2·11	1·85	0·51
Commercial	19·51	6·94	4·35	3·21	2·06	1·90	0·52
Service	21·02	5·12	4·26	3·46	2·43	2·14	0·62
Agriculture	24·00	4·90	4·33	3·88	2·96	2·29	0·43
Transportation	34·49	5·83	4·51	3·56	2·57	2·17	0·43
Manufacturing	45·12	5·66	4·90	3·73	2·50	1·98	0·43
Fishing and logging	51·07	3·87	4·65	3·74	3·50	2·53	0·41
Labourers	53·27	4·08	4·20	3·68	2·77	2·58	0·55
Mining	56·37	4·73	4·90	4·55	2·64	1·99	0·39
Building	56·41	3·73	4·14	3·89	3·09	2·66	0·49

IXc.—PERCENTAGES LOSING TIME AND PERCENTAGE DISTRIBUTION BY WEEK INTERVALS OF THOSE LOSING TIME (PERCENTAGE IN EACH INTERVAL DIVIDED BY LENGTH OF INTERVAL) IN THREE OCCUPATION GROUPS, CANADA, YEAR ENDED JUNE 1, 1921

Occupation Group	P.C. Losing Any Time	P.C. of Those Losing Time Divided by Length of Interval					
		1-4 Weeks	5-8 Weeks	9-13 Weeks	14-17 Weeks	18-26 Weeks	27 Weeks and over
Finance, Clerical, Commercial and Service	18·92	6·45	4·35	3·26	2·19	1·94	0·55
Agriculture, Transportation and Manufacturing	36·11	5·56	4·55	3·71	2·60	2·09	0·43
Fishing and logging, Labourers, Mining and Building	54·09	4·04	4·29	3·82	2·90	2·54	0·51

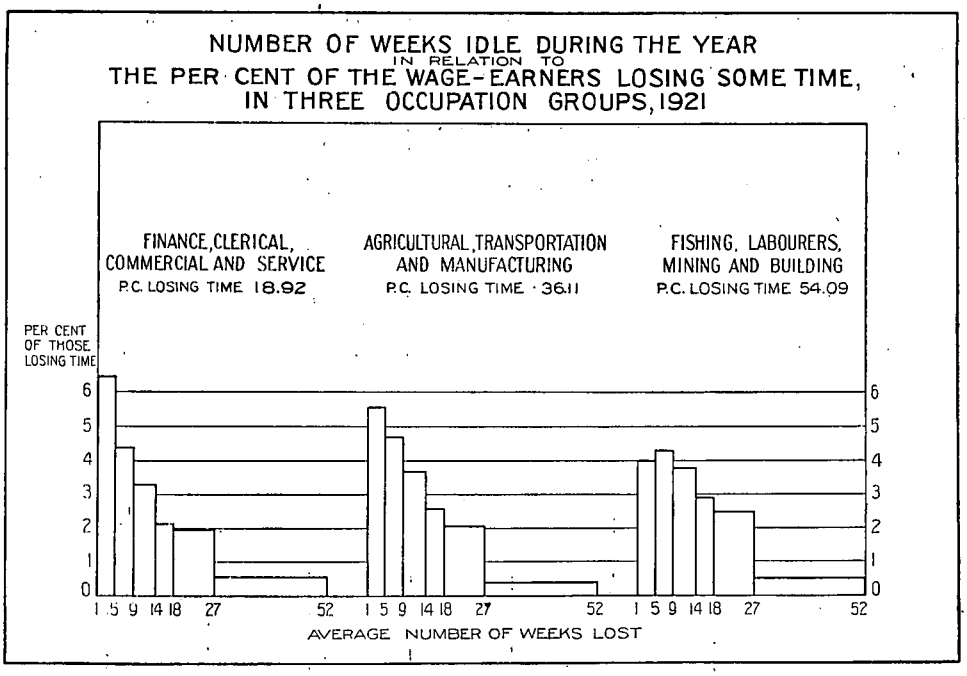

Chart 1

The method adopted with the 100 occupation groups already referred to was to take the averages of the duration frequency of the groups having the same percentages idle at some time and arrange the data in the order of size of these averages. When this was done there was no difficulty in seeing the behaviour of the frequencies. The smaller percentages idle for some time had larger percentages idle shorter periods; while the largest percentages idle had smaller percentages idle shorter periods. In fact, the periods idle clearly depended upon the percentage who lost any time. The interpretation of this dependence would seem to be a matter of importance, but as it is not immediately relevant to the present issue it will be postponed. The point that is pertinent at the moment is the fact that this dependence exists, and particularly that it exists when the data are arranged by occupation (or industrial) groups but not when arranged by random groups of individuals. In other words, *the number of weeks idle reported by the person to the enumerator is governed by his occupation, i.e., by a cause that is external to the person.* The nature of the dependence can best be understood by going back to the figures for all Canada. The following statement will make clear how the person answered the enumerator.

X.—NUMBER OF MALE WAGE-EARNERS LOSING TIME AND NUMBER AS PERCENTAGE OF (a) TOTAL LOSING TIME AND (b) TOTAL WAGE-EARNERS, BY DURATION INTERVAL, CANADA, YEAR ENDED JUNE 1, 1921

Interval of Duration of Idleness	Male Wage-Earners Losing Time		
	No. (1)	As P.C. of Total Losing Any Time (2)	As P.C. of Total Wage-Earners (3)
1- 4 weeks	114,612	19·77	7·41
5- 8 "	103,113	17·79	6·67
9-13 "	107,273	18·51	6·94
14-17 "	62,308	10·75	4·03
18-26 "	119,482	20·61	7·73
27 " and over	72,867	12·57	4·71
Total idle any time	579,655	100·00	37·49
Total wage-earners	1,545,894	–	100·00

If we now take the last column, *i.e.*, the percentages as based upon the total number of wage-earners (instead of upon the total losing any time), and express the frequency of persons by week intervals as decimals instead of percentages we have Column 1 of Statement XI. Since the

person was asked how many weeks he lost during a limited period (52 weeks) it might be assumed that nobody lost more than 52 weeks; but this is not certain and it is better not to regard the total duration as being absolutely limited by the period 52 weeks.

XI.—PROBABILITIES OF BEING IDLE CERTAIN NUMBERS OF WEEKS AND DURATION OF IDLENESS EXPECTED FROM NORMAL FREQUENCY WHERE THE MEAN IS THE CENTRE OF ALL WAGE-EARNERS, CANADA, YEAR ENDED JUNE 1, 1921

Duration of Idleness	(1) Probability[1]	(2) Number of Standard Deviations[2] from Centre of Wage-Earning Total	(3) Expected Duration (fit from line $y=19{\cdot}4z - 5{\cdot}07$)
Less than 1 week	0·6251	0·319	Less than 1·12 weeks
" " 5 weeks	0·6992	0·522	" " 5·06 "
" " 9 "	0·7659	0·725	" " 9·00 "
" " 14 "	0·8353	0·975	" " 13·85 "
" " 18 "	0·8756	1·154	" " 17·32 "
" " 27 "	0·9529	1·674	" " 27·41 "
" " 52 "	1·0000		

[1] This probability is obviously derived from Statement X thus: losing no time or less than 1 week: 62·5 p.c. or 0·6251; losing less than 5 weeks: (62·51 + 7·41=69·92) 0·6992, etc.

[2] Reading from a table of normal frequencies 0·6251−0·5000=0·1251 represents 0·319 standard deviations from centre and so on, *i.e.* 12½ p.c. of the cases are included in 0·362 standard deviations from centre.

The comparison is between the actual and expected duration of idleness. The line of best fit through column 2 calculates the number of weeks that corresponds to a given number of standard deviations, the purpose of the calculation being to obtain the number of weeks represented by one standard deviation.

Now the best average number of weeks in a standard deviation would seem to be the best fit of the line of the first column through the third column, *i.e.*, the best fit for the line $y = a + bx$ where y equals number of weeks and x the number of standard deviations. The constants so obtained are $y = -5{\cdot}07 + 19{\cdot}4\,x$. The fit is close enough to show that the number of weeks reported as lost has some connection with the standard deviation from the centre of the wage-earning group which, as already seen, is an occupation group, not a group of individuals. One standard deviation is equivalent to 19·4 weeks in the case of all the male wage-earners in Canada. If this is so, there is an attraction *towards a centre but this centre is not the centre that would be caused by a casual reply of the person, but rather the centre of gravity of his occupation.*

Going back now to the issue raised, the question was whether there was any danger that the correlation between the percentage idle on June 1 and the average number of weeks idle during the year was due to the tendency of all persons to say the same thing, or rather to reply with a random answer which would naturally have a central tendency. This question arose because of the fact that a perfect correlation between the factors which were found actually to have a high correlation would mean a constant number of weeks idle reported by all alike. The differentiation in the number of weeks reported by the various persons was what caused the defect from perfect correlation. That there is such a constant is undoubted, but the attraction to it as a centre is not due to a random reply but to the nature of the occupation. It is situated somehow at the heart of the occupation, but the "how" is difficult to explain. A much better fit to theory would have been obtained if a number of occupations having the same percentage idle some time had been averaged but the above fit is not bad. This at least is an explanation why the duration of idleness is dependent upon the proportion of the occupation who lose any time. Many plausible interpretations of this phenomenon could be advanced, in fact it is what was to be expected, but at this stage no interpretation will be offered. The fact is all that is required.

Now there is no reason why a person at one census should answer at random if he did not answer this way at another. The figures of 1931 are much more irregular than those of 1921 and thus not suitable for illustration, but it is easy to see that the main tendency is the same. In fact the average number of weeks lost by those losing time is not a centre of *frequency* at all but a centre of gravity of the total weeks lost by all persons. The average weeks lost by all wage-earners is not a central point but an average deviation from the centre of frequency of the wage-earners which is situated in the heart of the occupation.

Taking a case where more than 50 p.c. were idle at some time, *viz.*, building and construction with 56·41 p.c., we have the following distribution:—

XII.—PROBABILITIES OF BEING IDLE CERTAIN NUMBERS OF WEEKS AND DURATION OF IDLENESS EXPECTED FROM NORMAL FREQUENCY WHERE THE MEAN IS THE CENTRE OF ALL WAGE-EARNERS IN THE OCCUPATION "BUILDING AND CONSTRUCTION", CANADA, YEAR ENDED JUNE 1, 1921

Duration of Idleness	Probability	Number of Standard Deviations from Centre of Wage-Earning Total	Expected Duration (fit from line $y = 14 \cdot 7\,x + 4 \cdot 04$)
Less than 1 week	0·4359	−0·161	Less than 1·67 weeks
" " 5 weeks	0·5201	0·050	" " 4·78 "
" " 9 "	0·6215	0·310	" " 8·60 "
" " 14 "	0·7222	0·589	" " 12·70 "
" " 18 "	0·7919	0·813	" " 15·99 "
" " 27 "	0·9272	1·455	" " 25·43 "
" " 52 "	1·0000		

The line here is $y = 4 \cdot 04 + 14 \cdot 7\,x$ and the fit is very good. The standard deviation from the centre of the occupation is 14·7 weeks, *i.e.*, idleness is closer to the heart of the occupation than it was when only 37·50 p.c. were idle at some time.

Summary of Results of Accuracy Tests.—1. It was laid down as an *a priori* condition that if the weeks idle reported for the year were accurate for aggregates of individuals, then (since the number reported idle on the specific date June 1 was assumed to be accurate in any case and since this data could be taken as fairly representative of the week around this date) June 1 should be a sample of the year subject to a constant bias due to the general trend of unemployment and also subject to such small errors as arise from variations in the seasonal nature of industrial, occupational and other aggregates. The form of the relationship that should exist between the data reported as on June 1 and those reported, in order to fulfil this condition, for the whole year was laid down before investigation of the data and it was demanded that the data should satisfy the conditions in this form. The data were then investigated under four different arrangements (i) 98 industrial groups, (ii) 98 occupation groups, (iii) 99 age groups and (iv) 534 urban groups. Under all four arrangements the conditions were fulfilled and especially under the age arrangement (omitting 10-15 years), the calculation of the year from June 1 was as close as would be obtained from a chance sample of any attribute that would be capable of ideal random sampling. This means that if no doubt had been cast upon the accuracy of the year's figure, the data for June 1, would have been shown to be a good cross-section of the year providing we had means of knowing the general trend of unemployment.

2. The next condition was that the constant bias of June 1 over the year, obtained by the calculation should conform to the bias shown by testimony independent of the census. Two such witnesses were called, *viz.*, the employment index from the monthly reports of firms collected by the Bureau of Statistics and the unemployment from month to month in trade unions from the reports of the Department of Labour. Both of these sets of data should show general trends fairly accurately. This condition was fulfilled most satisfactorily.

3. The third condition was that the errors of calculation should be mainly due to seasonal variation as between different industrial, etc., aggregates. The largest errors were tested and the history of the individual industries to which they pertained was examined for the year 1930-31 to see whether the situation in June as compared with the year differed more in these than in other industries. This condition also was satisfied.

4. Although no further test should have been necessary, the year's figures of 1921 were calculated from the June data of that year according to the formula used in 1931, to ascertain whether the relationship of the calculated results to the actual results was the relationship of the bias of June 1 over the year in 1931 to the bias in 1921. This condition too was satisfactorily fulfilled.

5. Still another test was made owing to observation of a peculiar correlation, *viz.*, that the percentage idle June 1, also the percentage idle at any time during the year and the average weeks idle of those who lost time were inter-correlated. Perfect inter-correlations would be possible

only if the total number of weeks idle were constant and there seemed to be danger that the correlations already obtained were due to the tendency for everybody to report the same thing, or rather for the replies to be strongly governed by a centre of frequency. It was necessary to see what this centre of frequency was. If it turned out that everybody, regardless of occupation, gave an answer that would lead to a symmetrical distribution around a central number of weeks, then a doubt would arise that the answers were merely random; if, however, the answers pointed to another centre which was caused by something external to the individual, then the tendency to answer the same thing was what was to be expected. Accordingly, an examination was made of the actual answers to the question, "How many weeks did you lose during the year?" There was no evidence of a central tendency when the answers were examined for groups of random individuals, but when examined for occupation groups, it was clear that the answer was governed by the condition of the occupation. The centre to which the answers were attracted was the centre of the occupation, idle and working combined. The greater the percentage losing some time, the greater the number of weeks lost by those losing time. The average weeks lost was a deviation from the centre of the occupation, *i.e.*, an external, not a psychological cause governed the replies of the person.

These five separate tests would seem to establish beyond doubt the point that the replies to the question "How many weeks did you lose during the year?" are accurate for aggregates of individuals, occupations, etc. How small the aggregate may be would naturally be the next step, but it is postponed for the following reason: The question of the size of aggregate for which the number of weeks lost during the year is reliable is mixed up with the question "For what size of group is June 1 representative of the year?" Even if no doubt had been cast upon the reliabiity of the duration, this question would still come up. Consequently a fuller investigation of the matter is made later on in connection with the question of sampling. There it will appear that no great reliance can be placed upon aggregates of less than 200.

PART B—PERMANENT FEATURES IN CENSUS DATA

Permanent fundamental features in the census data on unemployment, if this permanency is established, signify that these features are independent of time and place, or if dependent, are dependent in a permanent manner which can be expressed quantitatively. They must be fundamental to be of practical value. "Dependent in a permanent manner" simply means what is conveyed in the following illustration. Suppose for a given quantity A we receive M units of another quantity B (unconditionally). This is a permanent relationship. But suppose M depends upon another quantity C, so that when C changes, M also changes but in a definite and measurable manner, say N; then the relationship is still permanent and the knowledge is of practical value so long as C and N are known and so long as N does not change. Now, "permanent" must be interpreted in a relative sense. Strictly it means "unchangeable" but for practical purposes it means that the changes are so small that they are not significant within certain fixed periods or other limits, *e.g.*, if certain relationships established for unemployment changed so slowly that the changes would have no practical significance in a period of ten years and in a space equivalent to the difference in conditions between one province of Canada and another, then this relationship would be sufficiently permanent and satisfactory for practical purposes, because we have a census every ten years and this census measures the differences between provinces.

Now we must select our third quantity C so that it will be independent of time and space or related definitely to some known function of time and space. For example, if it shows a change of N for every unit of change in time such as one year, or in space such as the increase in the population, and if it is fairly certain that we know the changes in population, then we have an adequate measure for practical purposes. Can we determine beforehand what is or what is not a more or less permanent relationship? To answer this question we must lay down two sets of premises:—

(1) The relationships that are based upon pure mathematical concepts without regard to concrete cases are permanent, *e.g.*, if a relationship is established on the basis of large numbers independently of what these numbers signify, then this relationship is permanent. Thus if unemployment depends upon the number of workers regardless of where or when or at what these persons work and if this relationship can be measured quantitatively, then

this relationship is very apt to be permanent, and a practical application of it can be made without hesitation.

(2) If the relationship depends upon the behaviour in concrete cases separated by space but acting at a given time, then the permanency of these relationships is questionable; but if it is found that the same relationship holds when separated by time except as corrected by a permanent function of time or a permanent factor as already mentioned, *e.g.*, depending on a pure mathematical concept, then this relationship is permanent after being thus corrected.

The relationships themselves must be definitely established. This is not exactly a question of permanency but rather of reliability. A relationship may be quite reliable as a passing phase, without being permanent. If it changes in a permanent manner it is of practical value, but if it is true only of that point of time its intrinsic value is small except in so far as it is instructive or an observation which leads to further investigation.

Relationship of Unemployment Data to the Size of the Group Investigated.—As already intimated, the chief purpose of the chapter is to investigate permanent features of the Census of Unemployment. The importance of this investigation lies in the fact that we have only decennial censuses on so large a scale, and the compilation of the material collected is so lengthy a task that the results are not available until a period ranging from six months to three or four years after the census date has elapsed. Unless these compilations have permanent values over and above their current interest, they may be said to be out of date before the results are known. If on the other hand they have permanent values which are applicable to other periods of time as well as the date of taking the census, then these are their most important values and they do not become obsolete.

Correlations such as have been discussed in connection with the question of reliability are very good in their place but they are very unsafe as guides to *permanent* relations. An equation of the form $y = a + bx$ may be true even permanently but it is of very little practical value unless we are sure that a and b do not change. Thus when y was taken to represent the average number of weeks lost during the year and x the percentage idle June 1, the correlation was found to be almost perfect both for 1931 and 1921 and presumably for any other year, but this does not carry us very far except as establishing a principle, *viz.*, that June 1 is a sort of sample of the year. The b and a are not the same for every year. The correlation might be perfect and still the same difficulty would arise. When, however, we know that b always equals $\frac{1}{B}$, B being the bias of June 1 over the average of the year, then we have something permanent and practical so long as we have other means of knowing what that bias is. But an equation based upon the correlation between static features is unreliable as a measure of anything that changes with time unless the change itself is found to obey a permanent law.

What then is the basis of discovering anything permanent in census data? It is here submitted that one such basis is a relationship based upon size. If $y = mx$, where x is discharged of all content except its size, *i.e.*, its size as expressed in abstract numbers, then the relationship is permanent. Thus 2 is one-half of 4, no matter what 2 and 4 represent and time does not make any difference.

The first step, then, will be to investigate the extent to which the percentage unemployed is influenced by the size of wage-earner groups and of the number of persons unemployed—say on June 1. This is really a point in sampling. It is well known that the reliability of a sample varies with the square root of the size of the sample, size being the most important consideration.

To begin with, let us assume that the census data for both June 1 and the whole year are reliable, and that we are taking the unemployment of a specific date (like June 1) as a sample of the year. We know, of course, that this is a biased sample but let us assume that we have current data, like the unemployment in labour unions and the index of employment in firms, that will give us a fairly accurate idea of this bias. The question is, "What is the smallest number of persons for which such sample is reliable?"

If we regard the general relationship shown between June 1 and the rest of the year as expressed in the three sets of grouping—*viz.*, industrial, occupational and age—as satisfactorily close and are satisfied with the expectation that we can calculate the year's idleness from June 1, within five days for more than half the wage-earners, we can take this relationship and the correlation ·97 as the criterion. The manner in which we are going to make the test is to take the

data of the 534 incorporated urban centres for which we know both the June 1 and the year's figures for males 20 years of age and over. The advantage of taking these centres is that we have a large range of sizes varying from no person idle on June 1 to several thousands. The criterion of size in this case should be the number of persons idle since they are the persons who are answering the question "How many weeks did you lose during the year?" Omitting 15 very exceptional cases the 519 centres were distributed according to number of males idle as follows:—

Number of males idle	Number of urban centres
Less than 25	55
25– 49	97
50– 74	95
75– 99	46
100–199	94
200 and over	132
Total	519

The distribution of the weeks idle according to the number idle June 1 is shown for each of these six groups of urban centres in the following series of statements which are really scatter diagrams. In each case the year's figures and June 1 were correlated and it should be observed how the correlation mounts with the size. The statements themselves indicate the correlation fairly well without further measurement. It is clear that the places with less than 25 persons idle on June 1 are too small for purposes of sampling and may be rejected at once. After this point it is useful to look at the relationship in two ways: (1) the relationship in the case of the *individual* towns; (2) that of the average of all the towns in the group. Although individually a group of 25-49 may be too small for sampling, the average of a number of places with 25-49 persons idle may show satisfactory relationship and this would serve practical purposes.

XIII.—SCATTER DIAGRAMS SHOWING FREQUENCY DISTRIBUTION OF URBAN CENTRES HAVING SPECIFIED NUMBERS OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931, ACCORDING TO INTERVALS OF PERCENTAGE NOT AT WORK JUNE 1 IN RELATION TO AVERAGE WEEKS LOST BY MALE WAGE-EARNERS DURING YEAR ENDED JUNE 1, 1931

(a) URBAN CENTRES WITH LESS THAN 25 PERSONS NOT AT WORK JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																							Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1		2	2	1																																				5
2		2	5	1																																				8
3				2	1	3		1																																7
4	1	2		1			1																																	5
5		1	1		4	1																																		7
6			2	1	2	1																																		6
7					1																																			1
8					1		1																																	2
9					1	1	1																																	3
10		1	2	1	1		1																																	6
11					1	1																																		2
12																																								
13			1			1																																		2
14																									1															1
Total	1	8	13	7	12	8	4	1																	1															55

$c_x=0\cdot5818$ $c_x^2=0\cdot3385$ $\sigma_x^2=9\cdot6615$ $\sigma_x=3\cdot11$

$c_y=0\cdot5455$ $c_y^2=0\cdot2976$ $\sigma_y^2=12\cdot2824$ $\sigma_y=3\cdot50$

xy corrected $=4\cdot7526$ $r_{xy}=\cdot44$ $y=0\cdot49x+2\cdot01$

XIII.—SCATTER DIAGRAMS SHOWING FREQUENCY DISTRIBUTION OF URBAN CENTRES HAVING SPECIFIED NUMBERS OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931, ACCORDING TO INTERVALS OF PERCENTAGE NOT AT WORK JUNE 1 IN RELATION TO AVERAGE WEEKS LOST BY MALE WAGE-EARNERS DURING YEAR ENDED JUNE 1, 1931—Con.

(b) URBAN CENTRES WITH 25-49 PERSONS NOT AT WORK JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																						Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1																																							
2					1																																		1
3		1		1	1	2																																	5
4				1		3	1					1																											6
5			1	1	1	1	2																																6
6			1	3	1	1	2		1	2	1	1																											13
7					1	1	2		1	2	1			1																									9
8			1	2	1	1	3	1	2	1																													12
9					1	2	2	1	1	2	1	1																											11
10				2		1	1	1	1		2	1	2																										11
11						1	1	1	2	3	1																												9
12													1		1																								2
13								2	1	1																													4
14														1																									1
15							1			1		1																											3
16							1																																1
17																																							
18																																							
19							1										1																						2
20																	1																						1
Total		1	3	10	7	13	17	6	9	12	6	5	3	2	1		2																						97

$c_x = 0\cdot9794$ $\quad \sigma_x^2 = 9\cdot8140$ $\quad c_y = 0\cdot5052$ $\quad \sigma_y^2 = 12\cdot8685$ $\quad xy$ corrected $= 5\cdot8352$ $\quad y = 0\cdot60\,x + 0\cdot08$

$c_x^2 = 0\cdot9592$ $\quad \sigma_x = 3\cdot13$ $\quad c_y^2 = 0\cdot2552$ $\quad \sigma_y = 3\cdot59$ $\quad r_{xy} = \cdot52$

XIII.—SCATTER DIAGRAMS SHOWING FREQUENCY DISTRIBUTION OF URBAN CENTRES HAVING SPECIFIED NUMBERS OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931, ACCORDING TO INTERVALS OF PERCENTAGE NOT AT WORK JUNE 1 IN RELATION TO AVERAGE WEEKS LOST BY MALE WAGE-EARNERS DURING YEAR ENDED JUNE 1, 1931—Con.

(c) URBAN CENTRES WITH 50-74 PERSONS NOT AT WORK JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																						Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1........																																								
2........							1																																	1
3........				1																																				1
4........					1																																			1
5........			1			2	2		1																															6
6........					3	2			1	1																														7
7........					1		1		3				1																											6
8........					2	1		2	3	2	2			1																										13
9........					1		2		2			2	1	1		1	1																							11
10........						2	2	2			2									1																				9
11........						2					1	1		2			1				1																			8
12........				1							1	1	1				1	1																						6
13........						1		2	1	1		2	1	1		1			1																					11
14........									1				1				1																							3
15........										1					1				1																					3
16........				1																																				1
17........			1									1								1																				3
18........									2																															2
19........															1																									1
20........																																								
21........																																								
22........																1																								1
23........																																								
24........																																								
25........																																								
26........																																								
27........																																								
28........																																								
29........																																								
30........																															1									1
Total..			2	3	8	10	8	6	14	5	6	7	5	5	2	3	4	1	2	2	1										1									95

$c_x = 1 \cdot 2842$
$c_x^2 = 1 \cdot 6492$
$\sigma_x^2 = 22 \cdot 8350$
$\sigma_x = 4 \cdot 78$

$c_y = 0 \cdot 3158$
$c_y^2 = 0 \cdot 0997$
$\sigma_y^2 = 17 \cdot 9845$
$\sigma_y = 4 \cdot 24$

xy corrected $= 11 \cdot 2044$
$r_{xy} = \cdot 55$
$y = 0 \cdot 49 \, x + 1 \cdot 19$

XIII.—SCATTER DIAGRAMS SHOWING FREQUENCY DISTRIBUTION OF URBAN CENTRES HAVING SPECIFIED NUMBERS OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931, ACCORDING TO INTERVALS OF PERCENTAGE NOT AT WORK JUNE 1 IN RELATION TO AVERAGE WEEKS LOST BY MALE WAGE-EARNERS DURING YEAR ENDED JUNE 1, 1931—Con.

(d) URBAN CENTRES WITH 75–99 PERSONS NOT AT WORK JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																							Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1																																								
2																																								
3									1																															1
4								1																																1
5				3		1		1			1																													6
6				1		1		1	1	1																														5
7					1		2	1		1			1																											6
8					1			1					2																											4
9							1		1			1																												3
10				1								1																												2
11							1	1					1	1	1			1		1																				7
12							1					1	1																											3
13											1					1	2																							4
14																																								
15															1	1																								2
16											1																													1
17																																								
18																																								
19																																								
20																						1																		1
Total				5	2	2	5	6	3	2	3	3	5	1	2	2	2	1		1		1																		46

$c_x = 1\cdot3478$ $c_x^2 = 1\cdot8166$ $\sigma_x^2 = 20\cdot2704$ $\sigma_x = 4\cdot50$ $c_y = 1\cdot1087$ $c_y^2 = 1\cdot2292$ $\sigma_y^2 = 12\cdot8795$ $\sigma_y = 3\cdot59$ xy corrected $= 11\cdot0257$ $r_{xy} = \cdot68$ $y = 0\cdot54x - 1\cdot0$

XIII.—SCATTER DIAGRAMS SHOWING FREQUENCY DISTRIBUTION OF URBAN CENTRES HAVING SPECIFIED NUMBERS OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931, ACCORDING TO INTERVALS OF PERCENTAGE NOT AT WORK JUNE 1 IN RELATION TO AVERAGE WEEKS LOST BY MALE WAGE-EARNERS DURING YEAR ENDED JUNE 1, 1931—Con.

(e) URBAN CENTRES WITH 100-199 PERSONS NOT AT WORK JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																						Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1........																																								
2........																																								
3........				2																																				2
4........			1			1		1																																3
5........					1	2																																		3
6........						1	2						1																											4
7........						2	2	1		1				1	1		1																							9
8........			1		1		1	2		1	1		1		1						1																			10
9........						2	2	1	2		1		1																											9
10........						1	1		3	1		2	2	1																										11
11........							1	2	2		2	1												1																9
12........									1			1		1		1	1		1																					6
13........							1				1	1	1	1	1	1		1			1																			9
14........													1	1				1			1																			4
15........									1			1				1					1																			4
16........															1					1							1													3
17........														1							1	1			1	1						1								6
18........										*1*						1																								2
19........										*1*																														1
20........						*1*																							1											2
21........																*1*																								1
22........																																								
23........													*1*																											1
Total..			2	2	2	10	10	7	9	5	5	6	8	6	4	5	2	2	1	1	5	1		1	1	1	1		1			1								99[1]

$c_x = 1 \cdot 1277$
$c_x^2 = 1 \cdot 2717$
$\sigma_x^2 = 36 \cdot 8560$
$\sigma_x = 6 \cdot 07$

$c_y = 0 \cdot 4574$
$c_y^2 = 0 \cdot 2092$
$\sigma_y^2 = 13 \cdot 8227$
$\sigma_y = 3 \cdot 72$

xy corrected $= 16 \cdot 3142$
$r_{xy} = \cdot 72$
$y = 0 \cdot 44x + 0 \cdot 63$

[1]For the calculations, 5 exceptional cases (italics in the diagram) were omitted.

XIII.—SCATTER DIAGRAMS SHOWING FREQUENCY DISTRIBUTION OF URBAN CENTRES HAVING SPECIFIED NUMBERS OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931, ACCORDING TO INTERVALS OF PERCENTAGE NOT AT WORK JUNE 1 IN RELATION TO AVERAGE WEEKS LOST BY MALE WAGE-EARNERS DURING YEAR ENDED JUNE 1, 1931—Con.

(f) URBAN CENTRES WITH 200 AND MORE PERSONS NOT AT WORK JUNE 1, 1931

Average Weeks Lost by Male Wage-Earners	Percentage Not at Work June 1, 1931																																							Total
	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76 and over	
1........																																								
2........																																								
3........			2	1																																				3
4........					1	1																																		2
5........				1			1																																	2
6........						1	3	1	1									*1*																						7
7........						2	3	1	1		2			1																										10
8........							1	5	2	1																														9
9........						1	2	1	3	2	1	1	1																											12
10........								1	2		2		1	2																										8
11........									1	3	4	2		5	1		1		1																					18
12........								1				4	1	3	3																									12
13........									1			1		2	2				2		2																			10
14........												2			2	3		1	1	1																				10
15........													1	1	1	2		2		1	1																			9
16........										*1*				1		1	1			2				2																8
17........																		1		1																				2
18........														*1*										1	1	1									1					5
19........								*1*																								1								2
20........															*1*							1	1																1	4
21........																																	1			1				2
22........																											1													1
23........																																								
24........																													1											1
25........				*1*															*1*																					2
26........																										*1*														1
Total..			2	3	1	5	10	11	11	7	9	10	4	16	10	6	2	5	5	5	3	1	1	3	1	2	1		1			1	1		1	1			1	140[1]

$c_x = 1 \cdot 7424$ $c_y = 0 \cdot 5530$ xy corrected $= 24 \cdot 8320$

$c_x^2 = 3 \cdot 0360$ $c_y^2 = 0 \cdot 3058$ $r_{xy} = \cdot 88$

$\sigma_x^2 = 45 \cdot 9185$ $\sigma_y^2 = 17 \cdot 3836$ $y = 0 \cdot 54x - 2 \cdot 31$

$\sigma_x = 6 \cdot 78$ $\sigma_y = 4 \cdot 17$

[1] For the calculations, 8 exceptional cases (italics in the diagram) were omitted.

XIV.—PERCENTAGES OF MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, 1931 IN RELATION TO AVERAGE WEEKS LOST IN EACH PERCENTAGE INTERVAL BY MALE WAGE-EARNERS OF STATEMENT XIII

P.C. Not at Work June 1, 1931	Average No. of Weeks Lost by Male Wage-Earners — Statement XIII						P.C. Not at Work June 1, 1931	Average No. of Weeks Lost by Male Wage-Earners — Statement XIII					
	a	b	c	d	e	f		a	b	c	d	e	f
0	4·0	–	–	–	–	–	40	–	–	11·0	–	13·4	13·7
2	3·6	3·0	–	–	–	–	42	–	–	–	20·0	17·0	20·0
4	4·8	6·3	11·0	–	6·0	3·0	44	–	–	–	–	–	20·0
6	4·1	6·6	10·3	6·2	3·0	11·0	46	14·0	–	–	–	11·0	16·7
8	6·7	5·7	6·8	7·5	6·5	4·0	48	–	–	–	–	17·0	18·0
10	6·6	6·4	8·5	5·5	8·2	6·6	50	–	–	–	–	17·0	22·0
12	7·8	9·0	7·1	9·2	8·6	7·0	52	–	–	–	–	16·0	22·0
14	3·0	10·7	10·3	6·8	8·3	9·4	54	–	–	–	–	–	–
16	–	9·2	9·8	6·0	10·8	9·1	56	–	–	–	–	20·0	24·0
18	–	9·4	10·0	6·5	12·4	10·7	58	–	–	–	–	–	–
20	–	8·8	9·8	11·3	10·4	9·7	60	–	–	30·0	–	–	–
22	–	8·8	12·0	10·3	11·8	12·0	62	–	–	–	–	17·0	19·0
24	–	10·7	11·0	9·2	11·6	11·5	64	–	–	–	–	–	21·0
26	–	10·5	10·4	11·0	12·2	12·1	66	–	–	–	–	–	–
28	–	12·0	17·0	13·0	11·0	13·6	68	–	–	–	–	–	18·0
30	–	–	14·7	14·0	15·8	14·7	70	–	–	–	–	–	21·0
32	–	19·5	11·5	13·0	9·5	13·5	72	–	–	–	–	–	–
34	–	–	12·0	11·0	13·5	13·4	74	–	–	–	–	–	–
36	–	–	14·0	–	12·0	15·2	76 and over.	–	–	–	–	–	20·0
38	–	–	13·5	11·0	16·0	15·6		r=·85	r=·81	r=·79	r=·82	r=·85	r=·76

XV.—CORRELATION BETWEEN NUMBER NOT AT WORK JUNE 1 AND AVERAGE WEEKS LOST DURING THE YEAR FOR SPECIFIED SIZE CLASSES OF URBAN CENTRES, YEAR ENDED JUNE 1, 1931

Number Not at Work June 1, 1931	Correlation for Individuals of the Groups (Statement XIII)	Correlation for the Average of Each Group (Statement XIV)	Number of Urban Centres
Less than 25	·44	·85	55
25 - 49	·52	·81	97
50 - 74	·55	·79	95
75 - 99	·68	·82	46
100 - 199	·72	·85	94
200 and over	·88[3]	·76	132
Total	·69[2]	·95[2]	519[1]

[1] Omitting 15 exceptional cases.
[2] 532 cases.
[3] The size at which a satisfactory correlation is reached for individual items is 200; for averages, all the correlations are satisfactory.

Basis of Sampling for Unemployment.—Now for practical purposes it is necessary to obtain a basis of sampling where the sample is not the number idle but the number of wage-earners. A basis of sampling for unemployment is badly needed. It would be not only so expensive as to be prohibitive to make a frequent census or registration of unemployment but it would be absolutely impossible, since there are many obstacles apart from the magnitude of the task. Furthermore, this very magnitude would make it impossible to compile the results in time to be of use. A cheap method of sampling which would give results approximately accurate would also make it possible to release figures in a few days. If the approximation were reasonably close it would be fully as good as a complete enumeration since even the latter would involve questions of accuracy on which all persons are by no means agreed. One of these is the precise definition of an unemployed person—is he any person who is not working or must he fulfil certain other conditions before he can be considered unemployed? Under employment insurance schemes the person to be unemployed must have held a steady job and be capable of working at a steady job. The boy who has never had continuous employment and who can not report himself under any occupation or in connection with any industry, can not be considered unemployed. This is consistent with the census definition, but it is by no means generally accepted. On June 1, 1931, for example there were 470,000 not working, but these were all wage-earners. In addition to two and one-half million wage-earners there were one and one-third million other persons

gainfully occupied and about 800,000 of both sexes of working ages, including unmarried females and persons not at school and not in institutions, who were not working. It is easy to see that a difference in the definition of what an unemployed person is could easily make a difference of some hundreds of thousands, for if it meant everybody not working on that specific day it would add 800,000 plus the independent workers who had not anything to do on that day to the 470,000 recorded as not working. To obtain a figure of unemployment upon which everybody is agreed is clearly impossible, showing how absurd it is to insist upon meticulous accuracy in such matters. All we need is a reasonable approximation.

There is no doubt that a good sample can give us this reasonable approximation provided we have a sound basis of selection. The one figure which we seem to need more than any other is the percentage of the wage-earners not working on a specific date. Even if this did not give us the actual number not working except in so far as it led to a good *idea* of this number, it would be the most important figure since it is the probability of unemployment and therefore barometric.

Size of Sample.—To arrive at a basis of sampling for this figure (the percentage not working), the most hopeful method is to examine what this percentage has to do with the size of aggregates of wage-earners. As before we take the 534 incorporated urban centres of sizes varying from a hundred or less to over half a million. At once we are faced with a difficulty, *viz.*, that of breaking these up into suitable size groups. Unemployment may increase or decrease with the size of the wage-earner groups, but how? If we take them in equal intervals of size—*e.g.*, under 100; 100–199; 200–299, etc.—we assume that an equal interval of size corresponds to an equal interval of unemployment percentage, whereas this may not be true. If the percentage of unemployment is really dependent upon the size of the place there are many other factors to consider besides the kind of industry or the size of the industries in that place. To-day it is complicated by the fact of direct relief. The small place may have little unemployment either because it has only a few industries or occupations and these of a long established permanent character such as garages, teachers, store clerks, etc., or because the unemployed leave these little places for the larger centres, thus tending to make unemployment in the larger centres worse; or it may have more unemployment than the large centres owing to the break-down of new industries started. As a matter of fact, it will be seen that the small places are equally likely to be better or worse than the large cities. A single small place would give a very unreliable picture of unemployment, but the *aggregate* of a large number of these small places would give a true picture.

The method followed in arranging the 534 urban centres by size was to make the intervals of size depend upon the intervals of the standard deviation of the percentage idle on June 1; 2 p.c. idle being equivalent to 0·168 standard deviations. The size intervals thus arrived at were:—

Size Interval[1]	Number of Towns Represented	Size Interval[1]	Number of Towns Represented
80 and under	1	22,501 - 31,600	3
81 - 160	23	31,601 - 43,000	1
161 - 300	138	43,001 - 57,000	–
301 - 550	132	57,001 - 73,500	2
551 - 900	78	73,501 - 92,000	–
901 - 1,700	75	92,001 - 112,000	–
1,701 - 2,400	25	112,001 - 133,000	–
2,401 - 4,500	25	133,001 - 153,000	–
4,501 - 7,000	17	153,001 - 171,000	1
7,001 - 10,300	4	Over 171,000	1
10,301 - 15,800	4		
15,801 - 22,500	4	Total	534

[1]Integral limits of interval.

The percentage not at work on June 1 according to these twenty-two different size groups is shown in the following chart. The average percentage not at work in each group is seen at the foot of the chart. With the exception of the first group it is apparent that there is a very slight variation from group to group and absolutely no trend upward or downward with the size. The largest cities show almost the average percentage idle on June 1, while the average of each size group corresponds to this average.

MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER IN 534 URBAN CENTRES BY SPECIFIED SIZE GROUPS IN RELATION TO THE PER CENT NOT AT WORK JUNE 1, 1931

PC NOT AT WORK JUNE 1 1931	MALE WAGE-EARNERS BY SPECIFIED SIZE GROUPS																						TOTALS
	80 and UNDER	81–160	161–300	301–550	551–900	901–1700	1701–2400	2401–4500	4501–7000	7001–13000	13001–15500	15501–22500	22501–31600	31601–43000	43001–57000	57001–73500	73501–92000	92001–112000	112001–133000	133001–153000	153001–171000	171001 and OVER	
0			1	1	1																		3
2			5	2	2																		9
4		1	5	8	2	2	1	3															22
6			6	9	5	8		1	1														30
8		3	5	8	7	3		1															32
10		4	5	10	7	9	3	1			1												48
12		2	10	9	8	8	4	4			1												54
14			7	6	7	3	2	4	2	1			1										37
16			10	5	6	6	2	3	3														46
18		2	10	6	2	4	2	1	1		1										1		32
20		2	8	4	4	4		1	1	1			1									1	28
22		1	7	5	5	3		1	2		1			1									31
24		2	6	5			1	1	1	1													25
26		2	6	5	1	5	2		1	1	2	2				1							30
28		1	4	4	2	2	3	1	1				1										19
30			5	5	1	1	1		3														16
32		2	6	2		1		1															12
34			3	1	2	2										1							9
36			2	1	1	2	1	1															8
38			3	1	1	3			1														9
40			2	4	1	1	1																9
42			2			1																	3
44						1																	1
46	1		1	1		1	1																5
48				1	1																		2
50			1		1	1																	3
52			1	1																			2
56				1	1																		2
60		1																					1
62			1	1																			2
64					1																		1
68							1																1
70						1																	1
76 and over					1																		1
TOTALS	1	23	138	132	78	75	25	25	17	4	4	4	3	1		2					1	1	534
AVERAGE PER CENT NOT AT WORK	24.0	10.6	10.7	9.9	10.1	10.8	12.2	8.8	11.9	11.5	12.5	10.3	11.3	12.0		16.0					10.0	11.0	

According to this, a basis of sampling is furnished by taking all the urban centres within one of the size groups. Any one of the size groups would do but there are two further considerations—economy on the one hand and on the other, an assurance that the aggregate of the cities or towns

Chart 2

of the group would represent a sufficient variety of industries. The most economical group would be the third, *viz.*, that with 161-300 wage-earners. It will be seen that the average unemployment of this group is very nearly the average for the whole 534. There are 138 small towns in this group and it will be seen later that they are spread all over Canada with a suitable representation in each province. They have an aggregate of about 32,000 wage-earners, certainly a large enough sample. There are several reasons why these would be desirable as samples. The chief reason is that they are small enough to be easily enumerated. The town clerk or the postmaster or any other suitable person could easily report the number unemployed in one of these on a specified day each month, since everybody knows practically everybody else in these small towns. In any case the aggregate of these 138 places could be used as a sample for monthly figures, two or three sets being used for, say, yearly figures. The distribution of unemployment in these 138 places will be better seen as follows:—

XVI.—URBAN CENTRES WITH 161-300 MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER, JUNE 1, 1931, AND DISTRIBUTION ACCORDING TO PERCENTAGE NOT AT WORK JUNE 1, IN INTERVALS OF 2 P.C. AND CUMULATIVELY, WITH THE PROBABILITIES

Interval[1] of P.C. Not at Work June 1, 1931	No. of Urban Centres	Interval of P.C. Not at Work June 1, 1931	Cumulative No. of Urban Centres	Probability
Less than 2	1	Less than 2	1	·007
2 - 3	5	" " 4	6	·043
4 - 5	5	" " 6	11	·080
6 - 7	6	" " 8	17	·123
8 - 9	10	" " 10	27	·196
10 - 11	5	" " 12	32	·232
12 - 13	15	" " 14	47	·341
14 - 15	7	" " 16	54	·391
16 - 17	10	" " 18	64	·464
18 - 19	12	" " 20	76	·551
20 - 21	9	" " 22	85	·616
22 - 23	10	" " 24	95	·688
24 - 25	6	" " 26	101	·732
26 - 27	6	" " 28	107	·775
28 - 29	4	" " 30	111	·804
30 - 31	5	" " 32	116	·841
32 - 33	6	" " 34	122	·884
34 - 35	3	" " 36	125	·906
36 - 37	2	" " 38	127	·920
38 - 39	3	" " 40	130	·942
40 - 41	2	" " 42	132	·957
42 - 43	2	" " 44	134	·971
46 - 47	1	" " 46	134	·971
50 - 51	1	" " 48	135	·978
52 - 53	1	" " 50	135	·978
62 - 63	1	" " 52	136	·986
		" " 54	137	·993
Total	138	" " 56	137	·993
		" " 58	137	·993
Average p.c. unemployment	20·1	" " 60	137	·993
		" " 62	137	·993
		" " 64	138	1·000
Average, 534 urban centres	21·7	Standard deviation	11·4	

[1]Integral limits of interval.

Diversity of Sample.—The distribution around the average in the 138 places is thus seen to be sufficiently symmetrical. They have the same standard deviation of percentage idle as the total of the 534 towns, thus showing that they have the same variety of conditions of unemployment as the total. Theoretically they would seem to be quite satisfactory as a sample, in fact unusually so. It now remains to see whether they satisfy another condition which ordinary common sense at least would require, *viz.*, do they have a sufficient variety of industries and a satisfactory distribution of these industries to be a cross-section of the country? To ascertain this fact, use was made of such sources of information as Bradstreet's which for every post office gives the number of the different kinds of industrial establishments. Clearly it is impossible to give the exact number of workers in each industry as on June 1, but the number of each kind of establishment for the month of June, 1931, when this number is large and when it is for places of approximately the same size is a fairly good representative figure. In this connection one point should be mentioned. It is not necessary that the industries in these 138 places should be distributed exactly as in all Canada—this would be to the good, but it is not essential. A sufficient *diversity* in the industries so as to insure an adequate number of conditions of unemployment

would seem to be all that is necessary. Already it has been mentioned that they provide the desired diversity in geographical location which would take care of such matters as seasonal variations. The large numbers of the localities and the fact that in the aggregate they show very nearly the same unemployment as all Canada would make them a good sample in any case. Any doubt as to their situation in regard to movement of population is taken care of by the last-mentioned fact. That their showing the very nearly same average unemployment as the rest of Canada is not a mere coincidence is clearly seen by the distribution of the figures in Chart 2 and the following statement. The fact that the different aggregates of places of equal size show the same unemployment is here submitted as proof of the validity of the test; the dependence upon size is a permanent and reliable feature, which permanency outweighs other considerations.

For a list of the 138 places with the population in 1931, the number of wage-earners, the number not working on June 1, the percentage not working and the number of each kind of establishment, see Table 16, page 329.

XVII.—NUMBER OF INDUSTRIAL ESTABLISHMENTS, BY INDUSTRY GROUP, ACCORDING TO BRADSTREET'S, 1931, IN THE 138 URBAN CENTRES HAVING 161-300 MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER, JUNE 1, 1931

Industry Group	Number of Establishments	Remarks
Total	6,685	
Agriculture	14	Naturally, agriculture and the two following groups have a low representation in urban centres.
Forestry, fishing, and trapping	7	There are 231 establishments with over 15 employees in Canada.
Mining, quarrying, etc	16	There are 225 establishments employing more than 15 and 2,397 altogether in all Canada.
Manufacturing	890	27·5 p.c. of total establishments (other than trade) as compared with 23·6 p.c. of all wage-earners in Canada, and 24,501 of all sizes.
Electric light and power	13	96 establishments with over 15 employees in Canada.
Construction	375	1,127 establishments with over 15 employees in Canada.
Communication	8	67 establishments with over 15 employees in Canada.
Transportation	419	346 establishments with over 15 employees in Canada, including warehousing and storage.
Warehousing and storage	3	
Trade	3,457	The number is large on account of the smallness of the establishments. In all Canada there were only 826 establishments with more than 15 employees as compared with a total of 138,143 of all sizes.
Finance, insurance	3	This figure does not include branches of banks, 138 of which at the very least could be added.
Service	1,480	22·1 p.c. of the total establishments as compared with 22·8 p.c. of the total wage-earners in Canada being engaged in "Service".
Public administration	4	
Professional	7	This does not include schools or churches, which would add at least 300 establishments to the figure.
Business	1	
Recreational	84	
Custom and repair	661	This number may seem large—due in part perhaps to the difficulty of distinguishing between some custom and repair establishments and manufacturing. In all Canada there were only 276 with over 15 employees including personal service as well.
Personal	721	"Establishments" excludes, of course, the large number of domestic servants.
Library	2	These are only commercial, rental libraries. The figure does not include public libraries.

Sampling in Occupation.—Now what is perhaps of even greater importance than sampling localities for the sake of obtaining figures of unemployment is sampling industries. The Dominion Bureau of Statistics receives monthly reports from industrial establishments giving the number on pay rolls at the end of the month. Naturally every firm in Canada is not included and there is a specific exclusion of firms with less than 15 employees. A monthly index number for each industry and for the aggregate of the industries is built from these reports. Now two questions in particular arise: (1) Does the exclusion of the firms with less than 15 employees bias or invalidate the index numbers? (2) Does the fact that all industries are not equally represented invalidate the index numbers? To these must be added a still more important question: If these firms were asked periodically for the unemployment situation among their employees what prospects would there be of obtaining figures representative of Canada as a whole? Again the question of the relationship of the data to size is taken as the basis of an answer to these questions.

Since it was impossible to obtain a sufficient number of different industry groups or the data as on June 1 for occupation groups, the vital requirement in this case was deemed to be groupings according to what the persons are doing rather than where they are situated, as in the case of the

data on urban centres already examined. Accordingly 400 occupation groups differentiated by the average weeks idle (instead of idle June 1) were divided into size groups on the basis of the standard deviation of the weeks idle. These are charted below.

MALE WAGE-EARNERS 20 YEARS OF AGE AND OVER BY PROVINCES AND SPECIFIED SIZE INTERVALS IN RELATION TO THE AVERAGE WEEKS LOST BY THOSE LOSING TIME FOR SPECIFIED OCCUPATIONS 1931

AVERAGE WEEKS Lost by those losing Time	MALE WAGE-EARNERS BY SPECIFIED SIZE GROUPS																		TOTALS
	UNDER 95	95-240	241-400	401-800	801-1700	1701-3000	3001-5200	5201-8700	8701-14000	14001-21000	21001-29000	29001-40000	40001-51000	51001-63000	63001-75000	75001-82000	82001-88000	88001-89000	
1																			
2					·														
3																			
4	I																		I
5																			
6	I																		I
7																			
8																			
9	I																		I
10	I	I																	2
11																			
12				I	II	I													4
13						I													I
14		I	I		III														5
15		I	III	IIII		I													9
16		I	III	III	I														8
17	II	IIII	II	II	III	I		I											15
18	I	I	II	𝍸	𝍸	𝍸I	III	II											25
19		I		𝍸II	𝍸I	𝍸II	III	II											26
20	I		I	𝍸II	𝍸I	𝍸	IIII	III	IIII	I									32
21	I	I	IIII	𝍸I	𝍸IIII	𝍸IIII	𝍸		III	I	II								41
22		𝍸		𝍸I 𝍸	𝍸II	IIII	𝍸II	III				I							38
23		𝍸	𝍸	𝍸III	𝍸II 𝍸	𝍸I	IIII	II	III										45
24	III	I	𝍸 I	𝍸IIII	𝍸 𝍸	𝍸	I	𝍸	II		I								43
25	III	I	IIII	II	𝍸II	II	II	I				I		I			I		25
26	II	III		II	IIII	II	II		I										16
27				III	𝍸I	II		II				I						I	15
28	I	I	𝍸	I	III	II	III				I								17
29		II		II		II		I	I			I							9
30	II			I	III	II				I									9
31	II			I			I			I									5
32	I		I	I															3
33			I																I
34				I															I
35																			
36																			
37	I																		I
38																			
39																			
40																			
41																			
42																			
43	I																		I
TOTALS	25	29	38	77	87	58	35	22	14	4	4	4		1			1	1	400

AVERAGE OF THE AVERAGE WEEKS LOST BY THOSE LOSING TIME FOR EACH SIZE GROUP

23.3 21.3 22.2 21.8 22.2 21.8 22.4 22.3 22.5 25.5 23.5 25.8 25.0 25.0 27.0

Chart 3

It is seen that the occupation groups behave somewhat differently from the town groups in that there is a correlation between weeks idle and the size—the larger the size the greater number of weeks idle. However, when averaged as shown at the foot of the chart, the dependence upon size is within narrow limits. On the whole the differentiation by groups of the same size furnishes a good basis for sampling. Further it is reasonable to suppose that the correlation with size is of a permanent nature and that if one of these size groups were sampled, suitable corrections could be made for the size. The correlation was tested and found to be linear, the coefficient being ·88 and giving an equation of $y = 0 \cdot 32\ x + 20 \cdot 94$, where y is the weeks idle and x the size interval number 1, 2, 3, etc., as shown in the chart. The standard deviation of the weeks idle, when taken as between the averages of the group was only 1·77 weeks, showing how narrow the limits of variation for different sizes really are. Furthermore, the high correlation shows that there is very little differentiating these size groups except that the smaller sizes under-state the period idle and the larger over-state. Calculating the weeks from the above equation we have the following (omitting the first group which is clearly exceptional).

XVIII.—CALCULATED AND ACTUAL NUMBER OF WEEKS LOST, BY SIZE GROUPS, ACCORDING TO NUMBER OF WAGE-EARNERS FOR 400 OCCUPATIONS, CANADA, YEAR ENDED JUNE 1, 1931

Size Group[1]	Weeks Lost		Size Group[1]	Weeks Lost	
	Calculated	Actual		Calculated	Actual
1	21·3	21·3	10	24·1	23·5
2	21·6	22·2	11	24·5	25·8
3	21·9	21·8	12	24·8	-
4	22·2	22·2	13	25·1	25·0
5	22·5	21·8	14	25·4	-
6	22·9	22·4	15	25·7	-
7	23·2	22·3	16	26·1	25·0
8	23·5	22·5	17	26·4	27·0
9	23·8	25·5			

[1] Size groups numbered from second one on (see Chart 3).

The standard deviation of the averages when cleared of the trend, as already indicated by the correlation, etc., is only 0·83 weeks or about 5 days. There would seem to be no great difficulty in correcting for size of industry if a sample were required. In fact, taking the middle (or a middle) size would seem to serve the purpose. It is important, however, to notice that a slight bias is caused by the size, how slight may be judged from the very wide interval of size that is thus taken. As before, any one of these groups could be taken as the sample, but a middle size is preferable. The suggestion is that to all firms of a certain size a questionnaire be sent periodically asking the state of unemployment among their employees, the answers to which could be accepted as representative.

If the above considerations are sound, it is clear that the omission of the firms with under 15 employees is not a detriment to the validity of the employment index—rather, this omission is a very wise precaution, since these small firms are more numerous than all the remainder taken together. The indications are clear that the aggregate of these firms, if they were all represented would show the same employment as the remainder, while if they were only partially represented they would seriously bias the whole. Consequently their omission is in the interests of accuracy as well as economy. The fact that the small firms are apt to under-state would not invalidate this conclusion, since the *very* small firms (as indicated in the first column of the chart) would also tend to slight over-statement. In any case the difference between the results of one size and of another is so slight, *i.e.*, the bias is so slight, that it would hardly affect the index of employment—not nearly as much as would a partial enumeration of these small firms.

Summary of Results of Investigation of Sampling.—Two facts of great practical value have been disclosed by the foregoing examination of the relationship of unemployment to the size of wage-earner groups: (1) that a basis of sampling is provided because of the constancy of unemployment as between different size groups; (2) that the most expensive and difficult sources of information can safely be neglected in periodical questionnaires. An important point that must not be overlooked is that either in sampling or regular questionnaires *it is better to obtain a complete enumeration of firms, etc., of the same size than a partial enumeration of firms of*

different sizes, even if the latter embraces a far greater number of persons. The worst kind of either sampling or enumeration would be to take different proportions of each size group—aggregate them and use them as a sample or the basis of an index. It is here strongly suggested that precaution in this respect is more important than any other form of precaution, *e.g.*, precautions about including varieties of seasonal elements. Precautions like the latter are dangerous because it involves a begging of the question. Not only are the same occupations apt to show different seasonal features in different years, but they are also apt to show these differences in the same year for different places. Precautions like these can not be controlled, while the consideration of size can be controlled. If we knew that a complete enumeration could be made for a certain size and not for other sizes, it would be better to take this size alone and omit the rest. This would also have the advantage of being economical and conducive to timeliness. Even when all firms are enumerated as by the Dominion Bureau of Statistics it would be well to take the size of firms that was most completely represented and arrange an index on the basis of these firms. This index could be prepared first and would probably be more accurate than the complete one. For safety, a moderate size would be preferable to either a very large or a very small size; further, it would be easier to get complete representation of a moderate size than for a small.

Conclusions on Permanent Values of Census Data on Unemployment.—As frequently mentioned, the Census of 1931 showed unemployment as measured by four criteria: (1) unemployment on a certain day (June 1) as a sample of the year; (2) number and percentage of weeks lost during the year; (3) number and percentage of the wage-earners losing *any* time throughout the year. The most striking feature of our study has been found to be the peculiar relationship of 2 to 3. The conclusion is that the behaviour of these two criteria in conjunction throughout different groups of workers such as occupation groups, age groups, etc., *i.e.*, over *space* in a single year is the same as that over *time* in one group taken individually over a period of at least one year. One valuable criterion (4), not mentioned with the other three is the number throughout the year losing 1-4 weeks, 5-8 weeks and so on. Similar information was given in 1921. This, of course, is a behaviour over time. Again, we have the index of employment from reports of firms, this information being collected independently of the census. In Appendix 1 we show that the same story is told by all these different sources of information, the initial difficulty being to interpret this story. It is believed that the interpretation in Appendix 1 is the right one.

We shall consider the significance of a classification over space that indicates what is happening over time. The past is often a sealed book for want of data. Where we have data, incomparability of classification renders impossible or at least unsafe the tracing of the evolution of such attributes as unemployment. If, with the enormous amount of data rendered available by our present improved machinery, we can trace this evolution by means of the inter-relationship of groups in the same year where comparability is perfect, we have solved an otherwise unsolvable problem.

In describing the findings on which the above is based it will be necessary to refer frequently to Appendix 1 where the mathematical calculations are made. However, there are features in this chapter which themselves demonstrate (1) that an abstraction like mechanical size determines the homogeneity of the data on unemployment, and (2) the relationship of space to time as dimensions of unemployment. When we take the wage-earners as a whole and find that the percentage idle on June 1 corresponds to the percentage of 52 weeks represented by the average number of weeks lost during the year, we are relating space to time. This is really what we do when we take a certain day as a sample of the year. We could not logically do so if we did not assume that space and time were merely two manifestations of the same thing. The mere coincidence of the two in only one case like the average for all wage-earners might occur by accident, but when we find the same thing occurring in hundreds of cases—ages, industries, occupations, localities, etc., we know that the chances of this happening by accident are practically nil.

But it is not enough to know that space and time are inter-related; we also wish to know how they are related. Criterion 1 above, is found to agree with criterion 2 with the proper bias expected of the last day of a year of falling trend compared with the average of the whole year. Now the most significant relationships discovered were those of 3 to 2 and 4. It was found that the proportion losing no time throughout the year correlated first with the time lost by all wage-earners during the year and secondly with the time lost by wage-earners

losing any time throughout the year. Not only this, but it was found that the individuality of different groups, revealed by such defects from perfect correlation as occurred, had a definite or constant meaning. The greater the proportion losing no time the smaller the average number of weeks lost—with certain exceptions which brought the correlation in the case of 116 occupation groups down from 1·00 to ·97. The question was: "What was the nature of these exceptions?" From the week of greatest employment to the one with least, persons who hitherto had lost no time were being thrown out of employment. This would cause a *variability* in the percentages employed from week to week. Let us arrange the weeks of the year in order so that they descend from the week of greatest employment to the week of least employment. The measure of variability in employment from week to week is the standard deviation. In the same way as we measure cloth in yards, water in gallons and tea in pounds, we measure frequencies in standard deviations. Now if there was only one period after the beginning of the year at which persons were thus thrown out and they were then thrown out in large numbers it would make a greater standard deviation than if the same number were thrown out at several different periods, the more periods—the total number thrown out remaining the same—the smaller the standard deviation. The number of standard deviations in the total range between the high and low months, therefore, gives the number of periods of change. Now it was in this way that the individuality of occupations, etc., which brought the correlation from 1·00 to ·97 was shown. They varied from those having less than 2 periods in the year to those having 4 or more—but most of them remained very nearly constant at 2·9 changes, this constancy causing the very high correlation of ·97. However, the individuality of those which so varied disclosed facts of first importance. It was these changes that made the difference in the number losing 1 week, 2 weeks, etc., throughout the year. If there had been only 1 change and that in the first week of the year, then all those thrown out of employment by this change would have been idle the remainder of the year, the rest losing no time; if there were 5 changes the total number thrown out by all remaining the same, practically all the wage-earners would lose some time while the loss of time was distributed very favourably from the point of view of those losing time. It must be noticed that this is a factual, not a theoretical or speculative, explanation. Again, if the persons dropped from employment were dropped at the beginning of the year this would be reflected in a high number of weeks lost by the total wage-earners in industries, etc., unless the persons thrown out left the ranks of wage-earners, or the industry or occupation before the date of the census; if at the end of the year, this would be reflected in the low number of weeks lost. In Canada we know that persons thus dropped are dropped in the winter season. Our census year is from June to June so that the greatest drop occurred at the middle of the year. Hence we have in some industries and occupations the abnormally high percentage losing about 26 weeks. The index of employment of the Dominion Bureau of Statistics shows the months in which drops occur. Our census figures were compared with these, the same calculations being made with the index and the census figures, and they were found to agree. We have thus established a link between the census taken every ten years and a set of statistical data collected monthly. It is difficult to imagine results more important than this.

The story of the conditions of employment in industries, etc., revealed by this useful standard of measurement is told in most of the remaining chapters of this monograph. It is in respect to these changes that industries, occupations, ages, localities, etc., differ most significantly. This being the case we have a basis of classification and this classification is shown in Chapter XI.

If we have thus established a correlation between behaviour in space and that in time over a period of one year, why not over a longer period? This question seems capable of answer. If we take thousands of varieties of groups—in short, a sufficient number to display all the variations that can take place over a long period of time and find the true significance of behaviour from group to group—we have the means of tracing the evolution of this behaviour over a long period of time. We make here only one important application.

The thesis will be remembered that if the persons thrown out of employment were thrown out all at once and at the beginning of the year, this would be reflected in a high number of weeks lost by that particular group during the year, *unless the workers so thrown out left the ranks before reporting to the census.* There are many ways in which they could have done so. In the case of an industry they might have found employment in another industry and reported this later industry at the census. In this case the original industry would show a low rate of unemployment

and the second industry a high. Now we have a number of industries showing similarity in average number of weeks lost during the year but difference in the number of changes throughout the year. When we have an industry showing a low rate of unemployment but a small number of changes we can not say we have *proved* that the low rate was because the persons thrown out had left the industry, but we have a strong presumption that this was the cause—particularly when we know that the few unemployed persons who remained lost more time than the unemployed in an industry where the average unemployment for all its wage-earners was much greater. In fact, the presumption is so strong that it amounts to certainty. *Per se*, however, it is only a presumption. But, when we take in conjunction with it certain cases where we *know* this is the cause and find the behaviour similar to that in the type of industry mentioned, the matter becomes more than a presumption. The younger and older ages which we *know* are lopped off behave in the same way, *i.e.*, they have lower unemployment *because* they have fewer changes. The provinces which we *know* have lost a large number of wage-earners by emigration behave in the same way. Main industries and occupations which we *know* to show lower unemployment because the workers thrown out of employment are reporting in other industries behave in the same way. Therefore, if a certain industry group behaves in this way why doubt that it is from the same cause? To doubt involves the difficulty of explaining why the few unemployed persons still attached to the industry lost an appalling number of weeks throughout the year. These unfortunates were those who failed to procure re-employment in another industry and consequently regarded themselves as still attached to that industry in which they worked the first part of the year. If this is true over a period of one year, why not longer? Have so-called strong industries not become strong by throwing out their weaker members, the members in this connection being occupations not individuals? This is demonstrated in Chapters III and IV where it is shown that the individuality of industries, as contrasted with occupations, is displayed in their tendency, as they grow stronger, *i.e.*, as they show less and less unemployment, to narrow their number of changes throughout the year or, which is the same thing, to increase the proportion of those losing no time while those losing time lose a great deal. This is the opposite of what is shown in occupations except in the case of occupations which are at the same time industries or strongly-unionized occupations.

CHAPTER II

POPULATION AND REGIONAL SETTING OF EMPLOYMENT

PART A—RELATIONS BETWEEN TOTAL POPULATION, POPULATION IN GAINFUL OCCUPATIONS AND WAGE-EARNERS

In the Introduction it was stated that the 1931 Census of Unemployment covered the wage-earning class in Canada*, and that this class, 2,570,097 persons in all, accounted for 24·80 p.c. of the total population and 65·44 p.c. of the population in gainful occupations. It was further pointed out that the proportionate importance of wage-earners, as compared with employers, own accounts, or unpaid family workers, in the total of gainfully employed persons varied considerably as between occupations and, hence, as between those regions in which the occupational character of the people showed marked differences. An unemployment study that is concerned with unemployment among wage-earners as a population problem will, therefore, be more comprehensive in its treatment of that problem for those provinces in which a large proportion of the total gainfully occupied population are wage-earners than where their importance is less. Hence any analysis of unemployment, regional, occupational or otherwise, should first be preceded by a survey of the relation that exists between the total population of the country and its working force, the latter implying not only the wage-earning class but also the aggregate of persons following gainful occupations. This is necessary in order to view the problem in its proper perspective.

Provincial Distribution.—In Statement XIX the total population, the population 10 years of age and over, and the population in gainful occupations are shown by sex for Canada and the provinces, Census of 1931. A percentage distribution by provinces of the population and of the number gainfully occupied is given in Statement XX.

*Throughout this study it will be understood that by Canada is meant the area comprising the provinces and not including Yukon and Northwest Territories.

XIX.—TOTAL POPULATION, POPULATION 10 YEARS OF AGE AND OVER AND GAINFULLY OCCUPIED POPULATION, BY SEX, CANADA AND PROVINCES, 1931

Province	Total Population			Population 10 Years and over			Gainfully Occupied		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
CANADA	10,362,833	5,366,502	4,996,331	8,159,059	4,252,537	3,906,522	3,927,230	3,261,371	665,859
Prince Edward Island	88,038	45,392	42,646	69,333	35,907	33,426	32,166	27,818	4,348
Nova Scotia	512,846	263,104	249,742	402,401	207,098	195,303	181,087	153,151	27,936
New Brunswick	408,219	208,620	199,599	310,316	159,102	151,214	140,005	117,933	22,072
Maritime Provinces	*1,009,103*	*517,116*	*491,987*	*782,050*	*402,107*	*379,943*	*353,258*	*298,902*	*54,356*
Quebec	2,874,255	1,447,124	1,427,131	2,167,517	1,091,418	1,076,099	1,025,709	823,287	202,422
Ontario	3,431,683	1,748,844	1,682,839	2,791,072	1,423,989	1,367,083	1,346,214	1,096,726	249,488
Manitoba	700,139	368,065	332,074	557,806	296,095	261,711	270,672	225,764	44,908
Saskatchewan	921,785	499,935	421,850	705,350	390,105	315,245	338,911	301,435	37,476
Alberta	731,605	400,199	331,406	572,129	319,840	252,289	286,203	252,742	33,461
Prairie Provinces	*2,353,529*	*1,268,199*	*1,085,330*	*1,835,285*	*1,006,040*	*829,245*	*895,786*	*779,941*	*115,845*
British Columbia	694,263	385,219	309,044	583,135	328,983	254,152	306,263	262,515	43,748

XX.—PERCENTAGE DISTRIBUTION BY PROVINCES OF TOTAL POPULATION, POPULATION 10 YEARS OF AGE AND OVER AND GAINFULLY OCCUPIED POPULATION, BY SEX, CANADA AND PROVINCES, 1931

Province	Total Population			Population 10 Years and over			Gainfully Occupied		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
CANADA	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Prince Edward Island	0·85	0·85	0·85	0·85	0·84	0·86	0·82	0·85	0·65
Nova Scotia	4·95	4·90	5·00	4·93	4·87	5·00	4·61	4·70	4·20
New Brunswick	3·94	3·89	3·99	3·80	3·74	3·87	3·56	3·62	3·31
Maritime Provinces	*9·74*	*9·64*	*9·85*	*9·59*	*9·46*	*9·73*	*9·00*	*9·16*	*8·16*
Quebec	27·74	26·97	28·56	26·57	25·67	27·55	26·12	25·24	30·40
Ontario	33·12	32·59	33·68	34·21	33·49	34·99	34·28	33·63	37·47
Manitoba	6·76	6·86	6·65	6·84	6·96	6·70	6·89	6·92	6·74
Saskatchewan	8·90	9·32	8·44	8·64	9·17	8·07	8·63	9·24	5·63
Alberta	7·06	7·46	6·63	7·01	7·52	6·46	7·29	7·75	5·03
Prairie Provinces	*22·71*	*23·63*	*21·72*	*22·49*	*23·66*	*21·23*	*22·81*	*23·91*	*17·40*
British Columbia	6·70	7·18	6·19	7·15	7·74	6·51	7·80	8·05	6·57

An inspection of these tables discloses the information that the 3,431,683 persons living in the province of Ontario in 1931 represented one-third of the total population in all provinces combined, and that the 2,874,255 persons residing in Quebec accounted for 27·74 p.c. of the Dominion total. In other words, 60·86 p.c. or three-fifths of the Canadian population at the 1931 Census were resident in these two provinces. A total of 2,353,529 persons or between one-fifth and one-quarter of Canada's population was found in the Prairie Provinces. If to the population of the Prairie Provinces is added the 694,263 persons living in British Columbia, the aggregate population of over three millions for these western provinces is somewhat larger than the population of Quebec though 383,891 less than the population of Ontario. Just over one million persons were residents of the Maritime Provinces, or about one-tenth of the population of the Dominion. As between sexes the males show a slightly greater proportion of their number living in the western provinces than was the case among the females.

The distribution by provinces of the population 10 years of age and over is also represented in the preceding statements in order to provide a truer basis of comparison with the provincial distribution of the gainfully occupied, for the latter, according to census definition, are all persons 10 years of age and over. It is evident from a glance at Statement XX that the distribution of the gainfully occupied by provinces corresponds more closely with the distribution of the population 10 years of age and over than with the distribution of the total population.

The first important fact to be derived from these figures is that the working population in 1931 was distributed by provinces in approximately the same proportions as the total population, or as the population at working ages, *i.e.*, 10 years of age and over. For example, the 1,346,214 persons in gainful occupations in Ontario accounted for just over one-third of the total gainfully occupied in Canada; the 1,025,709 in Quebec just over one-quarter; the 895,786 in the Prairie Provinces a little more than one-fifth; the 353,258 in the Maritimes slightly less than one-tenth, and the 306,263 in British Columbia about one-thirteenth of the total in gainful occupations in the Dominion. The second fact is that, though males and females were about equally represented in the total population and in the population 10 years of age and over, in the gainfully occupied population the proportion of males to females was almost five to one.

From what has been said regarding the close similarity between the distribution of the population by provinces and the provincial distribution of the gainfully occupied it will be apparent that the proportion of the population in gainful occupations does not vary materially from province to province. Statement XXI which gives the percentage of the total population, and of the population 10 years of age and over, in gainful occupations by provinces illustrates this fact.

XXI.—PERCENTAGES OF TOTAL POPULATION AND OF POPULATION 10 YEARS OF AGE AND OVER IN GAINFUL OCCUPATIONS, BY SEX, CANADA AND PROVINCES, 1931 AND 1921

Province	P.C. Gainfully Occupied of											
	Total Population						Population 10 Years and over					
	1931			1921			1931			1921		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
CANADA	37·90	60·77	13·33	36·16	59·33	11·52	48·13	76·69	17·04	47·56	77·52	15·27
Prince Edward Island	36·54	61·28	10·20	35·10	60·27	9·27	46·39	77·47	13·01	44·94	77·22	11·86
Nova Scotia	35·31	58·21	11·19	35·42	58·83	11·18	45·00	73·95	14·30	45·98	76·28	14·53
New Brunswick	34·30	56·53	11·06	34·24	57·23	10·43	45·12	74·12	14·60	45·48	75·82	13·88
Maritime Provinces	*35·01*	*57·80*	*11·05*	*34·94*	*58·34*	*10·72*	*45·17*	*74·33*	*14·31*	*45·69*	*76·19*	*14·04*
Quebec	35·69	56·89	14·18	33·27	54·78	11·78	47·32	75·43	18·81	45·22	74·44	16·01
Ontario	39·23	62·71	14·83	38·13	62·31	13·44	48·23	77·02	18·25	48·12	78·70	16·95
Manitoba	38·66	61·34	13·52	35·51	57·70	10·94	48·52	76·25	17·16	47·92	76·87	14·98
Saskatchewan	36·77	60·29	8·88	35·24	58·52	7·23	48·05	77·27	11·89	49·63	80·06	10·56
Alberta	39·12	63·15	10·10	36·75	60·18	8·00	50·02	79·02	13·26	49·82	79·34	11·24
Prairie Provinces	*38·06*	*61·50*	*10·67*	*35·78*	*58·78*	*8·65*	*48·81*	*77·53*	*13·97*	*49·15*	*78·86*	*12·25*
British Columbia	44·11	68·15	14·16	41·89	66·19	11·04	52·52	79·80	17·21	52·25	80·57	14·21

Approximately three-fifths of the total male population in Canada in 1931 were found in gainful occupations and about one-eighth of the females. (According to census practice the largest single class of adult females, *viz.*, "homemakers," doing housework in their own homes without wages and having no other employment, were not included among the gainfully occupied.) As between provinces the percentage of the males in gainful occupations varied between 56 and

63 p.c. of the total population, with the exception of British Columbia where the percentage was somewhat higher—68·15 p.c. Differences between provinces in this regard reflect in the main the differences that exist in the age composition of the population in the various provinces: In British Columbia, for example, a much greater proportion of its male population was of working age in 1931 than was the case generally. Likewise for females, such variations as existed between provinces in the percentage gainfully occupied were largely attributable to the influence of the age factor, though differences in the types of employment available in the various provinces were also responsible. The higher percentage of women in gainful occupations in the provinces of Ontario and Quebec than elsewhere was no doubt due to the greater opportunities for female employment provided by the factories of those provinces.

Turning to the section of the statement showing the percentage of the population 10 years of age and over in gainful occupations, it will be noted that over three-quarters of the males at working ages were gainfully occupied in 1931 and about one-sixth of the females were following gainful occupations. Reasons for variations by provinces in the percentage gainfully occupied have been discussed above. Summarizing the provincial figures it might be stated that a smaller percentage of the males in the Maritime Provinces and Quebec was gainfully occupied than in Ontario and the Western Provinces, while among females the Maritimes, Saskatchewan and Alberta showed a smaller proportion of their number in gainful occupations than Quebec, Ontario, Manitoba, and British Columbia. The importance of agriculture—an industry in which females are not employed to any large extent—in the economic life of the provinces of Saskatchewan and Alberta accounted for the lower percentage of females in gainful employment in those provinces than elsewhere. Though primary industries which, as will be seen, afford less scope for female employment than manufacturing, trade or service, were also important in Manitoba and British Columbia, it so happened that these latter provinces provided more employment for women in trade and manufacturing than did Saskatchewan or Alberta.

Comparative Rates of Growth in the Decade 1921-1931.—Comparing the 1921 and 1931 percentages in Statement XXI, it will be noted that the percentage of the total population in gainful occupations, both male and female, increased between 1921 and 1931 in all provinces, with the exception of the Maritimes. There the proportion of the male population in gainful occupations declined over the decennial period while the females showed little change. The tendency for the proportion of the total population in gainful occupations to increase was due to the fact that the proportion of the total population at working ages had likewise increased between 1921 and 1931. The population 10 years and over was 76·02 p.c. of the total population of Canada in 1921 and 78·73 p.c. in 1931. Conversely, the proportion of children who were not of working age was greater in 1921 than in 1931. Hence a comparison for these two census years of the proportion of the population *10 years of age and over* in gainful employment will provide more definite conclusions. On the latter basis, it is found that the percentage of males (10 years of age and over) in gainful occupations in 1931 was less than in 1921 in all provinces except Quebec and Prince Edward Island. On the other hand, a higher percentage of the females 10 years of age and over was gainfully occupied in 1931 than in the earlier census year, and this was true in every province, with the exception of Nova Scotia where there was scarcely any change.

The changes which have taken place between 1921 and 1931 in the relationship between the total population, the population 10 years of age and over, and the population in gainful occupations, as described in the preceding paragraph, are deserving of further attention. In this connection a comparison of the rate of growth of the population at all ages, the population under and over 10 years of age, and the working population is pertinent.

In the first place, the increase in the total male population over this decade might be compared with the increase in gainfully occupied males. It is discovered that while the former showed an 18·66 p.c. increase from 1921 to 1931, the latter increased by 21·56 p.c. The reason for the slower rate of growth of the total male than of the gainfully occupied male population has already been indicated in the reference made to the decline since 1921 in the relative importance of the population under working age to the population as a whole. Actually males under 10 years of age increased by only 4·96 p.c. between 1921 and 1931 whereas those over that age recorded a growth of 22·86 p.c.—slightly higher in fact than the percentage increase

(21·56 p.c.) shown by the gainfully occupied male population. It might be explained that the slower rate of increase among gainfully occupied males than among all males 10 years of age and over was accounted for by the decrease in the proportion of males 10-17 years of age, in gainful occupations between 1921 and 1931. In the former year 24·02 p.c. of the males between these years were gainfully occupied while in 1931 the percentage was rather lower, at 18·66 p.c.

Among females the rates of growth recorded by the total population and the population under and over 10 years of age corresponded closely with the rates shown for males in these age categories. While the total female population increased by 17·47 p.c. between 1921 and 1931, females under 10 years of age increased by only 4·45 p.c. and those 10 years and over showed a percentage growth of 21·70 p.c. As compared with these rates of growth the gainfully occupied female population registered a 35·85 p.c. increase over the decade. This was a considerably faster rate of increase than for gainfully occupied males—the rate for the latter being only 21·56 p.c.

As was true of the males, the proportion of females 10-17 years of age in gainful occupations fell over the ten-year period. Only 6·20 p.c. of the females between these ages reported gainful occupations in 1931 as compared with 8·25 p.c. in 1921. However, between the ages of 18 and 34, the period in life when women are most fully represented in gainful occupations, 31·24 p.c. of the females were gainfully occupied in 1931 as compared with only 25·60 p.c. in 1921.

The much more rapid growth in gainfully occupied female population than in the male is a phenomenon of more than passing interest to the student of the problem of unemployment in Canada. Whether this condition has involved some displacement of males by females in certain occupations, and thus accentuated male unemployment in these occupations, or whether its influence upon the character of the unemployment existing in 1931 has been more indirect is a question which will receive some attention in the chapters that follow.

Bearing in mind what has been said regarding the more rapid rate of increase of gainfully occupied females than of males between 1921 and 1931 and remembering that since 1901 a constantly increasing proportion of the females at working ages, *i.e.*, 10 years and over, has been entering gainful employment while the proportion of males at these ages in gainful occupations has declined, the following statement from a recent International Labour Office Study* on the combined effect of population changes, technical progress, and economic development on unemployment is interesting. "Experience shows," the writer observes, "that over a period of several decades the occupied population in any country maintains a more less constant ratio to the number of persons of working age. After the War the idea was current for some time that this ratio was no longer constant, having been upset by the recent rapid increase in the number of women in employment. But careful research failed to confirm this view." In Canada the ratio for the two sexes combined has remained fairly steady as a result of a decline in the proportion of males at working ages in gainful occupations being counterbalanced by an increase in the proportion of females at these ages entering into gainful employment.

Before leaving this subject of the comparative rate of growth of the total population, the population 10 years of age and over, and the population in gainful occupations it may be helpful to present in tabular form what has already been said above in order to gather together in concise fashion the materials upon which that analysis has been based.

*Woytinsky, Wladimir: *Three Sources of Unemployment.* International Labour Office Studies and Reports—Series C, No. 20—1935.

XXII.—TOTAL POPULATION, POPULATION UNDER AND OVER 10 YEARS OF AGE AND GAINFULLY OCCUPIED AND WAGE-EARNING POPULATIONS, WITH THE PERCENTAGE INCREASE IN THE DECADE, BY SEX, CANADA, 1931-1921

Population Class	Males			Females		
	1931	1921	P.C. Increase 1921-1931	1931	1921	P.C. Increase 1921-1931
Total population	5,366,502	4,522,512	18·66	4,996,331	4,253,341	17·47
Under 10 years of age	1,113,965	1,061,274	4·96	1,089,809	1,043,343	4·45
10 years of age and over	4,252,537	3,461,238	22·86	3,906,522	3,209,998	21·70
Gainfully occupied	3,261,371	2,683,019	21·56	665,859	490,150	35·85
Wage-earners	2,022,260	1,545,894	30·81	547,837	426,195	28·54

To anyone interested in the employment-unemployment problem one other fact of significance besides that of the differential rate of increase as between gainfully occupied males and gainfully occupied females may be derived from this statement. This has to do with the slow rate of growth of the child population under 10 years of age. For both males and females there was an increase of less than 5 p.c. from 1921 to 1931. Incidentally, children under 10 years of age increased by 26 p.c. between 1911 and 1921. The decline in the rate of growth of the child population under this age (many of these have now reached an employable age) has a special bearing upon the problem of juvenile unemployment. It would appear that the actual number of children coming of employable age at this time is showing a tendency to fall off.

As touching upon the subjects of juvenile employment and unemployment the phenomenon, to which reference has already been made, of the declining proportion of young people 10-17 years of age in gainful occupations ought to be recalled at this point. This condition was apparent in the case of both males and females. Evidently it is consistent with the general tendency towards raising the school-leaving age. From the point of view of employment the number of young persons between these ages seeking jobs is thereby greatly reduced.

Before concluding this analysis of the growth of the population in relation to the increase in the gainfully occupied, a brief survey of the situation from the regional standpoint is necessary. In Statement XXIII the percentage increase in the total population and in the gainfully occupied population from 1921 to 1931 is shown by provinces.

XXIII.—PERCENTAGE INCREASE IN DECADE IN TOTAL AND GAINFULLY OCCUPIED POPULATIONS, BY SEX, CANADA AND PROVINCES, 1931-1921

Province	P.C. Increase 1921-1931 in					
	Total Population			Gainfully Occupied		
	Both Sexes	Male	Female	Both Sexes	Male	Female
CANADA	18·08	18·66	17·47	23·76	21·56	35·85
Prince Edward Island	− 0·65	1·13	− 2·47	3·41	2·83	7·25
Nova Scotia	− 2·10	− 1·26	− 2·96	− 2·41	− 2·31	− 2·93
New Brunswick	5·24	5·71	4·76	5·42	4·42	11·12
Maritime Provinces	*0·88*	*1·65*	*0·08*	*1·08*	*0·72*	*3·15*
Quebec	21·76	22·67	20·85	30·57	27·36	45·47
Ontario	16·98	18·01	15·92	20·36	18·77	27·87
Manitoba	14·75	14·82	14·69	24·94	22·06	41·75
Saskatchewan	21·69	20·84	22·70	26·94	24·50	50·75
Alberta	24·33	23·44	25·42	32·35	29·54	58·27
Prairie Provinces	*20·32*	*19·81*	*20·91*	*27·99*	*25·36*	*49·13*
British Columbia	32·35	31·29	33·69	39·38	35·17	71·47

It will be noted that while the total population and the population in gainful occupations remained almost stationary in the Maritime Provinces, the losses in Nova Scotia being counterbalanced by the gains in New Brunswick, the remaining provinces showed increases, though of widely varying extent. In Quebec the growth in both the total population and the gainfully occupied was more rapid than for Canada as a whole. In Ontario the rate of growth fell short of the Dominion rate. In Manitoba the total population increased at a slower rate than in Canada while the increase in the gainfully occupied was more rapid than the average rate of increase for all provinces combined. Saskatchewan, Alberta and British Columbia were well above the average in the rate of increase of the population as a whole and in the rate of increase of the proportion in gainful occupations. British Columbia recorded a remarkable growth over this decade. The total female population and the gainfully occupied increased at rates almost double those noted for all provinces combined. Perhaps it is of significance in this connection to mention that British Columbia showed the highest percentage of unemployment in Canada at the Census of 1931.

With these remarks on the past and present relation between the total population and the number in gainful occupations in Canada and its provinces, consideration may now be given to the place of the wage-earners in the population generally as well as in the total gainfully occupied population.

Proportion of Wage-Earners in Each Class.—Statement XXIV gives a numerical and percentage distribution of wage-earners by provinces at the 1931 Census. For comparative purposes a percentage distribution of the gainfully occupied is added. (See also Statements XIX and XX.)

XXIV.—NUMERICAL AND PERCENTAGE DISTRIBUTION OF WAGE-EARNING POPULATION AND PERCENTAGE DISTRIBUTION OF GAINFULLY OCCUPIED POPULATION, BY SEX, CANADA AND PROVINCES, 1931

Province	Wage-Earners						P.C. of Gainfully Occupied		
	No.			P.C.					
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
CANADA	2,570,097	2,022,260	547,837	100·00	100·00	100·00	100·00	100·00	100·00
Prince Edward Island	12,344	9,159	3,185	0·48	0·45	0·58	0·82	0·85	0·65
Nova Scotia	117,781	95,244	22,537	4·58	4·71	4·11	4·61	4·70	4·20
New Brunswick	84,232	66,310	17,922	3·28	3·28	3·27	3·56	3·62	3·31
Maritime Provinces	*214,357*	*170,713*	*43,644*	*8·34*	*8·44*	*7·97*	*9·00*	*9·16*	*8·16*
Quebec	696,339	535,203	161,136	27·09	26·47	29·41	26·12	25·24	30·40
Ontario	965,607	752,851	212,756	37·57	37·23	38·84	34·28	33·63	37·47
Manitoba	170,739	132,883	37,856	6·64	6·57	6·91	6·89	6·92	6·74
Saskatchewan	145,568	116,157	29,411	5·66	5·74	5·37	8·63	9·24	5·63
Alberta	142,421	116,005	26,416	5·54	5·74	4·82	7·29	7·75	5·03
Prairie Provinces	*458,728*	*365,045*	*93,683*	*17·85*	*18·05*	*17·10*	*22·81*	*23·91*	*17·40*
British Columbia	235,066	198,448	36,618	9·15	9·81	6·68	7·80	8·05	6·57

It will be observed that the distribution of wage-earners by provinces shows one or two notable differences from the distribution of the gainfully occupied and, therefore, in view of what has been noted in the foregoing, from the distribution of the population. The percentage of total wage-earners in Canada found in the province of Ontario was somewhat higher than the percentage of the total gainfully occupied in this province, 37·57 p.c. of total wage-earners as compared with 34·28 p.c. of the total gainfully occupied being located here. On the other hand, only 17·85 p.c. of the wage-earners were found in the Prairie Provinces as compared with 22·81 p.c. of the gainfully occupied. A slightly greater proportion of total wage-earners than of total gainfully occupied was located in British Columbia and in Quebec, while a slightly smaller proportion of the former than of the latter was found in the Maritime Provinces. It is, of course, in urban areas that wage-earners predominate, and in respect to urbanization Ontario rather exceeds the average for all provinces combined while the Prairie Provinces, particularly Saskatchewan and Alberta, are considerably below the average.

It is of assistance in visualizing the scope of the employment problem to remember that in 1931 about 960,000 wage-earners were living in Ontario, nearly 700,000 in Quebec, about 460,000 in the Prairie Provinces, 235,000 in British Columbia and about 215,000 in the Maritime Provinces.

As in the case of the gainfully occupied, males were considerably in excess of females, there being about four male wage-earners in Canada to every female wage-earner, the ratio varying between provinces according as the ratio of total males to total females at working ages varied and according as the types of industry differed from province to province.

Before describing the relationship that existed in 1931 between the gainfully occupied population and the elements of which it was composed, *i.e.*, the employers, own accounts, wage-earners and no pays, it might be of some interest to show the percentage of wage-earners in the total population and in the population 10 years of age and over, of each province. Such a table should be compared with Statement XXI where the percentage of the population in gainful occupations was shown by provinces for 1921 and 1931.

XXV.—PERCENTAGES OF TOTAL POPULATION AND OF POPULATION 10 YEARS OF AGE AND OVER IN WAGE-EARNING OCCUPATIONS, BY SEX, CANADA AND PROVINCES, 1931 AND 1921

Province	P.C. Wage-Earners in											
	Total Population						Population 10 Years and over					
	1931			1921			1931			1921		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
CANADA	24·80	37·68	10·96	22·47	34·18	10·02	31·50	47·55	14·02	29·56	44·66	13·28
Prince Edward Island	14·02	20·18	7·47	12·84	18·10	7·43	17·80	25·51	9·53	16·43	23·19	9·50
Nova Scotia	22·97	36·20	9·02	22·54	35·02	9·62	29·27	45·99	11·54	29·26	45·40	12·51
New Brunswick	20·63	31·79	8·98	20·70	32·03	8·97	27·14	41·68	11·85	27·50	42·44	11·95
Maritime Provinces	*21·24*	*33·01*	*8·87*	*20·97*	*32·37*	*9·18*	*27·41*	*42·45*	*11·49*	*27·43*	*42·27*	*12·02*
Quebec	24·23	36·98	11·29	21·38	32·79	9·97	32·13	49·04	14·97	29·05	44·56	13·56
Ontario	28·14	43·05	12·64	25·88	39·55	11·93	34·60	52·87	15·56	32·66	49·95	15·04
Manitoba	24·39	36·10	11·40	21·00	31·12	9·79	30·61	44·88	14·46	28·33	41·46	13·40
Saskatchewan	15·79	23·23	6·97	13·73	19·98	6·20	20·64	29·78	9·33	19·33	27·34	9·05
Alberta	19·47	28·99	7·97	17·46	26·07	6·89	24·89	36·27	10·47	23·67	34·37	9·68
Prairie Provinces	*19·49*	*28·78*	*8·63*	*17·12*	*25·22*	*7·56*	*24·99*	*36·29*	*11·30*	*23·51*	*33·84*	*10·68*
British Columbia	33·86	51·52	11·85	31·17	48·12	9·65	40·31	60·32	14·41	38·88	58·57	12·43

The percentage that wage-earners form of the total poulation or of the population 10 years and over is, of course, much lower than the corresponding percentage for the gainfully occupied (see Statement XXI). The difference is greater for males than for females and for provinces that are largely agricultural in which wage-earners constitute a minor part of the total gainfully occupied population, than elsewhere. In 1931 only 37·68 p.c. of the total male population in Canada and 47·55 p.c. of the male population 10 years of age and over were wage-earners, as compared with 60·77 p.c. and 76·69 p.c., respectively, that were gainfully occupied. Of the total female population in Canada in 1931, 10·96 p.c. were wage-earners as compared with 13·33 p.c. gainfully occupied, and of the female population 10 years of age and over 14·02 p.c. were wage-earners as compared with 17·04 p.c. in all gainful occupations. In the provinces of Saskatchewan, Alberta and Prince Edward Island where agriculture occupies a prominent place in the industrial life of the province only 29·78 p.c., 36·27 p.c. and 25·51 p.c., respectively of the male population at working ages were found in wage-earning occupations in 1931 as compared with 49·04 p.c. for Quebec, 52·87 p.c. for Ontario and 60·32 p.c. for British Columbia. As was shown in Statement XXI, none of these provinces recorded any appreciable variation in the percentage of the males at working ages in gainful occupations from the percentage of 76·69 for Canada.

It will be clear from this comparison that the information for wage-earners, as found in Statement XXV, should be studied in conjunction with data in Statement XXI, for the proportion of the population in gainful occupations—and this is especially true of the males—was by no means fully represented by the percentage in wage-earning employments. Used in this fashion the one (Statement XXI) may be considered as answering the question: "Upon what proportion of its number does the population of this country depend for its support?" The other (Statement XXV) will be turned to for information as to the proportion of the population contributing towards this support in receipt of wage or salary.

It will be noticed that both male and female wage-earners constituted a larger proportion of the population at all ages and the population 10 years and over in 1931 than in 1921. This change in their relation to the population was not wholly consistent with the changes, previously described, in the relationship of the gainfully occupied as a whole to the population between 1921 and 1931. It was pointed out that gainfully occupied males formed a smaller part of the male population 10 years and over in 1931 than in 1921, and this appeared to be due to the falling off in the proportion of children 10-17 years of age in gainful occupations over this decennial period. From these observations it is evident that males in wage-earning occupations increased at a faster rate than total males in gainful occupations between 1921 and 1931.

Turning back to Statement XXII it is discovered that male wage-earners increased by 30·81 p.c. between 1921 and 1931 as compared with a 21·56 p.c. increase for all males in gainful occupations. This increase on the part of male wage-earners was not only much more rapid than for the total male population in gainful occupations but also for the total male population at working ages. The latter increased by 22·86 p.c. over the decade under consideration. Female wage-earners it will be noted increased by 28·54 p.c., or at a slightly slower rate than the males. Females

at working ages increased by 21·70 p.c. and gainfully occupied females by 35·85 p.c. Actually the true increase in female wage-earners between 1921 and 1931 can not be derived from the figures that exist owing to certain differences in the method of classification of wage-earning as distinct from no pay (unpaid family worker) females in a number of occupations at the two census years. After allowance was made for these differences in classification procedure it was estimated that female wage-earners actually increased by 34·03 p.c. between 1921 and 1931 as compared with a 30·81 p.c. increase for the males.

While comparing the increase of male wage-earners with the increase of female wage-earners between 1921 and 1931, attention should be given to one special feature, *viz.*, the increase recorded by young persons as compared with adults. Males 20 years and over increased by 35·02 p.c. and females over that age by 36·04 p.c. compared with the increases, already noted, of 30·81 p.c. for males and 28·54 p.c. for females of all ages. Under 20 years of age, however, male wage-earners actually declined 0·34 p.c. over the ten years between 1921 and 1931, while females under that age registered a gain of only 8·41 p.c. As affecting the age composition of the wage-earners and as bearing upon the problem of unemployment among young people these facts can not receive too much emphasis. More attention will be given to the age factor in later chapters.

The percentage increase in wage-earners from 1921 to 1931 is given by provinces in Statement XXVI.

XXVI.—PERCENTAGE INCREASE IN DECADE IN WAGE-EARNING POPULATION, BY SEX, CANADA AND PROVINCES, 1931-1921

Province	P.C. Increase in Wage-Earners 1921-1931		
	Both Sexes	Male	Female
CANADA	30·32	30·81	28·54
Prince Edward Island	8·53	12·73	−1·97
Nova Scotia	−0·26	2·07	−9·01
New Brunswick	4·88	4·90	4·83
Maritime Provinces	*2·19*	*3·68*	*−3·26*
Quebec	37·96	38·31	36·80
Ontario	27·18	28·45	22·89
Manitoba	33·29	33·21	33·57
Saskatchewan	39·98	40·49	38·00
Alberta	38·64	37·24	45·10
Prairie Provinces	*37·01*	*36·74*	*38·06*
British Columbia	43·77	40·55	64·15

This statement should be compared with Statement XXIII where the percentage increase in the total population and the gainfully occupied population over this period is shown by provinces. Differences by provinces in the rate of increase of wage-earners reflected fairly closely differences in population growth. Similarly there was a generally uniform relation as between provinces in the rate of increase of the total in gainful occupations and of the number of wage-earners. The correspondence is broken in one or two instances. For example, Saskatchewan recorded a smaller gain in gainfully occupied males between 1921 and 1931 than Alberta, a 24·50 p.c. increase for the former as compared with a 29·54 p.c. increase for the latter, but a larger increase in male wage-earners, the percentage for Saskatchewan being 40·49 as compared with 37·24 for Alberta. Incidentally, it should be noted that urbanization was going on at a faster rate over this decade in Saskatchewan than in Alberta. Each province, however, did show a more rapid increase in male wage-earners than in the total of gainfully occupied males and a slower rate of increase for females in wage-earning occupations than in all gainful occupations. As has been explained, the slower rate of increase for female wage-earners than for the total of gainfully occupied females appears to be due almost wholly to differences of classification procedure at the two censuses for which comparison is being made.

Rural-Urban and Sex Aspects.—Before concluding this analysis of the relation between the total population, the population in gainful occupations and the wage-earners, a comparison of their relative growth in urban areas may be appropriate in view of the examination in a later chapter of unemployment in urban centres. It is, of course, in urban communities that wage-earners were mainly found, over 68·35 p.c. of their number living in urban communities of 1,000 population and over in 1931.

Unfortunately no figures exist for 1921 showing the total gainfully occupied and the number of wage-earners in urban areas of 1,000 population and over. Hence no comparison of population growth with the growth in total gainfully occupied or with the growth of the number in wage-earning occupations is possible for these urban communities. A comparison of this kind is only possible for cities of 30,000 population and over at the 1921 Census.

Comparing, first, the growth in the population at working ages, *i.e.*, 10 years of age and over, with the increase in the number in gainful occupations in these cities as a group it is discovered that all males 10 years of age and over increased by 38·41 p.c. over the decade under review as compared with a 34·97 p.c. increase in gainfully occupied males. For females the percentage increases were 34·51 and 40·52 respectively. It will be remembered that for Canada as a whole the growth of the total population at working ages and the gainfully occupied was not so pronounced, males 10 years and over increasing by 22·86 p.c. between 1921 and 1931 and gainfully occupied males by 21·56 p.c., while total females 10 years of age and over increased by 21·70 p.c. and gainfully occupied females by 35·85 p.c.

An examination of these figures reveals that in both the urban areas of 30,000 and over and in the Dominion as a whole, gainfully occupied males increased more slowly than all males at working ages, *i.e.*, 10 years of age and over. It would appear, however, from these figures that gainfully occupied males showed a slower growth relative to the growth in total males 10 years of age and over, in these cities than in Canada as a whole. On the other hand, gainfully occupied females increased more rapidly than total females 10 years of age and over, during this decennial period, both in Canada and in cities of 30,000 and over. As was true of the males, gainfully occupied females did not show as large an increase relative to the increase in total females 10 years of age and over, in these urban centres as in Canada generally.

In the cities the decrease in the proportion of young persons 10-17 years of age in gainful occupations between 1921 and 1931 was greater than in Canada as a whole, and this factor probably accounted for the slower rate of increase in the gainfully occupied relative to the growth in the total population at working ages in the cities than in Canada. In the former the percentage of males in gainful occupations between the ages of 10 and 17 fell from 19·63 to 12·49, or 36·37 between 1921 and 1931, while for females the percentage declined from 15·15 to 9·41, or 37·89, over this period. For Canada the percentage decrease for males between these ages was 22·31 and for females 24·85, a much smaller decline in both cases.

Male wage-earners showed an increase of 41·16 p.c. from 1921 to 1931 in the cities of 30,000 population and over as compared with a 30·81 p.c. increase in Canada, while for females the percentages were 38·31 and 28·54 respectively. Contrary to what was discovered for gainfully occupied males as a whole, those in wage-earning occupations increased more rapidly than total males at working ages in both the cities and the country generally. Female wage-earners, like total females in gainful occupations, showed a faster rate of increase than total females at working ages in the cities of 30,000 and over, and in Canada as a whole. As would be expected male wage-earners in Canada showed a faster rate of increase relative to the growth in the total male population at working ages than male wage-earners in the cities to the total male population at working ages in these cities. The same was true but to a lesser degree for females. The movement in population from rural to urban centres over the decade with consequent changes in the ratio of wage-earners to total gainfully occupied is at the basis of the trends thus disclosed. These relationships are represented in summary form in the following statement:—

XXVII.—PERCENTAGE INCREASE IN DECADE IN POPULATION 10 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED AND WAGE-EARNING POPULATIONS, BY SEX, FOR TOTAL OF CITIES OF 30,000 POPULATION AND OVER COMPARED WITH CANADA AS A WHOLE, 1931-1921

Population Class	Males			Females		
	1931	1921	P.C. Increase 1921-1931	1931	1921	P.C. Increase 1921-1931
	CITIES OF 30,000 AND OVER[1]					
10 years of age and over	1,148,613	829,860	38·41	1,182,002	878,730	34·51
Gainfully occupied	887,996	657,928	34·97	303,757	216,171	40·52
Wage-earners	753,390	533,731	41·16	256,287	185,299	38·31
	CANADA					
10 years of age and over	4,252,537	3,461,238	22·86	3,906,522	3,209,998	21·70
Gainfully occupied	3,261,371	2,683,019	21·56	665,859	490,150	35·85
Wage-earners	2,022,260	1,545,894	30·81	547,837	426,195	28·54

[1] Based on cities of 30,000 population and over in 1921.

What has just been observed in respect to the relative rate of increase of the total gainfully occupied and the wage-earners is brought out in another way in Statement XXVIII, where the percentage of all gainfully occupied persons in wage-earning occupations is given by provinces for 1921 and 1931.

XXVIII.—PERCENTAGES OF GAINFULLY OCCUPIED POPULATION IN WAGE-EARNING OCCUPATIONS, BY SEX, CANADA AND PROVINCES, 1931 AND 1921

Province	P.C. Wage-Earners of Gainfully Occupied					
	1931			1921		
	Both Sexes	Male	Female	Both Sexes	Male	Female
CANADA	65·44	62·01	82·28	62·15	57·62	86·95
Prince Edward Island	38·38	32·92	73·25	36·57	30·03	80·14
Nova Scotia	65·04	62·19	80·67	63·64	59·52	86·07
New Brunswick	60·16	56·23	81·20	60·47	55·97	86·07
Maritime Provinces	*60·68*	*57·11*	*80·29*	*60·02*	*55·48*	*85·61*
Quebec	67·89	65·01	79·60	64·25	59·86	84·65
Ontario	71·73	68·65	85·28	67·88	63·47	88·73
Manitoba	63·08	58·86	84·30	59·13	53·93	89·45
Saskatchewan	42·95	38·53	78·48	38·95	34·15	85·74
Alberta	49·76	45·90	78·95	47·51	43·32	86·11
Prairie Provinces	*51·21*	*46·80*	*80·87*	*47·84*	*42·91*	*87·35*
British Columbia	76·75	75·59	83·70	74·41	72·70	87·44

From this statement it will be seen that male wage-earners had become a larger proportion of all gainfully occupied males in 1931 than in 1921 and that this was true in every province. For females the opposite appears to have occurred. Actually there was probably very little difference between the two years in the percentage of the gainfully occupied females in wage-earning occupations. Had the 1931 definition of "no pays" applied in 1921 it is likely the percentage for the earlier year would have been slightly above or below the percentage of 82·28 for 1931.

The trend toward a greater urbanization of the population of Canada from 1921 to 1931, which was characterized in the employment field by a falling off in the position of agriculture relative to other industries in the proportion of the working population engaged therein, was associated with a considerable increase in the percentage of wage-earners in the total of gainfully occupied males over this decade. It is in agriculture that the bulk of the "other-than-wage-earners" are found. Hence, its failure to keep pace with the expansion in other industries employing mainly wage-earners is the reason why the percentage of wage-earners in the total of males in gainful occupations rose from 57·62 p.c. in 1921 to 62·01 p.c. in 1931.

An examination of the statistics of gainfully occupied males in agriculture for 1921 and 1931 disclosed that there had been an 8·22 p.c. increase in their number over this ten-year period. This increase might be compared with the 21·56 p.c. increase already noted for total males in gainful occupations. When it is realized that one-third of the gainfully occupied males in Canada are employed in agriculture it will be appreciated that a slowing down in the growth of this industry, as measured by the number of persons normally engaged therein in relation to the development of other industries, is bound to make a considerable change in the composition of the working population. This is especially true from the standpoint of the relation of the wage-earning class to the total gainfully occupied population, for 73·22 p.c. of the males in "other-than-wage-earner" classes, *i.e.*, employers, own accounts and unpaid family workers, were found in agriculture in 1931 and they constituted over 80 p.c. of all gainfully occupied males in this industry. Hence a decline in agriculture relative to other industries involved a decline in employers, own accounts and no pays relative to wage-earners. Actually this 73·22 p.c. of total "other-than-wage-earners" showed a 6·96 p.c. increase between 1921 and 1931. It might be added that the total of "other-than-wage-earner" males in Canada increased by 8·97 p.c. over this decade as compared with the 30·81 p.c. increase shown for male wage-earners over the same period.

For females, there was apparently less change, after allowing for classification differences, in the proportion of wage-earners in the gainfully occupied as a whole between 1921 and 1931 than was the case with the males. This was partly due to the fact that females were not found to anything like the same extent as males in agriculture. In the fields of employment in which females were found, those employed in an employer or own account capacity did on the whole increase at a slightly faster rate than the wage-earners. The number of females in certain occupations which were largely own account in their nature declined between 1921 and 1931 but the

loss was more than made up in the marked growth in the number of "lodging house keepers" on own account. A considerable number of these women were forced into the ranks of the gainfully occupied through economic necessity, their husbands being unemployed and showing lengthy periods of unemployment and low earnings over the year period immediately preceding the date of the census. However, the chief cause of this large increase in "lodging house keepers" was the change made in the 1931 Census in the definition of the class "lodging and boarding house keepers." Statement XXIX lists the chief occupations in which gainfully occupied females of employer or own account status were found in 1921 and 1931 and gives the increase or decrease which took place in their number over this period.

XXIX.—NUMBER OF FEMALES OF OWN ACCOUNT AND EMPLOYER STATUS IN SELECTED OCCUPATIONS AND PERCENTAGE INCREASE IN THE DECADE, CANADA, 1931-1921

Occupation	Female Employers and Own Accounts			
	1931	1921	Increase 1921-1931	
			No.	P.C.
All occupations	73,687	51,263	22,424	43·74
Farmers'	18,869	16,090	2,779	17·27
Dressmakers and seamstresses	7,890	11,664	−3,774	−32·36
Dealers—retail stores	6,059	5,764	295	5·12
Nurses—graduate	8,830	6,366	2,464	38·71
Musicians and music teachers	3,159	2,844	315	11·08
Hotel and restaurant keepers	1,720	981	739	75·33
Lodging house keepers	18,707	4,810	13,897	288·92
Barbers and hairdressers	3,221	237	2,984	1,259·07
Washerwomen and charwomen	1,105	1,026	79	7·70
All others	4,127	1,481	2,646	178·66

It will be recalled that the estimated increase in female wage-earners between 1921 and 1931, after adjustment was made for changes in classification method, was 34·03 p.c. The percentage increase in the total of employer and own account females for the same period was 43·74. The greater increase in the latter than in the wage-earners was due, as has been already stated, to the exceptional increase in "lodging house keepers." Not including this class, the combined total of female employers and own accounts increased by only 18·36 p.c. over this decade. Incidentally, it is interesting to note that "hairdressers" increased phenomenally while "dressmakers and seamstresses" actually decreased by 32·36 p.c.

As has been explained, the wage-earners constituted a larger proportion of the total population and of the gainfully occupied in provinces where urbanization has been greatest and where, therefore, agriculture does not occupy such an important place in the industrial life of the province. Examining Statement XXVIII again it will be observed that there were substantial differences between provinces in the percentage of the gainfully occupied in wage-earning occupations. These differences are represented in Statement XXX where the percentage of gainfully occupied in wage-earning occupations in each province is shown in relation to the proportion of the population in urban and rural areas, the percentage of the population living on farms and the proportion of the total gainfully occupied in agriculture, for 1931.

XXX.—PERCENTAGES OF GAINFULLY OCCUPIED POPULATION IN WAGE-EARNING OCCUPATIONS COMPARED WITH THE DEGREE OF URBANIZATION AND THE IMPORTANCE OF AGRICULTURE IN EACH PROVINCE, CANADA, 1931

Province	P.C. of Population			P.C. of Gainfully Occupied			
	Urban	Rural	Living on Farms	In Agriculture		Wage-Earners	
				Males	Females	Males	Females
CANADA	53·76	46·24	31·74	33·85	3·64	62·01	82·28
Prince Edward Island	23·15	76·85	63·02	64·01	13·09	32·92	73·25
Nova Scotia	45·17	54·83	34·65	27·83	4·68	62·19	80·67
New Brunswick	31·59	68·41	44·15	38·40	4·48	56·23	81·20
Maritime Provinces	*37·75*	*62·25*	*40·97*	*35·37*	*5·27*	*57·11*	*80·29*
Quebec	63·10	36·90	27·03	27·32	2·27	65·01	79·60
Ontario	61·08	38·92	23·34	27·07	2·72	68·65	85·28
Manitoba	45·13	54·87	36·61	40·48	4·18	58·86	84·30
Saskatchewan	31·56	68·44	61·19	66·62	9·63	38·53	78·48
Alberta	38·07	61·93	51·27	56·42	9·18	45·90	78·95
Prairie Provinces	*37·62*	*62·38*	*50·79*	*55·75*	*7·39*	*46·80*	*80·87*
British Columbia	56·86	43·14	14·74	15·85	3·34	75·59	83·70

In Ontario where 61 p.c. of the people live in urban localities and only 23 p.c. on farms, wage-earners represented more than two-thirds (68·65 p.c.) of the gainfully occupied males in the province. In Quebec the urban population is in fact more concentrated than in Ontario with a somewhat larger percentage (27·03 p.c.) on farms, but the working population exhibited comparable features, 65 p.c. of the males being wage-earners. In the Prairie Provinces where 62 p.c. of the population were resident in rural localities and more than half were living on farms, male wage-earners represented on the average only 47 p.c. of the total number of gainfully occupied persons. In Saskatchewan and Alberta (as in Prince Edward Island) wage-earners were actually a minority of the working force. The particularly high proportion of wage-earners in British Columbia, *viz.*, 75 p.c., is a special case influenced not only by the concentration of the urban population, but by the fact that the weight of the primary industries in the Pacific Coast province is more equally shared between agriculture, mining and lumbering. In the two latter industries, in direct contrast to agriculture, wage-earners constituted practically the total engaged in these industries. With an urban-rural distribution equal to that of the Prairie Provinces but without so large a percentage of farm population, the proportion of wage-earners to total gainfully occupied in the Maritimes came mid-way between the proportions characterizing the Prairies on the one hand and the two larger eastern provinces on the other.

As for females, it may be noted that in Saskatchewan, Alberta and Prince Edward Island, where the proportion of wage-earners in the gainfully occupied female population fell below 80 p.c., the percentage of women employed in agriculture was markedly above the average. In Quebec, where the percentage was just under 80, the prevalence of nuns in the teaching and nursing professions tended to reduce the wage-earner percentage, as nuns in these professions were usually reported as "no pays."

Industrial Status in Various Occupations.—In Statements XXVIII and XXX the percentage of the total gainfully occupied in wage-earning occupations has been shown. It was pointed out that where variations as between provinces in this percentage were marked it was due to the differences that existed in the proportionate importance of agriculture in the occupational life of the provinces. Agriculture, it was explained, accounted for the bulk of the male "other-than-wage-earners." In order, therefore, that the occupational distribution of gainfully occupied persons of employer, own account, wage-earner and no pay status may be envisaged in its entirety and the predominance of agricultural occupations—so far at least as the males of "other-than-wage-earner" status are concerned—be clearly shown, Statement XXXI is presented giving the percentage of the gainfully occupied males and females, classified according to status, in each occupation group for Canada.

XXXI.—PERCENTAGE DISTRIBUTION OF GAINFULLY OCCUPIED POPULATION, BY INDUSTRIAL STATUS AND SEX, IN EACH OCCUPATION GROUP, CANADA, 1931

Occupation Group	P.C. of Gainfully Occupied									
	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
All occupations	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Agriculture	33·97	74·73	61·16	93·26	9·91	3·62	76·69	8·57	7·25	0·30
Fishing, hunting, and trapping	1·45	0·51	5·94	0·80	0·51	0·07	0·08	0·78	0·02	0·01
Logging	1·35	0·42	0·11	0·10	2·05	–	–	–	–	–
Mining, quarrying, etc	1·80	0·13	0·49	0·01	2·74	[1]	0·02	–	–	[1]
Manufacturing	10·98	4·90	5·06	0·70	15·29	12·71	1·69	14·75	2·01	13·76
Electric light and power	1·00	[1]	–	0·01	1·60	[1]	–	–	–	[1]
Construction	6·22	2·99	4·87	0·27	8·10	0·01	0·03	–	–	0·02
Transportation and communication	7·62	1·39	2·62	0·35	11·26	2·59	0·22	0·01	0·06	3·13
Warehousing and storage	0·83	0·02	[1]	[1]	1·33	1·23	–	–	[1]	1·50
Trade	7·97	10·18	9·93	1·15	8·03	8·13	10·86	7·62	4·89	8·35
Finance, insurance	1·11	0·53	1·31	[1]	1·34	0·09	0·02	0·22	–	0·08
Service	8·82	4·18	8·52	2·20	10·78	52·18	10·36	67·64	84·32	49·48
Clerical	3·81	–	[1]	0·12	6·12	17·56	0·03	0·41	1·27	21·20
Labourers, (other than agricultural, mining and logging)	13·04	–	–	1·04	20·88	1·76	–	–	0·17	2·12
Unspecified	0·04	0·01	0·01	[1]	0·06	0·04	–	–	0·01	0·05

[1] Less than 0·005 p.c.

When one considers that although almost 34 p.c. of all males in gainful occupations in 1931 were found in agricultural occupations, only 10 p.c., roughly, of male wage-earners were employed in these primary pursuits, the significance of the percentage of total employers, own accounts, and unpaid family workers in agriculture is quite apparent. About 75 p.c. of the males of employer status, just over 60 p.c. of the own accounts and 93 p.c. of the no pays were engaged in agricultural occupations in 1931. In other words, of the total of 1,239,111 males of "other-than-wage-earner" status 907,298 or 73·22 p.c. were found in agricultural occupations. Since it might be shown that "Trade" and "Service" occupations provided employment for about the same proportion of total gainfully occupied males in each province and, combined, accounted for over 14 p.c. of the balance of the employers and over 18 p.c. of the remaining own accounts in 1931, it is clear that the relative importance of "other-than-wage-earners" to wage-earners in any province is a function almost wholly of the relative importance of agriculture to other occupations in that province.

For females the occupational distribution of "other-than-wage-earners" is not a matter of such importance in an analysis of this kind. This is so because of the fact that "other-than-wage-earners" do not constitute anything like the same proportion of total females in gainful occupations as they do of total gainfully occupied males, representing only 18 p.c. of all females in gainful occupations in 1931 as compared with 38 p.c. of the males. In other words, over four-fifths of the females were wage-earners as compared with over three-fifths of the males. An examination of Statement XXXI shows how this 18 p.c. of the females not in wage-earning occupations was distributed occupationally in 1931.

Over 76 p.c of those of employer status were following agricultural occupations, over 67 p.c. of the total of own accounts were in the services and over 84 p.c. of the total of no pays were also in service. Since 76,394, or 65 p.c., out of a total of 118,022 females in "other than-wage-earner" occupations were engaged in service occupations, and over 70 p.c.—if to these are added the "other-than-wage-earners"—in trade, and since these occupations were well represented in every province, regional differences in the proportion of employers, own accounts and no pays in the total gainfully occupied were not of great consequence. It might be mentioned that 19 p.c. of all "other-than-wage-earner" females in Canada were engaged in agricultural occupations in 1931 with the proportion in these occupations being somewhat higher in the Prairie Provinces than in Canada as a whole.

Provincial Comparisons.—Having discovered from this analysis of the occupational distribution of the employers, own accounts, wage-earners and no pays the source of regional differences in the ratio of wage-earners to "other-than-wage-earners," it may now be appropriate to compare the composition of the gainfully occupied by provinces. As we have seen for gainfully occupied males the proportion of wage-earners to "other-than-wage-earners" varied by provinces according to the relative importance of agricultural occupations in the separate provinces. For females the services absorbed the bulk of the "other-than-wage-earners" and, since service occupations were important in every province, there was a much closer correspondence between provinces in the composition of gainfully occupied females than in the composition of gainfully occupied males.

XXXII.—GAINFULLY OCCUPIED POPULATION, BY INDUSTRIAL STATUS AND SEX, CANADA AND PROVINCES, 1931

Province	Employer		Own Account		No Pay		Wage-Earner	
	Males	Females	Males	Females	Males	Females	Males	Females
CANADA	387,886	18,906	549,721	54,781	301,504	44,335	2,022,260	547,837
Prince Edward Island	5,215	408	8,417	544	5,027	211	9,159	3,185
Nova Scotia	14,018	885	32,071	2,863	11,818	1,651	95,244	22,537
New Brunswick	13,794	808	23,666	1,820	14,163	1,522	66,310	17,922
Maritime Provinces	*33,027*	*2,101*	*64,154*	*5,227*	*31,008*	*3,384*	*170,713*	*43,644*
Quebec	92,662	4,360	96,331	12,914	99,091	24,012	535,203	161,136
Ontario	119,122	5,793	154,637	21,961	70,116	8,978	752,851	212,756
Manitoba	30,735	1,334	37,610	3,906	24,536	1,812	132,883	37,856
Saskatchewan	58,977	2,534	82,245	3,182	44,056	2,349	116,157	29,411
Alberta	37,734	1,902	71,604	2,888	27,399	2,255	116,005	26,416
Prairie Provinces	*127,446*	*5,770*	*191,459*	*9,976*	*95,991*	*6,416*	*365,045*	*93,683*
British Columbia	15,629	882	43,140	4,703	5,298	1,545	198,448	36,618

XXXIII.—PERCENTAGES OF GAINFULLY OCCUPIED POPULATION OF EACH INDUSTRIAL STATUS, BY SEX, CANADA AND PROVINCES, 1931

Industrial Status	Canada		Prince Edward Island		Nova Scotia		New Brunswick		Quebec	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Total	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Employer	11·89	2·84	18·75	9·38	9·15	3·17	11·70	3·66	11·26	2·15
Own account	16·86	8·23	30·26	12·51	20·94	10·25	20·07	8·25	11·70	6·38
No pay	9·24	6·66	18·07	4·85	7·72	5·91	12·01	6·90	12·04	11·86
Wage-earner	62·01	82·28	32·92	73·25	62·19	80·67	56·23	81·20	65·01	79·60

Industrial Status	Ontario		Manitoba		Saskatchewan		Alberta		British Columbia	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
Total	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Employer	10·86	2·32	13·61	2·97	19·57	6·76	14·93	5·68	5·95	2·02
Own account	14·10	8·80	16·66	8·70	27·28	8·49	28·33	8·63	16·43	10·75
No pay	6·39	3·60	10·87	4·03	14·62	6·27	10·84	6·74	2·02	3·53
Wage-earner	68·65	85·28	58·86	84·30	38·53	78·48	45·90	78·95	75·59	83·70

No extended comment on Statements XXXII and XXXIII is necessary. The reasons for interprovincial differences in the composition of the gainfully occupied have been discussed in the foregoing. It is interesting to observe that the number of males of employer and of own account status in the Prairie Provinces exceeded the number in Ontario although the number of male wage-earners in these provinces was less than half the number in Ontario. The province of Quebec shows a slightly greater total of unpaid workers than the Prairie Provinces, although a smaller number of these were in agricultural occupations in Quebec than in the West. Of the 99,091 no pay males in Quebec 87,965 were in agriculture while in the Prairie Provinces 93,203 of the total of 95,991 no pays were agricultural workers. In the former province a considerable proportion of the balance were members of religious orders. No observation in respect to the composition of gainfully occupied females need be made except to point out that the rather large number of no pay females in Quebec was due to the prevalence of nuns in the teaching and nursing professions as well as in other occupations.

The relative proportion of employers, own accounts, no pays and wage-earners in the gainfully occupied population has been examined by locality. A similar study may be made by broad occupation groupings, that is to say, the composition of each occupation group from the standpoint of the relative number of employers, own accounts, no pays and wage-earners in the group may be described. Although the vast majority of "other-than-wage-earner" males were found in agricultural occupations and of "other-than-wage-earner" females in service occupations, nevertheless a comparison for each occupation group of the ratio of "other-than-wage-earners" to wage-earners has special concern for what will be said later with reference to the incidence of unemployment by occupation. Hence, Statement XXXIV is presented herewith giving the number and percentage of the total persons, male and female, in each occupation group according to whether they are employers, own accounts, no pays or wage-earners, for Canada, 1931.

XXXIV.—NUMBER AND PERCENTAGE OF GAINFULLY OCCUPIED MALES AND FEMALES OF EACH INDUSTRIAL STATUS IN EACH OCCUPATION GROUP,[2] CANADA, 1931

Occupation Group	Total	Employer	Own Account	No Pay	Wage-Earner	Em-ployer	Own Account	No Pay	Wage-Earner
	MALES								
	No.	No.	No.	No.	No.	p.c.	p.c.	p.c.	p.c.
All occupations	3,261,371	387,886	549,721	301,504	2,022,260	11·89	16·86	9·24	62·01
Agriculture	1,107,766	289,880	336,230	281,188	200,468	26·17	30·35	25·38	18·10
Fishing, hunting, and trapping	47,408	1,985	32,635	2,409	10,379	4·19	68·84	5·08	21·89
Logging	43,995	1,636	589	290	41,480	3·72	1·34	0·66	94·28
Mining, quarrying, etc.	58,585	515	2,705	42	55,323	0·88	4·62	0·07	94·43
Manufacturing	358,024	18,997	27,809	2,086	309,132	5·31	7·77	0·58	86·34
Electric light and power	32,453	16	–	27	32,410	0·05	–	0·08	99·87
Construction	202,970	11,596	26,757	803	163,814	5·71	13·18	0·40	80·71
Transportation and communication	248,598	5,402	14,371	1,063	227,762	2·17	5·78	0·43	91·62
Warehousing and storage	26,992	70	5	5	26,912	0·26	0·02	0·02	99·70
Trade	259,799	39,482	54,564	3,454	162,299	15·20	21·00	1·33	62·47
Finance, insurance	36,252	2,050	7,191	1	27,010	5·65	19·84	[1]	74·51
Service	287,625	16,230	46,811	6,637	217,947	5·64	16·28	2·31	75·77
Clerical	124,139	–	23	367	123,749	–	0·02	0·30	99·69
Labourers (other than agricultural, mining and logging)	425,408	–	–	3,124	422,284	–	–	0·73	99·27
Unspecified	1,357	27	31	8	1,291	1·99	2·28	0·59	95·14
	FEMALES								
All occupations	665,859	18,906	54,781	44,335	547,837	2·84	8·23	6·66	82·28
Agriculture	24,079	14,499	4,697	3,214	1,669	60·21	19·51	13·35	6·93
Fishing, hunting, and trapping	497	16	429	10	42	3·22	86·32	2·01	8·45
Mining, quarrying, etc.	6	3	–	–	3	50·00	–	–	50·00
Manufacturing	84,657	319	8,078	892	75,368	0·38	9·54	1·05	89·03
Electric light and power	3	–	–	–	3	–	–	–	100·00
Construction	96	6	–	–	90	6·25	–	–	93·75
Transportation and communication	17,235	42	6	25	17,162	0·24	0·03	0·15	99·58
Warehousing and storage	8,200	–	–	1	8,199	–	–	0·01	99·99
Trade	54,113	2,054	4,175	2,166	45,718	3·80	7·72	4·00	84·49
Finance, insurance	571	4	120	–	447	0·70	21·02	–	78·28
Service	347,471	1,958	37,052	37,384	271,077	0·56	10·66	10·76	78·01
Clerical	116,927	5	224	565	116,133	[1]	0·19	0·48	99·32
Labourers (other than agricultural, mining and logging)	11,707	–	–	75	11,632	–	–	0·64	99·36
Unspecified	297	–	–	3	294	–	–	1·01	98·99

[1] Less than 0·005 p.c.

[2] See also Table 17 where information as to status of the gainfully occupied is given for the complete list of occupations.

A considerable number of males of employer status was found in manufacturing, construction, trade and service, though in none of these groups, with the exception of trade, did they form any substantial proportion of the total gainfully occupied males in the group. The majority of male employers in trade were retail and wholesale merchants comprising 38,907 of the 39,482 in this occupation group. No reference is here made to the preponderate importance of the 289,880 males of employer status in agriculture, who, as has been stated elsewhere, accounted for 75 p.c. of all gainfully occupied males of the status of employer, and represented over one-quarter of the total males in agricultural occupations. Agricultural occupations are so differently constituted from other occupations so far as the status of persons following these occupations is concerned that they deserve separate mention.

It is interesting to note that gainfully occupied males of own account status formed a not inconsiderable proportion of total males in several occupation groups. In fishing, hunting, and trapping they constituted 68·84 p.c. of the total in these occupations. The figure 27,809, for manufacturing may seem high but it must be remembered that manufacturing as an occupation group includes all persons following so-called "processing" occupations irrespective of the industry in which employed. The bulk of the own account males in manufacturing occupations belonged to the custom and repair industry group, there being 5,104 boot and shoe repairers, 6,398 blacksmiths, 4,371 mechanics (chiefly auto mechanics) and 3,160 tailors. Some 26,757, or 13·18 p.c. of the males in the building and construction trades were own accounts at the 1931 Census. In transportation the percentage of own accounts was lower. Almost 12,000 of the 14,371 shown in

Statement XXXIV were teamsters, truck drivers and taxi drivers. The small storekeeper still constitutes an important factor in the merchandising field, 45,035 of the 54,564 own accounts in trade being retail merchants. Males of own account status represented one-fifth of the total in trade. Real estate agents, insurance agents and stock and bond brokers made up the bulk of the own account class in finance and insurance. In service 46,811, or 16·28 p.c., of all males in the group were on own account. Many of these were engaged in the professions. For example, there were 8,181 physicians, 5,908 lawyers, 3,555 dentists, 1,692 musicians and music teachers and 1,329 accountants and auditors on own account. A substantial proportion was occupied in rendering personal services. The more important of these were barbers, 7,962 in number, small restaurant and lunch counter keepers numbering 4,352, and operators of small laundries and dyeing and cleaning establishments, 3,116 in all. Needless to add, the largest single class of own accounts was farmers, and the total of 336,230 in agricultural occupations constituted three-fifths of all own account males in Canada in 1931. Own account males formed 30 p.c. of all males in agricultural occupations.

No comment is necessary regarding gainfully occupied males of no pay status for in no group did they constitute an important element with, of course, the exception of agriculture. Most of the 6,637 in service were either priests, brothers or teachers in some religious order. Practically all of the 3,454 in trade were sales clerks in their fathers' stores. In manufacturing a number were apprentices to various skilled trades.

Turning again to Statement XXXIV it will be noticed that for almost every group gainfully occupied females of "other-than-wage-earner" status were relatively unimportant. Leaving out of consideration those occupational groups in which the number of females in 1931 was negligible, agriculture was really the only group where females of employer status were numerous and where they constituted a substantial proportion of the total in the group. Of the 2,054 females of employer status in trade, over 2,000 were operating retail stores and most of those in service were proprietors of restaurants, hotels, lodging houses and hairdressing establishments. Females on their own account represented a fair proportion of total occupied females in three or four groups. In agriculture, for example, though not so important as employers they constituted 20 p.c. of all females in the group. In manufacturing, practically all of the 8,078 females on own account were dressmakers (6,044), seamstresses (858) and milliners (582). In trade 4,041 of the 4,175 given in the table were owners of small stores. In service, where the majority of own account females was found, 18,320 were lodging house keepers, 8,795 were graduate nurses, 3,144 were musicians and music teachers and 2,959 were hairdressers. In neither manufacturing, trade, nor service, however, did females of own account status represent much more than 10 p.c. of total females in the occupation group. Finally, no pay females were important numerically only in the service group though they constituted a larger percentage (13·35 p.c.) of total females in the agricultural group. In trade there were over 2,000 salesgirls not receiving pay. These were mainly employed in stores operated by their parents. Of the 37,384 females of no pay status in the services 9,012 were teachers, 8,260 were persons reported as nuns, 7,344 were domestic servants, 4,250 were housekeepers and 3,315 were nurses-in-training. A number of those reporting "teacher", "nurse", "servant" and one or two other occupations of similar nature at the census were likewise members of religious orders so that the class "nun" does not represent the total in Canada but only those who were given no other occupation when enumerated.

This rather exhaustive consideration of the occupations of "other-than-wage-earners" and the proportionate importance of persons of employer, own account and no pay status in these occupations is an essential preliminary to the analysis, at a later stage, of the occupations of wage-earners. For there is no hard and fast division between persons of "other-than-wage-earner" status and those working for wage or salary. Indeed, at all times there is going on a shift from one status to the other. Men who were working on their own account yesterday are to-day wage-earners and to-morrow, perhaps, own accounts again. This does not mean that there is a continuously heavy movement from one class to the other, or that these movements occur only at certain periods of the year, or at a particular phase of the industrial cycle, though the seasonal and cyclical changes in status may be considerable. It does mean, however, that the wage-earning element in the gainfully occupied population is not such a fixed and easily measured class as is sometimes supposed.

In Canada, as no doubt elsewhere, one of the characteristics of industrial development has been a tendency for the individual unit of business to increase in size. This phenomenon has, of course, brought about a decline in the importance of a number of trades formerly carried on at home or in small shops on an independent basis and, conversely, increased the number of wage-earners working in factories. Probably during the upward trend of the industrial cycle, evolution in this direction is speeded up while during a depression there may be some slowing down in this movement.

It is opportune at this point to quote again from the study* recently made by the International Labour Organization on the combined effect of population changes, technical progress and economic development upon unemployment: "We have absolutely no idea whether the depression accelerates the flow of new workers to the labour market, or whether, on the contrary, it causes the surplus of unemployed wage-earners to change over to 'independent' work. It is probable that the former reaction is more marked than the latter but it is impossible to prove it." It would appear from this opinion that, all things considered, forces bringing persons into the labour market during the depression would probably be stronger than those drawing them away. Inability to find jobs may compel many men accustomed to being employed in the capacity of wage-earners to seek a livelihood on their own account, chiefly in a return to the land. On the other hand, a considerable number of persons who in better times have never been under any necessity to make their own living are forced to do so during a depression. They tend to swell the ranks of the wage-earners.

However this may be, it is relevant to repeat that one of the features of the 1931 Census was the considerable increase in the number of "lodging house keepers" on their own account. Many wives whose husbands' earnings had been greatly reduced owing to prolonged unemployment, and who, therefore, had to find some gainful employment themselves, probably were forced by household ties to take up occupations that could be carried on in the home. In so doing they did not directly increase the supply of labour looking for wage-earning jobs.

So far as unmarried girls are concerned the net effect of the depression upon the number seeking employment is harder to determine. No doubt many have come into the labour market whose families were no longer capable of supporting them at home. On the other hand, a number who in a period of prosperity accepted salaried positions have no doubt given up or lost these employments since the depression, and being in no great need of work have actually withdrawn from the ranks of women seeking gainful employment.

A word or two may be said concerning the flow between own account and wage-earner occupations at different seasons of the year. Seasonal variations in industrial activity no doubt cause considerable mobility of labour in a country such as Canada where climatic changes are severe. However, the shifts between occupations that occur probably do not involve changes in status of great consequence except, perhaps, those due to changes in the volume of employment in agriculture. Had the census been taken in the winter rather than in June the number of gainfully occupied persons reported as farmers on own account would have been less than the number actually shown. Some of these would still have been working on their own account in other primary pursuits, such as fishing and hunting. However, a number would have been returned as wage-earners, employed chiefly in logging, mining and construction. Similarly, a not insignificant number of farmers' sons reported in June 1931 as no pay farm labourers would have been enumerated as wage-earners in other occupations had the census been taken six months earlier. In general, then, it might be affirmed that the proportion of wage-earners in the total gainfully occupied population would likely be larger in the winter months than during the balance of the year.

Industrial Distribution.—Before concluding this examination of the relationship of the wage-earners to the gainfully occupied as a whole and to those classes which have been described as "other-than-wage-earner" a brief survey of this kind by industry will serve to supplement what has just been said regarding occupation. Owing to the fact that the proportions of gainfully occupied persons of employer, own account, no pay and wage-earner status do not differ materially for corresponding industry and occupation groups, as a comparison of Statements XXXIV and XXXV will show, the following remarks will be confined mainly to the wage-earners and their percentage importance in each industry group. In Statement XXXV a classification of the gainfully occupied by industry group and sex is given showing the number and percentage of employers, own accounts, no pays and wage-earners, in each industry group, for Canada, 1931.

* See footnote page 86.

XXXV.—NUMBER AND PERCENTAGE OF GAINFULLY OCCUPIED MALES AND FEMALES OF EACH INDUSTRIAL STATUS IN EACH INDUSTRY GROUP, CANADA, 1931

Industry Group	Total	Employer	Own Account	No Pay	Wage-Earner	Employer	Own Account	No Pay	Wage-Earner
	MALES								
	No.	No.	No.	No.	No.	p.c.	p.c.	p.c.	p.c.
All industries	3,261,371	387,886	549,721	301,504	2,022,260	11·89	16·86	9·24	62·01
Agriculture	1,103,899	289,865	336,248	281,111	196,675	26·26	30·46	25·47	17·81
Fishing, hunting, and trapping	47,274	1,979	32,495	2,418	10,382	4·19	68·74	5·11	21·96
Logging	49,709	1,635	603	303	47,168	3·29	1·21	0·61	94·89
Mining, quarrying, etc.	71,608	513	2,430	55	68,610	0·72	3·39	0·08	95·81
Manufacturing	521,048	15,784	6,511	1,888	496,865	3·03	1·25	0·36	95·36
Electric light and power	17,487	16	–	–	17,471	0·09	–	–	99·91
Construction	254,667	11,616	26,279	1,267	215,505	4·56	10·32	0·50	84·62
Transportation and communication	282,952	5,441	16,036	1,046	260,429	1·92	5·67	0·37	92·04
Trade	302,405	39,083	54,179	4,380	204,763	12·92	17·92	1·45	67·71
Finance, insurance	67,375	2,054	7,194	25	58,102	3·05	10·68	0·04	86·24
Service	377,418	19,877	67,691	8,732	281,118	5·27	17·94	2·31	74·48
Professional	97,351	2,355	25,470	5,770	63,756	2·42	26·16	5·93	65·49
Public administration	101,303	–	–	2	101,301	–	–	[1]	100·00
Recreational	13,799	811	1,354	59	11,575	5·88	9·81	0·43	83·88
Custom and repair	62,870	5,111	23,578	1,355	32,826	8·13	37·50	2·16	52·21
Business	4,886	222	1,035	7	3,622	4·54	21·18	0·14	74·13
Personal	97,209	11,378	16,254	1,539	68,038	11·70	16·72	1·58	69·99
Unspecified	165,529	23	55	279	165,172	0·01	0·03	0·17	99·78
	FEMALES								
All industries	665,859	18,906	54,781	44,335	547,837	2·84	8·23	6·66	82·28
Agriculture	24,255	14,499	4,693	3,146	1,917	59·78	19·35	12·97	7·90
Fishing, hunting, and trapping	508	16	429	10	53	3·15	84·45	1·97	10·43
Logging	243	–	–	2	241	–	–	0·82	99·18
Mining, quarrying, etc.	355	3	–	–	352	0·85	–	–	99·15
Manufacturing	110,216	171	182	111	109,752	0·16	0·17	0·10	99·58
Electric light and power	1,467	–	–	–	1,467	–	–	–	100·00
Construction	1,641	6	–	35	1,600	0·37	–	2·13	97·50
Transportation and communication	23,315	42	6	21	23,246	0·18	0·03	0·09	99·70
Trade	85,029	2,041	4,392	2,252	76,344	2·40	5·17	2·65	89·79
Finance, insurance	24,965	3	84	17	24,861	0·01	0·34	0·07	99·58
Service	390,144	2,125	44,991	38,733	304,295	0·54	11·53	9·93	78·00
Professional	146,391	113	13,776	29,060	103,442	0·08	9·41	19·85	70·66
Public administration	15,514	–	–	–	15,514	–	–	–	100·00
Recreational	2,425	27	97	14	2,287	1·11	4·00	0·58	94·31
Custom and repair	18,830	192	7,944	252	10,442	1·02	42·19	1·34	55·45
Business	1,736	16	260	1	1,459	0·92	14·98	0·06	84·04
Personal	205,248	1,777	22,914	9,406	171,151	0·87	11·16	4·58	83·39
Unspecified	3,721	–	4	8	3,709	–	0·11	0·21	99·68

[1] Less than 0·005 p.c.

Statement XXXV provides very useful information to the student of unemployment in Canada. Presented in this summary form one can see at a glance what proportion of the total number of persons engaged in each important industry division was covered by the Unemployment Census of 1931.

Beginning with gainfully occupied males it is seen that only a minor proportion of the number employed in agriculture were wage-earners, not quite 18 p.c. This is important in view of the fact that 1,103,899 males were engaged in agriculture in 1931 and these represented about one-third of all gainfully occupied males. Only a little more than one-fifth of the males in the industry group, fishing, hunting, and trapping, were wage-earners. Of the total of 34,000 in fishing only a little more than 9,000 were wage-earners and less than 1,000 of the 13,000 in hunting and trapping. On the other hand, over 47,000 or about 95 p.c. of the 50,000 in logging were wage-earners. Completing the list of primary industry groups is mining and quarrying. In this group 68,610 or 95·81 p.c. of the total of 71,608 males were wage-earners. Summing up for the primary industry field it may be stated that only 18 p.c. of the males in agriculture, about 26 p.c. of those in fishing, and 8 p.c. of those in hunting and trapping at the 1931 Census were wage-earners. In logging and mining, however, 95 p.c. and 96 p.c. respectively of the males in these industries were employed as wage-earners.

In manufacturing and electric light and power practically all males were wage-earners. The 496,865 male wage-earners in manufacturing not only represented 95 p.c. of all males in the industry but actually constituted one-quarter of the total male wage-earners in Canada. In the construction industry the 215,505 male wage-earners accounted for 85 p.c. of the total in this industry. This was a higher percentage than might have been expected in view of the considerable number of small builders on own account. In transportation 260,429 or 92·04 p.c. of the males in the group were wage-earners. About 22,500 were employers, own accounts, and unpaid family workers. Practically all of the latter were found in local transportation, approximately 12,000 being engaged in cartage, trucking, and haulage and 6,000 were operating automobile garages. Over 302,000 males were found in trade in 1931 of whom 204,763 or 67·71 p.c. were wage-earners. As already mentioned the bulk of the "other-than-wage-earners" in trade were retail merchants. In the group finance and insurance, 86·24 p.c. of the males were wage-earners.

Three-quarters of the males in the service group or 281,118 out of 377,418 males were employed in a wage-earning capacity, the percentage varying considerably in the different types of service. In the sub-group, professional service, about two-thirds of the total were wage-earners, a substantial proportion of the remainder being doctors, lawyers and dentists on own account. Public administration which employed over 100,000 males was, of course, composed entirely of persons receiving a wage or salary. About 84 p.c. of the males in recreational service were wage-earners while in custom and repair only a little over 50 p.c. were working in this capacity. In the latter sub-group the unit of business is small and, therefore, is certain to be composed to some considerable degree of persons on own account. As a matter of fact, most of the "other-than-wage-earners" in this sub-group were blacksmiths, shoe repairers, tailors, laundrymen, operators of auto repair shops, and dyeing and cleaning establishments of self-dependent or own account status. Three-quarters of the males in business service occupied wage or salaried jobs. The proportion of wage-earners in personal service was lower, being about 70 p.c. of the total, though numerically fairly large, amounting in all to 68,000. Of the 29,000 males in personal service of "other-than-wage-earner" status the majority were proprietors of barber shops, restaurants, and hotels. Finally, almost 100 p.c. of the males in the unspecified group were wage-earners. Most of these were labourers belonging to no specific industry, classing themselves at the census as "general" labourers normally employed on "odd jobs."

It will be seen that the unemployment survey in 1931 covered over 90 p.c. of all gainfully occupied males in the following industrial divisions: logging, mining, manufacturing, electric light and power, transportation, public administration, and unspecified. Over 80 p.c. of those in construction, finance and insurance, and recreational service were included in the survey and over two-thirds of the males in trade, professional, business, and personal service. Just over 50 p.c. of the males in custom and repair were covered by the census of unemployment. Only a minority of those in agriculture, fishing, and hunting and trapping were included in the 1931 survey, about 18 p.c. of those in agriculture, 26 p.c. of those in fishing, and 8 p.c. of the total in hunting and trapping.

For females the proportion of the gainfully occupied to whom the unemployment inquiry applied was much greater than for the males, being 82·28 p.c. as compared with 62·01 p.c. for males. However, only 7·90 p.c. or a little less than 2,000 of the 24,000 females in agriculture were covered by this inquiry. In most other industry groups a high proportion of the females were wage-earners and thus were included in the census of unemployment. Even in service 304,295 or 78 p.c. of all females engaged therein were wage-earners. Over 83 p.c. of the large number in personal service, or 171,151 out of 205,248, were employed as wage-earners. The proportion of female wage-earners in professional service was 71 p.c. and in custom and repair just 55 p.c. There were, of course, many female dressmakers, seamstresses, and milliners on own account in this subdivision of service.

A comparison of the distribution of the gainfully occupied and of the wage-earners by industry is of interest. Since such a small proportion of the total gainfully occupied in agriculture were wage-earners and since the weight of the numbers in this industry was heavy, a percentage distribution of the wage-earners by industry shows marked variation from a similar distribution of the gainfully occupied. This is particularly true with respect to males. Statement XXXVI where the two distributions are given, demonstrates this fact.

XXXVI.—PERCENTAGE DISTRIBUTION OF GAINFULLY OCCUPIED AND WAGE-EARNING POPULATIONS, BY INDUSTRY GROUP AND SEX, CANADA, 1931

Industry Group	Percentage Distribution					
	Gainfully Occupied			Wage-Earners		
	Both Sexes	Male	Female	Both Sexes	Male	Female
All industries	100·00	100·00	100·00	100·00	100·00	100·00
Agriculture	28·73	33·85	3·64	7·73	9·73	0·35
Fishing, hunting, and trapping	1·22	1·45	0·08	0·41	0·51	0·01
Logging	1·27	1·52	0·04	1·84	2·33	0·04
Mining, quarrying, etc.	1·83	2·20	0·05	2·68	3·39	0·06
Manufacturing	16·07	15·98	16·55	23·60	24·57	20·03
Electric light and power	0·48	0·54	0·22	0·74	0·86	0·27
Construction	6·53	7·81	0·25	8·45	10·66	0·29
Transportation and communication	7·80	8·68	3·50	11·04	12·88	4·24
Trade	9·87	9·27	12·77	10·94	10·13	13·94
Finance, insurance	2·35	2·07	3·75	3·23	2·87	4·54
Service	19·54	11·57	58·59	22·78	13·90	55·54
Professional	6·21	2·98	21·99	6·51	3·15	18·88
Public administration	2·97	3·11	2·33	4·55	5·01	2·83
Recreational	0·41	0·42	0·36	0·54	0·57	0·42
Custom and repair	2·08	1·93	2·83	1·68	1·62	1·91
Business	0·17	0·15	0·26	0·20	0·18	0·27
Personal	7·70	2·98	30·82	9·31	3·36	31·24
Unspecified	4·31	5·08	0·56	6·57	8·17	0·68

It will be noticed that over one-third of the gainfully occupied males were engaged in agriculture in 1931 but less than 10 p.c. of the male wage-earners. Important as this industry is, from the point of view of the number finding employment therein the exclusion of the wage-earners in agriculture from schemes of social insurance would not involve, as at first might be thought, such an important proportion of the total wage-earners. In the winter season the proportionate importance of the wage-earners in agriculture would be still less. The next

XXXVII.—NUMBER AND PERCENTAGE OF MALE WAGE-EARNERS, BY INDUSTRY GROUP, CANADA AND PROVINCES, 1931

No.	Province	Male Wage-Earners in									
		All Industries		Agriculture		Logging, Fishing, and Trapping		Mining, Quarrying		Manufacturing	
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
1	CANADA	2,022,260	100·00	196,675	100·00	57,550	100·00	68,610	100·00	496,865	100·00
2	Prince Edward Island	9,159	0·45	2,273	1·16	351	0·61	2	[1]	920	0·19
3	Nova Scotia	95,244	4·71	6,173	3·14	5,122	8·90	16,900	24·63	15,650	3·15
4	New Brunswick	66,310	3·28	5,882	2·99	4,026	7·00	1,021	1·49	12,905	2·60
5	*Maritime Provinces*	*170,713*	*8·44*	*14,328*	*7·29*	*9,499*	*16·51*	*17,923*	*26·12*	*29,475*	*5·93*
6	Quebec	535,203	26·47	23,118	11·75	16,543	28·75	7,931	11·56	147,125	29·61
7	Ontario	752,851	37·22	63,590	32·33	11,305	19·64	18,026	26·27	238,882	48·08
8	Manitoba	132,883	6·57	19,762	10·05	1,247	2·17	1,917	2·79	22,248	4·48
9	Saskatchewan	116,157	5·74	37,637	19·14	419	0·73	773	1·13	7,792	1·57
10	Alberta	116,005	5·74	25,899	13·17	747	1·30	10,762	15·69	11,804	2·38
11	*Prairie Provinces*	*365,045*	*18·05*	*83,298*	*42·35*	*2,413*	*4·19*	*13,452*	*19·61*	*41,844*	*8·42*
12	British Columbia	198,448	9·81	12,341	6·27	17,790	30·91	11,278	16·44	39,539	7·96

[1] Less than 0·005 p.c.

important industry group is manufacturing. About 16 p.c. of all males in gainful occupations found employment in this industry and about 25 p.c. of all male wage-earners. Similarly, in construction, transportation, trade, and service, the remaining important groups, a somewhat larger proportion of total male wage-earners was found in each of these groups than of all gainfully occupied males. The effect of the minor importance of agriculture in an industrial distribution of male wage-earners as compared with its more important place in a corresponding distribution of the gainfully occupied is clearly evident from the foregoing.

For females there is no outstanding variation between the distribution of the gainfully occupied and of the wage-earners by industry groups. Just over 16 p.c. of all gainfully occupied females were found in manufacturing as compared with 20 p.c. of the female wage-earners. Females were largely concentrated in the service group, over 58 p.c. of the total gainfully occupied and over 55 p.c. of those in wage-earning employments appearing in this group. Those employed

in service were mainly confined to two subdivisions, professional and personal. Actually 22 p.c. of all gainfully occupied females in Canada and 19 p.c. of the total wage-earners were engaged in professional service, and as much as 31 p.c. of the total gainfully occupied females and of the total female wage-earners as well were employed in personal services. The only other group in which females were well represented was trade. In this group were found 13 p.c. of total gainfully occupied females and 14 p.c. of all female wage-earners at the 1931 Census.

PART B—REGIONAL SURVEY OF EMPLOYMENT AND UNEMPLOYMENT AMONG WAGE-EARNERS

Regional Differences.—Before concluding this chapter some attention might be given, first, to the regional distribution of the wage-earners in the major divisions of industry shown in Statement XXXV and, secondly, to the distribution by industry of the wage-earners in each province. In doing so it is hoped that a better conception will be gained of just what unemployment in some of the more important divisions of industry means to any particular part of Canada. The following statement shows how the male wage-earners in the leading industries were distributed by locality in 1931.

A comparison of the regional distribution of the wage-earners in all industries combined with the distribution for each industrial division discloses a number of important differences. For male wage-earners it will be observed that the distribution by provinces of those in agriculture differs markedly from the provincial distribution of total males in all industries combined. For example, only 11·75 p.c. of the male wage-earners in agriculture were found in the province of Quebec in 1931 though 26·47 p.c. of all male wage-earners resided in this province. On the other hand, 42·35 p.c. of the males in agriculture were located in the Prairie Provinces though only 18·05 p.c. of total male wage-earners had their place of residence in these provinces.

XXXVII.—NUMBER AND PERCENTAGE OF MALE WAGE-EARNERS, BY INDUSTRY GROUP, CANADA AND PROVINCES, 1931

Male Wage-Earners in														No.
Electric Light and Power		Construction		Transportation and Communication		Trade		Finance, Insurance		Service		Unspecified		
No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	
17,471	100·00	215,505	100·00	260,429	100·00	204,763	100.00	58,102	100.00	281,118	100·00	165,172	100·00	1
44	0·25	858	0·40	1,184	0·45	957	0·47	191	0·32	1,148	0·41	1,231	0·75	2
762	4·36	9,555	4·43	12,953	4·97	6,915	3·38	1,561	2·69	9,406	3·35	10,247	6·20	3
379	2·17	5,798	2·69	9,550	3·67	5,770	2·82	1,121	1·93	6,541	2·33	13,317	8·06	4
1,185	*6·78*	*16,211*	*7·52*	*23,687*	*9·10*	*13,642*	*6·66*	*2,873*	*4·94*	*17,095*	*6·08*	*24,795*	*15·01*	5
4,891	27·99	73,001	33·87	64,383	24·72	53,761	26·26	17,087	29·41	75,400	26·82	51,963	31·46	6
7,893	45·18	74,198	34·42	88,045	33·81	78,225	38·20	23,288	40·08	103,921	36·97	45,478	27·53	7
1,295	7·41	13,232	6·14	21,074	8·09	16,982	8·29	4,282	7·37	19,221	6·84	11,623	7·04	8
629	3·60	9,523	4·42	18,523	7·11	11,604	5·67	3,218	5·54	17,163	6·11	8,876	5·37	9
573	3·28	8,662	4·02	17,448	6·70	11,982	5·85	2,935	5·05	18,265	6·50	6,928	4·19	10
2,497	*14·29*	*31,417*	*14·58*	*57,045*	*21·90*	*40,568*	*19·81*	*10,435*	*17·96*	*54,649*	*19·44*	*27,427*	*16·61*	11
1,005	5·75	20,678	9·59	27,269	10·47	18,567	9·07	4,419	7·61	30,053	10·69	15,509	9·39	12

In the case of the industry group, logging, fishing, and trapping, 16·51 p.c. of the males in the group were found in the Maritime Provinces though these provinces only accounted for 8·44 p.c. of all male wage-earners. This was due in the main to the prominence of the fishing industry in Nova Scotia and, to a lesser degree, to the employment offered by the logging industry in New Brunswick. Based on the regional distribution of wage-earners pertaining to all industries Quebec was well represented in these primary pursuits, especially in logging, though Ontario was under-represented, while in the Prairie Provinces these industries were of negligible importance as sources of employment for wage-earners. Over 30 p.c. of all male wage-earners in logging, fishing and trapping were found in British Columbia, though less than 10 p.c. of total males in wage-earning employments belonged to this province.

So far as the remaining primary industry, *viz.*, mining and quarrying, is concerned the Maritimes accounted for over one-quarter of the total male wage-earners in this industry due, of

course, to the employment created by the Nova Scotia coal mining industry. An almost equal number was employed in the metal mines of Ontario. However, in both Ontario and Quebec male wage-earners were proportionately less fully represented in the mining industry than in all industries combined. Due to the fact that over 10,000 males found employment in mining, (principally coal mining, in Alberta), the Prairie Provinces were adequately represented in this industrial division. British Columbia with more than 11,000 males employed in mining, or over 16 p.c. of the total males in this industry, was over-represented on the basis of the proportionate importance of the total wage-earners in this province to the total in all provinces combined.

Coming next to the manufacturing group of industries it will be noted that 77·69 p.c. of the 496,865 male wage-earners in manufacturing in Canada were found in Ontario and Quebec combined. Incidentally over 80 p.c. of all male wage-earners in the non-ferrous smelting, chemical, and miscellaneous subdivisions of manufacturing, and almost 95 p.c. in the textile subdivision, were located in these two provinces. Since a lower percentage—63·69 p.c.—of total males in all industries in Canada were found in Ontario and Quebec together, it is clear that they gave employment to a considerably more than expected proportion of the wage-earners in manufacturing industries. On the other hand, the Maritime Provinces, British Columbia, and especially the Prairie Provinces were inadequately represented in manufacturing on the basis of the proportion of the total male wage-earners in all industries combined found in these provinces. For electric light and power 45 p.c. of male wage-earners in the industry were found in Ontario. In no other province, with the exception of Quebec and Manitoba, was the percentage of males in this industry as high as in all industries combined. It will be noted in connection with construction that over one-third of all male wage-earners in the industry were found in the province of Quebec at the 1931 Census. This matter is further dealt with in a subsequent section.

The distribution by provinces of male wage-earners in the transportation and communication fields did not vary appreciably at the 1931 Census from the distribution of total wage-earners in

XXXVIII.—NUMBER AND PERCENTAGE OF FEMALE WAGE-EARNERS, BY INDUSTRY GROUP, CANADA AND PROVINCES, 1931

No.	Province	Female Wage-Earners in									
		All Industries		Agriculture		Logging, Fishing, and Trapping		Mining, Quarrying		Manufacturing	
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
1	CANADA	547,837	100·00	1,917	100·00	294	100·00	352	100·00	109,752	100·00
2	Prince Edward Island	3,185	0·58	16	0·83	2	0·68	–	–	322	0·29
3	Nova Scotia	22,537	4·11	41	2·14	34	11·56	39	11·08	2,120	1·93
4	New Brunswick	17,922	3·27	27	1·41	19	6·46	3	0·85	2,122	1·93
5	*Maritime Provinces*	*43,644*	*7·97*	*84*	*4·38*	*55*	*18·71*	*42*	*11·93*	*4,564*	*4·16*
6	Quebec	161,136	29·41	294	15·34	24	8·16	39	11·08	45,721	41·66
7	Ontario	212,756	38·84	748	39·02	52	17·69	120	34·09	51,196	46·65
8	Manitoba	37,856	6·91	168	8·76	8	2·72	12	3·41	3,179	2·90
9	Saskatchewan	29,411	5·37	151	7·88	3	1·02	5	1·42	650	0·59
10	Alberta	26,416	4·82	243	12·68	8	2·72	53	15·06	1,244	1·13
11	*Prairie Provinces*	*93,683*	*17·10*	*562*	*29·32*	*19*	*6·46*	*70*	*19·89*	*5,073*	*4·62*
12	British Columbia	36,618	6·68	229	11·95	144	48·98	81	23·01	3,198	2·91

all industries and the same may be said for trade. A slightly smaller proportion of the total male wage-earners in transportation and communication was found in Quebec and Ontario than was the case for the combined industries. On the other hand, these provinces accounted for as much as 69·49 p.c. of the total male wage-earners in finance and insurance as compared with 63·69 p.c. of total males in all industries in Canada. The distribution by provinces of male wage-earners in the service group corresponds fairly closely with the distribution based on total males in all industries combined.

Finally, with respect to the unspecified industry group it will be noted that over 15 p.c. of the males in the group were located in the Maritime Provinces, New Brunswick in particular accounting for a relatively high proportion of the total in the group. Quebec with 31·46 p.c. of the total in the unspecified group also showed a higher proportion of males in this group than might have been expected considering that only 26·47 p.c. of all male wage-earners in Canada were found in this province. Since this unspecified group is made up largely of general labourers,

158,505 of the total in the group being so classified, and since the percentage of unemployment among them was noticeably high in 1931, the proportion of the total wage-earners in this group in each province is of some importance.

It might be stated that the apparent over-representation of the unspecified industries in New Brunswick and Quebec does not necessarily imply that the casual labourer was relatively more common in these provinces than elsewhere in 1931. Rather it seems to have been due mainly to differences in interpretation of the rules governing the enumeration of the industry of the wage-earner. Wage-earners unemployed on the census date in particular were very commonly reported as having no customary industry, the expression "odd jobs" being entered in the industry column of the schedule, though many would appear to have been employed fairly steadily in some one industry.

Outstanding differences between the regional distribution of total female wage-earners in all industries combined and of female wage-earners in specific industry groups were few in number as a reference to Statement XXXVIII will indicate. In the primary industry groups the number of female wage-earners was so small that no comment upon their regional distribution is necessary. Of the 109,752 females in the manufacturing industries in 1931, 96,917 or 88·31 p.c. were found in Ontario and Quebec combined. This percentage might be compared with the proportion (68·25 p.c.) of all female wage-earners in Canada living in these two provinces. The next industrial division in which female wage-earners were employed to any extent was transportation and communication. In this division of industry they were fairly well represented in each province, being somewhat under-represented in Quebec and the Prairie Provinces and over-represented in British Columbia in relation to the proportionate importance of all wage-earners in these provinces. It is interesting to note that only 22·28 p.c. of the total females in trade in Canada were found in Quebec as compared with 29·41 p.c. of all female wage-earners in the Dominion. In finance and insurance Ontario, as would be expected, accounted for a considerable proportion of the total

XXXVIII.—NUMBER AND PERCENTAGE OF FEMALE WAGE-EARNERS, BY INDUSTRY GROUP, CANADA AND PROVINCES, 1931

Female Wage-Earners in														No.
Electric Light and Power		Construction		Transportation and Communication		Trade		Finance, Insurance		Service		Unspecified		
No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	
1,467	100·00	1,600	100·00	23,246	100·00	76,344	100·00	24,861	100·00	304,295	100·00	3,709	100·00	1
4	0·27	4	0·25	98	0·42	465	0·61	75	0·30	2,185	0·72	14	0·38	2
53	3·61	74	4·63	980	4·22	3,076	4·03	525	2·11	15,481	5·09	114	3·07	3
33	2·25	31	1·94	812	3·49	2,691	3·52	432	1·74	11,639	3·82	113	3·05	4
90	*6·13*	*109*	*6·81*	*1,890*	*8·13*	*6,232*	*8·16*	*1,032*	*4·15*	*29,305*	*9·63*	*241*	*6·50*	5
400	27·27	392	24·50	6,274	26·99	17,012	22·28	7,098	28·55	82,590	27·14	1,292	34·83	6
784	53·44	660	41·25	9,126	39·26	32,016	41·94	10,782	43·37	105,888	34·80	1,384	37·31	7
72	4·91	121	7·56	1,481	6·37	7,515	9·84	1,982	7·97	23,085	7·59	233	6·28	8
35	2·39	103	6·44	979	4·21	3,212	4·21	1,007	4·05	23,095	7·59	171	4·61	9
31	2·11	91	5·69	967	4·16	3,616	4·74	1,142	4·59	18,874	6·20	147	3·96	10
138	*9·41*	*315*	*19·69*	*3,487*	*14·74*	*14,343*	*18·79*	*4,131*	*16·62*	*65,054*	*21·38*	*551*	*14·86*	11
55	3·75	124	7·75	2,529	10·88	6,741	8·83	1,818	7·31	21,458	7·05	241	6·50	12

females in these fields of employment for women. In the Maritime Provinces, on the contrary, the opportunities for employment in finance and insurance seem to be quite limited. Finally, though 188,478 female wage-earners or 61·94 p.c. of the total in service were found in Ontario and Quebec combined, it should be recalled that 68·25 p.c. of total female wage-earners in Canada were located in these provinces. On this basis in all other provinces female wage-earners were adequately represented in the services.

Provincial Differences.—The facts revealed in this regional analysis of the wage-earners in each of the major divisions of industry do not in themselves fully indicate the relative importance from the standpoint of employment of the various industries found in each province. This is so because of the disproportionate weight of the large number of wage-earners in the provinces of Ontario and Quebec in most industries shown in Statements XXXVII and XXXVIII. Hence a further statement is presented giving a percentage distribution of the wage-earners by industry group for each province.

XXXIX.—PERCENTAGE DISTRIBUTION OF MALE AND FEMALE WAGE-EARNERS, BY INDUSTRY GROUP, CANADA AND PROVINCES, 1931

No.	Industry Group	Percentage Distribution of Wage-Earners in									
		Canada		Maritime Provinces		Prince Edward Island		Nova Scotia		New Brunswick	
		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	All industries	100·00	100·00	*100·00*	*100·00*	100·00	100·00	100·00	100·00	100·00	100·00
2	Agriculture	9·73	0·35	*8·39*	*0·19*	24·82	0·50	6·48	0·18	8·87	0·15
3	Logging, fishing, and trapping	2·85	0·05	*5·56*	*0·13*	3·83	0·06	5·38	0·15	6·07	0·11
4	Mining, quarrying, etc.	3·39	0·06	*10·50*	*0·10*	0·02	–	17·74	0·17	1·54	0·02
5	Manufacturing	24·57	20·03	*17·27*	*10·46*	10·04	10·11	16·43	9·41	19·46	11·84
6	Electric light and power	0·86	0·27	*0·69*	*0·21*	0·48	0·13	0·80	0·24	0·57	0·18
7	Construction	10·66	0·29	*9·50*	*0·25*	9·37	0·13	10·03	0·33	8·74	0·17
8	Transportation and communication	12·88	4·24	*13·88*	*4·33*	12·93	3·08	13·60	4·35	14·40	4·53
9	Trade	10·13	13·94	*7·99*	*14·28*	10·45	14·60	7·26	13·65	8·70	15·02
10	Finance, insurance	2·87	4·54	*1·68*	*2·86*	2·09	2·35	1·64	2·33	1·69	2·41
11	Service	13·90	55·54	*10·01*	*67·15*	12·53	68·60	9·88	68·69	9·86	64·94
12	Unspecified	8·17	0·68	*14·52*	*0·55*	13·44	0·44	10·76	0·51	20·08	0·63

A distribution of this kind brings out striking differences between provinces in the relative importance of various industries in providing employment for wage-earners. For example, though only 9·73 p.c. of all male wage-earners in Canada were employed in agriculture in 1931 as much as 32·40 p.c. of the males in Saskatchewan, 24·82 p.c. in Prince Edward Island, and 22·33 p.c. in Alberta were found in this industry. Almost 9 p.c. of the male wage-earners in British Columbia were employed in logging, fishing, and trapping though the percentage in this industry for all provinces combined was less than 3 p.c. Although mining gave employment to only 3·39 p.c. of total males in wage-earning occupations in Canada, in Nova Scotia the percentage in this industry was 17·74 of total male wage-earners of that province. The percentage of 9·28 for Alberta males was likewise high in comparison with the Dominion figure.

Turning to the secondary industry, manufacturing, it will be observed that there was considerable variation among the provinces in the percentage of males employed in this industry. Almost 25 p.c. of the male wage-earners in Canada were found in manufacturing at the 1931 Census. In Ontario, the percentage was as high as 31·73 and in Quebec, 27·49. Just under 20 p.c. of the males in British Columbia and in New Brunswick were employed in manufacturing, in Manitoba and in Nova Scotia slightly more than 16 p.c., in Alberta and Prince Edward Island 10 p.c., and about 7 p.c. in Saskatchewan.

On the other hand, construction was more evenly represented by provinces. In Canada just over 10 p.c. of the males were engaged in this industry and in most provinces the percentage was only slightly greater or less than this figure. In Quebec the percentage reached 13·64 while in Alberta it was as low as 7·47. The percentage for Quebec was probably greater than normal owing to the special conditions prevailing in this industry in 1931. As stated in the Bureau of Statistics' *Annual Review of the Employment Situation in Canada during 1931*, where it refers to the province of Quebec, the execution of unemployment relief projects, together with work on several large industrial undertakings, resulted in a higher level of employment in construction during eight months of 1931 than for the same months in the preceding year.

At the 1931 Census 12·88 p.c. of total male wage-earners in Canada were found in transportation and communication. In each of the provinces of Ontario and Quebec the percentage was lower than the Canada figure. In the Maritime Provinces, in British Columbia, and especially in the Prairie Provinces the percentages were above that shown for the Dominion. Trade accounted for 10 p.c. of the male wage-earners in Canada at this census. In Ontario and Quebec a similar percentage of total male wage-earners in these provinces was found in the trade division. Less than 10 p.c. of male wage-earners were employed in trade in the Maritimes, about 10 p.c. in Saskatchewan, Alberta, and British Columbia, and almost 13 p.c. in Manitoba. The higher percentage for Manitoba was probably due to the importance of the mail-order business in this province. Finance employed less than 3 p.c. of the male wage-earners in Canada and approximately the same percentage in each of the provinces. Though in most provinces about 14 p.c. of male wage-earners were employed in the services, the Maritime Provinces actually showed 10·01 p.c. in this field of employment. In the unspecified industries all provinces, with the exception of the Maritimes, showed less than 10 p.c. of total males so reported. In New Brunswick one-fifth of all male wage-earners in that province failed to report a specific

XXXIX.—PERCENTAGE DISTRIBUTION OF MALE AND FEMALE WAGE-EARNERS, BY INDUSTRY GROUP, CANADA AND PROVINCES, 1931

Percentage Distribution of Wage-Earners in														No.
Quebec		Ontario		Prairie Provinces		Manitoba		Saskatchewan		Alberta		British Columbia		
Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
100·00	100·00	100·00	100·00	*100·00*	*100·00*	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	1
4·32	0·18	8·45	0·35	*22·82*	*0·60*	14·87	0·44	32·40	0·51	22·33	0·92	6·22	0·63	2
3·09	0·01	1·50	0·02	*0·66*	*0·02*	0·94	0·02	0·36	0·01	0·64	0·03	8·96	0·39	3
1·48	0·02	2·39	0·06	*3·69*	*0·07*	1·44	0·03	0·67	0·02	9·28	0·20	5·68	0·22	4
27·49	28·37	31·73	24·06	*11·46*	*5·42*	16·74	8·40	6·71	2·21	10·18	4·71	19·92	8·73	5
0·91	0·25	1·05	0·37	*0·68*	*0·15*	0·97	0·19	0·54	0·12	0·49	0·12	0·51	0·15	6
13·64	0·24	9·86	0·31	*8·61*	*0·84*	9·96	0·32	8·20	0·35	7·47	0·34	10·42	0·34	7
12·03	3·89	11·69	4·29	*15·63*	*3·66*	15·86	3·91	15·95	3·33	15·04	3·66	13·74	6·91	8
10·04	10·56	10·39	15·05	*11·11*	*15·51*	12·78	19·85	9·99	10·92	10·33	13·69	9·36	18·41	9
3·19	4·40	3·09	5·07	*2·86*	*4·41*	3·22	5·24	2·77	3·42	2·53	4·32	2·23	4·96	10
14·09	51·25	13·80	49·77	*14·97*	*69·44*	14·46	60·98	14·78	78·53	15·75	71·45	15·14	58·60	11
9·71	0·80	6·04	0·65	*7·51*	*0·59*	8·75	0·62	7·64	0·58	5·97	0·56	7·82	0·66	12

industry. As already pointed out this high percentage seems to be due more to enumeration procedure than to there being an excessive number of casual labourers in this province.

Since, in the distribution of male wage-earners by industry, the proportionate importance of the unspecified group is substantial in almost every province, Statement XL is added giving a percentage distribution of male wage-earners in specified industries by industry group for each province. A comparison of the figures in this table with those given in Statement XXXIX should be made where a more exact measure of the relative importance of specific industries by provinces is desired.

XL.—PERCENTAGES[1] MALE WAGE-EARNERS IN EACH INDUSTRY GROUP CONSTITUTE OF TOTAL MALE WAGE-EARNERS SPECIFYING THEIR INDUSTRY, CANADA AND PROVINCES, 1931

Industry Group	Percentage Distribution of Male Wage-Earners in											
	Canada	Maritime Provinces	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Prairie Provinces	Manitoba	Saskatchewan	Alberta	British Columbia
All specified industries	100·00	*100·00*	100·00	100·00	100·00	100·00	100·00	*100·00*	100·00	100·00	100·00	100·00
Agriculture	10·59	*9·82*	28·67	7·26	11·10	4·78	8·99	*24·67*	16·30	35·08	23·74	6·75
Logging, fishing, and trapping	3·10	*6·51*	4·43	6·03	7·60	3·42	1·60	*0·71*	1·03	0·39	0·68	9·72
Mining, quarrying, etc.	3·69	*12·28*	0·03	19·88	1·93	1·64	2·55	*3·98*	1·58	0·72	9·87	6·16
Manufacturing	26·76	*20·20*	11·60	18·41	24·35	30·45	33·77	*12·39*	18·35	7·26	10·82	21·61
Electric light and power	0·94	*0·81*	0·56	0·90	0·72	1·01	1·12	*0·74*	1·07	0·59	0·53	0·55
Construction	11·60	*11·11*	10·82	11·24	10·94	15·11	10·49	*9·31*	10·91	8·88	7·94	11·30
Transportation and communication	14·02	*16·23*	14·93	15·24	18·02	13·32	12·45	*16·90*	17·38	17·27	16·00	14·91
Trade	11·03	*9·35*	12·07	8·14	10·89	11·13	11·06	*12·02*	14·00	10·82	10·98	10·15
Finance, insurance	3·13	*1·97*	2·41	1·84	2·12	3·54	3·29	*3·09*	3·53	3·00	2·69	2·42
Service	15·14	*11·72*	14·48	11·07	12·34	15·60	14·69	*16·19*	15·85	16·00	16·75	16·43

[1] Percentages based on total wage-earners in specified industries as opposed to all industries as in Statement XXXIX.

As is shown in Statement XXXIX, in no province did the percentage of female wage-earners in the primary industries form any appreciable part of the total female wage-earners. For manufacturing it will be seen that 20·03 p.c. or about one-fifth of all female wage-earners in Canada were employed in this division of industry at the last decennial census. In the Maritimes the percentage in manufacturing was just 10·46. Quebec showed the highest proportion of female wage-earners in manufacturing among all the provinces, the percentage in this province being 28·37. Ontario with 24·06 p.c. of its female wage-earners employed in this industry came next. In the Prairie Provinces only 5·42 p.c. of female wage-earners were found in manufacturing, the percentage in Saskatchewan being as low as 2·21. The percentage for British Columbia was 8·73.

The next industrial division in which females were employed to any extent was transportation and communication. The proportion of total female wage-earners classified to this industry in 1931 was rather small, being 4·24 p.c. for Canada as a whole. In each province the percentage in transportation and communication did not fluctuate greatly from the Dominion percentage, though it will be noted that almost 7 p.c. of all female wage-earners in British Columbia were employed in this industrial division. In trade females were more fully represented. About 14 p.c. of total female wage-earners in Canada found employment in this industry in 1931. A

similar percentage of female wage-earners in the Maritime Provinces was engaged in trade while in Quebec the percentage was lower, at 10·56. Ontario and the Prairie Provinces showed approximately 15 p.c. of the female wage-earners in those provinces in trade, the percentage for Manitoba, it will be observed, being rather high, at 19·85, while for Saskatchewan the percentage was only 10·92. British Columbia female wage-earners were well represented in this division, 18·41 p.c. of their number being employed in trade.

Over half of all female wage-earners in Canada in 1931 found employment in the services, the percentage being 55·54 p.c. As was pointed out in the analysis of Statement XXXVI, personal service alone accounted for 31·24 p.c. of total female wage-earners in Canada and professional service 18·88 p.c. of the total. Over two-thirds (67·15 p.c.) of the female wage-earners in the Maritime Provinces were engaged in the services. Quebec and Ontario with 51·25 p.c. and 49·77 p.c., respectively, were somewhat below the Dominion percentage. On the other hand, almost 70 p.c. of the female wage-earners in the Prairie Provinces found employment in service, the percentage for Saskatchewan being as high as 78·53. Finally, in British Columbia 58·60 p.c. of all female wage-earners in that province were employed in service. This concentration of female wage-earners in the services should be kept in mind when consideration is being given to the incidence of unemployment by industry and sex.

"No Job" and "Lay-Off" in Industry.—With these remarks on the provincial distribution of the wage-earners in each important industry and, conversely, with respect to the industrial distribution of the wage-earners in each province, we may now turn to Statement XLI which gives the basic facts regarding employment and unemployment by industry on the date of the census. In this section the number wholly unemployed or those reporting no job and the number on lay-off on the census date will be distinguished from the total wage-earners in each industry so as to show the employment-unemployment ratio by industry as it existed on the date of the 1931 Census. Actually the number of male wage-earners not at work on the date

XLI.—WAGE-EARNERS, BY INDUSTRY GROUP AND SEX, SHOWING THE NUMBER AND PERCENTAGE NOT AT WORK OWING TO NO JOB AND LAY-OFF, CANADA, JUNE 1, 1931

Industry Group	Wage-Earners									
	Total		Number Not at Work				Percentage Not at Work			
			No Job		Lay-Off		No Job		Lay-Off	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
All industries	2,022,260	547,837	358,497	36,146	37,165	5,450	17·73	6·60	1·84	0·99
Agriculture	196,675	1,917	28,850	214	296	8	14·67	11·16	0·15	0·42
Logging, fishing, and trapping	57,550	294	19,638	54	931	16	34·12	18·37	1·62	5·44
Mining, quarrying, etc.	68,610	352	11,277	37	8,989	5	16·44	10·51	13·10	1·42
Manufacturing	496,865	109,752	66,682	9,321	15,185	2,890	13·42	8·49	3·06	2·63
Vegetable products	56,359	16,482	5,662	1,497	840	368	10·05	9·08	1·49	2·23
Animal products	39,687	11,045	5,407	1,102	729	581	13·62	9·98	1·84	5·26
Textile products	46,952	48,911	6,053	4,377	1,488	1,351	12·89	8·95	3·17	2·76
Wood products; printing, etc.	131,801	14,272	18,869	1,047	3,100	206	14·32	7·34	2·35	1·44
Iron and its products	137,393	6,533	21,870	465	7,289	187	15·92	7·12	5·31	2·86
Non-ferrous metal products	31,550	5,126	3,334	358	684	101	10·57	6·98	2·17	1·97
Non-metallic mineral products	29,849	1,856	3,268	127	728	20	10·95	6·84	2·44	1·08
Chemical and allied products	12,447	2,913	1,011	158	140	36	8·12	5·42	1·12	1·24
Miscellaneous products	10,827	2,614	1,208	190	187	40	11·16	7·27	1·73	1·53
Electric light and power	17,471	1,467	1,379	40	183	5	7·89	2·73	1·05	0·34
Construction	215,505	1,600	66,862	150	2,782	10	31·03	9·38	1·29	0·63
Transportation and communication	260,429	23,246	29,819	980	4,754	216	11·45	4·22	1·83	0·93
Railway transportation	142,861	4,491	12,265	206	3,221	34	8·59	4·59	2·25	0·76
Water transportation	36,169	827	6,548	58	630	5	18·10	7·01	1·74	0·60
Road transportation	48,948	1,014	8,021	82	398	5	16·39	8·09	0·81	0·49
Other	32,451	16,914	2,985	634	505	172	9·20	3·75	1·56	1·02
Trade	204,763	76,344	19,631	6,112	1,521	820	9·59	8·01	0·74	1·07
Retail	161,101	67,619	16,136	5,401	1,203	734	10·02	7·99	0·75	1·09
Wholesale	43,554	8,703	3,479	710	318	86	7·99	8·16	0·73	0·99
Wholesale-retail dealing	108	22	16	1	–	–	14·81	4·55	–	–
Finance, insurance	58,102	24,861	2,980	1,318	150	73	5·13	5·30	0·26	0·29
Service	281,118	304,295	25,135	16,548	1,726	1,376	8·94	5·44	0·61	0·45
Professional	63,756	103,442	2,745	3,298	169	379	4·31	3·19	0·27	0·37
Public administration	101,301	15,514	6,947	408	545	74	6·86	2·63	0·54	0·48
Federal and Provincial	52,986	12,474	1,299	297	195	59	2·45	2·38	0·37	0·47
Municipal	47,986	2,902	5,645	110	350	15	11·76	3·79	0·73	0·52
Recreational	11,575	2,287	1,394	206	121	25	12·04	9·01	1·05	1·09
Custom and repair	32,826	10,442	5,587	843	416	137	17·02	8·07	1·27	1·31
Business	3,622	1,459	318	133	27	19	8·78	9·12	0·75	1·30
Personal	68,038	171,151	8,144	11,660	448	742	11·97	6·81	0·66	0·43
Unspecified	165,172	3,709	86,244	1,372	648	31	52·21	36·99	0·39	0·84

of the census due to these two causes combined constituted 93·75 p.c. of all males not at work while for females 86·87 p.c. of the total not at work reported one or other of these two causes.

On June 1, 1931, there were 358,497 male wage-earners or 17·73 p.c. of the 2,022,260 males in wage-earning employment out of a job. In other words, a little less than one-fifth of the male wage-earners in Canada had no job of any kind on the census date. In addition, 37,165 males or 1·84 p.c. of the total male wage-earners in the country were not at work owing to lay-off. These two classes, the "no jobs" and the "lay-offs," represented the portion of the wage-earners not at work on the census date owing to industrial conditions, which are known as the "wholly unemployed" and "temporarily stopped" classes in the British statistics of unemployment. By contrast, only 36,146 females or 6·60 p.c. of the 547,837 female wage-earners in Canada reported no job as the reason for not being at work on June 1, 1931, while 5,450 or 0·99 p.c. of the total were on lay-off on the census date.

In comparing unemployment due to no job by industry it will be noted that 28,850 or 14·67 p.c. of the males in agriculture were out of a job on the date of the census, a somewhat lower percentage than was recorded for all industries, though grain growing, with a percentage unemployed of 20·92 p.c., was notably higher. On the other hand, the 19,638 males reporting no job on this date in the logging, fishing, and trapping group of industries, 17,551 of whom, as we have seen, were found in logging, represented 34·12 p.c. of all males in this group. In the remaining primary division, mining and quarrying, the number not at work on June 1, 1931, due to no job was 11,277 or 16·44 p.c. of the total in this division. The percentage unemployed in asbestos mining was as high as 31·95 p.c. on June 1, 1931, and in silver mining it was at its highest level at 37 p.c.

The percentage of the males in manufacturing reporting no job on the census date was less than the percentage for all industries combined. Out of 496,865 males in manufacturing 66,682 or 13·42 p.c. were not at work owing to lack of a job on that date. In most subdivisions of manufacturing the percentage reporting no job was nearer 10. The weight of the numbers in the iron and steel and wood product subdivisions, however, in which the percentages reporting no job were closer to 15, brought the percentage for manufacturing as a whole up to the figure given above. It might be mentioned that 7,962 or 21·10 p.c. of male wage-earners in sawmills were out of a job on June 1, 1931, while in agricultural implements and machinery manufacturing, automobiles, cycles and aircraft manufacturing and foundry products, with 23·16 p.c., 19·58 p.c. and 18·77 p.c., respectively, of their number unemployed on this date, unemployment among males was much above the average for the manufacturing industries as a whole. In electric light and power the proportion of male wage-earners out of a job on June 1, 1931 was only 7·89 p.c. Construction with 66,862 males reporting no job on the date of the census showed a very high number and percentage unemployed, the percentage in this industry being 31·03. The percentage reporting no job in building construction was 32·81 while in road, bridge, sewer, etc., construction combined the percentage was somewhat lower at 25·22, partly owing to the employment given by public works of this kind at the time of the census.

The percentage of male wage-earners out of a job on June 1, 1931, in the transportation and communication industries was considerably lower than the percentage for all industries combined. Out of a total of 260,429 male wage-earners in this industry 29,819 or 11·45 p.c. were without jobs on the census date. Railway transportation which employed well over half of the total males in the transportation and communication division showed only 8·59 p.c. of its number out of a job, while water and road transportation recorded 18·10 p.c. and 16·39 p.c., respectively, of their number with no job. The remainder, made up largely of employees of telephone and telegraph companies, showed a percentage of 9·20 having no job on June 1, 1931. Just under 10 p.c. of the males in trade were out of a job on the date of the census. Of the 19,631 reporting no job, 16,136 were in retail trade. The percentage of unemployment among males on the census date in coal and wood dealing, clothing, and leather goods was nearer 15 while, on the other hand, liquors and beverages, dairy products, flour and feed and optical goods showed percentages around 5. Less than 3,000 males or only 5·13 p.c. of total males in finance and insurance were out of a job on June 1, 1931.

Out of 281,118 male wage-earners in the services 25,135 or 8·94 p.c. were out of a job on the census date. The percentage reporting no job varied greatly in the different subdivisions of service. Only 2·45 p.c. of the males in Federal and Provincial Government services and 4·31 p.c.

of those in professional service were out of a job on that date. However, it should be noted that the percentage of unemployment among male employees of accountancy and engineering firms and among musicians was much above the average for professional service as a group. The percentage of 11·76 p.c. reporting no job in municipal service was higher than might be expected but this was no doubt due to many unemployed wage-earners who had worked on civic relief jobs some time prior to the census date telling enumerators that they were last employed by the "city." The percentage of male wage-earners in recreational service reporting no job was 12·04 and in custom and repair 17·02 the highest percentage shown for the services. The number out of a job on the census date in this latter group was 5,587 of which 2,075 had formerly been employed in auto repair shops. Unemployment on June 1, 1931, in the small industries composing the custom and repair group, such as the automobile repair, the blacksmith, the shoe repair shops, was about equal to the rate recorded for all industries combined but somewhat above that shown for the manufacturing division with which it is most closely allied. The last important subdivision of service, *viz.*, personal service, recorded 8,144 males or 11·97 p.c. of the total out of a job on the date of the census.

No single division of industry showed as large a number of males unemployed on June 1, 1931, as the unspecified industry division. As has been already explained this industry group was made up substantially of general or casual labourers, the class least able to hold jobs in good or bad times. Out of 165,172 males in this division 86,244 or 52·21 p.c. reported no job on the census date. This number represented almost one-quarter of all males out of a job on that date and hence was a factor of some importance in establishing the percentage of 17·73 p.c. reporting no job in all industries combined. Leaving out males in the unspecified industry the percentage of males reporting no job on June 1, 1931, in all other industries was 14·66.

Only 36,146 females or 6·60 p.c. of all female wage-earners reported no job on the date of the census. In the primary industries females constituted only a negligible portion of the wage-earners. In manufacturing, on the other hand, there were 109,752 females at the 1931 Census and of these 9,321 or 8·49 p.c. were out of a job. In the textile subdivision of manufacturing alone 48,911 females were found of whom 4,377 or 8·95 p.c. had no job on the census date. The next important industrial division in providing employment for females in 1931 was transportation and communication. In this division there were 23,246 female wage-earners and only 980 of these or 4·22 p.c. were out of a job on June 1, 1931. Telephone systems accounted for 15,282 of the total of 23,246 females in this division and for 521 of the 980 reporting no job on the census date. In trade, out of a total of 76,344 female wage-earners, 6,112 or 8·01 p.c. had no job on the first of June, 1931. Just over 28,000 females worked in general and departmental stores of whom 2,424 or 8·59 p.c. were unemployed on the census date. In finance and insurance only 1,318 or 5·30 p.c. of total females were wholly unemployed on that date. Finally, in the services which gave employment to 304,295 females or 55·54 p.c. of all female wage-earners in Canada, 16,548 or 5·44 p.c. reported no job on the first day of June, 1931. The two important subdivisions of service, professional and personal, showed 3·19 p.c. and 6·81 p.c. respectively, of their number out of a job on the date of the census. It will be noted that 11,660 out of an aggregate of 36,146 females in Canada with no job on the census date were found in the personal services.

The percentage of total wage-earners not at work on June 1, 1931, owing to lay-off was small, the percentages being 1·84 for males and 0·99 for females. However, it is worth noting that 8,989 males or 13·10 p.c. of total male wage-earners in mining and quarrying were not at work on the census date for this reason. In coal mining alone 8,168 males or 26·16 p.c. of the total in the industry were on lay-off on June 1, 1931. With regard to manufacturing industries just over 1,000 males or 6 p.c. of the total in the clothing industry reported lay-off on the census date. Further, in the iron and steel subdivision of manufacturing 7,289 wage-earners or 5·31 p.c. were on lay-off on that date. Over 2,000 of these belonged to automobile manufacturing.

For females it will be observed that 2,890 in manufacturing or 2·63 p.c. of the total in this division reported lay-off on June 1, 1931. The percentage of 5·26 p.c. shown for the animal products subdivision of manufacturing was caused by the high percentage of females in fish

curing and packing on lay-off on the census date. There were 581 females in animal products manufacturing who reported lay-off on June 1, 1931, some 390 of whom had been employed in fish curing and packing representing 22 p.c. of the total female wage-earners in that industry. Of the latter 363 were found in British Columbia, and most of these were Indian women.

Wage-earners reporting no job or lay-off on June 1, 1931 were distributed by provinces as follows:—

XLII.—NUMBER AND PERCENTAGE OF WAGE-EARNERS NOT AT WORK OWING TO NO JOB AND LAY-OFF, BY SEX, CANADA AND PROVINCES, JUNE 1, 1931

Province	Wage-Earners Not at Work Owing to							
	No Job				Lay-Off			
	Males		Females		Males		Females	
	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
CANADA	358,497	100·00	36,146	100·00	37,165	100·00	5,450	100·00
Prince Edward Island	537	0·15	77	0·21	41	0·11	6	0·11
Nova Scotia	13,305	3·71	920	2·55	5,837	15·71	166	3·05
New Brunswick	13,326	3·72	869	2·40	764	2·06	161	2·95
Maritime Provinces	*27,168*	*7·58*	*1,866*	*5·16*	*6,642*	*17·87*	*333*	*6·11*
Quebec	91,319	25·47	10,244	28·34	4,873	13·11	1,267	23·25
Ontario	117,038	32·65	12,461	34·47	14,631	39·37	2,552	46·83
Manitoba	28,596	7·98	3,615	10·00	1,941	5·22	367	6·73
Saskatchewan	23,888	6·66	2,440	6·75	1,143	3·08	129	2·37
Alberta	22,178	6·19	2,110	5·84	4,575	12·31	171	3·14
Prairie Provinces	*74,662*	*20·83*	*8,165*	*22·59*	*7,659*	*20·61*	*667*	*12·24*
British Columbia	48,310	13·48	3,410	9·43	3,360	9·04	631	11·58

In comparing the distribution by provinces of the wage-earners not at work on the census date owing to no job or lay-off with the distribution by provinces of the total wage-earners (see Statements XXXVII and XXXVIII) certain interesting differences are disclosed. For example, the Eastern Provinces, *i.e.*, Ontario, Quebec and the Maritimes, accounted for a higher proportion of the total wage-earners than of the wage-earners out of a job on the date of the census. The opposite, of course, was true of the Western Provinces. Actually 72·14 p.c. of total male wage-earners were located in the Eastern Provinces and 27·86 p.c. in the Western Provinces whereas just 65·70 p.c. of the males out of a job on the census date were found in the Eastern Provinces while the West accounted for 34·31 p.c. of this latter group. The percentage of total females in Canada in the Eastern Provinces at the 1931 Census was 76·21 and in the Western Provinces 23·78; the percentage of total females out of a job on the same date who resided in the Eastern Provinces was only 67·97, the percentage in the Western Provinces being 32·02. In other words, unemployment among wage-earners on June 1, 1931, was relatively greater in the Western Provinces than in Eastern Canada.

Just over 70 p.c. of the males on lay-off on the census date were found in the Eastern Provinces, or less than the proportion of total male wage-earners in this part of Canada, and just under 30 p.c. in the West. The percentage of total females on lay-off on June 1, 1931, living in Eastern Canada was 76·19 and in the West 23·82 or practically the same as the proportions of the total female wage-earners resident in Eastern and Western Canada respectively on this date.

Having now shown how the unemployed on the census date were distributed by provinces, it might be interesting to indicate the extent of unemployment by industry on that date in each province. In this connection Statements XLIII and XLIV are presented showing the number and percentage of wage-earners reporting no job on June 1, 1931, by main industry groups for each province.

XLIII.—WAGE-EARNERS REPORTING NO JOB, BY INDUSTRY GROUP AND SEX, CANADA AND PROVINCES, JUNE 1, 1931

No.	Industry Group	Wage-Earners Reporting No Job in									
		Canada		Maritime Provinces		Prince Edward Island		Nova Scotia		New Brunswick	
		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	All industries	358,497	36,146	*27,168*	*1,866*	537	77	13,305	920	13,326	869
2	Agriculture	28,850	214	*1,379*	*5*	47	2	539	1	793	2
3	Logging, fishing, and trapping	19,638	54	*2,235*	*6*	16	-	837	4	1,382	2
4	Mining, quarrying, etc	11,277	37	*1,402*	*2*	-	-	1,272	2	130	-
5	Manufacturing	66,682	9,321	*3,182*	*184*	23	7	1,556	79	1,603	98
6	Electric light and power	1,379	40	*73*	*5*	2	-	41	3	30	2
7	Construction	66,862	150	*3,940*	*7*	87	-	2,315	4	1,538	3
8	Transportation and communication	29,819	980	*2,597*	*49*	54	-	1,551	26	992	23
9	Trade	19,631	6,112	*765*	*285*	25	9	410	139	330	137
10	Finance, insurance	2,980	1,318	*56*	*26*	2	-	39	19	15	7
11	Service	25,135	16,548	*913*	*1,227*	33	57	527	606	353	564
12	Unspecified	86,244	1,372	*10,626*	*70*	248	2	4,218	37	6,160	31

XLIV.—PERCENTAGE OF WAGE-EARNERS REPORTING NO JOB IN EACH INDUSTRY GROUP, BY SEX, CANADA AND PROVINCES, JUNE 1, 1931

No.	Industry Group	P.C. of Wage-Earners Reporting No Job in									
		Canada		Maritime Provinces		Prince Edward Island		Nova Scotia		New Brunswick	
		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	All industries	17·72	6·60	*15·91*	*4·26*	5·86	2·42	13·97	4·08	20·10	4·85
2	Agriculture	14·67	11·16	*9·62*	*5·95*	2·07	12·50	8·73	2·44	13·48	7·41
3	Logging, fishing, and trapping	34·12	18·37	*23·53*	*10·91*	4·56	-	16·34	11·76	34·33	10·53
4	Mining, quarrying, etc	16·44	10·51	*7·82*	*4·76*	-	-	7·53	5·13	12·73	-
5	Manufacturing	13·42	8·49	*10·80*	*4·03*	2·50	2·17	9·94	3·73	12·42	4·62
6	Electric light and power	7·89	2·73	*6·16*	*5·56*	4·55	-	5·38	5·66	7·02	6·25
7	Construction	31·03	9·38	*24·80*	*6·42*	10·14	-	24·23	5·41	26·53	9·68
8	Transportation and communication	11·45	4·22	*10·96*	*2·59*	4·56	-	11·97	2·65	10·39	2·83
9	Trade	9·59	8·01	*5·61*	*4·67*	2·61	1·94	5·93	4·52	5·72	5·09
10	Finance, insurance	5·13	5·30	*1·95*	*2·52*	1·05	-	2·50	3·62	1·34	1·62
11	Service	8·94	5·44	*5·34*	*4·19*	2·87	2·61	5·60	3·91	5·40	4·85
12	Unspecified	52·21	36·99	*42·86*	*29·05*	20·15	14·29	41·16	32·46	46·26	27·43

In the Maritimes the percentage of unemployment among male wage-earners on the census date varied considerably by province. In New Brunswick 20·10 p.c. of the males were without employment on this date as compared with 13·97 p.c. for Nova Scotia and only 5·86 p.c. for Prince Edward Island. In these provinces as a whole 15·91 p.c. of all male wage-earners had no job on June 1, 1931. If the small number of 537 unemployed males in Prince Edward Island be subtracted, it will be seen that males out of a job on this date were almost evenly divided between Nova Scotia and New Brunswick, 13,305 being found in the former province and 13,326 in the latter.

In every industry with the exception of transportation and communication unemployment among males on June 1, 1931, was less in Nova Scotia than in Canada as a whole. It is noteworthy that while only 7·53 p.c. of the males in the relatively important industry of mining in this province reported no job on the date of the census 16·44 p.c. of the total in the industry in Canada had no job on that date. This difference is accounted for mainly by the fact that in Nova Scotia 15,924 out of a total of 16,900 males in mining were found in coal mining and of these as many as 4,044 reported lay-off on June 1, 1931 as compared with only 1,123 who reported no job. Incidentally, in Canada 8,168 males in coal mining were on lay-off on the census date and 4,315 out of a job but in mining as a whole there were just 8,989 on lay-off on this date as compared with 11,277 with no job. Though about one-quarter of the males in construction and

The proportion of male wage-earners in Quebec reporting no job on June 1, 1931 was almost the same as for Canada. By industries there were some variations in this province from the rates of unemployment shown for Canada though the relative rates by industry corresponded fairly closely. There was less unemployment among male wage-earners in agriculture on June 1, 1931, in Quebec than in Canada but more in the other primary industries. Manufacturing, construction and unspecified industries together accounted for over 60,000 of the 91,319 males wholly unemployed in the province of Quebec on the date of the census. In manufacturing the percentage of males reporting no job at the Census of 1931 was 12·47 p.c. as compared with 26·64 p.c. and 45·31 p.c. respectively, for construction and unspecified. These rates of unemployment were somewhat lower than those recorded for the same industries in Canada as a whole.

The incidence of unemployment by industry on the census date among male wage-earners in Ontario also corresponded fairly closely with what has been already described for Canada. In the primary industries a smaller percentage of the males reported no job on the census date in Ontario than in Canada. In manufacturing, the percentages of males in Ontario and in Canada reporting no job were almost identical, at 13·46 p.c. and 13·42 p.c., respectively. The 32,160 males in the manufacturing industries of Ontario wholly unemployed on June 1, 1931, represented almost 50 p.c. of the total unemployed in manufacturing in Canada on that date. In transportation, trade, finance and service individually a smaller proportion of wage-earners reported no job in Ontario than in Canada generally, while the percentage for construction was about the same. Unemployment in the unspecified group was a little higher in Ontario than in the Dominion on the census date.

In the Prairie Provinces 16,756 male wage-earners in agriculture or one-fifth of the total in the industry reported no job on the census date. For Canada the percentage of males in this industry out of a job on June 1, 1931, was 14·67. With the exception of manufacturing where the percentage of males reporting no job on June 1, 1931, in the three provinces combined was slightly less than the corresponding percentage for Canada, each industry in these provinces recorded a higher percentage of unemployment among males on that date than was shown for the Dominion as a whole. As in other provinces the number and percentage of males reporting no job in the construction and unspecified groups were outstanding. In construction 11,840 males or 37·69 p.c. of all males in the industry in the Prairie Provinces were out of a job on the census date while 17,741 males or 64·68 p.c. of total males in the unspecified group reported no job on this date.

In British Columbia where the percentage of total male wage-earners out of a job on the census date was 24·34, the highest percentage shown for any of the provinces, there were also marked differences between industries in the percentage unemployed on that date. Unemployment in the primary industries was considerably above the average for Canada as a whole, 22·00 p.c. of the males in agriculture, 37·39 p.c. of those in logging, fishing, and trapping, and 26·63 p.c. of those in mining and quarrying reported no job on the census date. About one-third of the total males in Canada in the logging, fishing, and trapping and in the mining and quarrying groups combined who were out of a job on this date were found in the province of British Columbia. Of the remaining industries it will be noted 38·75 p.c. of the males in construction and 62·40 p.c. of those in the unspecified industry group reported no job on June 1, 1931. The percentage of males with no job on that date in manufacturing, transportation, trade and service was in every case considerably above the corresponding percentage for Canada.

The number of female wage-earners reporting no job on June 1, 1931 in Canada was only about one-tenth as large as the number of males. As has been shown, these females, 36,146 in all, had formerly been employed chiefly in the services, in manufacturing and in trade. In the Maritime Provinces where only 4·28 p.c. of total female wage-earners were wholly unemployed on the census date, 1,227 females out of the 1,866 with no job on that date were found in service. However, the percentage out of a job in service on June 1, 1931, was only 4·19 p.c. In Quebec 4,462 females out of a total of 10,244 reporting no job on June 1, 1931, belonged to manufacturing. The percentage wholly unemployed in this industry on the census date was 9·76. Trade

XLIII.—WAGE-EARNERS REPORTING NO JOB, BY INDUSTRY GROUP AND SEX, CANADA AND PROVINCES, JUNE 1, 1931

Wage-Earners Reporting No Job in														
Quebec		Ontario		Prairie Provinces		Manitoba		Saskatchewan		Alberta		British Columbia		No.
Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
91,319	10,244	117,038	12,461	*74,662*	*8,165*	28,596	3,615	23,888	2,440	22,178	2,110	48,310	3,410	1
2,445	13	5,555	90	*16,756*	*66*	4,270	23	7,625	26	4,861	17	2,715	40	2
6,304	6	3,598	9	*849*	*1*	471	1	90	–	288	–	6,652	32	3
1,854	3	2,347	10	*2,671*	*8*	413	–	264	1	1,994	7	3,003	14	4
18,346	4,462	32,160	3,677	*5,602*	*614*	2,940	395	1,160	79	1,502	140	7,392	384	5
353	12	538	14	*204*	*6*	141	4	87	1	66	–	121	4	6
19,450	32	23,620	57	*11,840*	*46*	5,164	19	3,355	13	3,321	14	8,012	8	7
6,827	239	8,449	365	*7,512*	*223*	2,983	95	2,248	66	2,281	62	4,434	104	8
4,677	1,159	6,879	2,139	*5,039*	*1,792*	2,162	983	1,435	375	1,442	434	2,271	737	9
749	259	1,174	494	*625*	*338*	245	124	168	98	212	116	376	201	10
6,770	3,791	8,062	5,085	*5,733*	*4,715*	2,186	1,824	1,693	1,668	1,854	1,223	3,657	1,739	11
23,544	268	24,656	521	*17,741*	*557*	7,621	147	5,763	113	4,357	97	9,677	156	12

XLIV.—PERCENTAGE OF WAGE-EARNERS REPORTING NO JOB IN EACH INDUSTRY GROUP, BY SEX, CANADA AND PROVINCES, JUNE 1, 1931

P.C. of Wage-Earners Reporting No Job in														
Quebec		Ontario		Prairie Provinces		Manitoba		Saskatchewan		Alberta		British Columbia		No.
Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
17·06	6·36	15·55	5·86	*20·45*	*8·72*	21·52	9·55	20·57	8·30	19·12	7·99	24·34	9·31	1
10·58	4·42	8·74	12·03	*20·12*	*11·74*	21·61	13·69	20·26	17·22	18·77	7·00	22·00	17·47	2
38·11	25·00	31·83	17·31	*35·18*	*5·26*	37·77	12·50	21·48	–	38·55	–	37·39	22·22	3
23·38	7·69	13·02	8·33	*19·86*	*11·43*	21·54	–	34·15	20·00	18·53	13·21	26·63	17·28	4
12·47	9·76	13·46	7·18	*18·39*	*12·10*	13·21	12·43	14·89	12·15	12·72	11·25	18·70	12·01	5
7·22	3·00	6·82	1·79	*11·77*	*8·62*	10·89	5·56	13·83	2·86	11·52	–	12·04	7·27	6
26·64	8·16	31·83	8·64	*37·69*	*14·60*	39·03	15·70	35·23	12·62	38·34	15·38	38·75	6·45	7
10·60	3·81	9·60	4·00	*18·17*	*6·51*	14·15	6·41	12·14	6·74	13·07	6·41	16·26	4·11	8
10·69	6·81	8·79	6·68	*12·42*	*12·49*	12·73	13·08	12·37	11·67	12·03	12·00	12·23	10·93	9
4·38	3·65	5·04	4·58	*5·99*	*8·18*	5·72	6·26	5·22	9·73	7·22	10·16	8·51	11·06	10
8·98	4·59	7·76	4·80	*10·49*	*7·25*	11·37	7·90	9·86	7·22	10·15	6·48	12·17	8·06	11
45·31	20·74	54·22	37·64	*64·68*	*64·79*	65·57	63·09	64·93	66·08	62·89	65·99	62·40	64·73	12

about two-fifths of those in the unspecified industry group were unemployed on the census date—and these numbered 6,533 males or approximately 50 p.c. of the total number of male wage-earners unemployed on June 1, 1931, in the province of Nova Scotia—the percentages out of a job in these industries were considerably lower in this province than in the Dominion. As would be expected water transportation with 993 males, or about 20 p.c. of its number, reporting no job on the date of the census contributed largely to the total unemployed in transportation and communication on this date.

In New Brunswick 13,326 males or one-fifth of all males in wage-earning occupations were totally unemployed on the census date. Unemployment in the primary industries on this date was slightly less than in Canada as a whole. The same was true of the secondary industries. Even the unspecified industry group with 46·26 p.c. of total males with no job on the census date showed less unemployment on June 1, 1931, in this province than in Canada. However, it will be recalled that 20 p.c. of all male wage-earners in New Brunswick were returned as customarily employed at "odd jobs" and were, therefore, classified to the unspecified industry group. The percentage of all male wage-earners in Canada in this group was only 8·17 p.c. Hence, although males in the specified industries in New Brunswick showed less unemployment on June 1, 1931, than was the case for the provinces as a whole the inclusion of the unspecified industry in the total raised the percentage of unemployment for all industries on the census date to 20·10 p.c. as compared with 17·72 p.c. for the Dominion.

and service with 1,159 and 3,791 females respectively having no job on this date accounted for the bulk of the remainder in this province out of a job on June 1, 1931. Some 2,832 females out of the total unemployed in service had been connected with the personal services. In Ontario also manufacturing, trade and service accounted for the large majority of females reporting no job on the date of the census. It will be noted that the number and percentage wholly unemployed in manufacturing were less in this province than in Quebec. About 5,000 females or approximately 5 p.c. of the total in service were out of a job on this date. Unemployed females in personal service alone exceeded 3,500. In the Prairie Provinces over 12 p.c. of the female wage-earners in manufacturing and trade and about 7 p.c. of the total in service reported no job on the census date. Unemployment among females was greater in the Prairie Provinces than in Canada on this date. More than 50 p.c. of the unemployed females were found in the services though it should be remembered that about 70 p.c. of all female wage-earners in these provinces found employment in the service division. Almost 10 p.c. of total female wage-earners in British Columbia were out of a job on June 1, 1931, or 3,410 in all. Though 50 p.c. of these belonged to service the percentage unemployed on the census date in this group was somewhat less than in manufacturing, trade and finance and insurance, the rate for service being about 8 p.c. as compared with 11 or 12 p.c. for these other groups.

CHAPTER III

UNEMPLOYMENT IN RELATION TO THE INDUSTRIAL STRUCTURE

PART A—DATA AVAILABLE AND METHODOLOGY

Introduction.—To interpret properly the effect of the industrial structure upon unemployment we must consider the industrial structure from two viewpoints. First, we must analyse the evidence of variations in that structure as apparent in the latest available records and secondly, we must trace the evolution of that structure. The problem is somewhat akin to that of the scientist in studying the evolution of species. He first notes evidences among living creatures of essential similarities. He also notes peculiar evidences of adaptation to environment shown by these similar species living in different environments. Then by a study of fossil remains, he is able to reconstruct a time story of this adaptation to environment.

Our problem is simplified to a great extent because we have fairly authentic, although not exact, information covering the period beginning when the nature of industrial structure began to change significantly to the present. Where biologists have had to reconstruct the past from facts of the present, we have both present facts and significant figures of the past.

For the time being we are not concerned with remedies for unemployment, we are merely trying to relate present conditions with the processes which have caused these conditions to exist. It is a simple study of cause and effect. Accordingly, this chapter will aim at an analysis of the *present* industrial structure in Canada and its variation within itself.

Such findings as are verified will be recorded and related to time changes in industrial structure, an estimate of which values will be found in a later chapter.

Throughout the census data on unemployment runs a baffling dual phenomenon, *viz.*, the point of view of the wage-earner and the point of view of the work. Since the data, whether referring to unemployment during the year or as at a fixed day of that year, is collected on one day, *i.e.*, the last day of the year referred to, the viewpoint of the wage-earner is paramount—in other words, the industry is identified only through the report of the wage-earner that he is engaged in that industry. It is more than probable that he reports the industry where at present or where last employed and that he was employed in some other industry for part of the year. This may affect even the data of employment as on June 1 (though not as much as for the whole year). The influence of the industry upon unemployment is, therefore, badly obscured.

In mass data, it is possible to observe tendencies that can actually be measured, but to interpret them is very difficult when we have always to contend with this dual phenomenon. We can not have work without the worker and we can not have the worker without the work. When an industry loses a million working days in a year, it would seem at first sight to be an impersonal matter to the industry in that it would not matter to the industry whether its 10,000 men lost 100 days each or whether 5,000 men lost 200 days each—and it probably *would not* matter if the two alternatives were equally possible, but they are not. If the loss to the industry is measured in terms of the time lost by the men, then there is almost a mathematical necessity, at any rate a decided probability, that the small industry loses either a greater or a smaller percentage of time than the larger industry. The large industry and the small industry, therefore, can not be compared side by side. To eliminate this element of chance the large would have to be compared with an aggregate of the small—but this confuses the issue.

While the foregoing difficulties are serious, there are others still more so. One of the worst is lack of homogeneity in industry classes. The best classification is more or less artificial. Where, for example, could the line be drawn between the aggregates of industries known as, "Manufactures," and that known as "Services?" The type of work in the sub-classification of "Services" known as "Custom and repair," is more akin to "Manufactures" than to "Professional Services." The selling department of a manufacturing establishment would seem to be an industry separate in function from the manufacturing department and akin to the industry "Trade"—and yet it is classed as "Manufactures." Another lack of homogeneity, as already mentioned, is caused by differences in size, occasioning differences in organization and stability—in so far as stability depends upon size.

Before industries can be compared for unemployment, difficulties such as mentioned must be overcome. Obviously, neither a comparison of main classes nor of summaries of aggregates is adequate. A method of selection to procure homogeneity within the classes compared and to overcome other difficulties is the first step.

Method of Selecting the Data.—A primary consideration in choosing data on unemployment is the method of treating the behaviour of unemployment by sex. Should the male and female wage-earners of an industry be considered as identical, in so far as their liability to unemployment is concerned? Or should unemployment among males be considered separately from that among females? A cursory examination of census data shows that females have not the same degree of dispersion either in industry or occupation as have male wage-earners, *i.e.*, the bulk of female wage-earners are contained in a few typically female industries and occupations. The body of this chapter will, therefore, deal firstly with the male wage-earners in industry and the "industry" will be quantitatively the male content, unless otherwise stated.

In the conviction that summaries of aggregates artificially grouped under the main classifications were to be avoided, also to procure the maximum of variety as between homogeneous classes, it was decided first to bring under single review all the sub-classes. In this case a sub-class (*e.g.*, flour and grain milling) in a province is considered the unit to be known as "industry." Throughout this study, an "industry" must be understood to mean a sub-class in a province. If this sub-class is found in every province it will be counted as nine industries. All such sub-classes were brought under review by means of a scatter diagram in which the number of workers in the class was designated in the box-heading and the number of workers idle on June 1, 1931 in the stub. The number of industries representative of each class was then entered in the compartments thus formed. This method of showing unemployment was considered better than an array of percentages unemployed as it related the volume of unemployment to the absolute numbers involved. This scatter diagram is shown in Statement XLV.

The next step was to select from the industries a sample sufficiently large to exhibit all the possible varieties and causes of unemployment in all industries. The concept "unemployment" was measured, not by the percentage unemployed by industries, but by the trend from industry to industry of the probability that a wage-earner was not at work. This was regarded as a better measure than the percentage, chiefly because it tended to overcome inaccuracies and other discrepancies in reporting. In the calculation at the foot of Statement XLV, the average unemployment per wage-earner for each class interval of wage-earner is shown as the number idle per 100 wage-earners. This trend from class to class was measured and was regarded as the representative figure of unemployment.

It was next ascertained whether there was any tendency for this representative figure to increase or decrease with the size of the industry. The tendency in either direction was so slight that it seemed safe to neglect it, *i.e.*, the trend may be considered linear. (See Statement XLV.)

The sample selected consisted of three intervals located near the middle of the scatter diagram (Statement XLV) on the ground that the percentage not at work in the industries in these intervals (when obtained in the ordinary way) corresponded to the measure of trend as already mentioned.

It should be stated that in order to measure this trend it was found necessary to drop the three largest industries—(1) Building and structures in Quebec; (2) Building and structures in Ontario; (3) Mixed farming in Ontario. This step was taken on the grounds that these industries were first, too large and heterogeneous and second, so exceptional in the incidence of unemployment that their influence produced what was considered a false trend, *i.e.*, a trend non-representative of the main body of industries. This can be readily seen from their position in Statement L. The purpose of selecting this sample was, of course, to make a minute study of a number of representative industries, it being impossible to submit all the 1,420 industries in Canada to this minute study.

When the sample was thus provisionally selected it was subjected to several tests to ascertain its degree of representativeness. These tests were: (1) the number of industries represented, (2) the number of wage-earners, (3) the variation in unemployment compared with that of the whole (the measure of which was the standard deviation), (4) the number and kind of representatives it showed for each province, (5) its representativeness from the point of view of age distribution, (6) its representativeness when unemployment was measured by yearly figures instead of by June 1. (Other tests came up incidentally in the study as will be shown later.) That the sample satisfied all six tests will be shown in the next section.

XLV.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF INDUSTRY GROUPS, ACCORDING TO INTERVALS OF SIZE OF GROUP IN RELATION TO NUMBER OF MALE WAGE-EARNERS NOT AT WORK FOR ALL CAUSES, CANADA, JUNE 1, 1931

No.	Interval of Number Not at Work June 1	Industries Having Male Wage-Earners Numbering											
		Less than 200	200–400	400–600	600–800	800–1,000	1,000–1,200	1,200–1,400	1,400–1,600	1,600–1,800	1,800–2,000	2,000–3,000	3,000–4,000
1	Less than 20	561	45	7	3	4		1					
2	20– 40	85	64	18	12	3	3	1			1	1	
3	40– 60	20	37	34	7	2	1	1	1			2	
4	60– 80	1	22	22	15	4		1	3	1		1	
5	80– 100	1	9	16	16	10	6			1	1	2	1
6	100– 120		4	11	13	6	8	4	1	3	1	2	
7	120– 140		2	3	4	7	6	2	1	1	1		
8	140– 160		2	2	3	1	4	1	3	2		3	1
9	160– 180		1	1	3	1	5	2	2	1	1	2	
10	180– 200			1	5	3	5	4	2		1	1	1
11	200– 300			3	3	7	3	7	5	6	7	17	1
12	300– 400					1	3	1	4	2	4	14	4
13	400– 500					1	1	1	3	1	1	11	4
14	500– 600						2					4	1
15	600– 700											2	4
16	700– 800											1	
17	800– 900												1
18	900– 1,000												
19	1,000– 1,500											1	4
20	1,500– 2,000												1
21	2,000– 2,500												
22	2,500– 3,000												
23	3,000– 3,500												
24	3,500– 4,000												
25	4,000– 4,500												
26	4,500– 5,000												
27	5,000– 5,500												
28	5,500– 6,000												
29	6,000– 6,500												
30	6,500– 7,000												
31	7,000– 8,000												
32	8,000– 9,000												
33	9,000–10,000												
34	10,000–15,000												
35	15,000–20,000												
36	Total	668	186	118	84	50	47	26	25	18	18	64	23
37	Percentage not at work June 1	13·9	13·9	14·0	13·3	14·2	15·6	13·7	15·1	12·2	12·6	13·2	18·1

Trend of unemployment, 17·2 p.c.
Mean percentage idle in 122 groups taken as sample, 15·3.

Sample

XLV.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF INDUSTRY GROUPS, ACCORDING TO INTERVALS OF SIZE OF GROUP IN RELATION TO NUMBER OF MALE WAGE-EARNERS NOT AT WORK FOR ALL CAUSES, CANADA, JUNE 1, 1931

Industries Having Male Wage-Earners Numbering															
4,000–5,000	5,000–6,000	6,000–7,000	7,000–8,000	8,000–9,000	9,000–10,000	10,000–15,000	15,000–20,000	20,000–25,000	25,000–30,000	30,000–35,000	35,000–40,000	40,000–45,000	45,000–50,000	Total	No.
														621	1
1														189	2
														105	3
	1													71	4
														63	5
														53	6
	1	1												29	7
														22	8
														19	9
														23	10
1	1	1		1										63	11
1	2	1	1	1	1									40	12
5						1								29	13
4	4													15	14
3			1											10	15
		1	2											4	16
1	1	1	1		1									6	17
			1											1	18
2	2	2	4	1	3	2								21	19
	2			1	3	5								12	20
1				1	3	2								7	21
	2					1			1					4	22
						2	1							3	23
			1				1							2	24
								1						1	25
												(1)		(1)	26
					1	1								2	27
						1	2							3	28
									1					1	29
							1							1	30
															31
															32
															33
												(1)		(1)	34
													(1)	(1)	35
19	16	7	11	5	12	15	5	1	2			(2)	(1)	1,420	36
14·7	17·8	10·6	15·8	13·7	19·4	19·4	28·8	18·8	16·3			20·2	36·8		37

3 large industries for special study

Under the prevailing system of classification of wage-earners by industry, it is not possible to affix all workers to a specific industry. Some industries are so small and scattered that economy does not permit their being individually classified—the usual method being to incorporate them into groups attached to main and secondary classes, therein attaching to them a general but not specific classification. It is obvious that groups of this sort, known as "Others" in the census, can not be called "industries" (as the term is used in this text) because of their lack of homogeneity, each of these groups being in reality an aggregate of "industries".

There is also the case of the casual labourer and the chronic unemployed. These types can not be assigned to any one industry and so are classified under the main industry heading "Unspecified."

XLVI.—NUMBER AND PERCENTAGE OF MALE WAGE-EARNERS ACCORDING TO CLASSIFICATION OF INDUSTRIAL CONNECTION, CANADA, JUNE 1, 1931

Item	Male Wage-Earners	
	No.	P.C.
ALL CANADA	2,022,260	100·00
Specifically connected with *classified industries*	1,625,265	80·37
Specifically connected with *unclassified industries*	231,823	11·46
Not specifically connected with any industry	165,172	8·17

As it was decided to investigate unemployment in industry by means of a minute analysis of the indivudual industries of a representative sample, it can be readily seen that this sample *can not* be a sample of unemployment *in toto*, but only of 1,625,265 wage-earners who are classed as specifically connected with classified industries. As has been previously noted, the three largest industries were ruled out as non-representative. As these three totalled 138,113 wage-earners, our sample actually represents 1,487,152 wage-earners or about 73 p.c. of the total in Canada. Therefore, we are forced to reserve for separate study three differing groups (3, 4, 5 in statement below).

The following statement shows the markedly different degrees of unemployment of the different classes:—

XLVII.—NUMBER OF MALE WAGE-EARNERS AND NUMBER AND PERCENTAGE NOT AT WORK, BY INDUSTRIAL CONNECTION, CANADA, JUNE 1, 1931

Item	Male Wage-Earners		
	Total	Not at Work June 1	
		No.	P.C.
(1) ALL CANADA	2,022,260	422,076	20·87
(2) Specifically attached to 1,420 classified industries of less than 30,000 male wage-earners	1,487,152	251,843	16·93
(3) Specifically attached to unclassified industries	231,823	45,219	19·50
(4) Not specifically attached to any industry	165,172	90,091	54·54
(5) Specifically attached to 3 large industries (40,000 and over)	138,113	34,923	25·28
(6) Sample of (2), 122 industries containing from 2,000–6,000 male wage-earners	410,490	62,955	15·34[1]

[1]No doubt it will be thought that the figure of unemployment given by the sample is too low (universe 16·93, sample 15·34). However, this figure is well within the limits of the expected difference between the universe and the sample.

Theoretical error of a random sample where N = number of cases, P = probability of figure, Q = 1 − P,

$$E = \sqrt{\frac{PQ}{N}}; \text{ here } P = \cdot1534, Q = \cdot8466, N = 122 \text{ from which } E = \cdot01.$$

The probability of the universe is ·1693, then the actual error is ·1693 − ·1534 = ·0159, which difference is well within three times the theoretical error. In other words, for individual years the figure shown by the sample may be slightly low or high, but for any selected year we may say that the sample is representative.

Representativeness of the Sample.—Since the selection of such a sample is considered in itself one of the most important accomplishments of this chapter, also highly desirable for purposes additional to this study, the representativeness will now be shown in detail.

First, as can be seen from Statement XLVII, the size of the industry groups is limited so as to include none with less than 2,000 and none with more than 6,000 wage-earners. That is, we have a relative uniformity in the size of the industries in the sample. This was an important consideration since variability in size is always a source of trouble in a study of this kind.

Then, we have in the sample 122 industries with an aggregate of 410,490 wage-earners or 20·29 p.c. of all wage-earners in Canada. The percentage unemployed on June 1 was 15·3 as against 16·93 in the case of all the industries from which the sample was taken. This is satisfactorily close, but it must be mentioned once more that this is not considered as important as the fact that the percentage unemployed in the sample is about the same as that indicated in the *trend* in the industries, *i.e.*, the number of persons unemployed from industry to industry per hundred wage-earners in the industry. This is a somewhat different concept from the percentage unemployed in the aggregate of industries (or the general average) for the latter contain or may contain several accidental features such as the grouping of favoured industries in one province, etc.

The standard deviation of the percentage not at work in the sample was 10·87, the percentages unemployed on June 1 varying from 1·2 to 54·5, and the yearly figures from 1·2 to 43·4. Thus the sample manifestly contains a sufficient variety of unemployment.

XLVIII.—REPRESENTATIVENESS OF SAMPLE WITH REGARD TO (a) TOTAL NUMBER OF MALE WAGE-EARNERS, (b) NUMBER NOT AT WORK JUNE 1, CANADA AND PROVINCES, 1931

(a) TOTAL MALE WAGE-EARNERS IN

Province	All Industries (1)	All Industries Less Unspecified Industrial Connection (2)	Sample (3)	Sample as P.C. of Col. 1 (4)	Sample as P.C of Col. 2 (5)	No. of Industries in Sample (6)
CANADA	2,022,260	1,857,088	410,490	20·2	22·1	122
Prince Edward Island	9,159	7,928	2,046	22·3	25·81	1
Nova Scotia	95,244	84,997	27,992	29·3	32·93	7
New Brunswick	66,310	52,993	22,716	34·2	42·87	6
Quebec	525,203	483,240	126,773	23·6	26·23	36
Ontario	752,851	707,373	153,450	20·3	21·69	48
Manitoba	132,883	121,260	10,912	8·0	9·00	4
Saskatchewan	116,157	107,281	13,382	11·5	12·47	4
Alberta	116,005	109,077	13,463	11·6	12·34	4
British Columbia	198,448	182,939	39,756	20·0	21·73	12

(b) MALE WAGE-EARNERS NOT AT WORK JUNE 1, 1931 IN

Province	All Industries		All Industries Less Unspecified Industrial Connection		Sample	
	No. (1)	P.C. (2)	No. (3)	P.C. (4)	No. (5)	P.C. (6)
CANADA	422,076	20·8	331,985	17·8	62,955	15·3
Prince Edward Island	707	7·7	427	5·39	61	2·9
Nova Scotia	21,365	22·4	16,838	19·81	5,691	20·3
New Brunswick	15,152	22·8	8,699	16·42	4,906	21·6
Quebec	104,066	19·4	79,201	16·39	15,095	11·8
Ontario	140,666	18·6	114,785	16·22	19,108	12·4
Manitoba	31,916	24·0	24,071	19·85	1,444	13·2
Saskatchewan	25,884	22·2	19,987	18·63	3,387	25·3
Alberta	27,846	24·0	23,401	21·45	3,541	26·2
British Columbia	54,474	27·4	44,576	24·37	9,722	24·4

The above statement shows that the number of wage-earners shown in the sample by provinces is nearly perfect for Prince Edward Island, Quebec, Ontario and British Columbia. Nova Scotia and New Brunswick are too heavily represented and the Prairie Provinces are underrepresented. This was regarded as satisfactory, however, chiefly due to the fact that the *kind* of industries shown for each province typified to a marked extent the actual industrial structure of each as can be seen by referring to Statement XLIX. The fact that "Grain growing" is shown only for Alberta and "Storage" (largely grain elevators) only for Saskatchewan would indicate that the great industry of the Prairies, grain growing, is not given adequate weight in the sample. This failing is clearly unavoidable in a sample of this sort as this specialization in one industry naturally makes for one of the largest of the industry groups, especially as the majority of wheat farmers go in for a certain amount of stock raising, etc., and as such are classified under mixed farming, thereby swelling an already large class.

This deficiency in regional representativeness, however, is not serious enough to affect the value of the sample for industry in Canada as a whole.

Referring to the second part of the preceding statement, we find as would be expected, that the unemployment on June 1, is considerably less for this sample than for the whole. However, when the "Unspecified industries" are taken out, we find that there is not a serious discrepancy. With regard to the provinces the same holds true. Unemployment in the sample, except in Saskatchewan and Alberta is lower than the figures for the whole. However, Nova Scotia, New Brunswick, Saskatchewan, Alberta and British Columbia are reasonably close to the original figures while Ontario, Quebec, Manitoba and Prince Edward Island are slightly lower.

The figures for unemployment during the year, as can be seen from Statement XLIX, are representative to a slightly greater extent than the figures for June 1.

A further test for representativeness will be shown later.

XLIX.—SELECTED SAMPLE OF 122 INDUSTRIES IN THE NINE PROVINCES, SHOWING MALE WAGE-EARNERS, NUMBER AND PERCENTAGE LOSING TIME, NUMBER AND PERCENTAGE NOT AT WORK JUNE 1 BY CAUSE, TOTAL WEEKS LOST AND AVERAGE PERCENTAGE OF YEAR LOST PER WAGE-EARNER, CANADA, YEAR ENDED JUNE 1, 1931

Province and Industry	Male Wage-Earners							Weeks Lost during Year Ended June 1, 1931 from All Causes	Average Weeks Lost per Wage-Earner, as P.C. of 52
	Total	Losing Time during Year		Not at Work June 1, Due to					
				All Causes		Sickness, Accident, etc.[1]			
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Prince Edward Island—									
1. Mixed and general farming	2,046	230	11·24	61	2·9	16	0·8	4,000	3·75
Nova Scotia—									
1. Mixed and general farming	5,368	1,559	29·04	577	10·7	61	1·1	30,027	10·75
2. Fishing	2,808	909	32·37	295	10·5	36	1·3	18,682	12·78
3. Forestry and logging	2,293	1,051	45·83	651	28·3	42	1·8	20,393	17·09
4. Iron smelting, converting, refining, rolling (Mfg.)	3,227	2,571	79·67	1,115	34·5	70	2·2	62,881	37·46
5. Building and structures	4,923	3,229	65·59	1,396	28·3	177	3·6	72,599	28·34
6. Steam railways	4,405	1,380	31·32	483	10·9	87	2·0	24,281	10·59
7. Water transportation	4,968	2,243	45·14	1,174	23·6	105	2·1	50,014	19·34
New Brunswick—									
1. Mixed and general farming	5,323	2,050	38·51	827	15·6	47	1·0	42,735	15·42
2. Forestry and logging	3,109	2,315	74·46	1,381	44·4	63	2·1	55,083	34·05
3. Sawmill products	2,745	1,991	72·53	786	28·6	44	1·6	45,897	32·03
4. Pulp and paper (Mfg.)	2,640	1,351	51·17	546	20·7	69	2·7	28,430	20·69
5. Building and structures	3,219	2,062	64·05	833	25·8	87	2·7	45,431	27·13
6. Steam railways	5,680	1,512	26·61	533	9·3	78	1·3	25,684	8·69
Quebec—									
1. Dairy farming	4,839	791	16·34	380	7·8	32	0·7	17,369	6·88
2. Asbestos mining	2,787	2,122	76·13	1,349	48·4	68	2·5	44,455	30·67
3 Quarries, gravel pits; salt wells	2,582	1,450	56·15	544	21·0	67	2·6	31,079	23·13
4. Biscuits and confectionery (Mfg.)	2,011	719	35·75	221	10·9	22	1·1	14,018	13·40
5. Bread and other bakery products (Mfg.)	5,105	1,425	27·91	571	11·1	74	1·4	30,527	11·48
6. Liquors, beverages (not aerated waters) (Mfg.)	2,263	638	28·19	176	7·7	29	1·3	10,077	8·55
7. Rubber products (Mfg.)	2,875	1,624	56·48	490	17·0	35	1·2	28,829	19·26
8. Tobacco, cigars, and cigarettes (Mfg.)	2,946	1,317	44·70	319	10·8	43	1·5	24,419	15·92
9. Silk, silk goods (including artificial silk) (Mfg.)	3,071	852	27·74	218	7·0	27	0·8	14,624	9·15
10. Men's clothing—suits, coats (Mfg.)	3,215	1,839	57·20	1,026	31·9	47	1·5	42,556	25·44
11. Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	2,048	874	42·67	384	18·7	17	0·8	16,701	15·67
12. Furniture (including upholstering) (Mfg.)	2,748	1,216	44·25	388	14·1	50	1·9	22,690	15·89
13. Boilers, engines, and machinery (Mfg.)	4,676	1,670	35·71	663	14·1	72	1·5	33,096	13·59
14. Iron smelting, converting, refining, rolling (Mfg.)	3,576	1,766	49·38	679	18·9	46	1·2	38,764	20·84
15. Electrical apparatus (Mfg.)	4,256	1,355	31·83	534	12·5	39	0·9	24,414	11·01
16. Electric light and power production and distribution	4,891	1,135	23·20	466	9·5	69	1·4	21,445	8·42
17. Shipbuilding	2,696	1,406	52·15	594	22·0	42	1·6	29,096	20·75
18. Cartage, trucking, and haulage service	5,643	2,594	45·96	1,020	18·0	94	1·6	58,150	19·80
19. Electric railways	4,823	1,299	26·93	305	6·3	95	2·0	20,066	8·34
20. Taxicabs, livery, and bus service	4,044	1,495	36·96	622	15·3	67	1·6	32,955	15·65
21. Telephone systems	2,690	652	24·23	266	9·8	36	1·3	10,137	7·23
22 Coal and wood (Retail Trade)	2,453	1,072	43·70	396	16·1	33	1·4	22,503	17·63
23. Dairy products (Retail Trade)	2,368	481	20·31	149	6·2	27	1·1	10,114	8·21
24 General and departmental (Retail Trade)	5,318	1,149	21·60	517	9·7	47	0·9	24,284	8·76

[1]Includes "strike or lockout" and "other" causes, *i.e.*, all causes not inherent in the industry.

XLIX.—SELECTED SAMPLE OF 122 INDUSTRIES IN THE NINE PROVINCES, SHOWING MALE WAGE-EARNERS, NUMBER AND PERCENTAGE LOSING TIME, NUMBER AND PERCENTAGE NOT AT WORK JUNE 1 BY CAUSE, TOTAL WEEKS LOST AND AVERAGE PERCENTAGE OF YEAR LOST PER WAGE-EARNER, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province and Industry	Male Wage-Earners							Weeks Lost during Year Ended June 1, 1931 from All Causes	Average Weeks Lost per Wage-Earner, as P.C. of 52
	Total	Losing Time during Year		Not at Work June 1, Due to					
				All Causes		Sickness, Accident, etc.[1]			
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Quebec—Con.									
25. Hardware and builders' supplies (Retail Trade)	2,455	534	21·75	201	8·1	22	0·9	11,327	8·86
26. Meat, poultry, and fish (Retail Trade)	4,516	1,329	29·42	555	12·2	79	1·7	28,222	12·00
27. Investment and loan	2,997	434	14·48	277	9·2	21	0·7	11,820	7·57
28. Banking	5,933	411	6·92	242	4·0	48	0·8	10,083	3·25
29. Education	5,843	364	6·22	128	2·1	29	0·5	7,732	2·53
30. Health	2,283	336	14·71	114	4·9	28	1·2	6,331	5·32
31. Religion	4,114	119	2·89	32	0·7	7	0·1	2,368	1·09
32. Postal service	3,492	238	6·81	93	2·6	31	0·9	3,904	2·13
33. Police (Municipal)	2,285	158	6·91	59	2·5	22	0·9	2,487	2·07
34. Automobile repair service	2,463	1,104	44·82	440	17·8	38	1·5	24,561	19·17
35. Barber and hairdressing shops	2,133	583	27·33	250	11·7	40	1·9	13,064	11·76
36. Private domestic service	4,335	1,089	25·12	427	9·8	29	0·7	26,523	11·75
Ontario—									
1 Gardening—truck farming	3,200	1,534	47·93	426	13·3	25	0·8	39,997	24·01
2. Nickel-copper mining and milling	2,497	901	36·08	404	16·1	27	1·1	19,276	14·82
3. Quarries, gravel pits; salt wells	2,805	1,768	63·03	455	16·2	39	1·4	38,888	26·65
4. Biscuits and confectionery (Mfg.)	2,725	952	34·93	281	10·2	34	1·2	18,376	12·96
5. Flour and grain milling (Mfg.)	2,523	725	28·73	227	8·9	33	1·3	13,044	9·94
6. Liquors, beverages (not aerated waters) (Mfg.)	2,795	1,037	37·10	315	11·2	26	0·9	21,435	14·73
7. Butter, cheese, and condensed milk (Mfg.)	2,992	765	25·56	164	5·4	27	0·9	14,105	9·05
8. Slaughtering and meat packing (Mfg.)	3,993	1,291	32·33	457	11·4	39	1·0	26,039	12·53
9. Boots and shoes (Mfg.)	3,313	1,736	52·39	494	14·8	38	1·1	33,226	19·26
10. Tanning (Mfg.)	2,312	1,085	46·92	235	10·1	29	1·2	18,425	15·30
11. Cotton goods—yarn, cloth, thread (Mfg.)	2,717	1,604	59·03	369	13·5	36	1·3	31,965	22·61
12. Hosiery and knitted goods (Mfg.)	2,721	1,220	44·83	318	11·6	29	1·0	22,775	16·09
13. Woollens and worsteds (Mfg.)	3,056	1,622	53·07	352	11·5	37	1·2	28,538	17·94
14. Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	2,136	1,356	63·48	663	31·0	27	1·3	30,725	27·65
15. Paper products—boxes, bags, stationery (Mfg.)	2,839	915	32·22	297	10·4	32	1·1	17,165	11·61
16. Agricultural implements and machinery (Mfg.)	5,154	3,533	68·54	1,849	35·8	68	1·3	103,903	38·75
17. Hardware and tools (Mfg.)	3,510	1,977	56·32	607	17·2	53	1·5	39,962	21·88
18. Sheet metal products (Mfg.)	2,344	1,187	50·63	414	17·6	24	1·0	25,591	20·98
19. Wire and wire goods (Mfg.)	2,578	1,424	55·23	527	20·4	36	1·4	29,476	21·98
20. Brass and copper products (Mfg.)	2,729	1,351	49·50	443	16·2	31	1·2	27,817	19·59
21. Non-ferrous smelting and refining (Mfg.)	2,941	945	32·13	378	12·8	31	1·1	20,879	13·63
22. Bricks and tile (Mfg.)	2,104	1,274	60·55	391	18·5	21	1·0	29,223	26·69
23. Glass and its products (Mfg.)	2,012	1,136	56·46	358	17·7	22	1·1	26,539	25·36
24. Illuminating and fuel gas (Mfg.)	2,366	665	28·10	186	7·8	25	1·0	13,759	11·17
25. Petroleum products (Mfg.)	2,877	1,255	43·62	408	14·1	42	1·4	16,760	11·19
26. Electric railways	5,861	1,481	25·26	349	5·9	89	1·5	22,456	7·36
27. Storage	3,237	1,178	36·39	410	12·6	27	0·8	24,686	14·65
28. Taxicabs, livery, and bus service	2,587	1,038	40·12	439	16·9	22	0·8	25,456	18·90
29. Telegraph systems	2,741	611	22·29	324	11·8	22	0·8	12,701	8·90
30. Telephone systems	4,344	1,115	25·66	445	10·2	29	0·7	19,418	8·59
31. Automobiles and accessories (Retail Trade)	3,484	844	24·22	305	8·7	27	0·8	18,949	10·44
32. Coal and wood (Retail Trade)	3,252	1,420	43·66	660	20·2	44	1·3	27,936	16·51
33. Dairy products (Retail Trade)	5,106	1,165	22·81	337	6·6	49	1·0	22,399	8·42
34. Drugs and toilet preparations (Retail Trade)	2,555	537	21·01	265	10·3	25	1·0	13,131	9·86
35. Filling stations (Retail Trade)	2,257	740	32·78	199	8·8	15	0·7	16,295	13·86
36. Hardware and builders' supplies (Retail Trade)	3,624	945	26·07	355	9·7	40	1·1	19,655	10·42
37. Meat, poultry, and fish (Retail Trade)	4,867	1,560	32·05	646	13·2	51	1·0	36,038	14·23
38. Investment and loan	4,399	884	20·09	543	12·3	29	0·7	25,383	11·09
39. Health	4,085	671	16·42	226	5·5	44	1·1	13,587	6·38
40. Religion	5,392	154	2·85	77	1·4	31	0·6	3,411	1·21
41. National defence	2,528	135	5·34	58	2·2	12	0·4	2,475	1·86
42. Police (Municipal)	2,454	137	5·58	34	1·3	9	0·3	2,387	1·86
43. Billiard halls and sporting clubs	3,297	1,581	47·95	387	11·7	27	0·8	38,239	22·28
44. Automobile repair service	4,457	2,044	45·86	807	18·1	50	1·2	48,706	21·00
45. Laundries; laundering	2,403	477	19·14	215	8·6	18	0·7	11,870	9·15
46. Barber and hairdressing shops	2,553	741	29·02	335	13·1	40	1·6	17,976	13·53
47. Lodging and boarding houses	2,249	527	23·43	213	9·4	30	1·3	12,616	10·76
48. Private domestic service	4,389	1,348	30·71	461	10·5	41	1·0	31,808	13·92

XLIX.—SELECTED SAMPLE OF 122 INDUSTRIES IN THE NINE PROVINCES, SHOWING MALE WAGE-EARNERS, NUMBER AND PERCENTAGE LOSING TIME, NUMBER AND PERCENTAGE NOT AT WORK JUNE 1 BY CAUSE, TOTAL WEEKS LOST AND AVERAGE PERCENTAGE OF YEAR LOST PER WAGE-EARNER, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province and Industry	Male Wage-Earners							Weeks Lost during Year Ended June 1, 1931 from All Causes	Average Weeks Lost per Wage-Earner, as P.C. of 52
	Total	Losing Time during Year		Not at Work June 1, Due to					
				All Causes		Sickness, Accident, etc.[1]			
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Manitoba—									
1. Printing, publishing, and bookbinding	2,145	530	24·70	251	11·7	28	1·4	11,200	10·03
2. General and departmental (Retail Trade)	3,985	1,276	32·02	509	12·7	52	1·3	23,251	11·21
3. Education	2,041	172	8·42	96	4·7	24	1·2	4,350	4·09
4. Hotels, restaurants, and taverns	2,741	1,059	38·63	588	21·4	32	1·2	28,715	20·13
Saskatchewan—									
1. Building and structures	5,016	3,828	76·31	2,539	50·6	72	1·5	113,235	43·40
2. Storage	2,962	429	14·48	278	9·3	11	0·3	7,818	5·05
3. Education	3,169	329	10·38	182	5·7	18	0·6	7,732	4·67
4. Hotels, restaurants, and taverns	2,235	609	27·24	388	17·3	15	0·7	16,909	14·53
Alberta—									
1. Grain growing	2,112	1,002	47·44	337	15·9	13	0·6	24,959	22·71
2. Building and structures	5,139	4,004	77·91	2,501	48·6	69	1·3	115,225	43·11
3. Education	2,420	194	8·01	100	4·1	13	0·6	4,357	3·46
4. Hotels, restaurants, and taverns	3,792	1,535	40·47	603	15·9	17	0·5	38,922	19·73
British Columbia—									
1. Gardening—truck farming	2,136	1,054	49·34	413	19·3	17	0·8	30,989	27·88
2. Mixed and general farming	5,991	3,289	54·89	1,833	30·5	56	0·9	92,300	29·61
3. Fishing	3,029	2,018	66·62	1,651	54·5	32	1·1	55,127	34·98
4. Coal mining	4,822	3,906	81·00	2,111	43·7	137	2·8	97,425	38·84
5. Fish curing and packing (Mfg.)	3,000	2,120	70·66	1,439	47·9	8	0·2	65,726	42·11
6. Pulp and paper (Mfg.)	2,842	747	26·28	193	6·7	38	1·3	10,898	7·36
7. Printing, publishing, and bookbinding	2,098	555	26·45	288	13·7	26	1·3	13,034	11·94
8. Non-ferrous smelting and refining (Mfg.)	3,256	1,144	35·13	144	4·4	36	1·1	13,389	7·90
9. Electric railways	2,203	430	19·51	149	6·7	29	1·3	7,668	6·69
10. General and departmental (Retail Trade)	2,339	578	24·71	287	12·2	22	0·9	13,269	10·90
11. Education	2,151	200	9·29	92	4·2	12	0·5	4,631	4·13
12. Hotels, restaurants, and taverns	5,889	1,887	32·04	1,122	19·0	38	0·6	52,512	17·13
Total (122 groups)	410,490	149,579	36·44	62,955	15·3	4,971	1·2	3,326,934	15·58

Distribution of Unemployment among Industries.—A certain feature of unemployment in industries which should be examined before going on with detailed analysis (since it is basic to the type of measurement we apply in such analysis) is the nature or type of the distribution of unemployment among industries. It makes a great deal of difference whether the unemployment in an industry stands on its own feet as it were, or is related to that of the whole; if the latter, the manner in which it is related is important. While it is practically impossible that anything of this nature stand on its own feet, yet because of a loose way of thinking, we are apt to speak of unemployment in an industry as being entirely connected with or dependent upon that industry. The practical impossibility of this is at once apparent when we remember that for every day lost to an industry some *person*—who is a part of the population, not of the industry—must lose a day. He would be less likely to lose that day if all other industries were so situated that they could employ him. Of course, in addition to this consideration, there is a certain dependency on the part of an industry upon the whole. Consequently the manner in which the unemployment in different industries is related to the whole is a very important feature to ascertain as a guide to further analysis.

In Statement L is shown the unemployment (June 1) in each industry in order of size from the highest to the lowest. The data (for reasons to be explained later) are in the form of an index referred to unemployment in all industries in all Canada as base. It will be seen in the statement that the industries with average or near-average unemployment are far more numerous than those with extreme unemployment, whether high or low. If there is a law to this effect—and there would seem to be—it is that there is a central tendency in unemployment as distributed among

industries. It should be noted that this is not the law of the distribution of unemployment among persons, for a large number—usually the majority—of wage-earners report no time lost during the year or on June 1. If the unemployment in one industry is thus related to the unemployment in all industries we have another double phenomenon to allow for when comparing one industry with another. A certain industry A loses time because of, or in sympathy with, the loss of time in industry B and to that extent it is not responsible for that loss of time. In consequence it is clear that in comparing industries a better figure must be devised than the absolute amount of unemployment shown by each industry. For this reason Statement L shows the unemployment in each industry as an index with this central point, *viz.*, unemployment in all Canada, as base. Statement LI shows the arrangement of these indices around the mean. In order to analyse this central tendency of unemployment, it must be reviewed from three angles. First, the distribution of the time lost by the industry; secondly, the distribution of the percentage of wage-earners in the industry who lost time, and thirdly, the distribution of the time lost by those who lost time in the industry. In each of these three criteria of unemployment it can be seen that there is a pronounced central tendency. However, it is important to notice the differences which exist.

L.—INDUSTRY GROUPS IN THE NINE PROVINCES HAVING 2,000-6,000 MALE WAGE-EARNERS, INDEXED TO SHOW RELATION OF THE INDIVIDUAL GROUPS TO INDUSTRY IN CANADA AS A WHOLE, WITH REGARD TO FACTORS EXPECTED TO INFLUENCE AMOUNT OF UNEMPLOYMENT IN THESE GROUPS, CANADA, 1931

Province	Industry	Index 1 Unemployment June 1	Index 6 Incompactness	Index 10 Yearly Unemployment	Index 11 Composite of 1, 6 and 10	Index 2 Age Liability to Unemployment	Index 3 Bias of June 1	Index 4 Locality	Index 5 Female Content	Index 7 Juvenile Content	Index 8 Earnings	Index 9 Degree of Eradication of Independent Worker
B.C..	Fishing	262	151	170	197	99	155	109	3	66	71	62
Sask..	Building and structures	243	173	211	211	103	116	114	2	44	90	114
Alta..	Building and structures	234	177	210	209	102	112	114	3	47	102	119
Que...	Asbestos mining	233	173	149	186	99	157	85	4	89	92	160
B.C..	Fish curing and packing (Mfg.)	230	160	205	200	107	113	114	73	46	84	159
N.B..	Forestry and logging	213	169	166	183	101	130	92	2	120	47	153
B.C..	Coal mining	210	184	189	195	98	112	106	1	59	102	161
Ont...	Agricultural implements and machinery (Mfg.)	172	156	189	173	96	92	105	20	32	114	160
N.S..	Iron smelting, converting, refining, rolling (Mfg.)	166	181	182	176	92	92	86	10	41	107	161
Que...	Men's clothing—suits, coats (Mfg.)	153	130	124	135	98	125	99	204	138	100	153
Ont...	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	149	144	135	143	100	112	105	299	119	117	146
B.C..	Mixed and general farming	147	125	144	139	99	103	107	8	137	45	40
N.B..	Sawmill products (Mfg.)	137	165	156	152	102	89	92	5	120	62	154
N.S..	Forestry and logging	136	104	83	108	101	165	86	5	118	42	147
N.S..	Building and structures	136	149	138	140	105	100	90	3	56	80	120
N.B..	Building and structures	124	145	132	133	104	95	95	3	60	79	123
N.S..	Water transportation	113	102	94	103	100	122	91	5	35	91	157
Que...	Shipbuilding	106	118	101	107	99	106	90	2	74	98	161
Man..	Hotels, restaurants, and taverns	103	88	98	96	98	106	126	205	55	78	128

Index 1. Percentage of male wage-earners not at work June 1 (percentage of male wage-earners not at work June 1 in all Canada as base).

Index 2. Index of age liability to unemployment derived from percentage of male wage-earners unemployed in age groups in industry weighted by number of male wage-earners in the age groups in all Canada and referred to all Canada liability as base.

Index 3. Index of seasonality to show ratio of percentage of male wage-earners not at work June 1 to the percentage of time lost during the year preceding the above date and referred to the same ratio for all Canada as base.

Index 4. Index showing effect of locality on unemployment derived from the percentage of unskilled male workers unemployed June 1 by zones, weighted by the number of male wage-earners in the industry in the corresponding zones and referred to the percentage of unemployed male unskilled workers for all Canada as base.

Index 5. Index to show percentage female of all wage-earners in the industry group, referred to percentage female of all wage-earners in all Canada as base.

Index 6. Index showing percentage of male wage-earners who lost any time (*i.e.* one week or more) during the year preceding June 1, 1931 in the industry group, referred to the percentage of male wage-earners losing any time for all Canada as base.

Index 7. Index showing percentage of male wage-earners in the industry group who are under 20 years of age, referred to percentage of male wage-earners under 20 in all Canada as base.

Index 8. Index showing the average earnings per week worked of the male wage-earners in the industry group, referred to the average weekly earnings of the male wage-earners for all industries in all Canada as base.

Index 9. Index showing percentage of all gainfully occupied males who are wage-earners in the industry group, referred to percentage of all gainfully occupied who are wage-earners for all industries in all Canada as base.

Index 10. Index showing the average number of weeks lost per wage-earner during the year, expressed as a percentage of 52 weeks and referred to the same for all Canada as base.

Index 11. Composite index of unemployment formed by combining 1, 6 and 10 and obtaining the average, each index being weighted by the extent of the square of its correlation with the data.

Base in every case=100.

L.—INDUSTRY GROUPS IN THE NINE PROVINCES HAVING 2,000-6,000 MALE WAGE-EARNERS, INDEXED TO SHOW RELATION OF THE INDIVIDUAL GROUPS TO INDUSTRY IN CANADA AS A WHOLE, WITH REGARD TO FACTORS EXPECTED TO INFLUENCE AMOUNT OF UNEMPLOYMENT IN THESE GROUPS, CANADA, 1931—Con.

Province	Industry	Index 1 Unemployment June 1	Index 6 Incompactness	Index 10 Yearly Unemployment	Index 11 Composite of 1, 6 and 10	Index 2 Age Liability to Unemployment	Index 3 Bias of June 1	Index 4 Locality	Index 5 Female Content	Index 7 Juvenile Content	Index 8 Earnings	Index 9 Degree of Eradication of Independent Worker
Que.	Quarries, gravel pits; salt wells	101	128	113	112	100	90	89	1	102	81	157
N.B.	Pulp and paper (Mfg.)	100	116	101	105	98	100	92	15	72	102	161
Ont.	Wire and wire goods (Mfg.)	98	125	107	109	101	92	113	49	129	109	159
Ont.	Coal and wood (Retail Trade)	97	99	80	93	97	122	102	47	43	100	121
B.C.	Gardening—truck farming	93	112	136	114	116	69	109	7	29	48	81
B.C.	Hotels, restaurants, and taverns	91	73	83	83	102	110	118	144	40	75	134
Que.	Iron smelting, converting, refining, rolling (Mfg.)	91	112	101	101	99	90	99	25	83	117	161
Que.	Women's clothing — skirts, cloaks, waists (including children's wear) (Mfg.)	90	97	76	87	94	119	98	359	199	109	144
Ont.	Bricks and tile (Mfg.)	89	138	130	118	100	69	100	13	72	92	150
Ont.	Automobile repair service	87	104	102	98	97	86	102	9	116	94	118
Que.	Cartage, trucking, and haulage service	86	104	96	95	97	90	96	3	81	81	115
Que.	Automobile repair service	85	102	93	93	103	92	96	4	141	92	123
Ont.	Sheet metal products (Mfg.)	85	115	102	100	98	83	104	60	91	111	158
Ont.	Glass and its products (Mfg.)	85	128	124	111	100	69	106	36	115	108	159
Ont.	Hardware and tools (Mfg.)	83	128	107	104	99	78	103	47	100	106	157
Sask.	Hotels, restaurants, and taverns	83	62	71	73	102	119	110	190	51	56	93
Que.	Rubber products (Mfg.)	82	128	94	99	113	88	92	151	155	94	161
Ont.	Taxicabs, livery, and bus service	81	91	92	87	112	89	104	13	62	87	110
Ont.	Quarries, gravel pits; salt wells	78	143	130	115	97	60	99	6	53	91	158
Ont.	Brass and copper products (Mfg.)	78	112	95	94	100	82	101	42	76	107	158
Que.	Coal and wood (Retail Trade)	77	99	86	87	99	91	97	25	74	99	117
Ont.	Nickel-copper mining and milling	77	82	72	77	95	108	97	2	42	122	161
Alta.	Grain growing	76	108	111	97	92	70	89	2	125	36	31
Alta.	Hotels, restaurants, and taverns	76	92	96	87	101	80	106	165	56	82	119
N.B.	Mixed and general farming	75	87	75	79	97	101	92	2	242	33	20
Que.	Taxicabs, livery, and bus service	73	84	76	77	100	97	97	4	40	81	117
Ont.	Boots and shoes (Mfg.)	71	119	94	93	102	76	99	150	173	94	158
Que.	Furniture (including upholstering) (Mfg.)	68	100	77	81	100	88	94	21	131	91	150
Que.	Boilers, engines, and machinery (Mfg.)	68	81	66	71	91	103	95	29	63	124	157
Ont.	Petroleum products (Mfg.)	68	99	54	73	94	126	100	29	28	142	160
B.C.	Printing, publishing, and bookbinding	66	60	58	62	100	114	118	68	170	132	146
Ont.	Cotton goods — yarn, cloth, thread (Mfg.)	65	134	110	101	103	55	104	197	215	86	160
Ont.	Gardening—truck farming	64	109	117	96	104	55	99	5	152	57	53
Ont.	Meat, poultry, and fish (Retail Trade)	63	73	69	68	91	92	103	21	269	81	102
Ont.	Barber and hairdressing shops	63	66	66	64	95	96	104	153	66	87	66
Man.	General and departmental (Retail Trade)	61	73	55	62	100	113	126	247	108	131	128
Ont.	Non-ferrous smelting and refining (Mfg.)	61	73	66	66	104	93	97	4	42	122	161
Que.	Electrical apparatus (Mfg.)	60	72	54	62	107	113	102	104	97	133	160
Ont.	Storage	60	83	71	71	90	86	100	26	47	124	159
B.C.	General and departmental (Retail Trade)	59	56	53	56	100	111	116	244	149	111	119
Ont.	Investment and loan	59	46	54	53	105	110	105	141	81	181	138
Que.	Meat, poultry, and fish (Retail Trade)	59	67	58	61	92	101	97	22	247	78	100
Ont.	Telegraph systems	57	51	43	50	103	132	101	52	170	125	161
Que.	Barber and hairdressing shops	56	62	57	58	93	100	96	146	81	78	73
Ont.	Hosiery and knitted goods (Mfg.)	56	102	78	78	108	72	104	288	197	111	157
Ont.	Billiard halls and sporting clubs	56	109	109	90	100	52	101	60	131	102	133
Man.	Printing, publishing, and bookbinding	56	56	49	54	103	116	129	100	152	139	149
Ont.	Slaughtering and meat packing (Mfg.)	55	73	61	62	98	90	103	41	53	117	158
Ont.	Woollens and worsteds (Mfg.)	55	121	87	86	103	64	99	210	147	95	157

L.—INDUSTRY GROUPS IN THE NINE PROVINCES HAVING 2,000-6,000 MALE WAGE-EARNERS, INDEXED TO SHOW RELATION OF THE INDIVIDUAL GROUPS TO INDUSTRY IN CANADA AS A WHOLE, WITH REGARD TO FACTORS EXPECTED TO INFLUENCE AMOUNT OF UNEMPLOYMENT IN THESE GROUPS, CANADA, 1931—Con.

Province	Industry	Index 1 Unemployment June 1	Index 6 Incompactness	Index 10 Yearly Unemployment	Index 11 Composite of 1, 6 and 10	Index 2 Age Liability to Unemployment	Index 3 Bias of June 1	Index 4 Locality	Index 5 Female Content	Index 7 Juvenile Content	Index 8 Earnings	Index 9 Degree of Eradication of Independent Worker
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	54	85	72	78	96	76	104	44	41	134	157
Que.	Bread and other bakery products (Mfg.)	53	63	56	57	102	96	96	20	182	80	128
N.S.	Steam railways	52	71	52	58	79	102	89	10	24	121	161
Que.	Biscuits and confectionery (Mfg.)	52	81	65	65	113	81	99	186	231	97	154
Que.	Tobacco, cigars, and cigarettes (Mfg.)	52	101	78	75	102	67	96	245	141	104	158
N.S.	Mixed and general farming	51	66	52	56	100	100	86	3	236	34	22
N.S.	Fishing	50	73	62	61	100	82	87	2	159	44	39
Ont.	Paper products—boxes, bags, stationery (Mfg.)	50	73	57	59	103	89	103	185	135	130	155
Ont.	Private domestic service	50	70	68	62	97	75	101	427	74	77	158
Ont.	Biscuits and confectionery (Mfg.)	49	79	73	67	103	78	102	221	142	117	153
Ont.	Telephone systems	49	58	42	50	107	118	103	281	43	145	161
Ont.	Drugs and toilet preparations (Retail Trade)	49	48	48	49	90	104	104	92	319	99	108
Ont.	Tanning (Mfg.)	48	107	75	75	101	66	98	32	79	90	158
Que.	Telephone systems	47	55	35	46	109	135	98	275	49	155	161
Que.	General and departmental (Retail Trade)	47	49	43	47	106	110	95	230	177	98	97
Que.	Private domestic service	47	57	57	53	102	83	93	425	125	70	153
Ont.	Hardware and builders' supplies (Retail Trade)	47	59	51	52	100	93	101	71	118	102	105
Que.	Electric light and power production and distribution	46	53	41	47	97	112	93	35	54	141	161
N.B.	Steam railways	45	60	42	49	78	107	93	16	29	124	161
Ont.	Lodging and boarding houses	45	53	52	50	103	87	106	139	22	83	127
Sask.	Storage	45	33	25	36	67	184	105	6	8	126	160
Que.	Investment and loan	44	33	37	38	105	121	98	133	170	167	133
Ont.	Flour and grain milling	43	65	48	52	97	89	99	31	42	107	129
Ont.	Automobiles and accessories (Retail Trade)	42	55	51	49	93	83	103	48	39	139	124
Ont.	Filling stations (Retail Trade)	42	74	67	60	111	63	103	11	176	90	115
Ont.	Laundries; laundering	41	43	45	44	101	93	105	191	52	81	104
Que.	Hardware and builders' supplies (Retail Trade)	39	49	43	44	100	91	96	54	191	95	120
Que.	Dairy farming	37	37	34	36	87	113	85	6	287	28	15
Que.	Liquors, beverages (not aerated waters) (Mfg.)	37	64	42	47	95	90	99	40	63	124	158
Ont.	Illuminating and fuel gas	37	64	54	51	96	69	105	43	29	123	161
Que.	Silk, silk goods (including artificial silk) (Mfg.)	34	63	45	47	113	76	87	207	229	91	160
Ont.	Dairy products (Retail Trade)	32	52	41	41	97	78	103	37	73	108	147
B.C.	Pulp and paper (Mfg.)	32	60	36	42	95	91	107	13	53	126	161
B.C.	Electric railways	32	44	33	36	75	100	119	29	15	133	161
Que.	Electric railways	30	61	41	43	73	75	100	13	17	118	161
Que.	Dairy products (Retail Trade)	30	46	40	38	103	75	99	21	133	100	126
Ont.	Electric railways	28	57	36	39	83	80	105	12	11	121	161
Sask.	Education	27	23	23	24	105	122	107	307	24	120	157
Ont.	Butter, cheese, and condensed milk (Mfg.)	26	58	44	41	100	59	98	44	101	89	139
Ont.	Health	26	37	31	30	100	86	101	342	37	98	67
Que.	Health	23	33	26	27	102	92	96	331	94	93	65
Man.	Education	22	19	20	21	88	114	117	320	22	131	155
B.C.	Non-ferrous smelting and refining (Mfg.)	21	80	38	44	93	55	106	8	45	134	161
Alta.	Education	20	18	17	19	91	118	100	309	28	133	156
B.C.	Education	20	21	20	21	84	101	114	298	14	154	156
Que.	Banking	19	16	16	17	117	123	94	108	192	127	161
P.E.I.	Mixed and general farming	14	25	18	19	83	77	58	2	278	28	19
Que.	Postal service	12	15	10	13	86	122	94	86	38	111	161
Que.	Police (Municipal)	12	16	10	13	86	120	98	3	3	136	161
Que.	Education	10	14	12	13	100	83	93	338	61	105	111
Ont.	National defence	10	12	9	10	91	118	97	14	92	115	161
Ont.	Religion	7	6	6	8	60	115	100	63	3	133	148
Ont.	Police (Municipal)	6	13	9	9	65	69	104	11	3	151	161
Que.	Religion	3	6	5	4	63	64	89	56	20	86	115
	Total	8,776	10,121	9,184	9,331	11,891	11,774	12,240	11,110	11,837	12,321	16,253
	Mean	72	83	75	76	97	97	100	91	97	101	133

LI.—NORMALITY OF DISTRIBUTION OF UNEMPLOYMENT IN THE 122 SELECTED INDUSTRIES OF THE SAMPLE, AS INDICATED BY INDICES OF THE THREE CRITERIA (1) AVERAGE TIME LOST BY ALL WAGE-EARNERS, (2) PERCENTAGE OF ALL WAGE-EARNERS LOSING TIME AND (3) AVERAGE TIME LOST BY WAGE-EARNERS LOSING TIME, ARRANGED AROUND THE MEAN, CANADA, YEAR ENDED JUNE 1, 1931

(1) Average Time Lost by All Male Wage-Earners (Index 10, Statement L)

No.	Province	Industry	Index
1	Que.	Religion	5
2	Ont.	Religion	6
3	Ont.	Police (Municipal)	9
4	Ont.	National defence	9
5	Que.	Police (Municipal)	10
6	Que.	Postal service	10
7	Que.	Education	12
8	Que.	Banking	16
9	Alta.	Education	17
10	P.E.I.	Mixed and general farming	18
11	B.C.	Education	20
12	Man.	Education	20
13	Sask.	Education	23
14	Sask.	Storage	25
15	Que.	Health	26
16	Ont.	Health	31
17	B.C.	Electric railways	33
18	Que.	Dairy farming	34
19	Que.	Telephone systems	35
20	Ont.	Electric railways	36
21	B.C.	Pulp and paper (Mfg.)	36
22	Que.	Investment and loan	37
23	B.C.	Non-ferrous smelting and refining (Mfg.)	38
24	Que.	Dairy products (Retail Trade)	40
25	Que.	Electric railways	41
26	Ont.	Dairy products (Retail Trade)	41
27	Que.	Electric light and power production and distribution	41
28	Que.	Liquors, beverages (not aerated waters) (Mfg.)	42
29	N.B.	Steam railways	42
30	Ont.	Telephone systems	42
31	Que..	Hardware and builders' supplies (Retail Trade)	43
32	Que.	General and departmental (Retail Trade)	43
33	Ont.	Telegraph systems	43
34	Ont.	Butter, cheese, and condensed milk (Mfg.)	44
35	Que.	Silk, silk goods (including artificial silk) (Mfg.)	45
36	Ont.	Laundries; laundering	45
37	Ont.	Flour and grain milling	48
38	Ont.	Drugs and toilet preparations (Retail Trade)	48
39	Man.	Printing, publishing, and bookbinding	49
40	Ont.	Automobiles and accessories (Retail Trade)	51
41	Ont.	Hardware and builders' supplies (Retail Trade)	51
42	Ont.	Lodging and boarding houses	52
43	N.S.	Mixed and general farming	52
44	N.S.	Steam railways	52
45	B.C.	General and departmental (Retail Trade)	53
46	Ont.	Illuminating and fuel gas (Mfg.)	54
47	Ont.	Investment and loan	54
48	Que.	Electrical apparatus (Mfg.)	54
49	Ont.	Petroleum products (Mfg.)	54
50	Man.	General and departmental (Retail Trade)	55
51	Que.	Bread and other bakery products (Mfg.)	56
52	Que.	Private domestic service	57
53	Ont.	Paper products—boxes, bags, stationery (Mfg.)	57

(2) Percentage of All Male Wage-Earners Losing Time[1] (Index 6, Statement L)

No.	Industry	Index
1	Religion	6
2	Religion	6
4	National defence	12
3	Police (Municipal)	13
7	Education	14
6	Postal service	15
5	Police (Municipal)	16
8	Banking	16
9	Education	18
12	Education	19
11	Education	21
13	Education	23
10	Mixed and general farming	25
15	Health	33
22	Investment and loan	33
14	Storage	33
16	Health	37
18	Dairy farming	37
36	Laundries; laundering	43
17	Electric railways	44
24	Dairy products (Retail Trade)	46
47	Investment and loan	46
38	Drugs and toilet preparations (Retail Trade)	48
31	Hardware and builders' supplies (Retail Trade)	49
32	General and departmental (Retail Trade)	49
33	Telegraph systems	51
26	Dairy products (Retail Trade)	52
42	Lodging and boarding houses	53
27	Electric light and power production and distribution	53
40	Automobiles and accessories (Retail Trade)	55
19	Telephone systems	55
39	Printing, publishing, and bookbinding	56
45	General and departmental (Retail Trade)	56
20	Electric railways	57
52	Private domestic service	57
34	Butter, cheese, and condensed milk (Mfg.)	58
30	Telephone systems	58
41	Hardware and builders' supplies (Retail Trade)	59
21	Pulp and paper (Mfg.)	60
29	Steam railways	60
56	Printing, publishing, and bookbinding	60
25	Electric railways	61
54	Barber and hairdressing shops	62
67	Hotels, restaurants, and taverns	62
35	Silk, silk goods (including artificial silk) (Mfg.)	63
51	Bread and other bakery products (Mfg.)	63
46	Illuminating and fuel gas (Mfg.)	64
28	Liquors, beverages (not aerated waters) (Mfg.)	64
37	Flour and grain milling	65
43	Mixed and general farming	66
61	Barber and hairdressing shops	66
55	Meat, poultry, and fish (Retail Trade)	67
64	Private domestic service	70
44	Steam railways	71

(3) Average Time Lost by Male Wage-Earners Losing Time[1] $\left(\frac{\text{Index 10}}{\text{Index 6}}\right)$

No.	Industry	Index
23	Non-ferrous smelting and refining (Mfg.)	48
49	Petroleum products (Mfg.)	55
21	Pulp and paper (Mfg.)	60
5	Police (Municipal)	63
20	Electric railways	63
19	Telephone systems	64
68	Liquors, beverages (not aerated waters) (Mfg.)	64
28	Liquors, beverages (not aerated waters) (Mfg.)	66
1	Religion	67
6	Postal service	67
25	Electric railways	67
3	Police (Municipal)	69
29	Steam railways	70
71	Tanning (Mfg.)	70
35	Silk, silk goods (including artificial silk) (Mfg.)	71
10	Mixed and general farming	72
30	Telephone systems	72
82	Woollens and worsteds (Mfg.)	72
44	Steam railways	73
86	Rubber products (Mfg.)	73
37	Flour and grain milling	74
4	National defence	75
17	Electric railways	75
48	Electrical apparatus (Mfg.)	75
50	General and departmental (Retail Trade)	75
34	Butter, cheese, and condensed milk (Mfg.)	76
14	Storage	76
77	Hosiery and knitted goods (Mfg.)	76
27	Electric light and power production and distribution	77
76	Tobacco, cigars, and cigarettes (Mfg.)	77
75	Furniture (including upholstering) (Mfg.)	77
53	Paper products—boxes, bags, stationery (Mfg.)	78
74	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	78
15	Health	79
26	Dairy products (Retail Trade)	79
43	Mixed and general farming	79
85	Boots and shoes (Mfg.)	79
59	Biscuits and confectionery (Mfg.)	80
80	Forestry and logging	80
62	Boilers, engines, and machinery (Mfg.)	81
78	Coal and wood (Retail Trade)	81
100	Cotton goods — yarn, cloth, thread (Mfg.)	82
16	Health	84
46	Illuminating and fuel gas (Mfg.)	84
57	Slaughtering and meat packing (Mfg.)	84
33	Telegraph systems	84
97	Hardware and tools (Mfg.)	84
58	Fishing	85
88	Brass and copper products (Mfg.)	85

[1] *i.e.*, one week or more.

LI.—NORMALITY OF DISTRIBUTION OF UNEMPLOYMENT IN THE 122 SELECTED INDUSTRIES OF THE SAMPLE, AS INDICATED BY INDICES OF THE THREE CRITERIA (1) AVERAGE TIME LOST BY ALL WAGE-EARNERS, (2) PERCENTAGE OF ALL WAGE-EARNERS LOSING TIME AND (3) AVERAGE TIME LOST BY WAGE-EARNERS LOSING TIME, ARRANGED AROUND THE MEAN, CANADA, YEAR ENDED JUNE 1, 1931—Con.

(1) Average Time Lost by All Male Wage-Earners (Index 10, Statement L)

No.	Province	Industry	Index
54	Que.	Barber and hairdressing shops	57
55	Que.	Meat, poultry, and fish (Retail Trade)	58
56	B.C.	Printing, publishing, and bookbinding	58
57	Ont.	Slaughtering, meat packing (Mfg.)	61
58	N.S.	Fishing	62
59	Que.	Biscuits and confectionery (Mfg.)	65
60	Ont.	Non-ferrous smelting and refining (Mfg.)	66
61	Ont.	Barber and hairdressing shops	66
62	Que.	Boilers, engines, and machinery (Mfg.)	66
63	Ont.	Filling stations (Retail Trade)	67
64	Ont.	Private domestic service	68
65	Ont.	Meat, poultry, and fish (Retail Trade)	69
66	Ont.	Storage	71
67	Sask.	Hotels, restaurants, and taverns	71
68	Ont.	Liquors, beverages (not aerated waters) (Mfg.)	72
69	Ont.	Nickel-copper mining and milling	72
70	Ont.	Biscuits and confectionery (Mfg.)	73
71	Ont.	Tanning (Mfg.)	75
		Mean	
72	N.B.	Mixed and general farming	75
73	Que.	Taxicabs, livery, and bus service	76
74	Que.	Women's clothing—skirts cloaks, waists (including children's wear) (Mfg.)	76
75	Que.	Furniture (including upholstering) (Mfg.)	77
76	Que.	Tobacco, cigars, and cigarettes (Mfg.)	78
77	Ont.	Hosiery and knitted goods (Mfg.)	78
78	Ont.	Coal and wood (Retail Trade)	80
79	B.C.	Hotels, restaurants, and taverns	83
80	N.S.	Forestry and logging	83
81	Que.	Coal and wood (Retail Trade)	86
82	Ont.	Woollens and worsteds (Mfg.)	87
83	Ont.	Taxicabs, livery, and bus service	92
84	Que.	Automobile repair service	93
85	Ont.	Boots and shoes (Mfg.)	94
86	Que.	Rubber products (Mfg.)	94
87	N.S.	Water transportation	94
88	Ont.	Brass and copper products (Mfg.)	95
89	Alta.	Hotels, restaurants, and taverns	96
90	Que.	Cartage, trucking, and haulage service	96
91	Man.	Hotels, restaurants, and taverns	98
92	Que.	Iron smelting, converting, refining, rolling (Mfg.)	101
93	N.B.	Pulp and paper (Mfg.)	101
94	Que.	Shipbuilding	101

(2) Percentage of All Male Wage-Earners Losing Time[1] (Index 6, Statement L)

No.	Industry	Index
48	Electrical apparatus (Mfg.)	72
53	Paper products — boxes, bags, stationery (Mfg.)	73
58	Fishing	73
57	Slaughtering and meat packing (Mfg.)	73
60	Non-ferrous smelting and refining (Mfg.)	73
50	General and departmental (Retail Trade)	73
65	Meat, poultry, and fish (Retail Trade)	73
79	Hotels, restaurants, and taverns	73
63	Filling stations (Retail Trade)	74
70	Biscuits and confectionery (Mfg.)	79
23	Non-ferrous smelting and refining (Mfg.)	80
59	Biscuits and confectionery (Mfg.)	81
62	Boilers, engines, and machinery (Mfg.)	81
69	Nickel-copper mining and milling	82
66	Storage	83
	Mean	
73	Taxicabs, livery, and bus service	84
68	Liquors, beverages (not aerated waters) (Mfg.)	85
72	Mixed and general farming	87
91	Hotels, restaurants, and taverns	88
83	Taxicabs, livery, and bus service	91
89	Hotels, restaurants, and taverns	92
74	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	97
49	Petroleum products (Mfg.)	99
81	Coal and wood (Retail Trade)	99
78	Coal and wood (Retail Trade)	99
75	Furniture (including upholstering) (Mfg.)	100
76	Tobacco, cigars, and cigarettes (Mfg.)	101
77	Hosiery and knitted goods	102
84	Automobile repair service	102
87	Water transportation	102
90	Cartage, trucking, and haulage service	104
96	Automobile repair service	104
80	Forestry and logging	104
71	Tanning (Mfg.)	107
101	Grain growing	108
99	Billiard halls and sporting clubs	109
103	Gardening—truck farming	109
88	Brass and copper products (Mfg.)	112
92	Iron smelting, converting, refining, rolling (Mfg.)	112
110	Gardening—truck farming	112
95	Sheet metal products (Mfg.)	115

(3) Average Time Lost by Male Wage-Earners Losing Time[1] $\left(\frac{\text{Index 10}}{\text{Index 6}}\right)$

No.	Industry	Index
7	Education	86
41	Hardware and builders' supplies (Retail Trade)	86
66	Storage	86
72	Mixed and general farming	86
98	Wire and wire goods (Mfg.)	86
94	Shipbuilding	86
113	Asbestos mining	86
24	Dairy products (Retail Trade)	87
55	Meat, poultry, and fish (Retail Trade)	87
81	Coal and wood (Retail Trade)	87
93	Pulp and paper (Mfg.)	87
31	Hardware and builders' supplies (Retail Trade)	88
32	General and departmental (Retail Trade)	88
39	Printing, publishing, and bookbinding	88
	Mean	
69	Nickel-copper mining and milling	88
102	Quarries, gravel pits; salt wells	88
51	Bread and other bakery products (Mfg.)	89
95	Sheet metal products (Mfg.)	89
60	Non-ferrous smelting and refining (Mfg.)	90
73	Taxicabs, livery, and bus service	90
92	Iron smelting, converting, refining, rolling (Mfg.)	90
63	Filling stations (Retail Trade)	91
106	Quarries, gravel pits; salt wells	91
84	Automobile repair service	91
108	Building and structures	91
18	Dairy farming	92
70	Biscuits and confectionery (Mfg.)	92
54	Barber and hairdressing shops	92
90	Cartage, trucking, and haulage service	92
87	Water transportation	92
40	Automobiles and accessories (Retail Trade)	93
111	Building and structures	93
9	Education	94
107	Bricks and tile (Mfg.)	94
109	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	94
11	Education	95
45	General and departmental (Retail Trade)	95
65	Meat, poultry, and fish (Retail Trade)	95
114	Sawmill products (Mfg.)	95
105	Men's clothing—suits, coats (Mfg.)	95
64	Private domestic service	97
56	Printing, publishing, and bookbinding	97
104	Glass and its products (Mfg.)	97

LI.—NORMALITY OF DISTRIBUTION OF UNEMPLOYMENT IN THE 122 SELECTED INDUSTRIES OF THE SAMPLE, AS INDICATED BY INDICES OF THE THREE CRITERIA (1) AVERAGE TIME LOST BY ALL WAGE-EARNERS, (2) PERCENTAGE OF ALL WAGE-EARNERS LOSING TIME AND (3) AVERAGE TIME LOST BY WAGE-EARNERS LOSING TIME, ARRANGED AROUND THE MEAN, CANADA, YEAR ENDED JUNE 1, 1931—Con.

(1) Average Time Lost by All Male Wage-Earners (Index 10, Statement L)

No.	Province	Industry	Index
95	Ont.	Sheet metal products (Mfg.)	102
96	Ont.	Automobile repair service	102
97	Ont.	Hardware and tools (Mfg.)	107
98	Ont.	Wire and wire goods (Mfg.)	107
99	Ont.	Billiard halls and sporting clubs	109
100	Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	110
101	Alta.	Grain growing	111
102	Que.	Quarries, gravel pits; salt wells	113
103	Ont.	Gardening—truck farming	117
104	Ont.	Glass and its products (Mfg.)	124
105	Que.	Men's clothing—suits, coats (Mfg.)	124
106	Ont.	Quarries, gravel pits; salt wells	130
107	Ont.	Bricks and tile (Mfg.)	130
108	N.B.	Building and structures	132
109	Ont.	Women's clothing — skirts, cloaks, waists (including children's wear) (Mfg.)	135
110	B.C.	Gardening—truck farming	136
111	N.S.	Building and structures	138
112	B.C.	Mixed and general farming	144
113	Que.	Asbestos mining	149
114	N.B.	Sawmill products (Mfg.)	156
115	N.B.	Forestry and logging	166
116	B.C.	Fishing	170
117	N.S.	Iron smelting, converting, refining, rolling (Mfg.)	182
118	Ont.	Agricultural implements and machinery (Mfg.)	189
119	B.C.	Coal mining	189
120	B.C.	Fish curing and packing (Mfg.)	205
121	Alta.	Building and structures	210
122	Sask.	Building and structures	211

Standard deviation =46 or 9·4 p.c. (4·9 weeks in the year)
Mean =75 or 15·4 p.c. (8·0 weeks in the year)
Skew=·346
Correlation between (1) and (2), r=·95

(2) Percentage of All Male Wage-Earners Losing Time[1] (Index 6, Statement L)

No.	Industry	Index
93	Pulp and paper (Mfg.)	116
94	Shipbuilding	118
85	Boots and shoes (Mfg.)	119
82	Woollens and worsteds (Mfg.)	121
98	Wire and wire goods (Mfg.)	125
112	Mixed and general farming	125
86	Rubber products (Mfg.)	128
97	Hardware and tools (Mfg.)	128
104	Glass and its products (Mfg.)	128
102	Quarries, gravel pits; salt wells	128
105	Men's clothing—suits, coats (Mfg.)	130
100	Cotton goods — yarn, cloth, thread (Mfg.)	134
107	Bricks and tile (Mfg.)	138
106	Quarries, gravel pits; salt wells	143
109	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	144
108	Building and structures	145
111	Building and structures	149
116	Fishing	151
118	Agricultural implements and machinery (Mfg.)	156
120	Fish curing and packing (Mfg.)	160
114	Sawmill products (Mfg.)	165
115	Forestry and logging	169
113	Asbestos mining	173
122	Building and structures	173
121	Building and structures	177
117	Iron smelting, converting, refining, rolling (Mfg.)	181
119	Coal mining	184

Standard deviation =42·6 or 18·7 p.c.
Mean =83 or 36·5 p.c.
Skew=—·132

(3) Average Time Lost by Male Wage-Earners Losing Time[1] $\left(\frac{\text{Index 10}}{\text{Index 6}}\right)$

No.	Industry	Index
42	Lodging and boarding houses	98
96	Automobile repair service	98
115	Forestry and logging	98
2	Religion	100
8	Banking	100
52	Private domestic service	100
38	Drugs and toilet preparations (Retail Trade)	100
99	Billiard halls and sporting clubs	100
61	Barber and hairdressing shops	100
13	Education	100
117	Iron smelting, converting, refining, rolling (Mfg.)	100
83	Taxicabs, livery, and bus service	101
101	Grain growing	103
119	Coal mining	103
89	Hotels, restaurants, and taverns	104
12	Education	105
36	Laundries; laundering	105
103	Gardening—truck farming	107
91	Hotels, restaurants, and taverns	111
22	Investment and loan	112
116	Fishing	113
79	Hotels, restaurants, and taverns	114
112	Mixed and general farming	115
67	Hotels, restaurants, and taverns	115
47	Investment and loan	117
121	Building and structures	119
110	Gardening—truck farming	121
118	Agricultural implements and machinery (Mfg.)	121
122	Building and structures	122
120	Fish curing and packing (Mfg.)	128

Standard deviation=15·1 (3·7 weeks)
Mean =88 (21·4 weeks)
Skew=—·009

Criterion 1. Time lost by the industry—or average time lost by the full wage-earning body—shows the least normal distribution.

Criterion 2. The percentage of wage-earners losing any time or, conversely, the percentage of wage-earners who lost no time has a slightly more normal distribution.

Criterion 3. The average time lost by wage-earners losing any time shows a very marked normality.

In analysing the above, let us trace the evolution of working time from an initial stage such as might exist in a small or primitive community. Let us suppose that the working time lost by all industries was evenly distributed among all wage-earners in all industries. We would then have a condition of absolute interdependence of industries and under such conditions criterion 2 would not exist. That is, we would only be concerned with the number of wage-earners and the total time lost, as every one would lose time and lose the same time as his fellow.

Now let us take a further stage, every wage-earner in every industry still loses some time, but certain occupation groups lose less time than others. This would mean that industries having larger concentration of those occupations would lose less time than those having smaller concentrations. Criterion 2 would still not exist, but criterion 1 instead of showing every industry uniform, would show variations as would criterion 3, *i.e.*, there would be a perfect correlation between 1 and 3.

The third stage would show some occupations becoming so essential as to be losing no time at all, with the result that all the loss of working time would have to be borne by the remaining wage-earners. We would now be concerned with all three criteria. In this stage, industries have lost much of their interdependence and have acquired definite individual characteristics. Examining the status of the wage-earners and the industries, we find time lost by the wage-earners varying from full employment to full unemployment. Non-essential and unprofitable industries have dropped out of the picture and essential and profitable ones have occupation content which—from the nature of the industry—show a large percentage of wage-earners losing no time. Naturally, there is a rush of wage-earners from unprofitable occupations and industries to the favoured and essential ones. These industries can absorb only a limited number of wage-earners and gradually a process of selection evolves; the more essential and prosperous the industry, the more intensive the selectivity it exercises.

Thus we see the importance of the connection between criteria 1 and 2 and can explain differences in the normality of distribution from the three viewpoints of unemployment.

The wage-earners comprised in criterion 1 are not all subject to variation. A great portion lose no time at all, the variation in time lost occurring altogether among the remaining wage-earners. This factor naturally militates against any normal distribution.

In criterion 2, the percentage of wage-earners losing time was found to correlate very highly with the average time lost by all wage-earners, but the fact that every wage-earner in criterion 2 lost some time enabled the existing normality to be fully shown.

The fact that criteria 1 and 2 correlate very highly makes it a mathematical necessity that criterion 3, which is nothing more nor less than the ratio $\frac{\text{criterion 1}}{\text{criterion 2}}$, will show a central tendency proportional to the existing correlation. However, there is no necessity that criteria 1 and 2 should correlate highly or at all. It is very significant that the time lost by those wage-earners losing time bears little relation to the time lost by the industry. On the basis of time lost then, those losing time closely approximate in time lost the group of wage-earners connected with "unspecified" industries. This latter class is not definitely connected with any industry. In other words, they are a surplus or at best a contingent labour supply. Yet those wage-earners specifically connected with definite industries and losing time, more closely approximate, from the standpoint of time lost, to the "unspecified" worker than to the regular specifically-attached worker. From the standpoint of the industry, these workers are not connected with it.

Forces or Phenomena Causing or Associated with Different Degrees of Unemployment.—The foregoing attempted to describe the manner in which industries differ in degree of unemployment. It will now be necessary to investigate the degree to which certain well-known forces or phenomena enter into this difference. It will be remembered that we have just shown that first and foremost the unemployment in each industry is related to that in all industries. In addition to this concept we have another, *viz.*, the existence of certain forces more or less external to the industry which function either as causes or concomitants of the unemployment in the industry. These forces affect different industries to a different degree because they themselves exist in different degrees but none the less they are constant forces. It is only when the influences of (1) the whole, (2) these constant forces, are removed that we see the true differences between industries, *i.e.* the differences caused by qualities or conditions inherent in the industries. Seven such forces were investigated and indices (with all Canada as base) of these forces are shown along with the index of unemployment in Statement L. These forces are: (a) age content, (b) seasonality, (c) locality, (d) juvenile content, (e) female

content, (f) earnings, (g) degree of eradication of independent worker. The method of derivation of the indices of these forces and the manner in which, on *a priori* grounds they are expected to influence unemployment in the industry will now be described in detail.

(*a*) *Age Content.*—The distribution by age of the wage-earners composing an industry and the unemployment among the different age groups is dealt with in detail in another chapter of this monograph. In this chapter, we are using this idea as having a direct bearing on the unemployment of the industry. That is, on *a priori* grounds, we would expect, other things being equal, that an industry having an age content favourable as compared with that of Canada as a whole, *i.e.*, favourable on the basis of liability to unemployment among the component age groups, would actually show less unemployment *pro rata*. To obtain a measure of this liability to unemployment by age content we formed an index as follows: the percentage unemployed in each age group in each industry considered was determined (see 1931 Census, Volume VI, Table 12). Then we found the percentage of all wage-earners in Canada in each age group. By weighting the unemployment in each age group by the percentage of wage-earners in all Canada in the same age group, a figure of unemployment was obtained which indicated what amount of unemployment would exist were the age distribution the same as for all Canada. The *actual* percentage unemployment in each industry was then divided into the standardized figure, derived separately for each industry. From this we can readily see that an industry showing a favourable age content would appear, in index form, as less than 100 (which is in every case the base and the figure for all wage-earners in Canada).

(*b*) *Bias of June 1.*—When unemployment figures are based on the percentage of all wage-earners who are not at work on one given day of the year (in the case of the census, June 1) there is bound to be a bias, if not in all industries collectively, at least in many of the individuals. That is, the unemployment on June 1 would be expected to be either greater or less than the average figure for the year. The census year ending on June 1, was happily chosen as this date usually is a point somewhere between the low period of industrial activity—the months of November, December and January—and the high period which is ordinarily during the months August, September and October. Usually, of course, the actual monthly figures of employment, or estimates of unemployment, do not show this consistent seasonality of industry in its true perspective, due to the fact that, economically, every year is either a time section of a trend of falling or of rising industrial activity—industrial conditions rarely approaching a static condition. In other words, in a period of falling industrial activity such as existed during the period June, 1930-June, 1931, the bias of June 1 as compared to the year would be composed of two elements (1) seasonal variation, (2) trend of industrial activity over a period of time of which this year is only a portion.

It is well known that seasonal fluctuation of industrial requirements occurs fairly regularly, even in the face of a severe industrial slump, such as was occurring between June, 1929 and June, 1933. June 1, 1931 actually showed a smaller percentage of wage-earners employed than for any other month in the year, but when cleared of secular trend followed along the usual lines of seasonal improvement.

The index of bias of June 1 was obtained as follows:—

$$\frac{\text{p.c. unemployed June 1}}{\text{average p.c. unemployed for the year*}}$$

The numerator thus formed for every industry was divided by a constant (the above ratio for all wage-earners in Canada).

It is noteworthy that the figure of unemployment at the end of the year (June 1, 1931), 20·8 p.c., was actually only slightly worse than the figure for the year, 20·5 p.c.

The following is an attempt to make clear the influence of a trend of increasing unemployment (such as was taking place during the period June, 1930-June, 1931) on the index of bias of June 1.

Suppose that at the start of the year 12 people had jobs. As industrial conditions were getting worse workers would be laid off at various times during the year. However, at the same

* This figure obtained by expressing the average number of weeks lost per wage-earner as a percentage of 52.

time, during the period of seasonal industrial revival in the summer months some of those laid off would be taken back or some person not previously working would be recruited.

Supposing the following policy of employment was followed:—

after 2 months, Employee 1 laid off;
after 4 months, Employee 2 laid off;
after 5 months, Employee 3 laid off;
after 6 months, Employee 4 laid off;
after 7 months, Employee 5 laid off;
after 11 months, Employee 4 taken back;
after 12 months, Employee 3 taken back.

On June 1, 1931, 3 of the original 12 would not be at work or 25 p.c. of the total. The total working months lost by the wage-earners during the year would be (10 + 8 + 7 + 6 + 5 − 1) or 35 months. That is, the average number of months lost during the year would be 2·91 or 24·2 p.c. of the year, a figure slightly less than that for June 1.

Now, suppose that instead of original Employees 4 and 3 being taken back, the industry hired 2 persons not among the original employees. Then, on June 1 when enumerated there would be the 12 original wage-earners plus the 2 additions—14 wage-earners in all—of which 5, or 35·7 p.c. were not at work.

From the viewpoint of the industry the actual time lost during the year would remain the same, but in the enumeration this total would be increased by the 11 and 12 months not worked during the year by the recent recruits, *i.e.*, 14 wage-earners would lose (12 + 11 + 10 + 8 + 7 + 6 + 5) = 59 months, the average being $\frac{59}{14}$ = 4·2 months or 35 p.c. of the year—nearly the same figure as for June 1. Now conditions are obviously worse on June 1, 1931 than on June 1, 1930, yet the figures for the year are no better. An explanation of this is that the seasonal tendency to revive industry from June on has a tendency to over-shadow the unemployment accumulated during the year. It is well to note here, however, in vindication of the validity of census methods that despite these unavoidable chances of error, the figures of unemployment were somewhat greater on June 1, 1931 than for the year preceding—which, of course was in line with the monthly estimates.

(c) *Locality.*—Although certain industries in Canada are very much concentrated in more or less limited areas, the majority outside of the "Manufactures" are widely spread. One industry, for example, might be thriving in British Columbia, while the same type of industry would be slack in Nova Scotia. It would, therefore, tell us nothing of the actual conditions, were we to add the unemployment of the two and find the average—because the surplus workers in Nova Scotia would not have the capital to hazard the long trip across the continent to fill the openings in British Columbia. Rather, they would drift into other industries nearer home or remain idle, while British Columbia would take on either young people, the unemployed from its other industries or immigrants. This, then, is the main reason why we have selected industries by provinces. Now, however, we are faced with the following question. Would the unemployment be greater or less in the industry if all localities in Canada were under similar economic conditions—or how much of the unemployment is due to the locality? To obtain this information in index form, using as a base some feature of unemployment in all Canada, is not so simple as might be supposed. The first suggestion that comes to mind is to express the unemployment in all industries in a particular province in terms of the figure for unemployment in all industries for all Canada—the unemployment in each industry being multiplied by its provincial ratio.

The objections to this index are as follows: (1) A summation of *all industries* taken as a base might include features resulting from heavy concentration of a few industries. That is, the provincial figure for *all* wage-earners, might be unduly influenced by conditions in one or two large industries. (2) Conditions again differ widely in different parts of the province. Conditions vary greatly between urban and rural areas and also between different cities. Figures for a province do not take into account the degree of concentration of the population, with the resulting economic differences between areas in the province. To remove the first objection, it was decided to use as an indication of locality difference of unemployment, the percentage unemployed in the "occupation" class known in the census as "others"—a group consisting entirely

of labourers and unskilled workers who depend upon no single industry for employment and whose unemployment is therefore more truly representative of local conditions than that of any other group. To remove the second objection, the unemployment in the above group "others," was found not only for the province *in toto*, but was found individually for all cities of 30,000 population and over and for the rest of the province, *i.e.*, the total for the province less the combined totals for all cities of 30,000 and over in the province. While these figures do not give an ideal picture of the dispersion of unemployment—chiefly because the "rest of province" does not differentiate between purely rural areas and cities of 25,000 population—it is the best obtainable with respect to the data used.

LII.—UNEMPLOYMENT AMONG LABOURERS AND UNSKILLED WORKERS, BY ZONES, CANADA AND PROVINCES, YEAR ENDED JUNE 1, 1931

Province	Zone	P.C. of Year Lost[1]
ALL CANADA		36·48
Prince Edward Island	Whole Province	21·28
Nova Scotia	Halifax	36·96
	Rest of Province	31·50
New Brunswick	Saint John	38·36
	Rest of Province	33·69
Quebec	Montreal	37·00
	Quebec	35·30
	Verdun	46·32
	Rest of Province	30·92
Ontario	Toronto	38·69
	Hamilton	43·57
	Ottawa	35·00
	London	32·19
	Windsor	60·25
	Rest of Province	35·50
Manitoba	Winnipeg	50·15
	Rest of Province	38·61
Saskatchewan	Regina	53·19
	Rest of Province	37·75
Alberta	Calgary	49·02
	Edmonton	44·98
	Rest of Province	31·86
British Columbia	Vancouver	46·04
	Rest of Province	38·54

[1] See 1931 Census, Vol. VI, Tables 35-37.

Having thus obtained figures for the zones as above—which we submit are representative of true local conditions of unemployment when based on the all-Canada figure—we must now apply them to the individual industries with which we are concerned. The procedure adopted was as follows: first, the number of wage-earners in a particular industry in each of the zones was ascertained. These numbers were multiplied by the percentage unemployed unskilled in their respective zones. The sum of the product thus found was divided by the total wage-earners in the industry. The resulting figure was then divided by the percentage unemployed unskilled in all Canada—this final figure being the "locality" index for this particular industry. As an illustration we will take a specific industry "water transportation" in Nova Scotia. We have in this province two zones, (1) Halifax, (2) the rest of the province.

Zone	P.C. of Year Lost by Unskilled Labour		Number of Wage-Earners in Water Transportation		
Halifax	36·96	×	1,730	=	63,940·80
Rest of Province	31·50	×	3,238	=	101,997·00
			4,968		165,937·80

$\frac{165,937 \cdot 80}{4,968} = 33 \cdot 40$ which divided by percentage of year lost by unskilled labour in all Canada, $\left(\frac{33 \cdot 40}{36 \cdot 48}\right) = 0 \cdot 91.$

Then, if we call the base 100—the index of locality for this industry is 91—we may say the locality is favourable in that we would expect less unemployment in this industry, other things being equal, than would be found in the same type of industry under general Dominion-wide conditions.

(*d*) *Juvenile Content.*—It was considered advisable, in addition to forming an index of age liability to unemployment, to form also an index showing the percentage of all wage-earners formed by those who were between the ages of 10 and 20. The index was formed very simply by dividing the percentage juvenile of the specific industry by the same figure for all Canada in all industries, the figure for all Canada being the base. On *a priori* grounds, there is little to be said regarding the expected behaviour of this index in relation to unemployment. Unfortunately, a really significant factor, *i.e.*, the relation of the percentage juvenile in 1931 compared with some previous census years, is not available for each "industry" as we have defined the term.

(*e*) *Female Content.*—Although we are now dealing solely with male wage-earners, some pertinent information on male unemployment may be revealed by a study of the relation of unemployment among males to the percentage female of all wage-earners in the industry. For example, it might be found that a male industry showing small unemployment might show either a large or a small female content. Depending upon the result one would have a basis for saying either, that females were attracted to an industry showing a large percentage of males unemployed—and thereby aggravating this unemployment—or that females were not attracted to industries showing large male unemployment.

However, it must be remembered that when an index of this sort is correlated with an index of unemployment among males, the deduction need not necessarily be, if a positive condition exists, that females are displacing males or *vice versa*. A deduction to this effect is only true when we compare the percentage female of all wage-earners for two or more different periods and establish a trend. As this data for different industries is not available in the same form for separate census years, this "trend" will not be dealt with at the present time.

This index was formed in precisely the same way as the index of juvenile content, *i.e.*, the percentage female of all wage-earners for the individual industry was found and related to the same figure for all industries in Canada as a base.

(*f*) *Earnings.*—The average earnings per week worked by a wage-earner in an industry serves as a rough indication of the occupational content of that industry. Occupations which are easily learned or for which the supply exceeds the demand, do not command a high remuneration. Thus in an industry showing a large proportion of labourers and unskilled workers, not only would we expect a larger amount of unemployment, but also, as a concomitant, a lower rate of earnings. That is, we would expect an index of earnings to correlate negatively with an index of unemployment. Largely on this basis, therefore, we have decided to use an index of earnings, formed by finding *the average earnings per week worked per wage-earner* in a specific industry and referred to the average earnings per week worked for all industries in Canada as a base.

(*g*) *Degree of Eradication of Independent Worker.*—With the increased standardization and mass production of economic goods that has been so marked since the Industrial Revolution, there has been a tendency for the small employer and independent worker to drop out of the competitive field. Some economists are wont to claim that the former independent worker has been absorbed into the newer technological processes with probably no loss to himself—taking into consideration the higher standard of living resulting from the decreasing cost of production and therefore of cost to the consumer of economic goods. It would seem, however, that when an industry absorbs a great many skilled artisans, these former independent workers are forced into competition with younger and relatively less skilled workers, as mechanized industry requires alertness rather than specialized skill. The result, *in so far as the industry is concerned, is usually that there is an increase in the type of worker relatively easily obtained—but little increase in the type of worker regarded as specialized or indispensable.* By observing the proportions of wage-earners and independent workers in various industries we are only able to see the degree of eradication of independent worker which exists at the time, but it is interesting to see to what

extent this process has been embraced by different types of industries. It might be expected that where a large proportion of independent workers existed in an industry, they would create a sort of safety valve to receive the surplus wage-earners created by industrial depression periods. Unfortunately, while there is a marked tendency for independent workers to give up their establishments and become wage-earners during boom periods, once they have become wage-earners, there is considerably less likelihood of their being able to return to their former establishment in times of depression since, in times of depression, the small employer has less chance of surviving than the large employer of labour. Thus the latest figures show a cumulative increase in wage-earners, the result of additions during every boom period, the great majority of which do not return during depressions but are left without jobs and a large percentage depending on the state for subsistence.

What chance there is of returning from wage-earner status to that of independent worker during depression is naturally lessened as the proportion of independent workers to that of the whole industry grows less—remembering that we are concerned now with specific industries. (Wage-earners from one industry may and do return to independent worker status in other industries.)

The index was formed by obtaining the percentage who are wage-earners of all who are gainfully occupied for each industry and relating their percentages to the same figure for all industries in all Canada as a base.

The Significance of the Means of the Indices.—It must be remembered that the indices are formed from *a sample* of industries, which, while representative of all industries exclusive of three large groups and the "unspecified" containing mostly casual labourers with no industrial connection, due to this exclusion would be expected to have different means from the mass average of all wage-earners in all Canada. That is, the expected error of the sample is increased because the base of the indices was "all wage-earners in all industries in Canada." This base was chosen to avoid confusion. If the sample was perfect for all-Canada figures the mean would be in every case 100 (the base). We find the means of the three measures of unemployment to be: June 1, 72; the year, 75; the percentage of wage-earners who lost any time, 85, *i.e.*, the figures of unemployment are lower than the figures for all Canada. This is to be expected, owing to the exclusion of the "unspecified" class, where the unemployment is very high. However, we find that in the data, all indices are close to 100 with the exception of the "degree of eradication of the independent worker," which is 133 and therefore higher than the all-Canada figures by a significant amount. This discrepancy also can be accounted for readily. Our sample was chosen from the industries having from 2,000-6,000 wage-earners. Therefore, the very large agricultural industries were not adequately represented. It is in agriculture where the "own accounts" are far superior in number to wage-earners. Agriculture then, not being well represented in the sample, would make the percentage wage-earners of all gainfully occupied considerably lower in the all-Canada figures—with the result that with all-Canada figures as a base, the percentage wage-earners of all gainfully occupied in the sample would be high.

Correlation of Unemployment with Certain Forces.—In standardizing rates (*e.g.*, death rates, etc.), for, say, age differences, it is customary to divide the crude rates by an index for age similar to that given in Statement L, *i.e.*, the standardized death rate of a certain place A would be the general death rate it would have if (the rate for each age group remaining the same) the age distribution were the same as that of the standard population. This, of course, assumes that if place A were supposed to have the standard age it would still retain its specific death rates, a matter by no means certain. However, this is not the chief objection to dividing the crude rate by the standardizing factor in the case of unemployment data. The difficulty lies in the fact that we have to standardize for several factors instead of one. If we first standardized for age content we could not standardize for seasonality until we had first standardized the seasonality index for age content and so on. Each successive index would have to be standardized for all the indices that came before, and even then the results would not be fully satisfactory. The means of overcoming this difficulty is the use of the multiple correlation regression equation. There is no question that this use is legitimate in this case. Further,

since all the controls are in the shape of indices and consequently have a common form, the data are in a shape suitable for the application of multiple correlation. The regression equation is:—

$X_1 = A + BX_2 + CX_3 + DX_4 + EX_5 + GX_7 + HX_8 + KX_9$,

where X_1 = percentage unemployed June 1;

X_2 = age liability to unemployment;

X_3 = bias of June 1;

X_4 = locality;

X_5 = female content;

X_7 = juvenile content;

X_8 = average earnings;

X_9 = degree of eradication of independent worker.

An evaluation of these results will be made later together with a similar evaluation of the results when other criteria of unemployment are used.

Other Measures of Unemployment.—The above refers to unemployment when measured by the percentage not at work on June 1. We have, however, two other criteria for unemployment in industries as mentioned before, *viz.*, (1) the percentage of all wage-earners who lost any time during the year, (2) the average number of weeks lost by all wage-earners during the year. The June 1 data are simply a sample—one day of the 365 in the year—and are apt to differ from those of the year because a particular date is very apt to show a seasonal bias.

The average weeks lost during the year as a measure of unemployment overcomes the probability of seasonal bias, but, as was shown when discussing the index of seasonality, is subject to certain errors peculiar to the nature of the subject.

The index formed for this measure of unemployment was numbered 10 for purposes of correlation, and was derived as explained in Statement L. The correlation was worked in the same manner as the index of unemployment on June 1, X_1 merely being replaced by X_{10}. The various constants and coefficients are given in Appendix 2.

The percentage of wage-earners who lost any time during the year is a criterion of unemployment different from the two previously mentioned, and, if our theory is sound, a very important and interesting one. It shows what for lack of a better term may be called the "incompactness" of the industry, but its chief function is to show the extent to which any industry is capable of varying within itself. Thus, if 40 p.c. of the industry lose any time at all during the year, only these 40 p.c. can show different degrees of unemployment—the other 60 show constant *employment*. The relationship of this percentage losing any time to the degrees of unemployment shown is discussed in Chapter I where it is shown that without question it is an important criterion.

The index for this measure of unemployment was derived as explained in Statement L and was called Index 6 and correlated with the seven sets of data in the same way as the first two criteria—being known as X_6. The various constants and coefficients are given in Appendix 2.

Having thus briefly set out the methods and symbols used in correlating the three measures of unemployment with the seven sets of data expected to influence or bear a relation to unemployment we will now show the results and attempt to explain any which are significant.

It was found that the data correlated with all three measures of unemployment to a nearly uniform extent, the correlation coefficients being $R_{1D} = \cdot 69$, $R_{10D} = \cdot 68$, $R_{6D} = \cdot 64$. The differences were found to be insignificant, so for all practical purposes the three measures may be said to correlate to the same extent.

In other words the data account for or are related to 45 p.c. of the unemployment (R_2), the remaining 55 p.c. being largely made up of differences peculiar to individual industries. It is not claimed that our indices are perfect or that *in toto* they represent all the factors common to all industries, but we believe they cover the major factors based on the interdependence of unemployment in industries.

PROPORTIONAL WEIGHT OF FACTORS EXPECTED TO INFLUENCE UNEMPLOYMENT AS MEASURED BY THREE CRITERIA

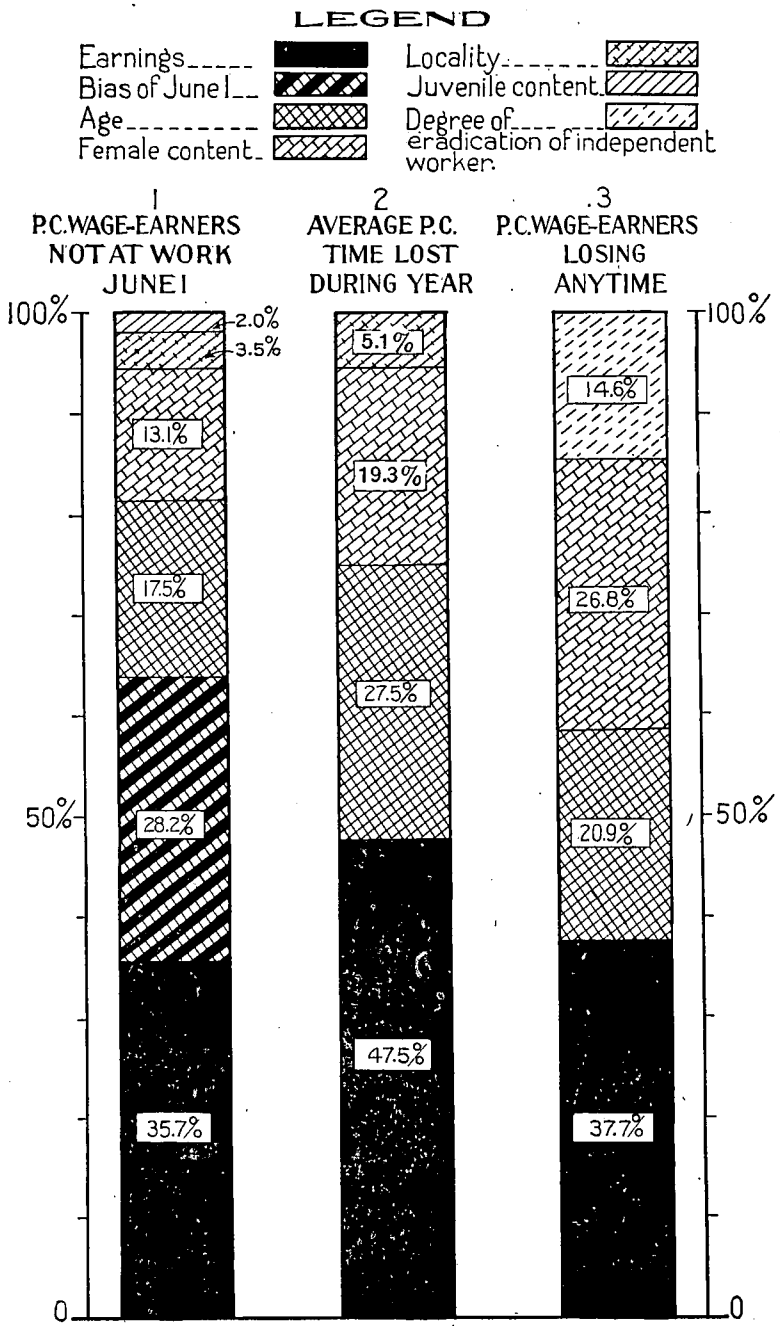

Chart 4

From the figures below, we can see for what percentage of the whole correlation each index accounted. The figures are represented graphically in Chart 4.

X_{10}	P.C.	X_6	P.C.	X_1	P.C.
Earnings	47·5	Earnings	37·7	Earnings	35·7
Age	27·5	Female content	26·8	Bias of June 1	28·2
Female content	19·3	Age	20·9	Age	17·5
Locality	5·1	Degree of eradication of independent worker	13·1	Female content	13·1
Juvenile content	0·6	Locality	0·6	Locality	3·5
Bias of June 1	0·0	Bias of June 1	0·6	Juvenile content	2·0
Degree of eradication of independent worker	0·0	Juvenile content	0·3	Degree of eradication of independent worker	0·0
Total	100·0		100·0		100·0

We note at a glance that three factors determine nearly the whole correlation in each case, average earnings per week worked, age and female content. However, there are two other factors which, lacking any appreciable weight in two correlations, are prominent in the third. "Bias of June 1" accounts for 28 p.c. of the total weight when June 1 is used as the measure of unemployment but has no weight with regard to the other two measures.* When we consider the nature of the index of bias of June, based on the ratio of a particular day in the year over the average for the year, we can see this index could only have significance when regarded from the viewpoint of that particular day.

"Degree of eradication of independent worker" has no weight when the time lost by the industry (X_1 X_{10}) is used as the measure of unemployment but has a positive correlation with X_6 (the percentage of wage-earners who lost any time). This is very significant. The greater the proportion of wage-earners to independent workers in the industry, the greater is the percentage of wage-earners who lost any time. The question immediately arises—why does not the time lost by the industry also correlate with this factor? Here again one must consider the facts furnished by a person enumerated in the census. We have mentioned that a considerable percentage of the gainfully occupied are farmers' sons who leave the farm to obtain employment in various industries. Let us consider a person, who, on the day of enumeration was a wage-earner but who had, during the preceding year, been a "no-pay worker" on his father's farm. He might report the time spent on the farm as time lost, arguing that he had not received wages during that period. He might on the other hand feel that he had lost no time as he had actually worked continuously through the year. In either case, from the viewpoint of the industry where he worked when enumerated, an untrue picture of time lost or worked would be given. Thus we see that there is a chance of a casual error being introduced into the "time lost by the industry" which might well nullify an actually existing correlation with the "eradication of independent worker." The same result would hold were the person enumerated engaged in the same industry during the year, first as an independent worker and later as a wage-earner. This would appear to be a logical explanation of the lack of correlation between this factor and the time lost by the industry. On the other hand, the chances of the person enumerated being in one or other of the two classes "losing time" or "not losing time" would be subject to less of this casual error and therefore a somewhat more reliable figure. Hence, any correlation existing between "degree of eradication of independent worker" and "percentage losing any time" would be shown at face value, so to speak.

The Necessity of a Twofold Measure of Unemployment.—We are now faced with the necessity of using one or two of the measures of unemployment rather than all three. Unemployment must be looked at from two viewpoints (1) that of the industry, (2) that of the wage-earner.

If we take the percentage not at work on June 1 we are limited to two dimensions as it were, we merely see the percentage working and the percentage not working. However, by using two other measures (1) percentage of time lost during the year, (2) percentage of wage-earners losing time during the year, we are able to consider the third dimension "time," and appreciate the dispersion of unemployment. The first measures the gross unemployment in the industry, the second the concentration of that unemployment.

* If we had not used the index for "bias of June 1," the correlation existing between X_1 and the data would be considerably less.

If the concentration of unemployment had no relation to the gross unemployment, the former would have no particular significance—but *we find a very nearly perfect correlation between the two* ($r' = \cdot 93$).

This can mean only one thing. An industry showing small unemployment shows *pro rata* a small percentage of the wage-earners losing any time. An industry showing great unemployment shows *pro rata* a large number of the wage-earners losing time. Therefore, the time lost by the industry depends directly on the extent to which it is able to maintain a full-time staff. We have established that the combined weight of the three factors (1) rate of earnings, (2) female content, (3) age content, has a direct bearing on unemployment. There may be doubt that the individual indices express in practice what their names imply. For example, "female content," is very likely to have a meaning which is more significant when an analysis is made of the nature of female occupations in the various industries. Average earnings (per week worked) is apt to be more significant when we have an appreciation of the distribution of the type of worker in the industry, while the "age liability to unemployment" which has been shown to indicate that the age structure of the industry varies to a great extent as the unemployment, might more accurately be termed an indication of a process of selection by the industry with a view to obtaining a certain age of worker which would fit the requirements of the industry and to that extent would minimize the unemployment in that industry.

At any rate, we may say that the industries showing low unemployment show (1) high average weekly earnings by the wage-earners, (2) a larger proportion of females and (3) an age content which may be termed favourable. We can safely conclude that when an industry is able to control the above factors, unemployment in the industry is minimized.

PART B—MAIN INCIDENCES OF INDUSTRY ON UNEMPLOYMENT

Up to this point we have presented and prepared for analysis representations of phenomena which are associated with unemployment in industries. We have dealt generally with their relation to industry as a whole and we have discussed the statistical methods used to measure these relations. It is our purpose at this stage to marshall for inspection the aspects of different industries as they appear in tabular form, to see how different types arrange themselves according to the various criteria and to see which types adhere to observed tendencies and which types are exceptional.

Of prime importance is the distribution of the time lost in industry—the relation of the individual industries to industry as a whole. The fact that industrial unemployment shows this central tendency brings up the question: "Do those industries which come within a significant radius around the mean point of the whole, represent the general economic situation of industry in Canada at a given time?"

To answer this we must first determine what the mean unemployment of the whole really is. It is the representation of the average of a number of units, certain of which individually are practically identical with the average of the whole, but the remainder of which show varying differences from this mean until we come to individuals which may be said to be outside the field. Our mean or centre for 1931 shows that the average time lost during the year was roughly 20 p.c. This figure is useful in measuring for comparison similar figures for other years, *e.g.*, in 1921, 11 p.c. This average shows a certain difference in industry but does not take into account the growth of wage-earners in relation to the increase in the output or the percentage of the wage-earners who bear the brunt of this loss of time.

We have indicated that in the year 1931 a trend showing the probability of unemployment per hundred wage-earners was comparable to the above figure. This idea brings up the use of the two-fold measure of unemployment (1) the percentage of time lost, (2) the number losing time. The latter criterion might be called the wage-earners' point of view. It shows that the average while useful from the viewpoint of the industry is inadequate as an expression of the viewpoint of the aggregate of wage-earners subject to unemployment.

The census is a report of the worker stating his industrial connection and extent of employment. In other words it is primarily the wage-earners' viewpoint. We are forced to face the

fact that industry is a regimentation of wage-earners. Which viewpoint is then more important—the viewpoint of the industry which is superimposed on the population or the viewpoint of the population superimposed on the industry (whose function is to supply the wants of the population)? Unemployment as a social problem, we submit, is best attacked from the viewpoint of the wage-earner. We will, therefore, consider unemployment as the average percentage time lost by the wage-earner in the industry. This measure, however, will be connected with the percentage of wage-earners who lost time in the subsequent analysis of the individual industries. Accordingly we will refer to Statement LIII showing the arrangement of the industries in the sample around the mean. We have arranged the industries in classes according to their unemployment, relative to the mean unemployment (*i.e.*, percentage of time lost during year).

LIII.—INDEX OF YEARLY UNEMPLOYMENT IN THE 122 INDUSTRIES OF THE SAMPLE (INDEX 10 OF STATEMENT L) ARRANGED IN CLASSES AROUND THE MEAN IN ASCENDING ORDER OF MAGNITUDE

Province	Industry	Index	Class
Que.	Religion	5	
Ont.	Religion	6	
Ont.	Police (Municipal)	9	
Ont.	National defence	9	
Que.	Police (Municipal)	10	
Que.	Postal service	10	4B
Que.	Education	12	
Que.	Banking	16	
Alta.	Education	17	
P.E.I.	Mixed and general farming	18	
B.C.	Education	20	
Man.	Education	20	
Sask.	Education	23	
Sask.	Storage	25	
Que.	Health	26	
Ont.	Health	31	
B.C.	Electric railways	33	
Que.	Dairy farming	34	3B
Que.	Telephone systems	35	
Ont.	Electric railways	36	
B.C.	Pulp and paper (Mfg.)	36	
Que.	Investment and loan	37	
B.C.	Non-ferrous smelting and refining (Mfg.)	38	
Que.	Dairy products (Retail Trade)	40	
Que.	Electric railways	41	
Ont.	Dairy products (Retail Trade)	41	
Que.	Electric light and power production and distribution	41	
Que.	Liquors, beverages (not aerated waters) (Mfg.)	42	
N.B.	Steam railways	42	
Ont.	Telephone systems	42	
Que.	Hardware and builders' supplies (Retail Trade)	43	
Que.	General and departmental (Retail Trade)	43	
Ont.	Telegraph systems	43	
Ont.	Butter, cheese, and condensed milk (Mfg.)	44	
Que.	Silk, silk goods (including artificial silk) (Mfg.)	45	
Ont.	Laundries; laundering	45	
Ont.	Flour and grain milling	48	2B
Ont.	Drugs and toilet preparations (Retail Trade)	48	
Man.	Printing, publishing, and bookbinding	49	
Ont.	Automobiles and accessories (Retail Trade)	51	
Ont.	Hardware and builders' supplies (Retail Trade)	51	
Ont.	Lodging and boarding houses	52	
N.S.	Mixed and general farming	52	
N.S.	Steam railways	52	
B.C.	General and departmental (Retail Trade)	53	
Ont.	Illuminating and fuel gas (Mfg.)	54	
Ont.	Investment and loan	54	
Que.	Electrical apparatus (Mfg.)	54	
Ont.	Petroleum products (Mfg.)	54	
Man.	General and departmental (Retail Trade)	55	
Que.	Bread and other bakery products (Mfg.)	56	
Que.	Private domestic service	57	
Ont.	Paper products—boxes, bags, stationery (Mfg.)	57	
Que.	Barber and hairdressing shops	57	
Que.	Meat, poultry, and fish (Retail Trade)	58	1B
B.C.	Printing, publishing, and bookbinding	58	
Ont.	Slaughtering, meat packing (Mfg.)	61	
N.S.	Fishing	62	

LIII.—INDEX OF YEARLY UNEMPLOYMENT IN THE 122 INDUSTRIES OF THE SAMPLE (INDEX 10 OF STATEMENT L) ARRANGED IN CLASSES AROUND THE MEAN IN ASCENDING ORDER OF MAGNITUDE—Con.

Province	Industry	Index	Class
Que.	Biscuits and confectionery (Mfg.)	65	
Ont.	Non-ferrous smelting and refining (Mfg.)	66	
Ont.	Barber and hairdressing shops	66	
Que.	Boilers, engines, and machinery (Mfg.)	66	
Ont.	Filling stations (Retail Trade)	67	
Ont.	Private domestic service	68	
Ont.	Meat, poultry, and fish (Retail Trade)	69	
Ont.	Storage	71	
Sask.	Hotels, restaurants, and taverns	71	
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	72	
Ont.	Nickel-copper mining and milling	72	
Ont.	Biscuits and confectionery (Mfg.)	73	
Ont.	Tanning (Mfg.)	75	Average
N.B.	Mixed and general farming	75	
Que.	Taxicabs, livery, and bus service	76	
Que.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	76	
Que.	Furniture (including upholstering) (Mfg.)	77	
Que.	Tobacco, cigars, and cigarettes (Mfg.)	78	
Ont.	Hosiery and knitted goods (Mfg.)	78	
Ont.	Coal and wood (Retail Trade)	80	
B.C.	Hotels, restaurants, and taverns	83	
N.S.	Forestry and logging	83	
Que.	Coal and wood (Retail Trade)	86	
Ont.	Woollens and worsteds (Mfg.)	87	
Ont.	Taxicabs, livery, and bus service	92	
Que.	Automobile repair service	93	1A
Ont.	Boots and shoes (Mfg.)	94	
Que.	Rubber products (Mfg.)	94	
N.S.	Water transportation	94	
Ont.	Brass and copper products (Mfg.)	95	
Alta.	Hotels, restaurants, and taverns	96	
Que.	Cartage, trucking, and haulage service	96	
Man.	Hotels, restaurants, and taverns	98	
Que.	Iron smelting, converting, refining, rolling (Mfg.)	101	
N.B.	Pulp and paper (Mfg.)	101	2A
Que.	Shipbuilding	101	
Ont.	Sheet metal products (Mfg.)	102	
Ont.	Automobile repair service	102	
Ont.	Hardware and tools (Mfg.)	107	
Ont.	Wire and wire goods (Mfg.)	107	
Ont.	Billiard halls and sporting clubs	109	
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	110	
Alta.	Grain growing	111	
Que.	Quarries, gravel pits; salt wells	113	
Ont.	Gardening—truck farming	117	
Ont.	Glass and its products (Mfg.)	124	3A
Que.	Men's clothing—suits, coats (Mfg.)	124	
Ont.	Quarries, gravel pits; salt wells	130	
Ont.	Bricks and tile (Mfg.)	130	
N.B.	Building and structures	132	
Ont.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	135	4A
B.C.	Gardening—truck farming	136	
N.S.	Building and structures	138	
B.C.	Mixed and general farming	144	
Que.	Asbestos mining	149	5A
N.B.	Sawmill products (Mfg.)	156	
N.B.	Forestry and logging	166	6A
B.C.	Fishing	170	
N.S.	Iron smelting, converting, refining, rolling (Mfg.)	182	
Ont.	Agricultural implements and machinery (Mfg.)	189	7A
B.C.	Coal mining	189	
B.C.	Fish curing and packing (Mfg.)	205	
Alta.	Building and structures	210	8A
Sask.	Building and structures	211	

Mean=75,
Standard deviation=46,
Standard error of the mean=4,
Percentage of time lost by male wage-earners=100,
All-Canada average=20·5 p.c.

LIV.—SUMMARY OF STATEMENT LIII

Degree of Unemployment and Class[1]		No. of Industries	Wage-Earners No.	Wage-Earners P.C.	P.C. of Time Lost
Less than the average	Class 4B	12	40,699	10·0	0·0 to 4·3
	" 3B	11	37,127	9·0	4·3 to 8·0
	" 2B	28	100,225	24·4	8·0 to 11·7
	" 1B	7	22,722	5·5	11·7 to 12·9
Average	Average	24	76,268	18·6	12·9 to 17·9
Greater than the average	Class 1A	2	5,050	1·2	17·9 to 19·1
	" 2A	17	55,988	13·6	19·1 to 22·8
	" 3A	4	11,009	2·7	22·8 to 26·5
	" 4A	6	17,323	4·2	26·5 to 30·2
	" 5A	3	11,523	2·8	30·2 to 33·9
	" 6A	2	6,138	1·5	33·9 to 37·6
	" 7A	3	13,263	3·2	37·6 to 41·3
	" 8A	3	13,155	3·2	41·3 to 45·0
Total		122	410,490	100·0	

[1] The classes were derived in the following way. Those industries which differed from the average by less than three times the error of the mean were classed as "average", since differences within this limit might arise from an error of sampling. The remaining industries were grouped in intervals of six times the error of the standard deviation on the basis that the mid-points of these intervals were significantly different.

The Average Industry.—The foregoing statements show that only 24 of the 122 industries can be classed as having the average unemployment. We will now concern ourselves with the nature of these "average" industries. Why are they "average"? The 24 industries in this class are:—

Ont. —Woollens and worsteds (Mfg.).
Que. —Coal and wood (Retail Trade).
N.S. —Forestry and logging.
B.C. —Hotels, restaurants, and taverns.
Ont. —Coal and wood (Retail Trade).
Ont. —Hosiery and knitted goods (Mfg.).
Que. —Tobacco, cigars, and cigarettes (Mfg.).
Que. —Furniture (including upholstering) (Mfg.).
Que. —Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.).
Que. —Taxicabs, livery, and bus service.
N.B.—Mixed and general farming.
Ont. —Tanning (Mfg.).
Ont. —Biscuits and confectionery (Mfg.).
Ont. —Nickel-copper mining and milling.
Ont. —Liquors, beverages (not aerated waters) (Mfg.).
Sask.—Hotels, restaurants, and taverns.
Ont. —Storage.
Ont. —Meat, poultry, and fish (Retail Trade).
Ont. —Private domestic service.
Ont. —Filling stations (Retail Trade).
Que. —Boilers, engines, and machinery (Mfg.).
Ont. —Barber and hairdressing shops.
Ont. —Non-ferrous smelting, converting, refining, rolling (Mfg.).
Que. —Biscuits and confectionery (Mfg.).

It will be noted that the regional distribution shows a preponderance of industries from Ontario and Quebec. This is no doubt to be expected as these two provinces form a large percentage of the industries in the sample. Comparing the sample and the average industries for provincial representation we find:—

Industries of Sample

Total			Average		
Province	No.	P.C.	Province	No.	P.C.
Ont.	48	39·4	Ont.	13	54·1
Que.	36	29·5	Que.	7	29·1
B.C.	12	9·8	B.C.	1	4·2
N.S.	7	5·7	N.S.	1	4·2
N.B.	6	4·9	N.B.	1	4·2
Man.	4	3·3	Sask.	1	4·2
Sask.	4	3·3			
Alta.	4	3·3			
P.E.I.	1	0·8			
Total	122	100·0	Total	24	100·0

This only shows that the average industries conform to the mathematical definition of an average, *i.e.*, the regional distribution of the average class corresponds to that of the whole, except that Ontario is somewhat over-represented and British Columbia somewhat under-represented.

We will now compare the sample and the average class from another viewpoint, *i.e.*, the distribution by main industry classes—these main classes being the same as those used in the 1931 Census except that "Electric Light and Power" has been classed under "Transportation and Communication."

Industry Group	Industries of Sample				
	Total		Average		
	No.	P.C.	No.	P.C.	As P.C. of Sample
Agriculture	8	6·6	1	4·1	12·5
Forestry, Trapping, and Fishing	4	3·3	1	4·1	25·0
Mining, Quarrying	5	4·1	1	4·1	20·0
Manufacturing	42	34·3	11	46·0	26·2
Construction	6	4·9	–	–	–
Transportation and Communication	14	11·5	2	8·3	14·3
Trade	14	11·5	4	16·7	28·6
Finance, Insurance	3	2·4	–	–	–
Service—Professional and Public administration	13	10·7	–	–	–
" Other	13	10·7	4	16·7	30·8
Total	122	100·0	24	100·0	19·7

We may say, then that the average industry class is composed mainly of Manufactures, "Other" Services (Custom and Repair, Personal, Recreational) and Retail Trade. It is worthy of note that the 11 manufactures in this class (all from Quebec and Ontario) are with two possible exceptions sheltered by tariffs from undue foreign competition and that their purpose is to supply goods for Canadian consumption. Moreover, the nature of the demand for these products might be said to indicate in a measure the present prosperity of the country. Let us review the *manufactures* in question: (1) Woollens and worsteds, (2) Hosiery and knitted goods, (3) Tobacco, cigars, and cigarettes, (4) Furniture, (5) Women's clothing, (6) Tanning, (7) Biscuits and confectionery (twice), (9) Liquors, beverages, (10) Boilers, engines, and machinery.

With the exception of the last named, all of the above manufacture consumers' goods. The Canadian consumer, if he buys these articles at all, must in most cases buy the Canadian product. The majority of the products listed, while not the prime essentials of living are certainly of sufficient importance to the consumer to enjoy a very general demand, but a demand limited by the purchasing power of the consumer, which is reflected in present unemployment. There are certain staple products which the individual must have in order to exist; these, however, are not found in the average group. The production of these staple products, since they are essential to livelihood, would not be influenced by relative prosperity or poverty to the same extent as those semi-necessities in the "average class." These semi-necessary products form a mid-group between necessities and luxuries. To illustrate: in a depression the production of necessities *for local consumption* must be maintained at a certain level. The production of luxuries must of necessity be severely curtailed. The production of semi-necessities, however, would most nearly approximate the decline in purchasing power of the consumer. Only 1 of the 10 industries mentioned is a producers'-goods industry, *viz.*, "Boilers, engines, and machinery (Mfg.)." The industry supplies all types of Canadian industry except agriculture (by census definition) and certain specialty concerns which import their products. In this respect, therefore, there would be a relationship between average unemployment and average business conditions.

The remaining manufacture is non-ferrous smelting and refining in Ontario. The metals processed consist chiefly of gold, silver, copper, nickel, cobalt and zinc. As the bulk of the product is exported, the production would depend to a great extent upon conditions in foreign markets. To the extent, therefore, that conditions in those foreign markets resemble conditions in Canada the unemployment in this industry should approach the Canadian average.

The second representative group is "Other Services." These include "Hotels, restaurants and taverns" in Saskatchewan and British Columbia, "Private domestic service" in Ontario and "Barber and hairdressing shops" in Ontario. This group is by nature dependent on the condition of the consumer. In conditions of depression, people will spend less in hotels and taverns; they will do without servants, and spend less in beauty shops. Therefore, we would expect this group to reflect the average unemployment.

The third representative group is "Retail Trade", consisting of "Coal and wood" in Ontario and Quebec; "Filling stations" in Ontario, and "Meat, poultry, and fish". This group is "average" for essentially the same reasons as the preceding group. None of the units supplies the consumer with luxuries and none (with the possible exception of coal and wood due to the seasonal nature of the demand) is absolutely essential to livelihood.

The remaining industries in this group include two in the main group "Transportation"—"Taxicabs, livery, and bus service" and "Storage." These industries are not really representative of the true transportation class, being perhaps more closely allied to the class "Other Services." The major transportation industries are well organized monopolies of long standing, while the two above-mentioned consist of many small enterprises operating in a highly competitive field. As a result of this competition and relative flexibility they would conceivably adjust themselves more closely to general average conditions.

It is significant that only three of the primary industries are represented in the "average group."

Mining—Nickel-copper mining and milling, Ont.
Agriculture—Mixed and general farming, N.B.
Forestry—Forestry and logging, N.S.

The implication is evident that the primary industries, although constituting a most important part of the national economy, do not show the average unemployment among wage-earners. The above three industries might be called exceptions to the rule.

Nickel-copper mining and milling, Ont.—This industry is not typical of mining in Canada. In the main this is because conditions making for unemployment are less operative in this industry than for mining as a whole. The industry consists largely of a few large and well-organized firms. Canada is the world's largest producer of nickel—producing in 1931, according to the figures of the Imperial Institute, 83 p.c. of the world's supply. It is noteworthy that the entire production was from the Sudbury district of Ontario. The nickel-producing mines also produce a high-grade copper. Both of these commodities command a market which can be gauged to a fair degree of accuracy—which factor in addition to those of relative centralization of producing areas and of ownership makes for less unemployment than occurs in the average mining industry. The appearance of this industry in this average group then is apparently incidental.

Mixed and general farming, N.B.—Farming in Canada varies greatly in nature between geographical areas. This regional difference has repercussions in the nature of the census class known as "Mixed and general farming." For example—mixed and general farming in the Prairie Provinces shows conditions bordering on those experienced by grain farming. In British Columbia it is influenced by fruit farming. In other words in the West, farm labourers reporting themselves as engaged in mixed and general farming are probably working during part of the year in grain farming, or in British Columbia, in fruit growing. Moreover, the product of the "mixed and general" farms is probably composed of grain or fruit as the case may be, to a greater extent than of any other single item.

In the Maritime Provinces we have to contend with another problem. In New Brunswick, Nova Scotia and Prince Edward Island there is a large class of labour, which while working most of the year on farms, ekes out its employment by working in the logging and fishing industries. There is a strong likelihood, therefore, of a person reporting his occupation as farm labourer in the industry "Mixed and general farming" on June 1, although he will rely on work in a lumber camp during the winter or in fishing in other off seasons. Only in Quebec and Ontario can the figures for mixed and general farming be said truly to represent that type of farming, as in these

two provinces this type of farming is the dominant one. Mixed and general farming in New Brunswick is closely associated with the lumbering industry particularly in the northern part of the province and would therefore be somewhat influenced by conditions in that industry, the net effect being to raise the true unemployment.

Forestry and logging, N.S.—This has a lower rate of unemployment than any of the leading producing provinces. It also has an average smaller size of establishment and as shown by the agricultural statistics there are a great many farmers who engage in part-time lumbering. This condition would also mean that a great many persons ordinarily engaged in forestry and logging filled in the seasonal slack with farm labour, thereby reducing the potential unemployment due to the logging industry.

Industries Showing Greater Unemployment than the Average.—A synopsis of this distribution shows that Quebec and Ontario adhere closely to the classes verging on the average. British Columbia, on the other hand, shows a distinct tendency to approach the upper limit of unemployment. The Prairie Provinces on the whole are equally divided between the extremes and the classes approaching the average.

We will now analyse the types of industries which show a progressive increase in unemployment. These classes are designated by the title 1*A* (*A* being the closest to the average), 2*A* the next and so on until the group 8*A* showing the greatest unemployment is reached. The following statement shows the general representative types of each group and for purposes of comparison the "type" distribution for the whole sample is also shown.

LV.—REGIONAL AND INDUSTRIAL GROUP REPRESENTATION OF THE CLASSES SHOWING GREATER UNEMPLOYMENT THAN THE AVERAGE IN THE 122 INDUSTRIES OF THE SAMPLE, CANADA, YEAR ENDED JUNE 1, 1931

Group	Total Sample		Class 1A		Class 2A		Class 3A		Class 4A		Class 5A		Class 6A		Class 7A		Class 8A	
	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total
(a) REGIONAL REPRESENTATION																		
TOTAL	122	100·0	2	100·0	17	100·0	4	100·0	6	100·0	3	100·0	2	100·0	3	100·0	3	100·0
Ontario	48	39·4	1	50·0	8	47·0	2	50·0	3	50·0	–	–	–	–	1	33·4	–	–
Quebec	36	29·5	1	50·0	4	23·5	2	50·0	–	–	1	33·4	–	–	–	–	–	–
British Columbia	12	9·8	–	–	–	–	–	–	1	16·7	1	33·3	1	50·0	1	33·3	1	33·3
Nova Scotia	7	5·7	–	–	1	5·9	–	–	1	16·7	–	–	–	–	1	33·3	–	–
New Brunswick	6	4·9	–	–	1	5·9	–	–	1	16·6	1	33·3	1	50·0	–	–	–	–
Manitoba	4	3·3	–	–	1	5·9	–	–	–	–	–	–	–	–	–	–	–	–
Saskatchewan	4	3·3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	33·3
Alberta	4	3·3	–	–	2	11·8	–	–	–	–	–	–	–	–	–	–	1	33·3
Prince Edward Island	1	0·8	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
(b) INDUSTRIAL GROUP REPRESENTATION																		
TOTAL	122	100·0	2	100·0	17	100·0	4	100·0	6	100·0	3	100·0	2	100·0	3	100·0	3	100·0
Agriculture	8	6·6	–	–	1	5·9	1	25·0	1	16·7	1	33·3	–	–	–	–	–	–
Forestry, Fishing	4	3·3	–	–	–	–	–	–	–	–	–	–	2	100·0	–	–	–	–
Mining, Quarrying	5	4·1	–	–	–	–	1	25·0	1	16·7	1	33·3	–	–	1	33·3	–	–
Manufacturing	42	34·3	–	–	9	53·0	2	50·0	2	33·3	1	33·4	–	–	2	66·7	1	33·3
Construction	5	4·1	–	–	1	5·9	–	–	2	33·3	–	–	–	–	–	–	2	66·7
Transportation and Communication	15	12·3	1	50·0	2	11·7	–	–	–	–	–	–	–	–	–	–	–	–
Retail Trade	14	11·5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Finance, Insurance	3	2·4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Service—																		
Professional and Public administration	13	10·7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Other	13	10·7	1	50·0	4	23·5	–	–	–	–	–	–	–	–	–	–	–	–

Class 1 *A*—This class is close to the average and small in representation. The two industries, "Taxicabs, livery, and bus service" in Ontario and "Automobile repair service" in Quebec can not be said to have any type characteristics markedly different from the average.

Class 2 *A*—This group embraces the following industries:—

Alta.—Grain growing	Agriculture.
Ont. —Cotton goods—yarn, cloth, thread	Manufacturing.
Ont. —Wire and wire goods	
Ont. —Hardware and tools	
Ont. —Sheet metal products	
N.B.—Pulp and paper	
Que. —Iron smelting, converting, refining, rolling	
Ont. —Brass and copper products	
Ont. —Boots and shoes	
Que. —Rubber products	
Que. —Shipbuilding	Construction.
Que. —Cartage, trucking, and haulage service	Transportation.
N.S. —Water transportation	
Ont. —Billiard halls and sporting clubs	Other Services.
Ont. —Automobile repair service	
Man.—Hotels, restaurants, and taverns	
Alta.—Hotels, restaurants, and taverns	

The representative types are again, as can be seen from the list, "Manufacturing" and "Other Services."

There is, however, a notable difference in the nature of the manufactures as compared with those in the "average" class. Where the latter were "consumers'-goods" industries producing mainly semi-necessities, those in class 2 *A* are mostly "producers'-goods" industries or industries manufacturing "conveniences" rather than semi-necessities.

The "Other Services" are essentially the same as those in the average class.

Transportation is represented by only two industries. "Water transportation" in Nova Scotia is characterized by numbers of temporary workers (stevedores and longshoremen) and also by a well known seasonal variation in volume of business, as Halifax (which has a large proportion of the wage-earners in this industry) is a very busy shipping centre in the winter and very slack in the other seasons. Thus "Water transportation" has a higher unemployment than the main group "Transportation and Communication."

"Cartage, trucking, and haulage service" is also unrepresentative of the main group because it is typically an aggregate of small businesses with little organization or centralization. Similarly "Shipbuilding" in Quebec is not representative of the main group "Construction." This is because the demand for ships of whatever kind has little relation to the demand for building and structures, which constitute by far the greater part of the main class. The latter is tremendously cyclical, whereas shipbuilding is relatively stationary.

Agriculture is represented by "Grain growing" in Alberta, *i.e.*, specialized farming to satisfy a foreign market. Farming under such conditions is very close to the manufacturing industries as it involves large-scale production with all its problems and is very different from the smaller "Mixed and general farming" of Quebec and Ontario in that the latter is first a home and secondly an industry. We would expect, therefore, that as farms become primarily reliant on outside markets (not necessarily foreign) for source of income, the more they are at the mercy of wavering prices and the more they are affected by crop conditions. The whole effect is to make for uncertainty of labour requirements, *i.e.*, an increase in potential unemployment.

Class 3 *A*—This group being small as are, indeed, all the subsequent groups showing greater unemployment, it is difficult to say which main type is representative of the group. Therefore, we will comment briefly on each industry.

Ont.—Gardening—truck farming	Agriculture.
Que.—Quarries, gravel pits; salt wells	Mining.
Que.—Men's clothing—suits, coats	Manufacturing.
Ont.—Glass and its products	Manufacturing.

"Gardening—truck farming, Ont.," consists of an aggregate of market gardens growing particularly strawberries, tomatoes, and vegetables and fruit generally. The type of labour employed is considerably different from that of true "Mixed and general farming" in that there is a smaller percentage of farm labourers and a greater proportion of "gardeners" and truck drivers. In other words the farms are small industries usually supplying a nearby city with fresh vegetables and fruits. Therefore, crop failures, etc., would have a greater effect on the wage-earners, due to the specialization of the farms.

"Quarries, gravel pits; salt wells, Que.," is not representative of "mining." Unfortunately this industry is not homogeneous. The output of quarries is somewhat influenced by the condition of building construction. Gravel pits are invariably seasonally operated as well as during periods when the Provincial Government decides to extend or improve its highways, which periods may occur during good or bad years. Salt wells do not occur in Quebec.

The remaining two industries in this class are manufactures.

"Men's clothing—suits, coats, Que.," is a protected industry, but is highly seasonal in character.

"Glass and its products, Ont.," is an infant industry supplying less than half the Canadian consumption. This industry also, to a certain degree, might be affected by conditions in building construction.

Class 4 *A*—In this class "Building and structures" appears for the first time—representations being from Nova Scotia and New Brunswick. There are two manufactures "Women's clothing," and "Bricks and tile" both in Ontario. The "Bricks and tile" industry is notably cyclical and seasonal, as it is a feeder to "Building and construction." "Women's clothing" in Ontario, however, deserves special attention due to the tremendous variation in unemployment from the same industry in Quebec. We must bear in mind that we are dealing with the male wage-earners only—and that both of these industries have a high female content. Following are the comparative figures for the two industries shown in index form (see Statement L).

Item	Women's Clothing (Mfg.)	
	Quebec	Ontario
Age liability to unemployment (Index 2)	94	100
Bias of June 1 (Index 3)	119	112
Locality (Index 4)	98	105
Female content (Index 5)	359	299
Juvenile content (Index 7)	199	119
Earnings (Index 8)	109	117

We note that the Quebec industry has a more favourable age distribution, more female workers, more young male workers and a lower rate of earnings. This combination of attributes seems to indicate that the Quebec industry by selecting a younger male employee and paying lower wages was able to keep him working for a greater part of the year than the Ontario industry.

"Gardening—truck farming" in British Columbia has in general the same characteristics as that of Ontario (Class 3*A*).

"Quarries, gravel pits; salt wells, Ont.," has roughly the same characteristics as the same industry in Quebec (Class 3*A*).

Class 5 *A*—We have mentioned previously that "Mixed and general farming" in British Columbia is not the true type. It is influenced by the conditions governing fruit growing and as we shall show later, by an influx of agricultural workers and transients from the Prairie Provinces, the combination of which factors effect a greater unemployment than expected.

"Asbestos mining" in Quebec is nearly all for export, the principal market being the United States. As was the case with most other minerals, the production of asbestos was being reduced in 1931. The effect on the workers involved, however, was much more severe than on those engaged in metallic-mineral mining as (1) the asbestos mining region is isolated from other mining areas; (2) the workers are a resident population; (3) the industry does not support any by-products of note which might furnish work as in the case of the silver-nickel-copper mining industry.

"Sawmill products (Mfg.)" in New Brunswick is not as thriving an industry as in Ontario and British Columbia. Formerly a very important industry, a falling off under heavy competition has characterized the industry for some time. The result, plainly, is short-time operation and aggravated unemployment.

Class 6 *A*—New Brunswick "Forestry and logging" at best is notably seasonal in character. In addition, factors ascribed to sawmill products manufacturing in the same province are equally operative on the primary industry.

In "Fishing" in British Columbia, due to the fact that the Pacific Coast fisheries are of a far more specialized type than those of the Atlantic sea-board, there are fewer small fishermen and a greater percentage of company-owned trawlers used in catching halibut and herring. The salmon fishing also is largely controlled by the requirements of the salmon canneries. This dependence upon the activities of firms dealing in special products means that a decline in their demand would be felt more rapidly by the fishermen. In addition, fishing in British Columbia is characterized by intermittent rush and slack seasons.

Class 7 *A*—British Columbia "Coal mining" is well known as being peculiarly subject to shut-downs, fluctuating schedules of production and other causes making for unemployment.

Ontario "Agricultural implements (Mfg.)" owes its large unemployment mainly to the fact that Canadian farmers, particularly in the West, were unable to purchase farm machinery on the scale they had maintained up to 1929. It is a case of a capital goods manufacturing industry being faced with a virtual cessation of demand for its products. Some unemployment could result even from a slackening in the rate of increase in production, but a violent drop in output such as occurred during the period 1929-31 would be very severely felt by the wage-earner.

Nova Scotia "Iron smelting, converting, refining, rolling" has been on the decline for some years, quite apart from the depression. It is a picture of an industry barely sustaining itself, a great many plants being idle for extended periods.

Class 8 *A*—This class shows the greatest unemployment of all the industries in the sample. "Building and structures" are represented from Alberta and Saskatchewan and "Fish curing and packing" from British Columbia. It is notable that "Building and structures" in the Prairie Provinces has significantly more unemployment than in the Maritimes. It is explained by the rapid growth of the industry in the West being suddenly cut short. In the Maritimes there had been relatively little growth and consequently the retarding effect of the depression was less violent.

"Fish curing and packing" in British Columbia showed a decreased output in 1930 and 1931 which was the direct antithesis of a rapid growth from 1923 to 1929. The salmon canning industry was greatly affected by the unusual contraction of international trade which tremendously aggravated the normal effects of seasonal operations.

What are the main features of the industries in this class having greater than average unemployment? Primarily we may say that as a whole their function is *not* to satisfy a general demand; they produce specialties, goods which foreign countries want, goods of which the supply is elastic, or for which the demand has always been cyclical (*e.g.*, Building and structures). Some of these industries have a short history (many of our export industries are of recent importance and in this period of national self-sufficiency the foreign demand for their products in the future is most uncertain). A few are industries which show signs of gradual elimination or decline, *e.g.*, Iron smelting, etc., in Nova Scotia.

The dominant feature of the industries in this class is an uncertain demand. They may be said to represent an early stage in the evolution of the industries, that struggle which will eventually lead either to some degree of stability or to non-survival.

Now let us see how this evolutionary process has affected the working force. We find that, to obtain stability, an industry must be made efficient. This is effected by a gradual discard of obsolete occupations, a selective process to find workers with special requirements. These positions are secure because the industry can depend on the continuity of its function. But this process of selection, while attracting the desired types has in a measure closed the field to other types of workers who have been forced into less stable industries or unemployment, total or partial. Thus the existence of the three types of industry (1) average, (2) stable, (3) unstable, has created three corresponding types of unemployment. The stable industry has a relatively constant labour force, the great bulk of whom are steadily employed year in and year out. The unstable industry has a labour force which changes both in size and in its individual workers from good years to bad. The average industry has an unemployment the amount of which is determined by conditions in both the other groups. As the stable industries vary less from year to year than the unstable industries, average conditions although equally sensitive to both classes are more influenced by the unstable group than the stable.

Industries Showing Less Unemployment than the Average.—In the same way as we analysed the industries showing greater than the average unemployment we shall examine those showing less, by classes and for regional and industry group distribution. Statement LVI summarizes the situation.

LVI.—REGIONAL AND INDUSTRIAL GROUP REPRESENTATION OF THE CLASSES SHOWING LESS UNEMPLOYMENT THAN THE AVERAGE IN THE 122 INDUSTRIES OF THE SAMPLE, CANADA, YEAR ENDED JUNE 1, 1931

Group	Total Sample		Class 1B		Class 2B		Class 3B		Class 4B	
	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total	No.	P.C. of Total
(a) REGIONAL REPRESENTATION										
TOTAL	122	100·0	7	100·0	28	100·0	11	100·0	12	100·0
Ontario	48	39·4	2	28·5	13	46·5	2	18·2	3	25·1
Quebec	36	29·5	3	42·9	9	32·5	4	36·3	5	41·7
British Columbia	12	9·8	1	14·3	1	3·5	3	27·3	1	8·3
Nova Scotia	7	5·7	1	14·3	2	7·0	–	–	–	–
New Brunswick	6	4·9	–	–	1	3·5	–	–	–	–
Manitoba	4	3·3	–	–	2	7·0	–	–	1	8·3
Saskatchewan	4	3·3	–	–	–	–	2	18·2	–	–
Alberta	4	3·3	–	–	–	–	–	–	1	8·3
Prince Edward Island	1	0·8	–	–	–	–	–	–	1	8·3
(b) INDUSTRIAL GROUP REPRESENTATION										
TOTAL	122	100·0	7	100·0	28	100·0	11	100·0	12	100·0
Agriculture	8	6·6	–	–	1	3·5	1	9·1	1	8·3
Forestry, Fishing	4	3·3	1	14·3	–	–	–	–	–	–
Mining, Quarrying	5	4·1	–	–	–	–	–	–	–	–
Manufacturing	42	34·3	3	42·9	9	32·5	2	18·2	–	–
Construction	6	4·9	–	–	–	–	–	–	–	–
Transportation and Communication	14	11·5	–	–	6	21·0	4	36·3	–	–
Retail Trade	14	11·5	1	14·3	9	32·5	–	–	–	–
Finance, Insurance	3	2·4	–	–	1	3·5	1	9·1	1	8·3
Service—										
Professional and Public administration	13	10·7	–	–	–	–	3	27·3	10	83·4
Other	13	10·7	2	28·5	2	7·0	–	–	–	–

Class 1B—This class is very nearly average. The main types are (1) Manufacturing and (2) Other services.

Class 2B—This class is typified in order of importance by (1) Retail Trade, (2) Manufacturing, (3) Transportation and Communication.

It will be noted that the manufactures are engaged in producing either staple food stuffs or commodities which have a very efficiently controlled schedule of production and the great majority of which are for home consumption. The "Transportation and Communication" group consists of monopolies, well organized to meet a known demand.

"Retail Trade" probably characterizes this class more than any type of industry. This type includes only establishments marketing products the majority of which have a well known demand and all of which are for local consumption. The story is one of unemployment conditions somewhat better than the average and representing the final stage in production—delivery to the consumer. It can be seen that the retail stores are thus more favourably situated than the manufacturing industries, being less violently affected by a decrease in purchasing power, as (1) they have on the average a much smaller establishment, (2) they can more readily and gradually adjust their staffs to meet business conditions. Retail stores are also more favourably situated with regard to unemployment because there is a greater mobility of the type of labour employed (largely sales clerks) than is the case in manufactures where the occupations are more or less confined to the one type of industry.

Agriculture has one representative in this class, "Mixed and general farming, N.S." Conditions governing unemployment in this industry have already been discussed (1) it is in part *true* mixed farming, (2) outlets are furnished for subsidiary employment in fishing, mining and the forest industries.

"Other Services" is represented by (1) "Laundries; laundering," (2) "Lodging and boarding houses," both in Ontario. Each of these services is characteristized by a small average establishment and a steady demand for its services.

Finance is represented by "Investment and loan, Ont."

Class 3 *B*—This class is predominantly "Transportation and Communication" and "Professional and Public administration service." Transportation and Communication is represented by "Electric railways" in Ontario and British Columbia, "Telephone systems" in Quebec and "Storage" in Saskatchewan. The first three are monopolistic public utilities, while the latter consists largely of grain elevators in which the wage-earners are largely a maintenance staff.

Public administrative service consists of "Health" in Quebec and Ontario and "Education" in Saskatchewan. The nature of these industries is apparent—a catering to a demand which is vital to the population and which is regulated largely by state and by custom.

There are two manufactures in this class. "Non-ferrous smelting and refining" and "Pulp and paper" both in British Columbia. Both of these industries show features which are exceptional to most manufactures. Non-ferrous smelting and refining is virtually confined to one large concern operating in a confined area. It is noteworthy that the time lost by the industry was spread among the employees to an unusual extent. This is in part due to the single control, the figures reflecting an attempt on the part of the management to keep a selected working force as fully employed as possible.

The pulp and paper industry in British Columbia is also somewhat unique. In 1930 there were only six establishments in the province employing in all 2,959 persons. Although largely dependent on the United States market, this demand has been continuous of recent years largely because of the alienation of the latter country's soft wood resources and to their gradual depletion. In brief, the industry is very favourably situated in regard to both a vast supply and an assured, increasing demand.

Agriculture is represented by "Dairy farming" in Quebec. Although in a sense this is specialized, in another it is not, being made up largely of small farms which verge on true "mixed and general farming," of the French-Canadian type which is more nearly self-sufficient than any other type in Canada.

Class 4 *B*—This shows the industries having practically no unemployment. As can be seen from the statement, the class consists almost wholly of "Professional and Public administration service", notably education, religion, police and postal service. The nature of this class of industry is well known. All have a definite function to perform. This function may be compared to the production of a manufacturing industry. However, where the amount of the latter is regulated by the demand which in turn is influenced, among other factors, by the distribution of the purchasing power, the above services are subject to a steady demand reinforced by legal or traditional standardization. Therefore, the time lost by the individual worker would not be caused by severe fluctuations in the amount of the services rendered.

We might also place "Banking" in the same category for similar reasons. Banks are very highly organized and in Canada very securely established, their function being to facilitate and in some degree to control the flow of money, in our day one of the most important functions in the national economy.

"Mixed and general farming" is the dominant industry of Canada's smallest province. The conditions making for minimum unemployment are no doubt largely due to regional factors. There has been a great exodus of the rural population and practically no inflow. Towns with their attendant industries are small and few. Practically all the land available for agriculture has been utilized for some time with the result that there has been little expansion, but the excess population, particularly young people, has been taken care of through migration to other provinces. The picture is one of great stability with its concomitant a minimum unemployment among the farm wage-earners.

We now come to the observed reasons for deviations from the average. It is evident that this group as a type supply a general demand which is vital by nature, to the population. The majority, by reason of their vital nature are: (1) directly controlled by the state—education, national defence, postal service; (2) controlled by popular opinion accumulated through the years—health, religion; (3) controlled by monopoly—banking, transportation and communication. We have discussed the reason for the absence from this class of some types of farming. It is vital that the population have foods which our farms produce yet only three agricultural industries appear in the lower unemployment groups. The three which do appear supply local consumption to a greater extent than the others which are either engaged in raising a special type of produce for city markets or are engaged in producing for foreign markets.

The fact that this group of industries is protected is not always a natural cause, but in most cases has its roots in the past. Through the years there has been a "survival of the fittest" struggle among industries—a gradual weeding out of the inefficient industries. During this process some industries have become "stabilized" (*i.e.*, by control) to meet the needs of a population, growing as the population grows and maintaining a high efficiency. This stabilizing process has resulted in a gradual elimination of surplus staff—largely by selection.

We seem to be now in a position to generalize as to (1) the nature of average unemployment on the types of industries which show this average and (2) the law or laws followed in deviations from this average.

Average Unemployment.—Considering the average industry (from the point of view of unemployment) in the abstract, there are only a limited number of conditions under which it is possible for an industry to strike the average in the scale of unemployment. These are: (1) accident, (2) the industry being really a composite *industry group*, made up of parts, each of which is in miniature one or other of the different industries of Canada. For example, an "industry" like mixed and general farming in New Brunswick could be broken up into groups of wage-earners who sometime during the year were engaged in lumbering, fishing, domestic service and so on—each in reality a small industry. These parts to approximate the average must bear the same proportion to their parent industry as the larger industries which they represent bear to industry as a whole. (3) The "average industry," although in its components not representing any of the other industries, is exposed to or sensitive to all the conditions which determine unemployment in Canada, not to any special condition. (4) The "average industry" is directly dependent upon all the other industries while the "non-average" is more or less independent (in part a modification of condition 3).

Going back now to the array of "average industries" we see that condition 1 can be ruled out because of the large number of cases involved; 2 can be largely ruled out from an examination of the particular industries falling in the category "average." The only member of these "average industries" which, if broken up into its components, would be likely to be built up of all the industries is "Mixed and general farming," N.B., which has associated industries—fishing and logging. Obviously the conditions determining the average category are 3 or 4.

Those industries which come under condition 4 are so obvious that the matter need not be laboured. Coming under condition 3 are such industries as personal services and retail trade some of which can clearly be seen to obey this condition, *e.g.*, "Hotels, restaurants, and

taverns," while others such as the listed manufactures are not so obvious in their connection. The last mentioned as a type are more important both because they are more numerous and also because the connection is so subtle as to escape observation.

It is interesting to find in the concrete such phenomena as "average industries," *i.e.*, industries with a *true* average unemployment. Usually, often at any rate, the average is a mere abstraction, *i.e.*, (1) no particular case conforms to the average, or (2) there is an accidental average, *i.e.*, there may be one or two cases of conformity but for no apparent reason. In our data on unemployment, however, we find that the "average industries" are average for an unmistakable reason. The matter is so important that it is necessary to re-state the nature of the reasons for the "average" or deviations from the average.

1. In the first place it is evident (from an examination of the list) that industries which appear in the average group by reason of their individual characteristics (not by accident) as long as they retain these characteristics would appear in the average group in any year, good or bad.

2. In the second place a fundamental principle runs through the individuals of the average group, *viz.*, that they exist to supply the general requirements of the population of the country, but requirements limited by the purchasing power of the population as a whole, in contrast to requirements of absolute necessities which the population must have in good or bad times.

3. There is no obvious special protection or restriction either natural or imposed. There is no particular back history, *i.e.*, they are not specially protected by tradition. A case in point is a personal service such as "Barber and hairdressing shops." The requirement is long established—but people formerly performed these acts themselves and could do it again if the necessity arose. Therefore, in a year of "prosperity" people would patronize services of the above type, but during a depression would on the whole perform these acts themselves in a measure corresponding to the shrinkage in income, which on the average is an expression of the amount of unemployment.

The Hangers-On of Industry.—It would appear that it is not to changes in the industrial structure that we have to look for a cure for unemployment. The foregoing survey will show that so long as we look only upon the industry side of the question in a study of unemployment we are departing from realities. When we look at the human (*i.e.*, the worker's) side we get back to realities. We must remember that unemployment is "worker's unemployment" not the time lost by the industry. When we take this point of view it becomes apparent that the unemployed worker is not the product of any particular industry, *i.e.*, his unemployment can not be directly attributed to a definite industry. We find unemployed persons in every industry but the great bulk of them occur at one end of our chart, *viz.*, unskilled labour and those unattached to any industry. These are cast-offs from the more stable industries and those engaged in building and structures which industry is dependent not so much on the ordinary requirements of the population as on the normal activity or expansion of *all other industries*. Of the 422,076 males not at work on June 1, 1931, about two-thirds were either unskilled or engaged in building and construction, and more than this if we include such categories as juvenile or senile age groups. This amount is a minimum figure as there are many additional census classes which verge on the unskilled.

The residue (considerably less than one-third) consisting of relatively skilled workers is, after all, never a grave problem. It is the hangers-on of industry that are in the main the unemployed, *i.e.*, a *class* of worker. The question is what to do about this class. That they already constitute a large class is a fact to be faced, but so far little attention has been paid to the fact that this class is on the increase. We have contended that they have been created by the struggle of industries for stability (efficiency). These industries are, at the present time, the seasonal and cyclical ones. These, at first glance, seem to be to blame for the hanger-on class of worker. On closer inspection it seems that *some* of them create this class, while others offer work, which they would otherwise not get, to the class already created. To illustrate—some firms during seasonal rushes take on large numbers of temporary employees. If they require no particular experience from these workers they can not be said to create them, they are merely using a type of unattached worker which already exists. But, if a firm requires rush workers with special qualifications and then throws them off, by repetition of this process it is creating a group of industrial "hangers-on."

If we look at the industrial side at all in looking for a cure we should be concerned with the activities of those industries that create this class of "hangers-on."

Balance between Supply and Demand.—The foregoing analysis of industry types brings out certain interesting facts. The most significant is that industries, whose function is to satisfy a demand the Canadian consumer established by (1) tradition, (2) law, or (3) the necessity of maintaining a certain standard of living, have small unemployment. The greater the extent to which industries supply "goods" non-essential from the viewpoint of a minimum standard of living or tradition, or dependent on foreign demand, the greater their unemployment. The reason for this seems to be rooted in the development through time of a balance between production and expected consumption. Some types of industries lend themselves to this adjustment to a greater extent than others. It is noteworthy that where this balance is relatively undeveloped, in industries such as "Building and structures" and certain industries dependent on the whims of a foreign market, the high rate of unemployment is usually ascribed to the cyclical or seasonal nature of the industry *per se*. Little attention is given to the development through time of a force, acting on different industries in different degrees, which has tended to weld industries into efficiently functioning machines, this efficiency from the social viewpoint being the ability of the industry to stabilize its working force or from the economic viewpoint to produce that for which there is a demand in, as nearly as possible, the quantity demanded. This for obvious reasons is difficult to accomplish in the case of an industry depending on foreign markets; it is difficult to accomplish in the case of "Building and structures" because there is no systematic planning in this industry.

Thus, in the industries of the sample in the year 1931, we have a picture of the development of this force through time, inasmuch as we can see the extent of its action on different types of industries at that time. It is obviously a force which is still working on most industries, although in some it has already accomplished its purpose, but in the remainder the process is partial in varying degrees. As concrete examples, recognized public administrative and professional services, such as "Health," "Education," "Religion" and Government functions show the finest balance between the production and demand of services. Next in line come the public services "Transportation and Communication" and "Banking." Then come the better established forms of trade, closely followed by "Personal services." "Manufactures" vary according to this efficiency while "Agriculture" varies to the extent to which it has become industrialized. Mining, forestry and construction are the least affected by this force.

Organization.—It is at this point that we interject the idea of "organization." An industry which is able to select the type of its personnel must be so organized as to be able to exercise this control. A well organized industry, in selecting its help from a crowded labour market, is able to secure a personnel which loses very little time. (See Appendix 2 (C) showing high correlation between time lost by the industry (X_{10}) and percentage of wage-earners who lost any time ($r = \cdot 93$).)

On the other hand, those industries which are not so organized as to be able, or to consider it necessary, to select their personnel have a high rate of unemployment, low average earnings and a low female content.

Organized industries, we have shown, select a certain type of worker. The necessity for this selectivity implies first and foremost the existence of a high percentage of specialized jobs, the vast majority of which approach full-time employment. As we approach the less organized industries, we find a smaller percentage of these specialized occupations and as a concomitant more of the wage-earners losing time.

In other words, the well organized industries select the type of worker they require by offering attractive wages and a greater prospect of full-time employment.

The term "organization," as we are using it, must not be considered synonymous with that type of industrial organization which merely aims at technical improvements in plant and product. By "organization," we imply the effects on the whole working body of the process of increasing efficiency. In other words, our use of the term implies the social rather than the economic effect of this process. Thus, while "Coal mining" may have the latest improvements in plant, the most modern system of accounting, etc., from our viewpoint it is not a highly organized industry since it has not been able to maintain a stable working force or give them any assurance of permanent employment. It is interesting to note that the occupation "coal miner" (as dis-

tinguished from the industry "Coal mining") is very highly unionized or organized, but that despite this occupational organization, "organization" of the industry has not been attained. The three types of organization are illustrated here so as to show what we mean by "organization." It seems necessary, indeed, to have a definition of the term as we use it, because "organization" from the point of view of labour unions includes only the skilled; organization from the point of view of industries ignores the worker entirely, while there is no term that includes the whole working force, skilled and unskilled.

Industries in becoming efficient throw off workers who were used in the formative stage. These workers are absorbed by the unstable industries in periods of expansion to be again dropped when they contract. Therefore, we may say that the average unemployment is determined by the aggregate size and condition of the unstable industries plus a number of discarded workers who are no longer subject to anything like adequate employment even in the unstable industries (in the main, workers stating "unspecified" industrial attachment).

Since we have found that there is actually an average type of industry, it is interesting to ask some pertinent questions on the present existence of the three types, average, stable and unstable.

(1) Would it be possible to have all industries "average"? To attain this condition it would be necessary that the group, since it must represent the entire national economy, be self-contained. That is, it must contain the necessary combination of primary industries, manufactures and distribution industries. An analysis of the type "average" shows that under some condition or other, a relative self-sufficiency could be attained, but an economy would result which would be more simple, *i.e.*, a lower standard of living. "Building and structures," "Coal and steel mining and processing" under their present set-up would not be included. On the other side of the scale, the majority of the industries showing low unemployment, under present conditions would, from the nature of their structure, be excluded from the average group. "Industries" in point are religion, education and Government services. They could only be brought up to the average by being responsible for a number of the wage-earners losing time in the unstable industries. As the workers suffering unemployment in the unstable industries are mostly unskilled or verging on that class, this class would have to be distributed among the stable industries. Could this be effected? Would it be desirable to decrease the unemployment of the unstable industries by adding to that of the stable?

It is not the purpose of this chapter to suggest remedies for unemployment. These questions are injected to bring about an appreciation of types of industrial unemployment.

Concentration of Work—A Concomitant of "Organization."—Having shown that unemployment varies largely with the degree to which the industry is "organized," we have yet to devise a satisfactory method of showing the *rating* of the industries by organization in the sample. An organized industry, as we have defined it, is one which has control of its body of workers—control in the sense of being in the position of (1) choosing the type of worker, (2) limiting the number of workers. The combined effect of these two factors means that a highly "organized"* industry contains a staff which tends to be permanently employed and which also shows small variation in its numbers. The total supply of labour being always in excess of the demand, it is obvious that only the very highly organized industries can withstand the pressure of this excess. The fact that some do, merely implies that the working structure of the industry is geared for full-time employment. The majority of industries, however, are in varying degrees elastic as to labour requirements. In periods of expansion they absorb workers which have been rejected by those industries which have been growing more efficient and they create wage-earners from "own accounts" youth, females and immigration. They have, therefore, a large wage-earning body when conditions seem to warrant expansion and in times of caution a wage-earning body which may be a mere fraction of the maximum size. In these industries, therefore, a great percentage of the wage-earners work for short periods of time but there is always a nucleus in every industry which loses no time or very little. This nucleus may be said to be the maintenance staff, a group of salaried workers, foremen and others which is retained at a nearly constant number in periods both of large and small output. In highly organized industries this "nucleus"

* The reader is again cautioned not to interpret the term "organization" as being purely and simply an expression of "efficiency" as the term is generally used, *i.e.*, "present efficiency."

is nearly the size of the whole staff and in less organized industries shrinks to a small fraction of the whole. To emphasize this fact, we have constructed a statement showing in index form (with base all Canada) that percentage of the total weeks worked by each of the 122 industries which was worked by those losing no time (see Statement LVII). This is an expression of the concentration of the work, showing inversely to what extent an even dispersion of the total time lost has been made among the working force.

LVII.—COMPARISON OF INDICES OF (a) PERCENTAGE OF THE TOTAL TIME IN INDUSTRY WORKED BY WAGE-EARNERS LOSING NO TIME AND (b) PERCENTAGE OF TIME LOST PER WAGE-EARNER, IN THE 122 INDUSTRIES OF THE SAMPLE, CANADA, YEAR ENDED JUNE 1, 1931

Province	Industry	Index a
B.C.	Coal mining	42
N.S.	Iron smelting, converting, refining, rolling (Mfg.)	46
Que.	Asbestos mining	48
Alta.	Building and structures	53
N.B.	Forestry and logging	53
N.B.	Sawmill products (Mfg.)	56
Sask.	Building and structures	57
N.S.	Building and structures	66
N.B.	Building and structures	68
Que.	Rubber products (Mfg.)	69
Ont.	Quarries, gravel pits; salt wells	69
B.C.	Fishing	70
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	71
Ont.	Agricultural implements and machinery (Mfg.)	73
Ont.	Woollens and worsteds (Mfg.)	73
Ont.	Bricks and tile (Mfg.)	74
Ont.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	75
Que.	Men's clothing—suits, coats (Mfg.)	76
Que.	Quarries, gravel pits; salt wells	78
Ont.	Hardware and tools (Mfg.)	79
Ont.	Wire and wire goods (Mfg.)	80
Que.	Tobacco, cigars, and cigarettes (Mfg.)	80
B.C.	Fish curing and packing (Mfg.)	81
Ont.	Glass and its products (Mfg.)	81
Ont.	Boots and shoes (Mfg.)	81
Que.	Shipbuilding	82
Ont.	Hosiery and knitted goods (Mfg.)	84
N.B.	Pulp and paper (Mfg.)	85
Que.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	85
Ont.	Tanning (Mfg.)	86
Ont.	Sheet metal products (Mfg.)	87
Ont.	Brass and copper products (Mfg.)	87
B.C.	Mixed and general farming	88
N.S.	Forestry and logging	89
Que.	Iron smelting, converting, refining, rolling (Mfg.)	89
Ont.	Petroleum products (Mfg.)	89
Que.	Biscuits and confectionery (Mfg.)	89
Que.	Furniture (including upholstering) (Mfg.)	91
Que.	Cartage, trucking, and haulage service	92
Ont.	Billiard halls and sporting clubs	92
N.S.	Water transportation	93
Que.	Automobile repair service	93
Alta.	Grain growing	93
Ont.	Gardening—truck farming	93
Ont.	Biscuits and confectionery (Mfg.)	93
Ont.	Automobile repair service	94
Ont.	Coal and wood (Retail Trade)	95
Que.	Coal and wood (Retail Trade)	95
B.C.	Gardening—truck farming	96
B.C.	Non-ferrous smelting and refining (Mfg.)	96
Alta.	Hotels, restaurants, and taverns	99
N.B.	Mixed and general farming	99
Ont.	Paper products—boxes, bags, stationery (Mfg.)	99
Man.	General and departmental (Retail Trade)	100
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	100
Ont.	Taxicabs, livery, and bus service	101
Ont.	Nickel-copper mining and milling	102
Que.	Taxicabs, livery, and bus service	102
Ont.	Storage	103
Man.	Hotels, restaurants, and taverns	103
Que.	Boilers, engines, and machinery (Mfg.)	
Que.	Silk, silk goods (including artificial silk) (Mfg.)	104
Sask.	Building and structures	236
Alta.	Building and structures	234
B.C.	Coal mining	212
B.C.	Fish curing and packing (Mfg.)	205
Ont.	Agricultural implements and machinery (Mfg.)	204
N.S.	Iron smelting, converting, refining, rolling (Mfg.)	201
B.C.	Fishing	190
N.B.	Forestry and logging	186
N.B.	Sawmill products (Mfg.)	174
Que.	Asbestos mining	166
B.C.	Mixed and general farming	160
N.S.	Building and structures	154
B.C.	Gardening—truck farming	152
N.B.	Building and structures	147
Ont.	Quarries, gravel pits; salt wells	145
Ont.	Bricks and tile (Mfg.)	143
Ont.	Glass and its products (Mfg.)	135
Que.	Men's clothing—suits, coats (Mfg.)	132
Ont.	Gardening—truck farming	131
Ont.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	126
Que.	Quarries, gravel pits; salt wells	126
Alta.	Grain growing	124
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	122
Ont.	Billiard halls and sporting clubs	119
Ont.	Wire and wire goods (Mfg.)	116
Ont.	Automobile repair service	114
Ont.	Hardware and tools (Mfg.)	114
Que.	Shipbuilding	113
Que.	Rubber products (Mfg.)	111
N.B.	Pulp and paper (Mfg.)	110
Que.	Iron smelting, converting, refining, rolling (Mfg.)	110
Que.	Cartage, trucking, and haulage service	108
Ont.	Sheet metal products (Mfg.)	108
N.S.	Water transportation	105
Que.	Automobile repair service	104
Ont.	Brass and copper products (Mfg.)	104
Alta.	Hotels, restaurants, and taverns	104
Ont.	Woollens and worsteds (Mfg.)	102
Ont.	Taxicabs, livery, and bus service	101
Ont.	Boots and shoes (Mfg.)	99
Man.	Hotels, restaurants, and taverns	98
Que.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	95
B.C.	Hotels, restaurants, and taverns	94
Que.	Tobacco, cigars, and cigarettes (Mfg.)	94
N.S.	Forestry and logging	93
Que.	Coal and wood (Retail Trade)	93
Ont.	Hosiery and knitted goods (Mfg.)	92
Que.	Furniture (including upholstering) (Mfg.)	86
Ont.	Coal and wood (Retail Trade)	85
Que.	Taxicabs, livery, and bus service	85
N.B.	Mixed and general farming	84
Ont.	Tanning (Mfg.)	84
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	83
Ont.	Biscuits and confectionery (Mfg.)	82
Ont.	Nickel-copper mining and milling	81
Ont.	Storage	79
Sask.	Hotels, restaurants, and taverns	78
Ont.	Meat, poultry, and fish (Retail Trade)	76
Man.	General and departmental (Retail Trade)	75
Ont.	Filling stations (Retail Trade)	75
Ont.	Non-ferrous smelting and refining (Mfg.)	74
Que.	Boilers, engines, and machinery (Mfg.)	71
Ont.	Barber and hairdressing shops	71

LVII.—COMPARISON OF INDICES OF (a) PERCENTAGE OF THE TOTAL TIME IN INDUSTRY WORKED BY WAGE-EARNERS LOSING NO TIME AND (b) PERCENTAGE OF TIME LOST PER WAGE-EARNER, IN THE 122 INDUSTRIES OF THE SAMPLE, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Industry	Index a
Que.	Electrical apparatus (Mfg.)	105
Ont.	Slaughtering and meat packing (Mfg.)	105
N.S.	Steam railways	105
N.S.	Fishing	105
Ont.	Non-ferrous smelting and refining (Mfg.)	107
Ont.	Filling stations (Retail Trade)	107
B.C.	Hotels, restaurants, and taverns	108
Ont.	Meat, poultry, and fish (Retail Trade)	108
N.S.	Mixed and general farming	108
Ont.	Flour and grain milling	108
B.C.	Pulp and paper (Mfg.)	108
N.B.	Steam railways	109
Que.	Electric railways	109
Que.	Meat, poultry, and fish (Retail Trade)	110
Ont.	Electric railways	110
Que.	Bread and other bakery products (Mfg.)	111
Ont.	Butter, cheese, and condensed milk (Mfg.)	111
Ont.	Telephone systems	112
Que.	Liquors, beverages (not aerated waters) (Mfg.)	112
Ont.	Illuminating and fuel gas (Mfg.)	112
Sask.	Hotels, restaurants, and taverns	113
B.C.	Printing, publishing, and bookbinding	113
Ont.	Barber and hairdressing shops	113
B.C.	General and departmental (Retail Trade)	113
Man.	Printing, publishing, and bookbinding	113
Que.	Barber and hairdressing shops	114
Ont.	Hardware and builders' supplies (Retail Trade)	114
Que.	Telephone systems	115
Que.	General and departmental (Retail Trade)	115
Que.	Electric light and power production and distribution	115
Ont.	Automobiles and accessories (Retail Trade)	115
Ont.	Laundries; laundering	115
Ont.	Dairy products (Retail Trade)	115
Ont.	Telegraph systems	116
Ont.	Lodging and boarding houses	117
Que.	Hardware and builders' supplies (Retail Trade)	117
Ont.	Drugs and toilet preparations (Retail Trade)	118
B.C.	Electric railways	118
Que.	Dairy products (Retail Trade)	118
Ont.	Private domestic service	119
Que.	Private domestic service	120
Ont.	Investment and loan	122
Que.	Dairy farming	122
Ont.	Health	122
Sask.	Storage	123
Que.	Investment and loan	125
Que.	Health	125
P.E.I.	Mixed and general farming	125
Sask.	Education	128
Alta.	Education	129
B.C.	Education	129
Que.	Police (Municipal)	129
Man.	Education	130
Que.	Postal service	130
Que.	Banking	131
Que.	Education	131
Ont.	National defence	131
Ont.	Police (Municipal)	131
Ont.	Religion	133
Que.	Religion	133

All-Canada rate=73·5 p.c.
Maximum possible index=136

Province	Industry	Index b
N.S.	Fishing	70
Ont.	Paper products—boxes, bags, stationery (Mfg.)	69
Ont.	Slaughtering and meat packing (Mfg.)	68
B.C.	Printing, publishing, and bookbinding	65
B.C.	General and departmental (Retail Trade)	64
Que.	Meat, poultry, and fish (Retail Trade)	64
Que.	Bread and other bakery products (Mfg.)	62
Que.	Barber and hairdressing shops	60
Ont.	Petroleum products (Mfg.)	59
N.S.	Mixed and general farming	59
Que.	Electrical apparatus (Mfg.)	58
Man.	Printing, publishing, and bookbinding	58
Ont.	Illuminating and fuel gas (Mfg.)	58
N.S.	Steam railways	57
Ont.	Lodging and boarding houses	56
Ont.	Automobiles and accessories (Retail Trade)	56
Ont.	Investment and loan	55
Que.	Biscuits and confectionery (Mfg.)	53
Ont.	Private domestic service	53
Ont.	Drugs and toilet preparations (Retail Trade)	53
Ont.	Hardware and builders' supplies (Retail Trade)	53
Ont.	Flour and grain milling	53
Que.	General and departmental (Retail Trade)	52
Ont.	Laundries; laundering	52
Que.	Silk, silk goods (including artificial silk) (Mfg.)	52
Ont.	Butter, cheese, and condensed milk (Mfg.)	51
Ont.	Telegraph systems	47
N.B.	Steam railways	47
Que.	Hardware and builders' supplies (Retail Trade)	47
Que.	Private domestic service	46
Ont.	Dairy products (Retail Trade)	46
Que.	Electric railways	45
Que.	Dairy products (Retail Trade)	45
Que.	Electric light and power production and distribution	44
B.C.	Non-ferrous smelting and refining (Mfg.)	43
Que.	Liquors, beverages (not aerated waters) (Mfg.)	42
B.C.	Pulp and paper (Mfg.)	41
Que.	Investment and loan	40
Ont.	Electric railways	40
Ont.	Telephone systems	39
Que.	Dairy farming	37
B.C.	Electric railways	36
Ont.	Health	34
Que.	Telephone systems	31
Sask.	Education	31
Sask.	Storage	28
B.C.	Education	28
Que.	Health	26
Man.	Education	26
Alta.	Education	25
P.E.I.	Mixed and general farming	20
Que.	Banking	16
Que.	Education	13
Que.	Postal service	12
Que.	Police (Municipal)	11
Ont.	National defence	11
Ont.	Police (Municipal)	11
Ont.	Religion	8
Que.	Religion	7

Mean..... 83 (15·27 p.c.)

All-Canada rate=18·35 p.c.

This index of "concentration of work" was correlated with an index of the percentage of time lost during the year. The correlation as expected, was very high ($r = \cdot 91$). There were, however, certain industries which did not comply with the observation that the concentration of the work varied as the percentage of time lost of the working year. That is, when the percentage time lost was computed from the concentration, while in the great majority of cases there was a good fit, some industries showed a computed figure which was in some cases significantly higher and in some cases significantly lower than the actual percentage time lost during the year.

The following industries diverge significantly from the observed rule, *i.e.*, the less time lost by the industry, the less the time lost is spread among the wage-earners. In this instance wage-earners are both male and female.

ACTUAL PERCENTAGE OF TIME LOST COMPUTED FROM CONCENTRATION

Computed Time Lost Less than Actual			Computed Time Lost Greater than Actual		
Province	Industry	Index	Province	Industry	Index
B.C.	Fish curing and packing (Mfg.)	80	Que.	Biscuits and confectionery (Mfg.)	54
Ont.	Agricultural implements and machinery (Mfg.)	62	B.C.	Non-ferrous smelting and refining (Mfg.)	49
B.C.	Gardening—truck farming	60	Ont.	Petroleum products (Mfg.)	48
Sask.	Building and structures	59	Ont.	Boots and shoes (Mfg.)	46
B.C.	Mixed and general farming	51	Que.	Rubber products (Mfg.)	40
Alta.	Building and structures	48	Ont.	Woollens and worsteds (Mfg.)	40
B.C.	Fishing	41	Ont.	Hardware and tools (Mfg.)	35
Ont.	Gardening—truck farming	33	Que.	Tobacco, cigars, and cigarettes (Mfg.)	33
B.C.	Hotels, restaurants, and taverns	29	Que.	Asbestos mining	31
Alta.	Grain growing	26	Ont.	Wire and wire goods (Mfg.)	31
Sask.	Hotels, restaurants, and taverns	23	Ont.	Tanning (Mfg.)	30
Man.	Hotels, restaurants, and taverns	22	Que.	Shipbuilding	29
			N.B.	Pulp and paper (Mfg.)	26
			Ont.	Hosiery and knitted goods (Mfg.)	26
			Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	25
			B.C.	Pulp and paper (Mfg.)	24
			Que.	Silk, silk goods (including artificial silk) (Mfg.)	22

All numbers are given in index form. To convert into percentage time lost during year—index 100 = 18·35 p.c. (9·54 weeks); standard error = 20·8 or 3·82 p.c. of the year (2·00 weeks).

LVIII.—PERCENTAGE OF YEAR LOST, TOTAL AND FEMALE WAGE-EARNERS IN INDUSTRIES SHOWING GREATER AND LESS AVERAGE TIME LOST THAN WARRANTED BY THE SPREAD OF UNEMPLOYMENT, 1931, WITH THE AVERAGE YEARLY EMPLOYMENT FROM THE CENSUS OF MANUFACTURES, 1924, 1928 AND 1930

Province	Industry	P.C. Time Lost	Wage-Earners 1931		Average Yearly Employment, Census of Manufactures		
			Total	Female	1924	1928	1930
	AVERAGE TIME LOST GREATER THAN WARRANTED						
B.C.	Fish curing and packing (Mfg.)	14·6	3,556	556	2,848	7,176	3,574
Ont.	Agricultural implements and machinery (Mfg.)	11·4	5,390	136	6,322	10,287	7,053
B.C.	Gardening—truck farming	11·0	2,167	31	–	–	–
Sask.	Building and structures	10·8	5,039	23	–	–	–
B.C.	Mixed and general farming	9·4	6,092	101	–	–	–
Alta.	Building and structures	8·8	5,178	39	–	–	–
B.C.	Fishing	7·5	3,047	18	–	–	–
Ont.	Gardening—truck farming	6·0	3,236	36	–	–	–
B.C.	Hotels, restaurants, and taverns	5·3	8,491	2,602	–	–	–
Alta.	Grain growing	4·8	2,121	89	–	–	–
Sask.	Hotels, restaurants, and taverns	4·2	3,762	1,527	–	–	–
Man.	Hotels, restaurants, and taverns	4·0	4,878	2,137	–	–	–
	AVERAGE TIME LOST LESS THAN WARRANTED						
Que.	Biscuits and confectionery (Mfg.)	9·9	3,328	1,317	2,809	3,461	3,358
B.C.	Non-ferrous smelting and refining (Mfg.)	9·0	3,311	55	[1]	[1]	[1]
Ont.	Petroleum products (Mfg.)	8·8	3,068	191	1,603	1,894	2,482
Ont.	Boots and shoes (Mfg.)	8·4	4,878	1,565	4,231	5,106	4,561
Que.	Rubber products (Mfg.)	7·3	4,245	1,370	3,488	5,362	5,320
Ont.	Woollens and worsteds (Mfg.)	7·3	5,523	2,467	3,861	3,005	2,816
Ont.	Hardware and tools (Mfg.)	6·4	3,901	391	3,779	4,950	4,550
Que.	Tobacco, cigars, and cigarettes (Mfg.)	6·0	6,176	3,230	1,887	1,788	7,873
Que.	Asbestos mining	5·7	2,810	23	2,582	3,391	2,770
Ont.	Wire and wire goods (Mfg.)	5·7	2,878	300	1,521	1,882	2,182
Ont.	Tanning (Mfg.)	5·5	2,482	170	3,168	3,245	2,530
Que.	Shipbuilding	5·3	2,708	12	–	–	–
N.B.	Pulp and paper (Mfg.)	4·8	2,729	89	1,241	1,329	2,469
Ont.	Hosiery and knitted goods (Mfg.)	4·8	7,058	4,337	10,351	12,714	12,940
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	4·6	4,692	1,975	3,983	5,129	4,236
B.C.	Pulp and paper (Mfg.)	4·4	2,925	83	2,554	2,855	2,959
Que.	Silk, silk goods (including artificial silk) (Mfg.)	4·0	5,502	2,431	912	1,925	3,692

[1] Not available—less than three establishments.

Before analysing these differences it would be well to define (1) "Computed Time Lost Less than Actual," (2) "Computed Time Lost Greater than Actual." With regard to the first group we may say that the actual time lost is more than is warranted by the extent to which the unemployment is spread among the wage-earners and with regard to the second group the reverse condition exists.

These industries depart from an observed tendency for the time lost by the industry to bear a constant relation to the extent to which the existing time lost is apportioned among the wage-earners.

In group 1 those wage-earners losing time remain idle for an exceptionally long time. From the nature of census data this condition could exist because of one or both of two factors: (a) The first, the inclusion of numerous rejects from other industries who picked up only the occasional week's work and who probably do not attach themselves steadily to this industry. Industries of this sort are given a worse appearance than they deserve because of this accumulation of temporary adherents. (b) The second factor is, of course, the condition which causes an industry to discharge many of its *regular* workers because of retarded output or paradoxically increased output obtained by mechanization, etc. It will be noticed at once that class 1 is industries connected with export of fish and agricultural products, construction or hotels, restaurants and taverns. In every case, they are industries which are dependent on a fluctuating market. Fish and grain for example are at the mercy not only of foreign tariff policies, but also of a varying supply. The construction industry is by nature cyclical while the volume of business done by hotels and restaurants is vastly affected by the amount of spare cash in the hands of the consumer.

It is noteworthy that "Mixed and general farming" does not occur in this class. Only such farming appears as is specialized, *i.e.*, which depends on an outside market to absorb its product. The inference is that when the farm is used to supply, in the main, the wants of the farmer, it does not appear in this class.

It can be stated with a degree of certainty, however, that these industries show a greater unemployment than is warranted by the dispersion of the work, because they are not organized to withstand the pressure of unemployed persons who have either not been able to find employment in more highly organized industries or who have been discarded in the evolution of those industries.

Of special interest are the two manufacturing industries appearing in this class: (1) "Fish curing and packing" in British Columbia; (2) "Agricultural implements and machinery" in Ontario. The numbers employed, as can be seen from Statement LVIII were enormously increased during the period 1924-28 but in 1930 fell back to nearly the 1924 level. Again the inference is that wage-earners were created only to be left without work when it became obvious that the rate of production was outstripping the ability of the consumer to buy. In the census figures of 1931, a great many people still reported themselves as ordinarily employed in industries to which they had been formerly attached although many of them had had no employment during the year previous to the enumeration. As far as the industries are concerned, these people are not connected with them any longer. It is obvious that this fact would increase the unemployment and *pari passu* increase the concentration of working time of that industry.

Let us now consider class 2 where the time worked is spread among the wage-earners to a greater extent than in the case of other industries showing equal unemployment. We note immediately that all but 4 of the 17 are home-consumption industries, also that the numbers employed in the years 1924, 1928 and 1930 either showed gradual increases or remained nearly stationary. Clearly these industries are all organized to meet a demand the extent of which has been gauged and where production has been regulated to just keep pace with the demand.*

The picture given is that of an industry having a relatively constant labour force where the time lost is spread among its wage-earners. In the case of two industries, *viz.*, "Non-ferrous smelting and refining (Mfg.)" in British Columbia and "Petroleum products (Mfg.)" in Ontario, it is known that it is the policy of several of the larger companies engaged in these industries to select and retain as long as possible their entire working force, enabling the workers to retain their connection with the industry by giving part-time work†—in other words spreading the time lost.

* The fact that several of these industries have been aided in securing a stable market by protective tariffs does not change or affect the pertinence of this discussion.

† In this connection it should be understood that "part-time work" means work given to persons considered by the industry as part of the staff, not seasonal work or odd jobs given to any comer. A great deal of misunderstanding arises from confusing these two kinds of workers.

*Be it noted, however, that those industries are exceptions to an observed tendency—they are not the rule.** The rank and file of industries showing comparable amounts of time lost do not spread the working time. Those losing time are ordinarily out of work for a long time and the fewer losing time in an industry, the longer they are out of work†.

In Statement LIX we have constructed a rating of industries by "organization" as it affects the worker. The criterion of "organization" being "the maximum spread of work consistent with the minimum of time lost." This rating was formed by obtaining the product of (1) average weeks lost by all wage-earners; (2) average weeks lost by wage-earners losing time. It will be noted that this rating of organization, by placing an emphasis on the spread of employment, has changed the order derived from any previous criterion.‡

As an addenda to this rating by organization we are inserting the rating of the "Unspecified" class of industry—the object being to show how completely *unorganized* these groups are when compared even with the worst of the industries in the sample.

* It will be noted that in the textile industries and others represented in this class, a high percentage of the wage-earners are women, among whom the average duration of time lost is less than for males. This spread of employment is aided by the direct break from wage-earners status when females marry.

† In the following chapter it will be shown that occupations show this condition much more markedly than do industries.

‡ A more refined measurement of the effect of various types of industrial unemployment showing (1) the probability of the worker losing time (2) the probability of his regaining employment, appears in Chapter XI, special treatment being accorded the 122 industries in the sample used in this chapter.

LIX.—INDUSTRIES OF THE SAMPLE RANKED ACCORDING TO THE EXTENT TO WHICH UNEMPLOYMENT IS SPREAD COMMENSURATE WITH THE TIME LOST, CANADA, YEAR ENDED JUNE 1, 1931

Province	Industry	Rating[1]
Sask.	Building and structures	572
Alta.	Building and structures	572
B.C.	Fish curing and packing (Mfg.)	532
Ont.	Agricultural implements and machinery (Mfg.)	494
B.C.	Coal mining	440
B.C.	Fishing	432
N.S.	Iron smelting, converting, refining, rolling (Mfg.)	418
B.C.	Mixed and general farming	375
B.C.	Gardening—truck farming	364
N.B.	Forestry and logging	357
N.B.	Sawmill products (Mfg.)	336
Ont.	Gardening—truck farming	306
Que.	Asbestos mining	285
N.S.	Building and structures	280
N.B.	Building and structures	266
Ont.	Bricks and tile (Mfg.)	260
Ont.	Glass and its products (Mfg.)	252
Ont.	Quarries, gravel pits; salt wells	247
Alta.	Grain growing	242
Ont.	Billiard halls and sporting clubs	231
Que.	Quarries, gravel pits; salt wells	228
Que.	Men's clothing—suits, coats (Mfg.)	228
Ont.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	228
Ont.	Automobile repair service	210
N.S.	Water transportation	200
Que.	Cartage, trucking, and haulage service	200
Ont.	Wire and wire goods (Mfg.)	198
Ont.	Taxicabs, livery, and bus service	198
Man.	Hotels, restaurants, and taverns	198
N.B.	Pulp and paper (Mfg.)	190
Ont.	Sheet metal products (Mfg.)	190
Que.	Iron smelting, converting, refining, rolling (Mfg.)	190
Alta.	Hotels, restaurants, and taverns	189
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	187
B.C.	Hotels, restaurants, and taverns	184
Que.	Shipbuilding	180
Que.	Automobile repair service	180
Ont.	Hardware and tools (Mfg.)	180
Ont.	Brass and copper products (Mfg.)	162
Sask.	Hotels, restaurants, and taverns	161
Que.	Rubber products (Mfg.)	160
Que.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	153
Que.	Coal and wood (Retail Trade)	152
N.B.	Mixed and general farming	152
Ont.	Meat, poultry, and fish (Retail Trade)	147
Ont.	Coal and wood (Retail Trade)	144
Que.	Taxicabs, livery, and bus service	144
Ont.	Boots and shoes (Mfg.)	144
Ont.	Non-ferrous smelting and refining (Mfg.)	140
Ont.	Filling stations (Retail Trade)	140

[1] This rating is obtained by multiplying the average number of weeks lost by all wage-earners in the industry by the average number of weeks lost by wage-earners losing time.

LIX.—INDUSTRIES OF THE SAMPLE RANKED ACCORDING TO THE EXTENT TO WHICH UNEMPLOYMENT IS SPREAD COMMENSURATE WITH THE TIME LOST, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Industry	Rating[1]
Que.	Furniture (including upholstering) (Mfg.)	136
N.S.	Forestry and logging	136
Ont.	Woollens and worsteds (Mfg.)	135
Ont.	Nickel-copper mining and milling	133
Ont.	Hosiery and knitted goods (Mfg.)	128
Ont.	Storage	126
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	126
B.C.	Printing, publishing, and bookbinding	126
B.C.	General and departmental (Retail Trade)	126
Ont.	Barber and hairdressing shops	126
Ont.	Tanning (Mfg.)	120
Que.	Tobacco, cigars, and cigarettes (Mfg.)	120
Man.	General and departmental (Retail Trade)	119
Que.	Barber and hairdressing shops	115
Ont.	Investment and loan	115
Que.	Meat, poultry, and fish (Retail Trade)	114
Ont.	Biscuits and confectionery (Mfg.)	112
N.S.	Fishing	108
Ont.	Slaughtering and meat packing (Mfg.)	108
Que.	Boilers, engines, and machinery (Mfg.)	108
Ont.	Lodging and boarding houses	105
Ont.	Private domestic service	105
Ont.	Drugs and toilet preparations (Retail Trade)	105
Ont.	Automobiles and accessories (Retail Trade)	100
Ont.	Paper products—boxes, bags, stationery (Mfg.)	96
Que.	Bread and other bakery products (Mfg.)	95
Man.	Printing, publishing, and bookbinding	95
Ont.	Illuminating and fuel gas (Mfg.)	90
Ont.	Hardware and builders' supplies (Retail Trade)	90
N.S.	Mixed and general farming	85
Que.	Private domestic service	84
Ont.	Flour and grain milling	80
Que	Electrical apparatus (Mfg.)	80
N.S.	Steam railways	80
Ont.	Laundries; laundering	76
Que.	Dairy products (Retail Trade)	76
Que.	General and departmental (Retail Trade)	72
Que.	Hardware and builders' supplies (Retail Trade)	72
Ont.	Telegraph systems	72
Que.	Investment and loan	69
Que.	Electric light and power production and distribution	68
Ont.	Dairy products (Retail Trade)	68
Ont.	Butter, cheese, and condensed milk (Mfg.)	64
Que.	Liquors, beverages (not aerated waters) (Mfg.)	64
Ont.	Petroleum products (Mfg.)	60
N.B.	Steam railways	60
Que.	Dairy farming	60
Que.	Silk, silk goods (including artificial silk) (Mfg.)	56
Que.	Electric railways	56
Que.	Biscuits and confectionery (Mfg.)	55
Ont.	Health	54
Man.	Education	50
B.C.	Electric railways	48
B.C.	Education	48
Sask.	Education	48
Alta.	Education	44
B.C.	Pulp and paper (Mfg.)	42
Ont.	Telephone systems	42
Ont.	Electric railways	42
B.C.	Non-ferrous smelting and refining (Mfg.)	40
Que.	Health	36
Sask.	Storage	32
Que.	Telephone systems	26
Que.	Banking	20
Que.	Education	18
Ont.	Police (Municipal)	17
Ont.	National defence	17
P.E.I.	Mixed and general farming	15
Que.	Postal service	15
Que.	Police (Municipal)	14
Que.	Religion	10
Ont.	Religion	10

LX.—RATING OF UNSPECIFIED INDUSTRY GROUPS IN EACH PROVINCE ACCORDING TO THE EXTENT TO WHICH UNEMPLOYMENT IS SPREAD COMMENSURATE WITH THE TIME LOST, CANADA, YEAR ENDED JUNE 1, 1931

Province	Wage-Earners		Weeks Lost			Rating (product of Cols. 4 and 5)
				Average by		
	Total	Losing Time	Total	All Wage-Earners	Wage-Earners Losing Time	
	(1)	(2)	(3)	(4)	(5)	(6)
Prince Edward Island	1,245	706	17,607	14	24	336
Nova Scotia	10,361	6,939	187,784	18	27	486
New Brunswick	13,430	10,352	266,829	19	25	475
Quebec	53,255	38,142	1,107,470	21	29	609
Ontario	46,862	36,160	1,174,983	25	32	800
Manitoba	11,856	9,651	333,343	28	34	952
Saskatchewan	9,047	7,158	234,650	25	32	800
Alberta	7,075	5,667	188,705	26	33	858
British Columbia	15,750	12,432	439,867	27	35	945

It will also be noted that in these industries there is a greater dispersion than in most of the industries in the sample. This must not be taken to mean that these groups are well off because of this dispersion. The other side of the picture is the break-down shown by the tremendous amount of time lost by the whole group. Our contention is that *dispersion is a good condition when* (1) *the group among which the work is spread remains intact*; (2) *the total time lost by the industry is of an amount which, if evenly distributed among the wage-earners, would cause no undue individual hardship.** The unspecified groups, and a decreasing proportion as one proceeds from the least to the best organized industries, do not subscribe to either of these conditions—*their content varying with conditions in industry as a whole*, the average time lost by all members of the group being nearly six months of the working year.

It is of interest that there is apparently a considerable variation in unemployment and spread of unemployment increasing roughly from east to west.

It will be noted that the provinces showing low rates of both are areas which have been affected by an exodus of the population to large urban centres and elsewhere. These areas have no large cities with the result that many workmen of unspecified industrial attachment have drifted to large cities in other provinces. The Maritime Provinces, however, do not seem to subscribe to this trend. Their population left in great numbers years ago to homestead in the Prairie Provinces or to reside in British Columbia and the Eastern United States. Industrial specialization is less intense in the Maritime Provinces, the "unspecified" worker being in a position to turn his hand to a number of occupations, farming, fishing, fruit packing and shipping, and lumbering, often being followed by one individual in the course of a single year.

This condition reflects special characteristics in the region different from the rest of Canada.

Referring to the West, we find that Saskatchewan and Alberta show less unemployment among the "unspecified" class, than do Manitoba and British Columbia. This condition indicates an inflow into the cities of Winnipeg and Vancouver from Alberta and Saskatchewan, the result of the failure of grain farming and industries dependent on it. The point is that *the greater unemployment in British Columbia and Manitoba can not be attributed directly to industrial conditions in these two provinces but is in part due to urban absorption of workers thrown off by industries in Saskatchewan and Alberta.*

Concluding Observations.—The essential point brought out by this study is that unemployment as it affects the worker is a different story when gathered from census data than when gathered from periodic reports of employment furnished by firms. In the census, we are given information which is not available in reports on payroll personnel from month to month, *viz.*, the numbers of unemployed workers who consider themselves still connected with specific industries. Many economists seem to neglect the importance attached to this figure—perhaps because such figures are available only every ten years. This means, in essence, that two factors which are of prime importance to the individual worker are being overlooked or guessed at, *viz.*, (1) duration of unemployment, (2) dislocation of definite industrial attachment. In other words,

*See index of rigidity of industries and related material in Chap. XI.

current economic practice is to interpret unemployment (a problem connected intimately with units of the population not the industry) from the viewpoint of the industry. Is this logical? It seems that many economists are not recognizing the wage-earners' side of the question at all when talking of unemployment. When an industry shows a smaller number on the payroll this month than last they recognize that the shrinkage roughly measures unemployment but seem to refuse to recognize that in addition to this shrinkage there are workers who regard themselves as being still connected with this industry who are not employed either of these months. As pointed out previously, industries, with few exceptions, disown anyone who is not actually working for them at the moment. There is much confusion of thought on the subject of unemployment arising from the fact that economists take this attitude of the industry in interpreting current data. One example will illustrate, "Fish curing and packing" in British Columbia. According to the Census of Manufactures the average numbers employed on the monthly payrolls in the calendar years 1924, 1930 and the year ended June 1, 1931 were as follows:—

1924	2,848	
1928	7,176; + 4,328	Differences
June 1, 1930 to June 1, 1931	1,348; − 5,828	Differences

During the period 1924-28 the number of wage-earners was increasing in nearly all industries. Therefore, it is logical to assume that the wage-earner increase in the industry was drawn not from wage-earners employed in other industries but was created largely from "own accounts," young persons and immigrants.

Now let us compare the census figures of unemployed during the year previous to June 1, 1931. We find that 3,556 wage-earners reported themselves as connected with this industry, of whom 1,319 lost no time, *i.e.*, less than one week. This is a figure comparable to the number reported on the average monthly payroll. But what of the remaining 2,237? Census figures show that the average weeks worked by this group was 23. But it must be remembered that, of necessity, only a fraction of this time was work in connection with the parent industry. This is shown by the average yearly earnings per piece-worker (an aggregate of rush workers not reported on the payrolls individually) which comes to $150—which figure, at $7.50 per week, would give 20 weeks of work per piece-worker. To make up this average there are, of course, many wage-earners working practically no time during the year.

In accounting for the 5,828 wage-earners thrown out between 1928 and 1931, we may say that 2,237 still consider themselves attached to the industry although obviously the same view is not held by the industry. The rest were no doubt either on relief or, in the case of a few, engaged in own account operations. Very few had been absorbed by other industries as all industries were throwing off wage-earners.

Does not this indicate that the class losing no time was an entirely different group from those who lost time?

It has been said that if the loss of time were spread among the workers, we would still have unemployment? True, but many workers losing say 10 weeks in the year could conceivably save enough to tide them over those 10 weeks—whereas half that number losing 20 weeks could not. They would have to receive relief and also would tend to drift away from a definite industrial attachment.

Is this tendency to segregate the working population into two groups (1) with unspecified industrial attachment and (2) definitely connected with a specific industry, a desirable thing? The answer is all too plainly shown in the duration of unemployment among those losing time.

Our observations have indicated that the dispersion of unemployment, which is made up of durations of unemployment of individual workers, occurs in a manner indicating a trend to increasing differences in these individual durations as a result of an intense industrial selection.

Current theories of unemployment are mainly concerned with "real wages," price fluctuations and other criteria which have to do with business cycles. The argument is often advanced that a person employed 8 months of the year in many cases earns more during the year than a person working the full year at "marginal" or "sub-marginal" wages, and, therefore, is better off although the duration of unemployment is 4 months as against none. If this were true, and not confined

to exceptions, admittedly the duration of unemployment could be discarded as being of no moment. What are the facts? We find, in taking all male wage-earners from 40 selected occupations in each province for 1931, that there was a *marked* correlation between the *average earnings per week worked* and the *weeks worked during the year.** This means that the person working the full year worked at a higher average salary or wage than a person who lost time, and the fewer the weeks worked, the lower the rate of earnings.

This fact has been substantiated by a similar correlation between average earnings per week worked and average time lost by the 122 industries in the sample with which we have dealt.

This means that the duration of unemployment is directly reflected in dollars and cents, *i.e.*, the purchasing power of the individual worker. Concentration in employment therefore means concentration of consumption or purchasing power. This concentration undoubtedly has been aided by policies of monopolies, the restrictions of trade unions and the immobility of labour. Faulty workings of monetary mechanisms and of savings investment have their place in the general disruption of the attempts of the working population to give themselves sustenance. Reforms in this connection are no doubt desirable but, if accomplished would they significantly lower the time lost by the individual worker, the dispersion and duration of which is the real criterion of unemployment?

PART C—SPECIAL INCIDENCES OF UNEMPLOYMENT

Significance of Seasonality.—It will no doubt be thought that we have neglected to consider the influence of seasonal fluctuations upon unemployment. This omission has not been voluntary. When dealing with individual industries the only measure of seasonality obtainable is a comparison of the unemployment on June 1 as compared with the unemployment over the preceding year. It has been shown that this is really useless, because it indicates not only seasonality but the extent to which industrial conditions have been subject to an upward or a downward trend during the year considered, and also because the data does not show the monthly fluctuations.

To study the significance of this seasonality of certain industries which is so marked in Canada, it was found necessary to resort to the broad industrial classes which are used in the Dominion Bureau of Statistics' monthly index of employment.

As can be seen from Appendix 3 the industrial groups are, in the first place, not homogeneous to the same extent as the ones used in our sample. Secondly, agricultural industries are not represented. For those groups given, however, we can obtain the monthly figures of employment shown in the form of an index with the average of 1926 as a base. From these monthly figures an index of fluctuation was constructed as follows:—

The monthly figures of employment were found for each industry during the years 1929, 1930 and 1931. The mean and standard deviation of the monthly figures were calculated separately for each of the three years. The ratio represented by the standard deviation squared divided by the mean squared was averaged for the three years, and the coefficient of fluctuation expressed by the square root of this average.

As a base for the index, a similar coefficient was obtained for all industries in Canada except agriculture. This index then really represents the seasonality as based upon the average monthly fluctuation during the three years, including, and prior to the census year. The method of obtaining an index of seasonality can and should be criticized because it does not represent pure seasonality but is really an index of fluctuation composed of two elements, seasonality and the prevailing downward trend of employment, although the trend is partially eliminated by averaging the three years. However, it is deemed sufficient to indicate the relative seasonality of the period under consideration. This index is shown in Appendix 3, together with indices for 30 industries representing unemployment during the year ending June 1, 1931, female content, average earnings per week worked and age liability to unemployment. The data for the latter four indices was obtained from the 1931 Census material, and as such, the industry groups, though not quite identical with the groups furnished by the Monthly Index of Employment, are sufficiently alike to allow for this comparison.

* See *Memorandum re the Earning Power of Canadian Male and Female Workers, by Ages*, p. 18, based on data collected in the Census of 1931, published by the Dominion Bureau of Statistics, Department of Trade and Commerce.

It will be noted that the 30 industries selected out of a possible 55 were so chosen as to embrace all varieties of unemployment and also to represent each area of Canada on a *pro rata* basis.

Our object primarily is to see if the index of fluctuation adds anything to the correlation between unemployment and the degree of organization as shown by the combined weight of the three indices, (1) age, (2) female content, (3) earnings.

It was found that the correlation of these three factors with unemployment was slightly higher than was the case of the correlation of the seven factors with unemployment in the 122 industries of the sample (mainly due to differences in sample). It was further found that the index of fluctuation did not add, except in a negligible degree, to this correlation, but merely assumed a weight by drawing heavily from the age and female content. The explanation of this is that the "organization" as represented takes into account the seasonal fluctuation of the industries. In other words, the organization is shown with due allowance made for any existing seasonality in the industry. (See Appendix 3.)

We are, therefore, assuming that the same result would apply to the 122 industries in the sample, *i.e.*, the factors dealt with show in their combined effect whatever importance seasonality may have.

Industry Groups Not Dealt with in Sample.—We will now deal briefly with those groups which were not within the scope of the sample. It has been noted that three industries each of which had over 40,000 wage-earners were considered to give a false trend to the rate of unemployment. However, these industries behave precisely as similar industries having smaller bodies of wage-earners, although in the aggregate they show a far higher rate of unemployment than the average for the sample.

LXI.—NUMBER AND PERCENTAGE OF MALE WAGE-EARNERS NOT AT WORK IN THREE LARGE INDUSTRIES SHOWING HIGHER UNEMPLOYMENT THAN AVERAGE, JUNE 1, 1931

Province	Industry	Male Wage-Earners		
		Total	Not at Work June 1	
			No.	P.C.
Que.	Building and structures	44,725	13,090	29·27
Ont.	Mixed and general farming	47,730	4,844	10·15
Ont.	Building and structures	45,658	16,989	37·21
	Total	138,113	34,923	25·28

From the above figures we can see that the unemployment merely follows what would be expected from the type of the industry (see Statement L).

We now come to the group showing wage-earners specifically connected with unclassified industries. These are heterogeneous groups composed of numerous small and relatively unimportant industries. The aggregate of this group shows 231,823 wage-earners of whom 45,219 or 19·5 p.c. were not at work on June 1. The percentage unemployed is somewhat larger than the aggregate of wage-earners specifically connected with *classified* industries, where the percentage idle on June 1 was 17·6 p.c.

Wage-Earners Not Specifically Connected with Any Industry.—We now come to that group of wage-earners who have no definite industrial attachment. This group contains a preponderance of the poorest type of unskilled worker and labourer. Its main content is the transient worker (who under no circumstances would be apt to work for the full year) and the "odd jobs" man so well known in small towns all over the country. This group comprised 165,172 wage-earners, 90,091 of whom were not at work on June 1, 1931, or a percentage idle of 54·54, a loss of over half the working year.

It must not be supposed that this group takes in *all* the occupations known as labourers and unskilled workers—it merely takes in about 40 p.c. of this class of worker, which numbers 422,284, 161,631 or 38·28 p.c. of whom were not at work on June 1 (see Statement LXVII, page 177).

This shows that the unemployment is far worse in the industry group than for unskilled labour generally. We can say, then, that the better class of unskilled labour state some industrial attachment even though this may be constantly shifting. The unspecified group, however, may be said in general to verge on the unemployable and naturally organization is practically non-existent. Another way of looking at the class is that there are apparently no specialized jobs.

We can sum up the foregoing analysis in one statement. Organization of an industry means a high percentage of specialized jobs. Unemployment among this class being negligible, the unemployment in the whole industry is less. An intensive selection of workers means that while unemployment is minimized for the selected portion, the very nature of the process throws nearly the entire unemployment upon the unspecialized worker. The greater the number of highly organized industries in the country, the greater the disparity in the distribution of unemployment, organization still meaning centralization and specialization of requirements. From this we see that there is a very close relation between (1) skilled occupations and highly organized industries and (2) unskilled occupations and loosely organized industries.

We will now consider this "Unspecified" class of industrial connection and its rating on the basis of degree of organization. To do so we must refer both to the indices in the foregoing statement and to Statement LXI which shows the indices for the specific industries. We know that organization in the "Unspecified" class is virtually non-existent. This being the case, the three main factors denoting organization should show this fact. These three factors are (1) average earnings per week worked, (2) age liability to unemployment and (3) female content. A very loosely organized industry should show (1) low earnings, (2) an indifference to age content and (3) small female content.

However, we must remember that this class of industry is far from homogeneous. It is not an industry but an accumulation of rejects from all industries—obsolete occupations, unemployables, young people not properly placed, etc. Thus we see at once that the age liability to unemployment can have no real significance because of this heterogeneity of content. The index furnished above shows that the age content is practically the same as for all-Canada wage-earners, *i.e.*, the rejects are from all ages.

The earnings are very low as is the female content, both lower than any group of industries in the sample. The main feature is, however, that the process of selectivity is non-existent in this group.

LXII.—WAGE-EARNER GROUPS OF NO SPECIFIED INDUSTRIAL CONNECTIONS, SHOWING MALE WAGE-EARNERS LOSING TIME, WEEKS LOST, EARNINGS, FEMALE CONTENT AND AGE-LIABILITY TO UNEMPLOYMENT, CANADA, BY PROVINCES, YEAR ENDED JUNE 1, 1931

Province	Male Wage-Earners				Weeks Lost				Weeks Worked	Earnings			Female Wage-Earners			Age Liability to Unemployment
	Total	Losing Time			Total	Average				Total $00	Av. per Week Worked	Index	No.	P.C.	Index	
		No.	P.C.	Index		No.	P.C. of Year	Index								
Prince Edward Island	1,231	698	56·70	129	17,375	14·11	27·13	132	41,248	3,970	9·62	43	14	1·14	5	89
Nova Scotia	10,247	6,882	67·16	153	185,989	18·15	34·90	170	302,408	28,511	9·43	42	114	1·11	5	98
New Brunswick	13,317	10,295	77·31	176	264,854	19·89	38·25	187	396,131	37,806	9·54	42	113	0·85	4	98
Quebec	51,963	37,691	72·53	165	1,094,345	21·06	40·50	198	1,487,054	189,021	12·71	56	1,292	2·49	12	·99
Ontario	45,478	35,453	77·96	177	1,149,239	25·27	48·60	237	1,094,387	138,466	12·65	56	1,384	3·04	14	100
Manitoba	11,623	9,490	81·65	186	326,883	28·12	54·08	264	249,243	26,775	10·74	48	233	2·00	9	100
Saskatchewan	8,876	7,031	79·21	180	229,277	25·83	49·67	242	204,577	20,919	10·23	45	171	1·93	9	100
Alberta	6,928	5,558	80·23	182	184,189	26·59	51·13	249	164,174	19,371	11·80	52	147	2·12	10	100
British Columbia	15,509	12,258	79·04	180	432,881	27·91	53·67	262	271,221	38,587	14·23	63	241	1·55	7	100

Significance of Female Content.—On the *a priori* consideration that females were considered more desirable for clerical and office jobs as well as for certain positions in highly organized professions such as education and health, Statement LXIII was constructed for the 122 industries given in the sample, showing the number of males and females who were in the above-mentioned occupations and their relation to the total males and females in the industries. This statement shows that the majority of females are engaged in the aforementioned occupations, which are mostly full-time jobs and that the majority of males are not so engaged.

LXIII.—NUMBER OF WAGE-EARNERS AND NUMBER IN CLERICAL OCCUPATIONS IN THE 122 INDUSTRIES OF THE SAMPLE, BY SEX, CANADA, JUNE 1, 1931

Province	Industry	Both Sexes			Male		Female	
		Total Wage-Earners	Clerical Occupations[1,2]		Total Wage-Earners	Clerical Occupations[1]	Total Wage-Earners	Clerical Occupations[2]
			No.	P.C.				
	TOTAL SAMPLE	640,552	138,812	21·6	410,490	65,209	230,122	73,603
B.C.	Fishing	3,047	14	0·46	3,029	13	18	1
Sask.	Building and structures	5,039	53	1·05	5,016	32	23	21
Alta.	Building and structures	5,178	77	1·49	5,139	39	39	38
Que.	Asbestos mining	2,810	83	2·95	2,787	62	23	21
B.C.	Fish curing and packing (Mfg.)	3,556	148	4·16	3,000	114	556	34
N.B.	Forestry and logging	3,120	17	0·54	3,109	13	11	4
B.C.	Coal mining	4,834	38	0·78	4,822	26	12	12
Ont.	Agricultural implements and machinery (Mfg.)	5,390	612	11·35	5,154	407	236	205
N.S.	Iron smelting, converting, refining, rolling (Mfg.)	3,294	177	5·35	3,227	124	67	53
Que.	Men's clothing—suits, coats (Mfg.)	5,699	221	3·88	3,215	101	2,484	120
Ont.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	5,887	323	5·48	2,136	46	3,751	277
B.C.	Mixed and general farming	6,092	9	0·14	5,991	5	101	4
N.B.	Sawmill products (Mfg.)	2,774	72	2·59	2,745	46	29	26
N.S.	Forestry and logging	2,316	4	0·17	2,293	4	23	–
N.S.	Building and structures	4,958	53	1·06	4,923	25	35	28
N.B.	Building and structures	3,239	45	1·39	3,219	25	20	20
N.S.	Water transportation	5,024	201	4·00	4,968	158	56	43
Que.	Shipbuilding	2,708	123	4·54	2,696	116	12	7
Man.	Hotels, restaurants, and taverns	4,878	342	7·01	2,741	240	2,137	102
Que.	Quarries, gravel pits; salt wells	2,588	54	2·08	2,582	50	6	4
N.B.	Pulp and paper (Mfg.)	2,729	176	6·44	2,640	95	89	81
Ont.	Wire and wire goods (Mfg.)	2,878	232	8·06	2,578	193	300	129
Ont.	Coal and wood (Retail Trade)	3,615	602	16·65	3,252	249	363	353
B.C.	Gardening—truck farming	2,167	–	–	2,136	–	31	–
B.C.	Hotels, restaurants, and taverns	8,491	635	7·47	5,889	442	2,602	193
Que.	Iron smelting, converting, refining, rolling (Mfg.)	3,777	435	11·52	3,576	297	201	138
Que.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	8,754	468	5·35	2,048	125	6,706	343
Ont.	Bricks and tile (Mfg.)	2,165	68	3·14	2,104	29	61	39
Ont.	Automobile repair service	4,548	163	3·58	4,457	84	91	79
Que.	Cartage, trucking, and haulage service	5,674	140	2·47	5,643	114	31	26
Que.	Automobile repair service	2,486	51	2·05	2,463	32	23	19
Ont.	Sheet metal products (Mfg.)	2,690	309	11·48	2,344	151	346	158
Ont.	Glass and its products (Mfg.)	2,179	172	7·89	2,012	87	167	85
Ont.	Hardware and tools (Mfg.)	3,901	311	7·97	3,510	118	391	193
Sask.	Hotels, restaurants, and taverns	3,762	249	6·62	2,235	201	1,527	48
Que.	Rubber products (Mfg.)	4,245	481	11·35	2,875	298	1,370	183
Ont.	Taxicabs, livery, and bus service	2,660	155	5·82	2,587	82	73	73
Ont.	Quarries, gravel pits; salt wells	2,840	79	2·81	2,805	52	35	27
Ont.	Brass and copper products (Mfg.)	2,996	301	10·04	2,729	158	267	143
Que.	Coal and wood (Retail Trade)	2,594	407	15·69	2,453	283	141	124
Ont.	Nickel-copper mining and milling	2,507	44	1·75	2,497	35	10	9
Alta.	Grain growing	2,121	1	0·04	2,112	1	9	–
Alta.	Hotels, restaurants, and taverns	5,857	508	8·67	3,792	353	2,065	155
N.B.	Mixed and general farming	5,343	3	0·05	5,323	–	20	3
Que.	Taxicabs, livery, and bus service	4,076	71	1·74	4,044	43	32	28
Ont.	Boots and shoes (Mfg.)	4,878	219	4·47	3,313	81	1,565	138
Que.	Furniture (including upholstering) (Mfg.)	2,880	174	6·04	2,748	118	132	56
Que.	Boilers, engines, and machinery (Mfg.)	4,985	475	9·53	4,676	252	309	223
Ont.	Petroleum products (Mfg.)	3,068	411	13·39	2,877	242	191	169
B.C.	Printing, publishing, and bookbinding	2,455	326	13·28	2,098	149	357	177
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	4,692	162	3·45	2,717	65	1,975	97
Ont.	Gardening—truck farming	3,236	3	0·09	3,200	–	36	3
Ont.	Meat, poultry, and fish (Retail Trade)	5,100	217	4·25	4,867	46	233	171
Ont.	Barber and hairdressing shops	3,793	29	0·76	2,553	1	1,240	28
Man.	General and departmental (Retail Trade)	8,404	2,210	26·29	3,985	583	4,419	1,627
Ont.	Non-ferrous smelting and refining (Mfg.)	2,964	94	3·17	2,941	76	23	18
Que.	Electrical apparatus (Mfg.)	5,462	1,117	20·45	4,256	567	1,206	550
Ont.	Storage	3,428	392	11·43	3,237	264	191	128
B.C.	General and departmental (Retail Trade)	4,881	908	18·60	2,339	190	2,542	718
Ont.	Investment and loan	6,289	3,569	56·75	4,399	1,720	1,890	1,849
Que.	Meat, poultry, and fish (Retail Trade)	4,743	211	4·45	4,516	57	227	154
Ont.	Telegraph systems	3,085	1,969	63·82	2,741	1,643	344	326
Que.	Barber and hairdressing shops	3,096	33	1·06	2,133	10	963	23
Ont.	Hosiery and knitted goods (Mfg.)	7,058	523	7·41	2,721	136	4,337	387
Ont.	Billiard halls and sporting clubs	3,784	325	8·59	3,297	191	487	134
Man.	Printing, publishing, and bookbinding	2,725	402	14·75	2,145	137	580	265
Ont.	Slaughtering and meat packing (Mfg.)	4,377	494	11·28	3,993	385	384	109
Ont.	Woollens and worsteds (Mfg.)	5,523	304	5·50	3,056	127	2,467	177
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	3,083	375	12·16	2,795	212	288	163
Que.	Bread and other bakery products (Mfg.)	5,329	210	3·94	5,105	130	224	80
N.S.	Steam railways	4,505	442	9·81	4,405	365	100	77
Que.	Biscuits and confectionery (Mfg.)	3,328	280	8·41	2,011	153	1,317	127
Que.	Tobacco, cigars, and cigarettes (Mfg.)	6,176	482	7·80	2,946	283	3,230	199

[1] Includes clergy, doctors, telegraph and telephone operators and permanent government positions.
[2] Includes teachers, nurses, telegraph and telephone operators and permanent government positions.

LXIII.—NUMBER OF WAGE-EARNERS AND NUMBER IN CLERICAL OCCUPATIONS IN THE 122 INDUSTRIES OF THE SAMPLE, BY SEX, CANADA, JUNE 1, 1931—Con.

Province	Industry	Both Sexes			Male		Female	
		Total Wage-Earners	Clerical Occupations[1,2]		Total Wage-Earners	Clerical Occupations[1]	Total Wage-Earners	Clerical Occupations[2]
			No.	P.C.				
N.S.	Mixed and general farming	5,399	10	0·18	5,368	3	31	7
N.S.	Fishing	2,819	8	0·28	2,808	5	11	3
Ont.	Paper products—boxes, bags, stationery (Mfg.)	4,680	570	12·18	2,839	207	1,841	363
Ont.	Private domestic service	49,274	228	0·48	4,389	14	44,885	214
Ont.	Biscuits and confectionery (Mfg.)	5,153	420	8·15	2,725	197	2,428	223
Ont.	Telephone systems	10,812	6,747	62·40	4,344	856	6,468	5,991
Ont.	Drugs and toilet preparations (Retail Trade)	3,180	133	4·18	2,555	32	625	101
Ont.	Tanning (Mfg.)	2,482	135	5·44	2,312	61	170	74
Que.	Telephone systems	6,517	4,356	66·84	2,690	691	3,827	3,665
Que.	General and departmental (Retail Trade)	10,442	1,520	14·55	5,318	484	5,124	1,036
Que.	Private domestic service	46,358	230	0·49	4,335	8	42,023	222
Ont.	Hardware and builders' supplies (Retail Trade)	4,267	753	17·64	3,624	245	643	508
Que.	Electric light and power production and distribution	5,291	985	18·61	4,891	608	400	377
N.B.	Steam railways	5,881	873	14·84	5,680	686	201	187
Ont.	Lodging and boarding houses	3,193	49	1·53	2,249	16	944	33
Sask.	Storage	3,003	105	3·49	2,962	64	41	41
Que.	Investment and loan	4,185	2,850	68·10	2,997	1,694	1,188	1,156
Ont.	Flour and grain milling	2,701	252	9·33	2,523	109	178	143
Ont.	Automobiles and accessories (Retail Trade)	3,881	701	18·06	3,484	326	397	375
Ont.	Filling stations (Retail Trade)	2,312	83	3·59	2,257	52	55	31
Ont.	Laundries; laundering	4,211	233	5·53	2,493	31	1,718	202
Que.	Hardware and builders' supplies (Retail Trade)	2,776	499	17·97	2,455	304	321	195
Que.	Dairy farming	4,899	1	0·02	4,839	–	60	1
Que.	Liquors, beverages (not aerated waters) (Mfg.)	2,473	282	11·40	2,263	198	210	84
Ont.	Illuminating and fuel gas (Mfg.)	2,604	435	16·70	2,366	207	238	228
Que.	Silk, silk goods (including artificial silk) (Mfg.)	5,502	366	6·65	3,071	157	2,431	209
Ont.	Dairy products (Retail Trade)	5,542	569	10·27	5,106	218	436	351
B.C.	Pulp and paper (Mfg.)	2,925	149	5·09	2,842	101	83	48
B.C.	Electric railways	2,347	258	10·99	2,203	138	144	120
Que.	Electric railways	4,956	392	7·91	4,823	268	133	124
Que.	Dairy products (Retail Trade)	2,479	263	10·61	2,368	198	111	65
Ont.	Electric railways	6,020	462	7·67	5,861	314	159	148
Sask.	Education	9,006	8,345	92·66	3,169	3,117	5,897	5,228
Ont.	Butter, cheese, and condensed milk (Mfg.)	3,306	301	9·10	2,992	105	314	196
Ont.	Health	15,105	10,881	72·03	4,085	3,270	11,020	7,611
Que.	Health	7,750	5,154	66·50	2,283	1,826	5,467	3,328
Man.	Education	6,413	5,941	92·64	2,041	1,939	4,372	4,002
B.C.	Non-ferrous smelting and refining (Mfg.)	3,311	144	4·35	3,256	102	55	42
Alta.	Education	7,092	6,514	91·85	2,420	2,299	4,672	4,215
B.C.	Education	5,907	5,444	92·16	2,151	2,044	3,756	3,400
Que.	Banking	7,699	5,683	73·81	5,933	3,960	1,766	1,723
P.E.I.	Mixed and general farming	2,055	3	0·15	2,046	1	9	2
Que.	Postal service	4,279	3,834	89·60	3,492	3,389	787	545
Que.	Police (Municipal)	2,300	2,240	97·39	2,285	2,228	15	12
Que.	Education	20,929	19,709	94·17	5,843	5,551	15,086	14,158
Ont.	National defence	2,605	2,326	89·29	2,528	2,258	77	68
Ont.	Religion	6,237	5,734	91·93	5,392	5,127	845	607
Ont.	Police (Municipal)	2,514	2,367	94·15	2,454	2,331	60	36
Que.	Religion	4,667	3,992	85·53	4,114	3,909	553	83
All-Canada wage-earners		2,570,097	239,882	9·33	2,022,260	123,749	547,837	116,133

Here we see that females are numerically larger in clerical and professional services than are males, although in the sample there are nearly twice as many males as females.

As a test to determine the validity of our assumption that the organization of the industry was really shown by the total weight of (1) female content, (2) earnings and (3) age liability to unemployment, an index was constructed showing the percentage of the wage-earners (male and female combined) who belonged to office and clerical occupations, which appeared quite representative of the organization of the industry. *It was found that this index correlated with the unemployment index* (X_{10}) *to almost exactly the same extent as the combined weight of the three factors mentioned above,* and that the weights of the three factors were negligible in a partial correlation with this index introduced as a fourth factor. Thus we feel safe in saying that the degree of organization of the industry as shown by the structure of the personnel is the main factor influencing unemployment and that any attempt to satisfactorily solve this problem must be through this approach, *i.e.*, through the study of the abnormal distribution of the time lost among the wage-earners, knowing that this abnormal distribution is mainly the result of the process of organization.

Unemployment among Females.—We have up to this point concerned ourselves only with unemployment among males. A study of female unemployment conducted with regard to industrial attachment is very unsatisfactory in that females are preponderantly found in certain occupations rather than industries. By far the greater percentage of female wage-earners are engaged in the occupations shown in the statement below.

LXIV.—NUMBER AND PERCENTAGE OF FEMALE WAGE-EARNERS IN CERTAIN OCCUPATIONS, PERCENTAGE LOSING TIME AND PERCENTAGE OF TIME LOST, CANADA, YEAR ENDED JUNE 1, 1931

Occupation	Female Wage-Earners			P.C. of Time Lost during Year
	No.	As P.C. of Total	P.C. Losing Time	
All occupations	547,837	100·00	25·14	10·17
Textile workers	49,329	9·00	52·48	18·88
Telegraph and telephone operators	15,102	2·76	21·08	6·27
Saleswomen	42,831	7·83	28·47	11·86
Nurses—graduate and in training	17,888	3·27	14·90	5·88
Teachers—school	55,248	10·08	7·36	3·67
Domestic servants	126,699	23·13	21·48	9·62
Housekeepers and matrons	21,536	3·93	14·75	6·54
Waitresses	12,561	2·29	36·70	15·00
Clerical occupations	116,133	21·20	17·41	7·33
Total	457,327	83·48	44·31	9·27

It can be readily seen that the only occupation above which is widely distributed among industries is "Clerical." We may say that the larger the percentage of wage-earners who are in clerical occupations in an industry, the more organized and centralized is that industry. The remaining occupations are typically female and for the most part are relatively full-time in well organized industries. The point to be stressed is that where females are in occupations which are not found in highly organized industries they suffer very nearly as much unemployment as do males (see Textiles), showing that it is not the sex difference which causes a low rate of unemployment among females, but rather the fact that females are concentrated in favoured occupations in organized industries, (*e.g.*, telephone operators, clerical, teachers, nurses).

It has been shown that the percentage of females in the industry correlates highly with the degree of organization of the industry, showing that the exceptions (notably textile workers) are few. This fact is again emphasized when we consider "banking." Banking is admittedly a highly organized industry and shows small unemployment. However, in the rating by organization it appears among the relatively loosely organized industries. The reason for this is that females have not taken over junior clerical positions in banking to nearly the same extent as in other industries. This has upset both the "age" and "female content," important factors in the organization rating. Thus banking, if it followed the practice of other industries and employed mostly female juniors, tellers, etc., would have appeared in its real organization rating—since the female content would have been increased and, the age of the male wage-earners being higher as a result of males being found mainly in the responsible positions, there would be a favourable "age liability of unemployment." To obtain an estimate of any differences which might occur among the industries in the sample, a tabular statement was compiled both of the percentage average time lost during the year by male and female wage-earners combined, and of the percentage wage-earners (male and female combined) who lost any time during the year. Statement LXV shows the industries in order of male unemployment side by side with similar figures for total wage-earners. It is interesting to note the percentage differences. Of course, there is a very important factor to be considered, *viz.*, the proportion of female workers to male. The size of the female group would naturally have considerable effect upon the difference in percentage. Accordingly in Statement LXV will be found the number of male wage-earners and also the total wage-earners in each industry. It will be seen, however, that there are very few differences in the percentage of time lost between male and all wage-earners. In industries where females are confined to the clerical staff or otherwise comprise a small percentage of the total workers, the average time lost by all is only slightly lowered as would be expected. In this connection refer to Statement LXIII, showing the numbers of office employees both male and female. In some

industries where females are competing with males in such establishments as certain textile mills, rubber products factories, biscuit and confectionery manufacturing plants, we find that unemployment is much larger among females. In other industries where competitive conditions as between males and females are equally operative, we find, however, that females show a lower rate of unemployment than do males. Some examples are fish curing and packing in British Columbia, and one of the textile industries, the manufacturing of women's clothing, in Ontario.

LXV.—TOTAL AND MALE WAGE-EARNERS IN THE 122 INDUSTRIES OF THE SAMPLE, AND DIFFERENCES BETWEEN TOTAL AND MALE IN PERCENTAGES OF AVERAGE TIME LOST AND PERCENTAGES LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931

Province	Industry	Wage-Earners		Average Time Lost as P.C. of Year by			P.C. Losing Time of		
		Male (1)	Total (2)	Male Wage-Earners (3)	Total Wage-Earners (4)	Difference (Col. 4—Col. 3) (5)	Male Wage-Earners (6)	Total Wage-Earners (7)	Difference (Col. 7—Col. 6) (8)
Sask.	Building and structures	5,016	5,039	43·40	43·27	−0·13	76·31	76·11	−0·20
Alta.	Building and structures	5,139	5,178	43·11	42·90	−0·21	77·91	77·54	−0·37
B.C.	Fish curing and packing (Mfg.)	3,000	3,556	42·11	37·56	−4·55	70·66	62·91	−7·75
B.C.	Coal mining	4,822	4,834	38·84	38·81	−0·03	81·00	80·88	−0·12
Ont.	Agricultural implements and machinery (Mfg.)	5,154	5,390	38·75	37·46	−1·29	68·54	66·53	−2·01
N.S.	Iron smelting, converting, refining, rolling (Mfg.)	3,227	3,294	37·46	36·90	−0·56	79·67	78·72	−0·95
B.C.	Fishing	3,029	3,047	34·98	34·88	−0·10	66·62	66·42	−0·20
N.B.	Forestry and logging	3,109	3,120	34·05	34·04	−0·01	74·46	74·42	−0·04
N.B.	Sawmill products (Mfg.)	2,745	2,774	32·03	31·96	−0·07	72·53	72·13	−0·40
Que.	Asbestos mining	2,787	2,810	30·67	30·50	−0·17	76·13	75·66	−0·47
B.C.	Mixed and general farming	5,991	6,092	29·61	29·33	−0·28	54·89	54·35	−0·54
N.S.	Building and structures	4,923	4,958	28·34	28·19	−0·15	65·59	65·19	−0·40
B.C.	Gardening—truck farming	2,136	2,167	27·88	27·83	−0·05	49·34	49·24	−0·10
Ont.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	2,136	5,887	27·65	23·04	−4·61	63·48	57·80	−5·68
N.B.	Building and structures	3,219	3,239	27·13	27·00	−0·13	64·05	63·69	−0·36
Ont.	Bricks and tile (Mfg.)	2,104	2,165	26·69	26·19	−0·50	60·55	59·63	−0·92
Ont.	Quarries, gravel pits; salt wells	2,805	2,840	26·65	26·56	−0·09	63·03	62·75	−0·28
Que.	Men's clothing—suits, coats (Mfg.)	3,215	5,699	25·44	24·17	−1·27	57·20	58·33	1·13
Ont.	Glass and its products (Mfg.)	2,012	2,179	25·36	24·81	−0·55	56·46	55·30	−1·16
Ont.	Gardening—truck farming	3,200	3,236	24·01	24·06	0·05	47·93	47·84	−0·07
Que.	Quarries, gravel pits; salt wells	2,582	2,588	23·13	23·11	−0·02	56·15	56·07	−0·08
Alta.	Grain growing	2,112	2,121	22·71	22·71	-	47·44	47·38	−0·06
Ont.	Cotton goods—yarn, cloth, thread (Mfg.)	2,717	4,692	22·61	22·46	−0·15	59·03	59·78	0·75
Ont.	Billiard halls and sporting clubs	3,297	3,784	22·28	21·85	−0·43	47·95	47·23	−0·72
Ont.	Wire and wire goods (Mfg.)	2,578	2,878	21·98	21·23	−0·75	55·23	53·61	−1·62
Ont.	Hardware and tools (Mfg.)	3,510	3,901	21·88	20·96	−0·92	56·32	54·22	−2·10
Ont.	Automobile repair service	4,457	4,548	21·00	20·85	−0·15	45·86	45·51	−0·35
Ont.	Sheet metal products (Mfg.)	2,344	2,690	20·98	19·86	−1·12	50·63	48·81	−1·82
Que.	Shipbuilding	2,696	2,708	20·75	20·73	−0·02	52·15	52·03	−0·12
N.B.	Pulp and paper (Mfg.)	2,640	2,729	20·69	20·25	−0·44	51·17	50·16	−1·01
Que.	Iron smelting, converting, refining, rolling (Mfg.)	3,576	3,777	20·84	20·13	−0·71	49·38	47·79	−1·59
Man.	Hotels, restaurants, and taverns	2,741	4,878	20·13	18·02	−2·11	38·63	37·94	−0·69
Que.	Cartage, trucking, and haulage service	5,643	5,674	19·80	19·73	−0·07	45·96	45·81	−0·15
Alta.	Hotels, restaurants, and taverns	3,792	5,857	19·73	19·06	−0·67	40·47	41·15	0·68
Ont.	Brass and copper products (Mfg.)	2,729	2,996	19·59	18·98	−0·61	49·50	48·33	−1·17
N.S.	Water transportation	4,968	5,024	19·34	19·19	−0·15	45·14	44·86	−0·28
Que.	Rubber products (Mfg.)	2,875	4,245	19·26	20·36	1·10	56·48	59·27	2·79
Ont.	Boots and shoes (Mfg.)	3,313	4,878	19·26	18·23	−1·03	52·39	51·31	−1·08
Que.	Automobile repair service	2,463	2,486	19·17	19·15	−0·02	44·82	44·81	−0·01
Ont.	Taxicabs, livery, and bus service	2,587	2,660	18·90	18·54	−0·36	40·12	39·37	−0·75
Ont.	Woollens and worsteds (Mfg.)	3,056	5,523	17·94	18·71	0·77	53·07	56·13	3·06
Que.	Coal and wood (Retail Trade)	2,453	2,594	17·63	17·11	−0·52	43·70	42·25	−1·45
N.S.	Forestry and logging	2,293	2,316	17·09	17·06	−0·03	45·83	45·64	−0·19
B.C.	Hotels, restaurants, and taverns	5,889	8,491	17·13	17·25	0·12	32·04	34·40	2·36
Ont.	Coal and wood (Retail Trade)	3,252	3,615	16·51	15·54	−0·97	43·66	41·16	−2·50
Ont.	Hosiery and knitted goods (Mfg.)	2,721	7,058	16·09	16·94	0·85	44·83	48·60	3·77
Que.	Tobacco, cigars, and cigarettes (Mfg.)	2,946	6,176	15·92	17·25	1·33	44·70	51·17	6·47
Que.	Furniture (including upholstering) (Mfg.)	2,748	2,880	15·86	15·71	−0·15	44·25	43·58	−0·67
Que.	Women's clothing—skirts, cloaks, waists (including children's wear) (Mfg.)	2,048	8,754	15·67	17·50	1·83	42·67	48·41	5·74
Que.	Taxicabs, livery, and bus service	4,044	4,076	15·65	15·65	-	36·96	36·85	−0·11
N.B.	Mixed and general farming	5,323	5,343	15·42	15·42	-	38·51	38·44	−0·07
Ont.	Tanning (Mfg.)	2,312	2,482	15·30	15·36	0·06	46·92	46·66	−0·26
Ont.	Nickel-copper mining and milling	2,497	2,507	14·82	14·79	−0·03	36·08	35·98	−0·10
Ont.	Liquors, beverages (not aerated waters) (Mfg.)	2,795	3,083	14·73	15·25	0·52	37·10	37·85	0·75
Sask.	Hotels, restaurants, and taverns	2,235	3,762	14·53	14·23	−0·30	27·24	28·95	1·71
Ont.	Storage	3,237	3,428	14·65	14·56	−0·09	36·39	36·20	−0·19
Ont.	Meat, poultry, and fish (Retail Trade)	4,867	5,100	14·23	13·86	−0·37	32·05	31·35	−0·70
Ont.	Private domestic service	4,389	49,274	13·92	9·63	−4·29	30·71	21·17	−9·54
Ont.	Filling stations (Retail Trade)	2,257	2,312	13·86	13·81	−0·05	32·78	32·44	−0·34
Que.	Boilers, engines, and machinery (Mfg.)	4,676	4,985	13·59	13·10	−0·49	35·71	34·28	−1·43

LXV.—TOTAL AND MALE WAGE-EARNERS IN THE 122 INDUSTRIES OF THE SAMPLE, AND DIFFERENCES BETWEEN TOTAL AND MALE IN PERCENTAGES OF AVERAGE TIME LOST AND PERCENTAGES LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Industry	Wage-Earners		Average Time Lost as P.C. of Year by			P.C. Losing Time of		
		Male (1)	Total (2)	Male Wage-Earners (3)	Total Wage-Earners (4)	Difference (Col. 4—Col. 3) (5)	Male Wage-Earners (6)	Total Wage-Earners (7)	Difference (Col. 7—Col. 6) (8)
Ont.	Barber and hairdressing shops	2,553	3,793	13·53	12·94	−0·59	29·02	27·89	−1·13
Ont.	Non-ferrous smelting and refining (Mfg.)	2,941	2,964	13·63	13·65	0·02	32·13	32·12	−0·01
Que.	Biscuits and confectionery (Mfg.)	2,011	3,328	13·40	15·42	2·02	35·75	41·10	5·35
Ont.	Biscuits and confectionery (Mfg.)	2,725	5,153	12·96	14·96	2·00	34·93	41·98	7·05
N.S.	Fishing	2,808	2,819	12·78	12·81	0·03	32·37	32·39	0·02
Ont.	Slaughtering and meat packing (Mfg.)	3,993	4,377	12·53	12·52	−0·01	32·33	32·31	−0·02
Que.	Meat, poultry, and fish (Retail Trade)	4,516	4,743	12·00	11·77	−0·23	29·42	28·76	−0·66
B.C.	Printing, publishing, and bookbinding	2,098	2,455	11·94	11·96	0·02	26·45	26·68	0·23
Que.	Barber and hairdressing shops	2,133	3,096	11·76	10·94	−0·82	27·33	25·42	−1·91
Ont.	Paper products—boxes, bags, stationery (Mfg.)	2,839	4,680	11·61	12·69	1·08	32·22	36·58	4·36
Que.	Private domestic service	4,335	46,358	11·75	8·40	−3·35	25·12	18·99	−6·13
Que.	Bread and other bakery products (Mfg.)	5,105	5,329	11·48	11·40	−0·08	27·91	27·77	−0·14
Man.	General and departmental (Retail Trade)	3,985	8,404	11·21	13·67	2·46	32·02	36·64	4·62
Ont.	Petroleum products (Mfg.)	2,877	3,068	11·19	10·85	−0·34	43·62	41·66	−1·96
Que.	Electrical apparatus (Mfg.)	4,256	5,462	11·01	10·71	−0·30	31·83	31·27	−0·56
Ont.	Investment and loan	4,399	6,289	11·09	10·08	−0·01	20·09	19·61	−0·48
Ont.	Illuminating and fuel gas (Mfg.)	2,366	2,604	11·17	10·67	−0·50	28·10	26·65	−1·45
B.C.	General and departmental (Retail Trade)	2,339	4,881	10·90	11·75	0·85	24·71	26·55	1·84
N.S.	Steam railways	4,405	4,505	10·59	10·46	−0·13	31·32	30·92	−0·40
N.S.	Mixed and general farming	5,368	5,399	10·75	10·73	−0·02	29·04	28·95	−0·09
Ont.	Lodging and boarding houses	2,249	3,193	10·76	10·25	−0·51	23·43	22·58	−0·85
Ont.	Hardware and builders' supplies (Retail Trade)	3,624	4,267	10·42	9·75	−0·67	26·07	24·58	−1·49
Ont.	Automobiles and accessories (Retail Trade)	3,484	3,881	10·44	10·33	−0·11	24·22	23·94	−0·28
Man.	Printing, publishing, and bookbinding	2,145	2,725	10·03	10·69	0·66	24·70	25·76	1·06
Ont.	Drugs and toilet preparations (Retail Trade)	2,555	3,180	9·86	9·69	−0·17	21·01	21·45	0·44
Ont.	Flour and grain milling	2,523	2,701	9·94	9·63	−0·31	28·73	28·03	−0·70
Ont.	Laundries; laundering	2,493	4,211	9·15	9·62	0·47	19·14	23·53	4·39
Que.	Silk, silk goods (including artificial silk) (Mfg.)	3,071	5,502	9·15	9·56	0·41	27·74	30·52	2·78
Ont.	Butter, cheese, and condensed milk (Mfg.)	2,992	3,306	9·05	9·34	0·29	25·56	26·13	0·57
Ont.	Telegraph systems	2,741	3,085	8·90	8·65	−0·25	22·29	22·20	−0·09
Que.	General and departmental (Retail Trade)	5,318	10,442	8·76	9·56	0·80	21·60	23·87	2·27
Que.	Hardware and builders' supplies (Retail Trade)	2,455	2,776	8·86	8·69	−0·17	21·75	21·40	−0·35
Ont.	Telephone systems	4,344	10,812	8·59	7·15	−1·44	25·66	23·90	−1·76
N.B.	Steam railways	5,680	5,881	8·69	8·54	−0·15	26·61	26·34	−0·27
Que.	Liquors, beverages (not aerated waters) (Mfg.)	2,263	2,473	8·55	7·63	−0·92	28·19	22·37	−5·72
Que.	Electric light and power production and distribution	4,891	5,291	8·42	8·06	−0·36	23·20	22·23	−0·97
Ont.	Dairy products (Retail Trade)	5,106	5,542	8·42	8·35	−0·07	22·81	22·68	−0·13
Que.	Electric railways	4,823	4,956	8·34	8·21	−0·13	26·93	26·49	−0·44
Que.	Dairy products (Retail Trade)	2,368	2,479	8·21	8·31	0·10	20·31	20·37	0·06
B.C.	Non-ferrous smelting and refining (Mfg.)	3,256	3,311	7·90	7·79	−0·11	35·13	34·82	−0·31
Que.	Investment and loan	2,997	4,185	7·57	7·33	−0·24	14·48	14·67	0·19
B.C.	Pulp and paper (Mfg.)	2,842	2,925	7·36	7·54	0·18	26·28	26·39	0·11
Ont.	Electric railways	5,861	6,020	7·36	7·25	−0·11	25·26	24·95	−0·31
Que.	Telephone systems	2,690	6,517	7·23	5·62	−1·61	24·23	20·16	−4·07
Que.	Dairy farming	4,839	4,899	6·88	6·83	−0·05	16·34	16·17	−0·17
B.C.	Electric railways	2,203	2,347	6·69	6·60	−0·09	19·51	19·05	−0·46
Ont.	Health	4,085	15,105	6·38	6·25	−0·13	16·42	16·05	−0·37
Que.	Health	2,283	7,750	5·32	4·67	−0·65	14·71	12·30	−2·41
Sask.	Storage	2,962	3,003	5·05	5·04	−0·01	14·48	14·42	−0·06
Sask.	Education	3,169	9,006	4·67	5·69	1·02	10·38	11·12	0·74
Man.	Education	2,041	6,413	4·09	4·77	0·68	8·42	8·86	0·44
B.C.	Education	2,151	5,907	4·13	5·06	0·93	9·29	9·89	0·60
P.E.I.	Mixed and general farming	2,046	2,055	3·75	3·75	–	11·24	11·24	–
Alta.	Education	2,420	7,092	3·46	4·60	1·14	8·01	9·12	1·11
Que.	Banking	5,933	7,699	3·25	2·96	−0·29	6·92	6·70	−0·22
Que.	Education	5,843	20,929	2·53	2·44	−0·09	6·22	5·80	−0·42
Que.	Postal service	3,492	4,279	2·13	2·23	0·10	6·81	6·73	−0·08
Que.	Police (Municipal)	2,285	2,300	2·07	2·08	0·01	6·91	6·87	−0·04
Ont.	National defence	2,528	2,605	1·86	1·92	0·06	5·34	5·45	0·11
Ont.	Police (Municipal)	2,454	2,514	1·86	1·94	0·08	5·58	5·77	0·19
Ont.	Religion	5,392	6,237	1·21	1·54	0·33	2·85	3·64	0·79
Que.	Religion	4,114	4,667	1·09	1·23	0·14	2·89	3·13	0·24
	Total	410,490	640,552	15·58			36·44		
All Canada		2,022,260	2,570,097	20·55	18·35		34·62	39·98	

Clearly there is no evidence that females *per se* are less liable to unemployment than males on the basis of cursory analysis by industry. This is, of course, foreign to the popular conception of a lower rate of unemployment among females. The statement has significance only when qualified by the phrase "due to concentration in favoured occupations in which competition is solely female *vs.* female." There are, of course, male occupation groups where competition is entirely among males and limited to about the same extent as in the aforementioned female groups. In these groups we find, if anything, males show lower unemployment than females.

While males furnish little direct competition for women's occupations, females are, in most occupations which are open to either sex, constantly encroaching and successfully competing with males, particularly the young male with commercial ambitions. To make a *real* estimate of differences in unemployment due to sex, we must have uniform conditions of (1) supply of labour, (2) dispersion of labour among industries. If these two factors were equalized between the sexes, competition would be at least on a comparable basis. It is our contention that the lower rate of female unemployment is due (1) to the limited *constant* supply, (2) to the restricted nature of most female occupations, *i.e.*, once the occupation is feminized it remains so.

1. *The Limited Constant Supply of Female Labour.*—To explain this phase let us first consider the male wage-earner. Once a male becomes a wage-earner he remains a wage-earner until he dies or becomes defective as a worker (ceases to be a member of the population). The only possibility of his changing his status is by becoming an "own account" or employer (which means in essence going into business for himself) or becoming financially independent and ceasing gainful occupation. The chances of being established as an "own account" are very small and, as is well known, are diminishing with increased industrialization and of course the possibilities of acquiring independence and ceasing to labour for wages are very small.

A female, however, does not as a general rule become a wage-earner for life. Her status of wage-earner is very often short-lived, being cut short by marriage. Thus, the turnover of female jobs is fairly continuous, and the extent of the total working force never far exceeds the available positions due to this continuous outflow of wage-earners and the short-term tenure of positions among female wage-earners. Under these conditions a small rate of unemployment is inevitable—decidedly smaller at any rate than among males, where the wage-earner status is of much longer duration. A rough idea of the short-term nature of most female employment can be obtained from the 1931 Census figures* of numbers of female wage-earners at different ages. This, of course, can not be interpreted strictly as a barometer of the duration of female employment because it is known that there has been an increasing number of female wage-earners from year to year. This fact would mean, of course, that a certain proportion of the preponderance of youthful ages is due to this increasing trend of female employment.

It is shown in the 1931 Census figures that the ages at which female employment is at a maximum are 18 and 19 years. Let us trace the history of these wage-earners to the end of the year 1934, using (1) the probability of their being alive (based on the Canadian Life Tables of the Bureau of Statistics) from year to year, (2) the probability of their ceasing to be wage-earners due to marriage. For purposes of comparison this information will be placed side by side with the life expectancy of males at the same ages. This would represent a real picture of the extent to which the male and female wage-earners of a given age remained intact. We are, of course, assuming that the marriage rate and death rate are the same for the wage-earners as for the total population.

* See 1931 Census, Vol. VI, Table 6.

LXVI.—NUMBER OF WAGE-EARNERS AT AGES 18-19 IN 1931 AND PROBABLE SURVIVORS AS WAGE-EARNERS IN 1934, BY SEX, CANADA, JUNE 1, 1931

Item	Males	Females	Ratio Females/ Males
	No.	No.	p.c.
Wage-earners at ages 18-19, June 1, 1931	107,926	76,684	71·05
Decrease by death during three-year period 1931-34[1]	954	602	
Female wage-earners married during period 1931-34[1]	-	16,298	
Original wage-earners (ages 18-19 in 1931) who are available as wage-earners in 1934 (ages 21-22)	106,972	59,784	55·89
Decrease as percentage of 1931	0·89	22·04	

[1] We are assuming that the death rate and marriage rate among wage-earners is the same as for all females at the same ages. As the marriage rate would probably be higher for single wage-earners than for all single females, the above is an under-statement of the facts.

From this statement we can see that over a period of three years the original body of female wage-earners has decreased by 22·04 p.c. while the males have decreased by less than 1 p.c. This can only mean that the potential turnover in female positions was greatly in excess of that of the male job-holder over the period 1931-34 for wage-earners who were 18 and 19 in 1931.

2. *The Protected Nature of Female Occupations.*—A feature of occupations which have become typically female is the development of a force which has maintained those occupations for females alone—male competition being practically *nil.* The reasons for this seem to be primarily that certain industrial changes are causing a demand for a type of work which, while being year-round, can readily be refilled and which offers little inducement to the male not only because of low present wages but also because of lack of future opportunities. It is obvious that positions of this sort are made-to-order for females who intend to marry after a few years of wage-earning. Examples of these occupations are office appliance operators, stenographers, filing clerks, department store clerks and an increasing number of factory jobs in such industries as tobacco and cigarette manufacturing, rubber products manufacturing and many other machine processes. Females are becoming increasingly spread over industry, and furnish competition to males in some, but—and this is significant—once having feminized an occupation, receive slight competition from males.

SUMMARY

The findings of this chapter can be summarized as follows:—

1. The outstanding feature disclosed by a study of the relation of unemployment to the industrial structure is a process of evolution from one end of a scale to the other in the relationship between the industry and the worker. By taking the industries as they existed in 1931 and breaking them up, in so far as they can be broken up, into homogeneous groups, we find them capable of a classification that will fit into a scale. Such a classification and such a scale are hidden from us if we regard industries only when shown in large main classes or when we trust to mere summaries in large aggregates. This scale follows a process which has all the appearance of representing what has actually happened in the course of time. At the upper end is the organically perfect industry, *i.e.*, that which can, without hestitation, be called an "industry"; at the other extreme is a loose aggregate which has to be given the name of "industry" because its workers depend upon it, but which otherwise bears very little resemblance to the one at the upper end of the scale. Between these extremes are graduations of intermediate stages. Now the two features which characterize the graduation into these stages are: (1) a progressive tendency to permanent attachment of larger and larger proportions of the workers to the industry with the results that the non-permanent elements are being discarded and disowned and that the industry is concentrating or contracting so as to include only the minimum number of workers or those of a permanent character; and (2) following logically from the first, a progressive differentiation between the employed and unemployed as we go up the scale. In the lower part of the scale, if we take two persons at random, "A" is just as likely to be unemployed as "B"; in the upper part of the scale, "A" is hardly ever likely to be *unemployed,* while "B" is hardly likely to be *employed*—or what amounts to the same thing—if "B" claims attachment to the industry and is at present unemployed, it is probable that he has lost attachment and will remain permanently unemployed so far as that industry is concerned. He is of a different age, a different occupation from "A" and it will be found that this occupation is regarded as no longer necessary to the industry. In the lower end of the scale, both "A" and "B" are more apt to lose time than the "A" of the upper end, but neither one of them is apt to lose as much time as the "B" of the upper end. The intermediate industries in the scale are mere graduations of differentiations between "A" and "B".

2. The nature of the worker at the upper end of the scale as compared with the lower can probably be brought out more definitely. It is not strictly a differentiation between skilled and unskilled—it is more a differentiation between the permanently necessary and the casually necessary. We can conceive an industry at the lower end of the scale where no worker is necessary the year round, and one at the other end where all workers are necessary the year round. An industry perfectly mechanized, in which every worker has a fixed place and each place is absolutely necessary, is obliged to keep every worker on so long as it is operating at

all, or, if imperfectly mechanized, until it has devised a place in which one person will take the place of two and so utterly discard the second person. Included in this mechanism are the office employees. The whole plant becomes a fixed "overhead". At the opposite extreme we can conceive of an industry in which there is no overhead. The worker is taken on for a job. He finishes that and goes to another place for another job and so on. He loses the time between jobs. These are only theoretical extremes, but we find actual industries approaching closely to these extremes. At present the earmarks of the upper extreme are (1) high proportion of office employees and, in consequence, females; (2) higher earnings per week worked, and (3) selected age composition. These are merely the earmarks or the symptoms which prove the presence of the attribute, not the attribute itself. There are others in the industry just as necessary and just as permanent as these office employees, but the latter are the outward manifestation of the existence of the former. It is not because the female *per se* is necessary that she is found in the more permanent situations, but because she is apt to be an office employee, etc., and the industries with permanent positions have larger proportion of these office employees than others. The same applies to earnings, etc.

3. As hinted in §2 females *per se* are not more favoured in industries than males. Where males and females are found in the same industries the females are not better off than males. The misleading comparison arises from the fact that a larger proportion of the female wage-earners (who number only a fifth of all wage-earners) than of the males are found in favoured industries. Another accidental and irrelevant feature also contributes to the appearance that the female suffers less from unemployment. A female may drop out of the working force through marriage and is not then considered unemployed; the male can not so leave the ranks of the wage-earner.

4. An important condition of unemployment is indicated in the closing part of §3, *viz.*, that unemployment is conditioned not only by the status of the industry but also by the increase in the numbers of the employable force. In the case of males this force grows apace both because once a male is a wage-earner he tends to remain so and because with the expansion of industry he is apt to become a wage-earner rather than go into or stay in independent work. That this is a fact is not only obvious but is borne out by statistical data. The manner in which this condition fits into the aforementioned scale of industries is interesting. The upper part of the scale does not create these workers, it merely discards some with the lapse of time; the lower end of the scale does not create workers—it merely provides precarious work for those already created. It is the lower intermediate part of the scale that causes this condition—industries which are industrial but are subject to fluctuation in size owing to dependence upon foreign markets and consequently sensitive to periods of depression and prosperity, growing abnormally in the latter and shrinking in the former. The abnormal growth creates the wage-earner; the shrinkage does not kill him—he remains a wage-earner but unemployed. Then follows another period of expansion, but the previously created worker must stand his chances of re-employment along with a new body ready to be created for the first time. Herein exists a condition of a permanently unemployed class. The cyclical industries are deadly to the cause of the worker in so far as they are cyclical. In so far as they have a permanent upper trend, of course, they are beneficial, but here the process of discarding already mentioned in the case of the upper part of the scale has a counteracting effect. It would seem that a cyclical "boom" is in the long run the worst enemy of the worker.

5. The foregoing points are not appreciated because the problem of unemployment is usually looked at from the point of view of the industry, not from that of the worker. In other words, it is regarded as an economic rather than a social phenomenon. The student who, from time to time, watches only the growth and shrinkage of industries fails to see a very important process going on as a by-product. When one month he sees a thousand men in an industry and the next month he sees eleven hundred men in the same industry his natural conclusion is that since the industry grows unemployment decreases. What is true is that in the previous month A, B, C, are working; in the next month A, B., D, E, are working—what about C? He is as capable of work as ever but he is unemployed. If an industry booms the natural conclusion is that there is no unemployment. This may be momentarily true but its truth depends upon

whether it has re-employed all the unemployed before taking on new workers. There is no evidence that this is ever done. Such evidence as we have points in the opposite direction. A new applicant is apt to have at least as good a chance for employment as the discarded old hand.

6. Chapter V on ages re-states and reinforces the findings of this chapter as to the tendency toward a separation of the workers into two classes—the permanently employed and the permanently unemployed. Chapter IV, dealing with unemployment by occupations shows that the evolution in industries in relation to the worker breaks down a fundamental and natural relationship between the work and the worker.

7. An interesting and useful disclosure from a study of unemployment in industries relates to part-time work. This term is little understood and much misused. There are two kinds of part-time work; one refers to the odd jobs given to a worker who normally is not attached to the industry; the other is the part-time work given by an industry to its employees in slack times, *i.e.*, the worker is given part-time work instead of being dismissed, or rather, instead of dismissing a worker and making the remainder do his work, he is kept on and he and the others are put on part-time during the slack period. This is spreading the unemployment so that the whole lose a little time rather than that a number lose all the time. There is no doubt that this spreading of unemployment reduces hardships. If A and B each lose 15 weeks in a bad year, neither one is well off but then neither one needs to starve; if on the other hand A loses no time and B 30 weeks a serious social problem—relief and all the evils arising therefrom—ensues. Now the regular thing as we rise in the scale of industries (already explained), is the tendency for industries to dismiss and discard, *i.e.*, to leave B with 30 weeks loss of time. Furthermore the "part-time" work as it is usually understood (or misunderstood) refers to that in the industry which spreads the unemployment among A and B and is regarded as a bad thing, while the part-time in the second (or usual) kind of industry that gives B nothing else but part-time is not considered, merely because it is not measurable except at the time of a census and not much attention has heretofore been paid to what the census says. In other words there is no cognizance taken either in the reports of firms showing employees from month to month or in the reports of labour unions, of the B that *gets only* part time; all the latter think of is the B that *loses* part time.

Now, of course, our census obviously measures the number of B's that get only part time—they are the workers who lose 20, 30, 40 and so on weeks during the year. The interesting thing is that our study discloses also, at least in a measure, the B's who only *lose* part time. As we go up the scale of industries we find certain industries which on the whole lose little time on the average, *i.e.*, all the workers in that industry on an average lose so little time that the industry can be classed with the strong industries, but at the same time more of their workers lose *some* time than of the workers in other industries in the same part of the scale. On investigation, such industries are found to be of a nature that, for lack of a better term, we call "paternal," *i.e.*, they keep their workers attached during slack periods and *spread* the unemployment instead of dismissing some and giving full time to the remainder. A point that must be emphasized is that this spreading is symptomatic of a strong rather than a weak industry. It may be regarded as axiomatic that if there are two industries, each losing the same amount of time on the average—say, 5 weeks in the year—but in the case of the former 25 p.c. of the total staff lose *some* time (so that this 25 lose 20 weeks) while in the case of the latter 50 p.c. lose some time (so that this 50 p.c. lose only 10 weeks), then the latter gave part time and thus *spread* its unemployment. The probabilities are that in the case of the former some or most of the 25 p.c. will never get back into that industry while in the case of the latter they remain in that industry. Finally it would seem that "part time" as it is commonly understood, *i.e.*, as referring to those who only *lose* part time is of comparatively infrequent occurrence as compared with the other type, *viz.*, those who only *get* part time.

8. In view of the findings mentioned in §1 of this summary, a term was needed to express the process of graduation of the various industries. We found that some industries from the workers' viewpoint were really sources of permanent attachment, *i.e.*, industries in the real sense of the term; others, however, from the workers' viewpoint were really only sources of indeterminate and sporadic employment. The necessity was to find a term to differentiate between

the two extremes. The most apt term seemed to be the "degree of organization"—the extremes being the "loosely organized industry" and the "highly organized industry." The former type shows no tendency to maintain a solid full-time working force while the latter type does. There has been a tendency for industries through time to evolve from the former to the latter stage. However, all industries have not been acted upon to the same extent—so that in the year 1931 we have an array of industries showing wide differences in the "degree of organization."

It is unfortunate that the term "organization," with reference to industry has already been used to express two concepts which have been usually working at cross purposes. These are (1) the industrial organization promoted by the owners of industry. This type of organization has been used to increase efficiency by improved plant, adequate systems of accounting, selection of personnel, etc. The motive being to increase profits, there has been little regard for the condition of the human element. (2) The organization of sections of the labour force to prevent themselves from undue exploitation by the owners of the industry. This is in reality an organization of certain occupations to protect their own special interests in a number of different industries and, therefore, if we consider industries as units, this type of organization is really "occupational." Being strictly occupational, the condition of the great bulk of workers, unskilled and near-unskilled, is not represented or aided in any way by this form of organization.

A term is still necessary therefore to express the condition of the *whole* working body of an industry, *i.e.*, the condition of skilled and unskilled workers and the extent to which the industry is able to maintain this working force continuously. We submit this concept of "organization" as being the true usage of the word when applied to the industry.

CHAPTER IV

UNEMPLOYMENT IN RELATION TO THE OCCUPATIONAL STRUCTURE

Data and Methods Used.—Any discussion of unemployment in industries is incomplete without a treatment of unemployment by occupations. Unemployment which can be measured is confined to that of wage-earners and it is obvious that the total time lost in industry must equal the total time lost by all occupations. We have attempted to analyse, by a sample, the dispersion of this time lost among the various industries. In doing so we found that there was a nearly normal distribution—such skewness as occurred being in part due to the necessary exclusion of those wage-earners with "unspecified" industrial attachment* which lowered the centre of revolution of the sample as compared with the whole.

It is our purpose in this chapter to study the dispersion of unemployment among the various occupations by the use of a sample similar to that used in industries. If the samples are sufficiently alike we shall be able to find out if there are any significant differences in the dispersion of unemployment (1) by industry, (2) by occupation. With regard to occupations we are forced to exclude the group "unskilled.†" This group has some features in common with the industry class "unspecified." The following statement shows some comparative figures for all-Canada males.

LXVII.—COMPARISON OF UNSKILLED OCCUPATION GROUP AND UNSPECIFIED INDUSTRY GROUP, CANADA, JUNE 1, 1931

Item	Unskilled Occupation	Unspecified Industry
Number of male wage-earners	422,284	165,172
Percentage not at work June 1	38·28	54·54
Percentage of all male wage-earners	20·88	8·17
Percentage of number not at work June 1	38·29	21·34

A cross-classification of industry by occupation shows that of the 165,172 wage-earners with "Unspecified" industrial attachment, 158,774 or over 96 p.c. were unskilled workers. The type of worker therefore in the unspecified industry is nearly identical with that in the unskilled occupation. This leads to an observation which, while it is not connected with the analysis of the sample, is worthy of mention. Those unskilled workers who have a specified industrial attachment, numbering 275,140 males, by virtue of being definitely connected with a specific industry suffer only half as much unemployment as those who have no specific industrial attachment.

LXVIII.—UNSKILLED MALE WAGE-EARNERS NOT AT WORK WITH AND WITHOUT DEFINITE INDUSTRIAL ATTACHMENT, CANADA, JUNE 1, 1931

Item	Male Wage-Earners		
	Total	Not at Work June 1	
		No.	P.C.
Unskilled	422,284	161,631	38·28
Without definite industrial attachment	158,774	86,595	54·54
With definite industrial attachment	275,140	75,036	27·27

From the above we see therefore, that our sample if representing all occupations other than unskilled will be of a slightly different universe than the sample of all industries other than unspecified.

LXIX.—MALE WAGE-EARNERS NOT AT WORK IN ALL OCCUPATIONS AND IN UNIVERSE SAMPLED, CANADA, JUNE 1, 1931

Item	Male Wage-Earners		
	Total	Not at Work June 1	
		No.	P.C.
All occupations	2,022,260	422,076	20·87
Unskilled	422,284	161,631	38·28
Universe sampled	1,599,976	260,445	16·28

Our sample therefore should show a figure of unemployment somewhat near 16·28 p.c.

* See method of enumeration of 1931 Census.
† Census group "Labourers and unskilled workers (not agricultural, mining, or logging)."

A scatter diagram was constructed similar to that used in the previous chapter showing unemployment on June 1 for different sizes of occupation groups. The object again was to secure a sufficient number of occupations homogeneous as to size and at the same time showing all amounts of unemployment from the highest to the lowest and having an average unemployment comparable to that of its universe. It can be seen that a sample of this sort would be valuable only if it were found that pure size of occupation group had no significant effect on the amount of unemployment. This was found to be the case in male occupations, *i.e.*, the trend of the probability of a person being unemployed in different size groups was linear. However, it was found that if the groups "Unskilled" were included in the scatter diagram, they imparted a non-linear trend to the unemployment, *i.e.*, the larger the occupation groups, the greater the unemployment. Obviously the reason for this is that the unskilled groups when taken by provinces are the largest individual occupation groups. We have now to ask ourselves if we are justified in omitting the unskilled in taking a sample. It is necessary to regard two aspects of this group.

First, is it because of their larger numbers that unemployment is greater in the unskilled groups? In a sense it is. The unskilled are those who because of lack of training, ability or

LXX.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF OCCUPATIONS, ACCORDING TO NUMBER OF MALE WAGE-EARNERS EMPLOYED IN RELATION TO INTERVALS OF NUMBER NOT AT WORK FOR ALL CAUSES, CANADA, JUNE 1, 1931

No.	Interval of Number Not at Work June 1	Occupations Having Male Wage-Earners Numbering								
		0–249	250–499	500–749	750–999	1,000–1,999	2,000–2,999	3,000–3,999	4,000–4,999	5,000–5,999
1	0–24	1,184	108	27	7	5	1			
2	25–49	108	86	13	5	12	3		1	
3	50–74	18	64	26	8	14	4	2		
4	75–99	2	27	21	8	11	1			1
5	100–199	2	39	42	30	28	9	2		1
6	200–299		2	13	10	23	13	1		1
7	300–399				5	(1) 18	8	3	4	2
8	400–499					7	5	3	1	1
9	500–599					6	6	4	1	1
10	600–699					2	3	1		
11	700–799					2	3	2	1	1
12	800–899						2	1		4
13	900–999					1	1	3	1	
14	1,000–1,499						3	3	2	1
15	1,500–1,999						3			1
16	2,000–2,999								2	
17	3,000–4,999									1
18	5,000–6,999									
19	7,000–9,999									
20	10,000–12,999									
21	13,000–15,999									
22	16,000–19,999									
23	40,000–49,999									
24	50,000–60,000									
25	Total	1,314	326	142	73	129	65	25	13	15
26	Average number not at work	15·56	53·03	97·44	139·93	223·26	450·19	595·00	895·15	855·83
27	Percentage not at work	12·45	14·14	15·59	16·00	14·88	18·01	17·00	19·89	15·56
28	Percentage not at work including unskilled...					14·95				

Sample

opportunity have not been successful in aligning themselves with any of the more specialized occupations. In an economy such as we possess it is perhaps inevitable that this group be large. It also follows that, due to specialization in methods of production, the demand for the unskilled labourer is decreasing. From this standpoint, therefore, we would *not* be justified in excluding the unskilled occupation group.

Secondly, can we truly call the "Unskilled" an occupation group? This group according to census definition consists of labourers and unskilled workers other than those engaged in agriculture, mining and logging. This exclusion of certain types of labourer is not purely arbitrary as it is argued that the excluded types are on the whole doing somewhat more specialized work.

The unskilled group then, comprises a very wide variety of occupations all of which have one factor in common—a very low degree of required specialized skill. In other respects the group is anything but homogeneous. Therefore the group is not so much an "occupation" as an aggregate of workers who lack a real occupation under present conditions of fine division of labour.

For our purpose (an analysis of the dispersion of unemployment by occupation) therefore, we are choosing our sample from all occupations excluding the unskilled groups. In this way our

LXX.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF OCCUPATIONS, ACCORDING TO NUMBER OF MALE WAGE-EARNERS EMPLOYED IN RELATION TO INTERVALS OF NUMBER NOT AT WORK FOR ALL CAUSES, CANADA, JUNE 1, 1931

Occupations Having Male Wage-Earners Numbering													
6,000-6,999	7,000-7,999	8,000-8,999	9,000-9,999	10,000-14,999	15,000-19,999	20,000-29,999	30,000-49,999	50,000-69,999	70,000-99,999	100,000-129,999	130,000-160,000	Total	No.
												1,332	1
												228	2
												130	3
												71	4
												153	5
												63	6
												40	7
1												18	8
	1											19	9
3	1		1									11	10
												9	11
												7	12
1	1											8	13
2	2	1	4									18	14
				1								5	15
	1		1	3	1	3	1					12	16
	1	1			2		1					6	17
				2		2		1				5	18
					(2)	(2) 1	1					2	19
						(1)							20
							(1)						21
													22
											(1)		23
											(1)		24
7	7	2	6	6	3	6	3	1				2,143	25
835·71	1,592·86	2,625·00	1,358·33	3,541·66	3,500·00	4,583·33	4,833·33	6,000·00					26
12·86	21·24	30·88	14·30	28·33	20·00	18·33	12·08	10·00					27
					30·29	24·44	20·31				34·48		28

sample is representative of all but those workers who have no special occupational status. If we were to include the unskilled groups we could not obtain a sample homogeneous as to size—a factor the importance of which was stressed in the chapter on industries. The unskilled occupation group will, therefore, be separately dealt with as it is apparently impossible to combine it on a plane with other occupation groups. It is different in size and in unemployment and can properly be dealt with only as a resultant of the general condition of other occupations.

The Sample.—It was found that those occupations having between 2,000 and 6,000 wage-earners were numerically sufficient to show a typical variety of unemployment and also to show a total unemployment corresponding to that of all wage-earners in Canada excluding the unskilled. The sample consisted of 389,015 male wage-earners, of whom 67,466 or 17·34 p.c. were not at work for all causes on June 1. The average time lost by the wage-earner in the sample was 8·84 weeks or 17·00 p.c. of the year preceding June 1, 1931. This figure was somewhat larger than that of the universe—all male wage-earners less the unskilled—in which the percentage not at work on June 1 was 16·28. The difference, however, is within three times the "error of random sample," which means that the figure of the sample is reliable.

It will be seen from Statement LXXI that the sample is very representative regionally—in fact, more so than the sample of industries.

Differences between Distribution of Unemployment by Industries and by Occupations.—The fact that the samples contain (1) the same size groups, (2) an aggregate of nearly the same number of wage-earners having quite similar aggregate unemployment makes it possible to observe the behaviour of the different criteria of unemployment. What differences are there in the dispersion of unemployment when regarded from the point of view of occupation and of industry?

In Statement LXXII we show unemployment by four criteria:—

(1) percentage of wage-earners not at work June 1,

(2) percentage of working time lost during the year ended June 1,

(3) percentage of wage-earners who lost any time,

(4) average time lost by those wage-earners losing time.

These four criteria were obtained for each of the 118 occupations and indexed with "all-Canada wage-earners" as base 100. In this way it was possible to compare industries with occupations.

LXXI.—SELECTED SAMPLE OF 118 OCCUPATIONS IN THE NINE PROVINCES, SHOWING MALE WAGE-EARNERS, NUMBER AND PERCENTAGE NOT AT WORK JUNE 1, NUMBER AND PERCENTAGE LOSING TIME DURING YEAR, TOTAL AND AVERAGE WEEKS LOST PER WAGE-EARNER AND TOTAL AND AVERAGE WEEKS LOST PER WAGE-EARNER LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931

Province	Occupation	Male Wage-Earners					Weeks Lost				
		Total	Not at Work June 1		Losing Time during Year		Total	Average per Wage-Earner		Average per Wage-Earner Losing Time	
			No.	P.C.	No.	P.C.		No.	P.C. of Year	No.	P.C. of Year
P.E.I.	Farm labourers	2,195	66	3·01	249	11·34	4,298	1·96	3·77	17·26	33·19
N.S.	Fishermen	2,652	269	10·14	834	31·45	17,390	6·56	12·62	20·85	40·10
	Labourers (Coal Mining)	3,534	1,438	40·69	3,241	91·71	83,131	23·52	45·23	25·65	49·33
	Carpenters	3,671	1,031	28·08	2,404	65·49	51,434	14·01	26·94	21·40	41·15
	Salesmen	3,181	232	7·29	609	19·14	12,495	3·93	7·56	20·52	39·46
	Office clerks	2,626	197	7·50	460	17·52	8,899	3·39	6·52	19·35	37·21
N.B.	Farm labourers	5,835	851	14·58	2,191	37·55	45,627	7·82	15·04	20·82	40·04
	Lumbermen	2,610	1,216	46·59	1,995	76·44	48,208	18·47	35·52	24·16	46·46
	Carpenters	2,374	584	24·60	1,437	60·53	30,193	12·72	24·46	21·01	40·40
	Salesmen	2,551	168	6·59	480	18·82	9,503	3·73	7·17	19·80	38·08
	Office clerks	2,259	142	6·29	390	17·26	7,151	3·17	6·10	18·34	35·27

n.e.s.—not elsewhere specified.
n.s.—not specified.

LXXI.—SELECTED SAMPLE OF 118 OCCUPATIONS IN THE NINE PROVINCES, SHOWING MALE WAGE-EARNERS, NUMBER AND PERCENTAGE NOT AT WORK JUNE 1, NUMBER AND PERCENTAGE LOSING TIME DURING YEAR, TOTAL AND AVERAGE WEEKS LOST PER WAGE-EARNER AND TOTAL AND AVERAGE WEEKS LOST PER WAGE-EARNER LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Occupation	Male Wage-Earners					Weeks Lost				
		Total	Not at Work June 1		Losing Time during Year		Total	Average per Wage-Earner		Average per Wage-Earner Losing Time	
			No.	P.C.	No.	P.C.		No.	P.C. of Year	No.	P.C. of Year
Que.	Miners (Other Mining)	2,338	930	39·78	1,500	64·16	38,401	16·42	31·58	25·60	49·23
	Labourers—mines and quarries	2,428	719	29·61	1,523	62·73	32,887	13·54	26·04	21·59	41·52
	Bakers	2,482	363	14·63	798	32·15	17,824	7·18	13·81	22·34	42·96
	Butchers and slaughterers	2,689	370	13·76	863	32·09	18,040	6·71	12·90	20·90	40·19
	Machine operators—boots and shoes	3,712	758	20·42	2,204	59·38	47,897	12·90	24·81	21·73	41·79
	Weavers	2,378	298	12·53	1,133	47·65	20,683	8·70	16·73	18·26	35·12
	Tailors	3,071	965	31·42	1,818	59·20	41,418	13·49	25·94	22·78	43·81
	Compositors; printers, n.s.	2,397	299	12·47	705	29·41	13,894	5·80	11·15	19·71	37·90
	Blacksmiths, hammermen, and forgemen	2,436	476	19·54	1,149	47·17	23,892	9·81	18·87	20·79	39·98
	Boiler firemen	2,167	350	16·15	959	44·25	17,552	8·10	15·58	18·30	35·19
	Stationary enginemen	2,535	405	15·67	931	36·73	18,890	7·45	14·33	20·29	39·02
	Brick and stone masons	2,942	1,036	35·21	2,305	78·35	58,853	20·00	38·46	25·53	49·10
	Plumbers, steam fitters, and gas fitters	4,523	1,024	22·64	2,529	55·91	52,193	11·54	22·19	20·64	39·69
	Section foremen, sectionmen; trackmen	2,873	230	8·01	900	31·33	16,095	5·60	10·77	17·88	34·39
	Longshoremen and stevedores	2,091	598	28·60	1,668	79·77	40,639	19·44	37·39	24·36	46·85
	Seamen, sailors, and deckhands	3,132	419	13·38	900	28·74	21,089	6·73	12·94	23·43	45·06
	Chauffeurs and bus drivers	5,835	867	14·86	2,020	34·62	45,570	7·81	15·02	22·56	43·39
	Deliverymen and drivers, n.s	2,356	238	10·10	778	33·02	16,962	7·20	13·85	21·80	41·92
	Teamsters, draymen, carriage drivers	5,377	861	16·01	2,381	44·28	50,942	9·47	18·21	21·40	41·15
	Messengers	4,197	453	10·79	1,093	26·04	26,834	6·39	12·29	24·55	47·21
	Shippers	3,526	371	10·52	1,040	29·50	18,557	5·26	10·12	17·84	34·31
	Managers—retail stores	2,946	88	2·99	252	8·55	4,393	1·49	2·87	17·43	33·52
	Insurance agents	3,962	182	4·59	499	12·59	10,798	2·73	5·25	21·64	41·62
	Public service officials	2,296	43	1·87	135	5·88	2,300	1·00	1·92	17·04	32·77
	Police and detectives	3,087	101	3·27	263	8·52	4,537	1·47	2·83	17·25	33·17
	Accountants and auditors	4,264	325	7·62	487	11·42	14,232	3·34	6·42	29·22	56·19
	Clergymen and priests	2,844	7	0·25	14	0·49	334	0·12	0·23	47·71	91·75
	Teachers—school	2,981	67	2·25	126	4·23	3,029	1·02	1·96	24·04	46·23
	Cooks	3,869	909	23·49	1,746	45·13	38,608	9·98	19·19	22·11	42·52
	Domestic servants	2,915	216	7·41	649	22·26	13,607	4·67	8·98	20·97	40·33
	Janitors and sextons	2,587	123	4·75	358	13·84	7,624	2·95	5·67	21·30	40·96
	Waiters	3,516	499	14·19	1,162	33·05	24,549	6·98	13·42	21·13	40·64
	Watchmen and caretakers	4,164	370	8·89	1,143	27·45	24,734	5·94	11·42	21·64	41·62
Ont.	Labourers—mines and quarries	3,803	793	20·85	2,251	59·19	53,860	14·16	27·23	23·93	46·02
	Bakers	3,599	539	14·98	1,254	34·84	27,592	7·67	14·75	22·00	42·31
	Butchers and slaughterers	3,826	542	14·17	1,373	35·89	29,581	7·73	14·87	21·54	41·42
	Tailors	2,686	848	31·57	1,694	63·07	41,728	15·54	29·88	24·63	47·37
	Cabinet and furniture makers	2,103	480	22·82	1,199	57·01	23,311	11·08	21·31	19·44	37·39
	Compositors; printers, n.s.	5,025	520	10·35	1,496	29·77	28,447	5·66	10·88	19·02	36·58
	Foremen and overseers—Metal Products (Mfg.)	3,185	329	10·33	1,165	36·58	21,586	6·78	13·04	18·53	35·64
	Blacksmiths, hammermen, and forgemen	3,468	887	25·58	2,037	58·74	47,318	13·64	26·23	23·23	44·67
	Fitters, assemblers, and erectors —Metal Products (Mfg.)	2,700	796	29·48	1,973	73·07	47,097	17·44	33·54	23·87	45·90
	Machine tenders, n.e.s. — Metal Products (Mfg.)	2,931	724	24·70	2,157	73·59	51,126	17·44	33·54	23·70	45·58
	Moulders, coremakers, and casters —Metal Products (Mfg.)	5,092	1,736	34·09	3,915	76·89	100,768	19·79	38·06	25·74	49·50
	Tool makers, die cutters and sinkers—Metal Products (Mfg.)	2,494	551	22·09	1,574	63·11	35,629	14·29	27·48	22·64	43·54
	Boiler firemen	2,299	388	16·88	1,027	44·67	19,655	8·55	16·44	19·14	36·81
	Brick and stone masons	4,633	2,045	44·14	3,797	81·96	109,511	23·64	45·46	28·84	55·46
	Plumbers, steam fitters, and gas fitters	5,223	1,475	28·24	3,159	60·48	70,924	13·58	26·12	22·45	43·17
	Sheet metal workers and tinsmiths	2,699	666	24·68	1,691	62·65	37,618	13·94	26·81	22·25	42·79
	Foremen and inspectors—steam railway	2,051	80	3·90	375	18·29	4,834	2·36	4·54	12·89	24·79
	Brakemen	3,048	578	18·96	1,357	44·52	28,502	9·35	17·98	21·00	40·39
	Locomotive engineers	2,982	180	6·04	674	22·60	10,079	3·38	6·50	14·95	28·75
	Locomotive firemen	2,243	527	23·50	1,071	47·75	22,358	9·97	19·17	20·88	40·15
	Seamen, sailors, and deckhands	3,854	568	14·74	1,297	33·65	33,654	8·73	16·79	25·95	49·90
	Chauffeurs and bus drivers	3,941	628	15·94	1,398	35·47	33,460	8·49	16·33	23·93	46·02
	Deliverymen and drivers, n.s	2,120	192	9·06	613	28·92	12,295	5·80	11·15	20·06	38·58
	Linemen and cablemen	3,336	427	12·80	1,268	38·01	21,514	6·45	12·40	16·97	32·64
	Messengers	4,912	568	11·56	1,439	29·30	35,317	7·19	13·83	24·54	49·12
	Postmen and mail carriers	2,946	38	1·29	187	6·35	2,637	0·90	1·73	14·10	27·12
	Telegraph operators	2,096	280	13·36	489	23·33	10,656	5·08	9·77	21·79	41·90

LXXI.—SELECTED SAMPLE OF 118 OCCUPATIONS IN THE NINE PROVINCES, SHOWING MALE WAGE-EARNERS, NUMBER AND PERCENTAGE NOT AT WORK JUNE 1, NUMBER AND PERCENTAGE LOSING TIME DURING YEAR, TOTAL AND AVERAGE WEEKS LOST PER WAGE-EARNER AND TOTAL AND AVERAGE WEEKS LOST PER WAGE-EARNER LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931.—Con.

Province	Occupation	Male Wage-Earners					Weeks Lost				
		Total	Not at Work June 1		Losing Time during Year		Total	Average per Wage-Earner		Average per Wage-Earner Losing Time	
			No.	P.C.	No.	P.C.		No.	P.C. of year	No.	P.C. of year
Ont.—Con.	Packers, wrappers, and labellers (Warehousing and Storage)	2,084	284	13·63	1,046	50·19	19,913	9·56	18·38	19·04	36·62
	Managers—retail stores	5,482	179	3·27	401	7·31	7,717	1·41	2·71	19·24	37·00
	Managers—wholesale, import, and export houses; commercial agencies	2,201	52	2·36	111	5·04	2,162	0·98	1·88	19·48	37·46
	Commercial travellers	5,729	381	6·65	859	14·99	20,130	3·51	6·75	23·43	45·06
	Sales agents, canvassers, demonstrators	2,361	180	7·62	385	16·31	9,740	4·13	7·94	25·30	48·65
	Officials—finance	2,063	30	1·45	61	2·96	1,174	0·57	1·10	19·25	37·02
	Insurance agents	5,485	262	4·78	750	13·67	16,697	3·04	5·85	22·26	42·81
	Public service officials	3,891	65	1·67	221	5·68	4,261	1·10	2·12	19·28	37·08
	Police and detectives	3,827	67	1·75	246	6·43	4,561	1·19	2·29	18·54	35·65
	Civil engineers and surveyors	2,330	221	9·48	414	17·77	9,079	3·90	7·50	21·93	42·17
	Clergymen and priests	4,091	32	0·78	51	1·25	1,074	0·26	0·50	21·06	40·50
	Designers and draughtsmen	2,378	280	11·77	609	25·61	12,013	5·05	9·71	19·73	37·94
	Teachers—school	5,218	96	1·84	214	4·10	4,232	0·81	1·56	19·78	38·04
	Barbers, hairdressers, manicurists	2,428	322	13·26	705	29·04	17,037	7·02	13·50	24·17	46·48
	Cooks	4,223	900	21·31	1,889	44·73	46,047	10·90	20·96	24·38	46·89
	Domestic servants	2,056	215	10·46	701	34·10	16,501	8·03	15·44	23·54	45·27
	Janitors and sextons	5,792	302	5·21	1,021	17·63	20,880	3·60	6·92	20·45	39·33
	Waiters	2,853	398	13·95	950	33·30	22,279	7·81	15·02	23·45	45·10
	Watchmen and caretakers	5,530	479	8·66	1,533	27·72	33,346	6·03	11·60	21·75	41·83
Man.	Mechanics, n.e.s.—Metal Products (Mfg.)	2,294	526	22·93	1,135	49·48	27,649	12·05	23·17	24·36	46·85
	Carpenters	4,785	2,000	41·80	3,444	71·97	95,545	19·97	38·40	27·74	53·35
	Section foremen, sectionmen; trackmen	2,353	339	14·41	1,039	44·16	25,731	10·94	21·04	24·77	47·64
	Truck drivers	2,221	440	19·81	969	43·63	22,647	10·20	19·62	23·37	44·94
	Bookkeepers and cashiers	2,395	362	15·11	578	24·13	14,962	6·25	12·02	25·89	49·79
Sask.	Mechanics, n.e.s.—Metal Products (Mfg.)	2,347	657	27·99	1,135	48·36	28,925	12·32	23·69	25·48	49·00
	Carpenters	2,948	1,518	51·49	2,233	75·75	65,869	22·34	42·96	29·50	56·73
	Section foremen, sectionmen; trackmen	3,268	349	10·68	1,287	39·38	31,550	9·65	18·56	24·51	47·14
	Purchasing agents and buyers	2,117	191	9·02	294	13·89	5,358	2·53	4·87	18·22	35·04
	Salesmen	5,337	843	15·80	1,348	25·26	32,652	6·11	11·75	24·22	46·58
	Teachers—school	2,420	150	6·20	262	10·83	6,348	2·62	5·04	24·23	46·60
	Office clerks	4,010	324	8·08	621	15·49	13,493	3·36	6·46	21·73	41·79
Alta.	Coal miners	5,594	3,769	67·38	4,743	84·79	135,294	24·19	46·52	28·52	54·85
	Mechanics, n.e.s.—Metal Products (Mfg.)	2,440	629	25·78	1,158	47·46	28,417	11·65	22·40	24·54	47·19
	Carpenters	3,355	1,484	44·23	2,511	74·84	69,235	20·64	39·69	27·57	53·02
	Section foremen, sectionmen; trackmen	2,466	225	9·12	964	39·09	23,072	9·36	18·00	23·93	46·02
	Salesmen	5,532	793	14·33	1,436	25·96	34,126	6·17	11·87	23·76	45·69
	Office clerks	4,153	391	9·41	686	16·52	16,247	3·91	7·52	23·68	45·54
B.C.	Fishermen	2,914	1,667	57·21	1,992	68·36	54,757	18·79	36·14	27·49	52·87
	Coal miners	2,999	1,500	50·02	2,717	90·60	70,611	23·54	45·27	25·99	49·98
	Miners (Other Mining)	2,745	1,205	43·90	2,108	76·79	54,593	19·89	38·25	25·90	49·81
	Mechanics, n.e.s.—Metal Products (Mfg.)	3,542	917	25·89	1,796	50·71	43,958	12·41	23·87	24·48	47·08
	Stationary enginemen	2,952	815	27·61	1,682	56·98	41,487	14·05	27·02	24·67	47·44
	Section foremen, sectionmen; trackmen	2,673	217	8·12	1,201	44·94	24,928	9·33	17·94	20·76	39·92
	Seamen, sailors, and deckhands	2,194	504	22·97	748	34·09	19,684	8·97	17·25	26·32	50·62
	Truck drivers	4,113	766	18·62	1,928	46·88	41,734	10·15	19·52	21·65	41·64
	Cooks	4,460	1,189	26·66	1,921	43·07	58,083	13·02	25·04	30·24	58·15
	Bookkeepers and cashiers	2,667	412	15·45	698	26·17	18,155	6·81	13·10	26·01	50·02
	Total—118 occupations	389,015	67,466	17·34	147,052	37·80	3,441,196	8·84	17·00	23·40	45·00
	All Canada—										
	Males (base)	2,022,260	422,076	20·87	889,743	44·00	21,607,109	10·68	20·54	24·28	46·69
	"Unskilled"	422,284	161,631	38·28	292,202	69·20	8,013,756	18·98	36·50	27·43	52·75
	Males less "Unskilled"	1,599,976	260,445	16·28	597,541	37·35	13,593,353	8·50	16·35	22·75	43·75

LXXII.—COMPARISON OF INDICES OF FOUR CRITERIA OF UNEMPLOYMENT IN THE 118 OCCUPATIONS OF THE SAMPLE, MALES ONLY, CANADA, YEAR ENDED JUNE 1, 1931

Province	Occupation	Index of			
		Weeks Lost by All Male Wage-Earners	P.C. Not at Work June 1	P.C. Losing Time	Weeks Lost by Male Wage-Earners Losing Time
Alta.	Coal miners	226	323	193	117
Ont.	Brick and stone masons	221	212	186	119
N.S.	Labourers (Coal Mining)	220	195	208	106
B.C.	Coal miners	220	240	206	107
Sask.	Carpenters	209	247	172	122
Alta.	Carpenters	193	212	170	114
Que.	Brick and stone masons	187	169	178	105
Man.	Carpenters	187	200	164	114
B.C.	Miners (Other Mining)	186	210	175	107
Ont.	Moulders, coremakers, and casters—Metal Products (Mfg.)	185	163	175	106
Que.	Longshoremen, stevedores	182	137	181	100
B.C.	Fishermen	176	274	155	113
N.B.	Lumbermen	173	223	174	100
Ont.	Fitters, assemblers, and erectors—Metal Products (Mfg.)	163	141	166	98
Ont.	Machine tenders, n.e.s.—Metal Products (Mfg.)	163	118	167	98
Que.	Miners (Other Mining)	154	191	146	105
Ont.	Tailors	145	151	143	101
Ont.	Tool makers, die cutters and sinkers—Metal Products (Mfg.)	134	106	143	93
Ont.	Labourers—mines and quarries	133	100	135	99
B.C.	Stationary enginemen	132	132	129	102
N.S.	Carpenters	131	135	149	88
Ont.	Sheet metal workers and tinsmiths	131	118	142	92
Ont.	Blacksmiths, hammermen, and forgemen	128	123	133	96
Que.	Labourers—mines and quarries	127	142	143	89
Ont.	Plumbers, steam fitters, and gas fitters	127	135	137	92
Que.	Tailors	126	151	135	94
B.C.	Cooks	122	128	98	125
Que.	Machine operators—boots and shoes	121	98	135	90
N.B.	Carpenters	119	118	138	87
B.C.	Mechanics, n.e.s.—Metal Products (Mfg.)	116	124	115	101
Sask.	Mechanics, n.e.s.—Metal Products (Mfg.)	115	134	110	105
Man.	Mechanics, n.e.s.—Metal Products (Mfg.)	113	110	112	100
Alta.	Mechanics, n.e.s.—Metal Products (Mfg.)	109	124	108	101
Que.	Plumbers, steam fitters, and gas fitters	108	108	127	85
Ont.	Cabinet and furniture makers	104	109	130	80
Ont.	Cooks	102	102	102	100
Man.	Section foremen, sectionmen; trackmen	102	69	100	102
Man.	Truck drivers	96	95	99	96
B.C.	Truck drivers	95	89	107	89
Que.	Cooks	93	113	103	91
Ont.	Locomotive firemen	93	113	109	86
Que.	Blacksmiths, hammermen, and forgemen	92	94	107	86
Sask.	Section foremen, sectionmen; trackmen	90	51	89	101
Que.	Teamsters, draymen, carriage drivers	89	77	101	88
Ont.	Packers, wrappers, and labellers (Warehousing and Storage)	89	65	114	78
Ont.	Brakemen	88	91	101	87
Alta.	Section foremen, sectionmen; trackmen	88	44	89	99
B.C.	Section foremen, sectionmen; trackmen	87	39	102	86
B.C.	Seamen, sailors, and deckhands	84	110	77	108
Ont.	Seamen, sailors, and deckhands	82	71	76	107
Que.	Weavers	81	60	108	75
Ont.	Boiler firemen	80	81	102	79
Ont.	Chauffeurs and bus drivers	80	76	81	99
Que.	Boiler firemen	76	77	101	75
Ont.	Domestic servants	75	50	77	97
N.B.	Farm labourers	73	70	85	86
Que.	Chauffeurs and bus drivers	73	71	79	93
Ont.	Waiters	73	67	76	97
Ont.	Bakers	72	72	79	91
Ont.	Butchers and slaughterers	72	68	82	89

n.e.s.—not elsewhere specified. n.s.—not specified.

LXXII.—COMPARISON OF INDICES OF FOUR CRITERIA OF UNEMPLOYMENT IN THE 118 OCCUPATIONS OF THE SAMPLE, MALES ONLY, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Occupation	Index of			
		Weeks Lost by All Male Wage-Earners	P.C. Not at Work June 1	P.C. Losing Time	Weeks Lost by Male Wage-Earners Losing Time
Que.	Stationary enginemen	70	75	83	84
Que.	Bakers	67	70	73	92
Que.	Deliverymen and drivers, n.s.	67	48	75	90
Ont.	Messengers	67	55	67	105
Ont.	Barbers, hairdressers, manicurists	66	64	66	100
Que.	Waiters	65	68	75	87
B.C.	Bookkeepers and cashiers	64	74	59	107
Que.	Butchers and slaughterers	63	66	73	86
Que.	Seamen, sailors, and deckhands	63	64	65	97
Ont.	Foremen and overseers—Metal Products (Mfg.)	63	49	83	76
N.S.	Fishermen	61	49	71	86
Que.	Messengers	60	52	59	101
Ont.	Linemen and cablemen	60	61	86	70
Man.	Bookkeepers and cashiers	59	72	55	107
Alta.	Salesmen	58	69	59	98
Sask.	Salesmen	57	76	57	100
Que.	Watchmen and caretakers, n.e.s.	56	43	62	89
Ont.	Watchmen and caretakers, n.e.s.	56	41	63	90
Que.	Compositors; printers, n.s.	54	60	67	81
Ont.	Deliverymen and drivers, n.s.	54	43	66	83
Ont.	Compositors; printers, n.s.	53	50	68	78
Que.	Section foremen, sectionmen; trackmen	52	38	71	74
Que.	Shippers	49	50	67	73
Ont.	Telegraph operators	48	64	53	90
Ont.	Designers and draughtsmen	47	56	58	81
Que.	Domestic servants	44	36	51	86
Ont.	Sales agents, canvassers, demonstrators	39	37	37	104
N.S.	Salesmen	37	35	43	85
Ont.	Civil engineers and surveyors	37	45	40	90
Alta.	Office clerks	37	45	38	98
N.B.	Salesmen	35	32	43	82
Ont.	Janitors and sextons	34	25	40	84
Ont.	Commercial travellers	33	32	34	97
N.S.	Office clerks	32	36	40	80
Ont.	Locomotive engineers	32	29	51	62
Que.	Accountants and auditors	31	37	26	120
Sask.	Office clerks	31	39	35	90
N.B.	Office clerks	30	30	39	76
Que.	Janitors and sextons	28	23	31	88
Ont.	Insurance agents	28	23	31	92
Que.	Insurance agents	26	22	29	89
Sask.	Teachers—school	25	30	25	100
Sask.	Purchasing agents and buyers	24	43	32	75
Ont.	Foremen and inspectors—steam railway	22	19	42	53
P.E.I.	Farm labourers	18	14	26	71
Que.	Managers—retail stores	14	14	19	72
Que.	Police and detectives	14	16	19	71
Ont.	Managers—retail stores	13	16	17	79
Ont.	Police and detectives	11	8	15	76
Que.	Teachers—school	10	11	10	99
Ont.	Public service officials	10	8	13	79
Que.	Public service officials	9	9	13	70
Ont.	Managers—wholesale, import, and export houses; commercial agencies	9	11	11	80
Ont.	Postmen and mail carriers	8	6	14	58
Ont.	Teachers—school	8	9	9	81
Ont.	Officials—finance	5	7	7	79
Ont.	Clergymen and priests	2	4	3	87
Que.	Clergymen and priests	1	1	1	87
	Mean	83	83	86	92

The following statement gives features in the two dispersions essential to an analysis of differences.

LXXIII.—COMPARISON OF INDUSTRIES AND OCCUPATIONS AS REGARDS THREE CRITERIA OF UNEMPLOYMENT, CANADA, YEAR ENDED JUNE 1, 1931

Measure of Unemployment	Industries		Occupations	
	Index	Weeks	Index	Weeks
(1) Average time lost by all wage-earners in group—				
Mean	75	7·9	83	8·7
Standard deviation	46·0	4·8	56	5·8
Skew	·346	-	·260	-
(2) Average time lost by wage-earners losing time[1]—				
Mean	88	21·4	92	22·4
Standard deviation	15·1	3·6	13·2	3·2
Skew	—·009	-	—·071	-
(3) Percentage of wage-earners losing time[1]—		p.c.		p.c.
Mean	83	36·5	86	37·8
Standard deviation	42·6	18·8	51	22·3
Skew	—·132	-	·148	-

[1] More than one week during year.

The differences are not great enough to warrant any conclusive deductions and could be due to the slightly different characters of the samples.

Before going into the actual comparison of occupational and industrial unemployment we must remember that there are bound to be certain points of similarity due to the fact that some industries are composed almost entirely of a dominant occupation. An example is the industry "Religion." Over 90 p.c. of the wage-earners in this industry are of the occupation "Clergymen and Priests." This occupation is confined to one industry; therefore the unemployment in this industry must be nearly identical with that in its dominant occupation. This occupation is very skilled and specialized—but this identity between occupation and industry, while most emphasized in the low unemployment group, also occurs at the other end of the scale. Take for example the industry "Logging" where over 70 p.c. of the wage-earners are "Lumbermen" by occupation. The unemployment in the industry and dominant occupation must resemble each other closely.

However, most industries are very diversified as to occupational content, and conversely most occupations are found in many industries. It is the scatter of occupations among industries which makes an investigation of unemployment differences of some interest.

Our purpose is to find out what relation the duration of unemployment has to the percentage of wage-earners who lose time. Accordingly we prepared four correlations—three for occupations and one for industry—to be used as a comparison. We have chosen three different representatives for occupations in order to show conclusively that our observations are not peculiar to our sample but are characteristic of the behaviour of occupations.

The 118 occupations of the sample show a very high positive correlation between the percentage losing time and the median duration of unemployment. That is, in an occupation where a small percentage of the wage-earners lose time, those losing time lose less time than is the case in an occupation having a large percentage of its wage-earners losing time.

To show that the correlation was not due to the sample we took 200 selected occupations, 40 from each one of the following five zones: the Maritime Provinces, Quebec, Ontario, the Prairie Provinces, British Columbia.* The result was an even higher correlation between the percentage losing time and the *mean* duration. This correlation is a reality in occupations but it will be recalled that in industries we found that there was less definite relation between the time lost by *all* wage-earners in the industry and the mean time lost by *those losing time.* However, as the average time lost by *all* wage-earners is not the same measurement as the percentage losing time, we have, in order to obtain strictly comparable data to obtain a measurement for the industries comparable to that of occupations.

Accordingly, we have prepared two scatter diagrams (Chart 5) showing the relation between mean duration of unemployment and the percentage of wage-earners losing time for occupations and for industries. The first half of the chart includes the 118 occupations used in the sample, while the second half shows the 122 industries of the sample used in the previous chapter.

* See Census of Canada, 1931, Vol. VI, Table 22.

Note the strikingly different behaviour of the two sets of data. The industries are scattered rather haphazardly, while the occupations have a definite trend, *i.e.*, the duration of unemployment varies to some extent as the variation of the percentage losing time. Stated in different terms, in a given *occupation*, if a high percentage of the members lose time, the average time lost by those losing time will be of long duration; if a small percentage lose time, the average duration of their unemployment will be short. This appears to be the fundamental rule in

LXXIV.—PERCENTAGES OF MALE WAGE-EARNERS LOSING TIME[1] IN THE 118 OCCUPATIONS OF THE SAMPLE, BY WEEK INTERVALS OF DURATION OF UNEMPLOYMENT, SHOWING MEDIAN AND MEAN NUMBER OF WEEKS LOST BY THOSE LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931

Province	Occupation	P.C. of Male Wage-Earners Losing Time in												Weeks Lost by Those Losing Time	
		Total	Week Intervals of Duration of Unemployment												
			1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-40	41-48	49-52	Median	Mean
N.S.	Labourers (Coal Mining)	91·7	1·6	2·6	3·6	4·4	6·1	9·6	43·2	8·9	6·5	2·2	2·9	26·6	25·7
B.C.	Coal miners	90·6	3·2	3·2	4·2	10·6	12·5	9·3	18·4	8·1	8·8	4·8	7·5	25·5	26·0
Alta.	Coal miners	84·8	1·8	1·9	4·8	4·3	7·7	5·1	17·1	13·2	21·6	4·6	2·8	28·8	28·5
Ont.	Brick and stone masons	82·0	1·9	3·0	5·2	5·9	7·0	7·2	13·6	9·8	13·8	6·8	7·7	28·1	28·8
Que.	Longshoremen and stevedores	79·8	2·5	2·9	4·5	6·9	13·9	13·1	15·9	7·8	6·9	2·5	2·8	23·8	24·4
Que.	Brick and stone masons	78·3	2·8	4·5	6·2	7·2	9·3	8·2	12·7	8·3	9·8	4·7	4·5	25·4	25·5
B.C.	Miners (Other Mining)	76·8	8·2	5·5	5·3	6·2	5·0	5·8	8·0	7·3	12·0	6·0	7·5	26·2	25·9
Ont.	Moulders, coremakers, and casters—Metal Products (Mfg.)	76·9	3·2	5·2	7·0	7·1	6·9	7·0	14·3	6·4	8·4	4·0	7·4	25·7	25·7
N.B.	Lumbermen	76·4	2·3	6·1	8·6	8·4	8·8	7·7	9·2	7·9	10·2	4·7	2·5	23·1	24·1
Sask.	Carpenters	75·7	1·4	2·2	3·9	4·6	6·2	6·8	11·5	10·2	16·7	7·5	4·7	29·5	29·5
Alta.	Carpenters	74·8	2·3	3·2	5·7	5·8	6·9	7·2	10·6	9·0	13·4	6·0	4·9	27·4	27·6
Ont.	Machine tenders, n.e.s.—Metal Products (Mfg.)	73·6	4·9	6·0	7·3	6·7	5·7	5·6	16·2	6·0	7·3	3·3	4·6	25·1	23·7
Ont.	Fitters, assemblers, and erectors—Metal Products (Mfg.)	73·1	5·1	6·1	7·4	6·1	7·0	6·3	12·5	6·0	7·7	3·9	5·0	24·2	23·9
Man.	Carpenters	72·0	3·4	3·3	5·4	4·5	6·3	6·4	9·8	8·8	12·6	6·0	5·5	27·7	27·7
B.C.	Fishermen	68·4	0·7	1·4	3·1	5·0	8·4	7·8	13·6	10·4	12·3	3·7	2·0	27·3	27·5
N.S.	Carpenters	65·5	3·7	5·7	9·3	7·3	8·1	7·1	10·1	4·9	5·4	1·9	2·2	20·4	21·4
Que.	Miners (Other Mining)	64·2	6·6	7·0	5·5	3·9	4·4	3·9	7·9	4·1	7·1	4·7	8·8	25·4	25·6
Ont.	Tailors	63·1	2·7	4·6	6·7	5·8	6·3	6·3	11·3	5·3	6·1	1·9	5·9	24·4	24·6
Ont.	Tool makers, die cutters and sinkers—Metal Products (Mfg.)	63·1	6·7	5·9	6·7	5·2	4·8	4·2	10·7	6·3	5·7	2·6	4·3	23·2	22·6
Que.	Labourers—mines and quarries	62·7	9·6	6·3	5·6	6·0	5·0	6·1	6·3	4·4	5·7	3·7	3·9	20·0	21·6
Ont.	Sheet metal workers and tinsmiths	62·7	6·3	6·3	6·8	6·0	5·8	4·9	9·2	4·8	5·8	2·3	4·4	20·9	22·3
N.B.	Carpenters	60·5	4·5	5·4	7·5	6·9	7·9	7·1	8·0	4·2	5·4	2·0	1·6	20·0	21·0
Ont.	Plumbers, steam fitters, and gas fitters	60·5	5·9	6·6	6·7	5·8	5·5	4·3	8·1	4·3	6·1	2·6	4·6	20·8	22·5
Ont.	Labourers—mines and quarries	59·2	3·5	4·3	6·2	6·5	6·7	6·1	7·5	5·0	6·3	2·6	4·4	22·5	23·9
Que.	Tailors	59·2	3·6	5·7	8·4	6·0	5·7	6·5	7·7	3·9	4·9	1·8	5·0	21·1	22·8
Que.	Machine operators—boots and shoes	59·4	6·4	5·7	7·1	6·8	5·5	4·6	8·4	3·5	5·0	2·2	4·2	19·7	21·7
Ont.	Blacksmiths, hammermen, and forgemen	58·7	5·6	5·9	6·8	4·5	5·0	4·4	8·3	4·8	5·4	3·0	5·1	22·4	23·2
Ont.	Cabinet and furniture makers	57·0	8·5	9·4	7·8	4·7	3·7	3·4	7·3	2·5	3·9	1·9	4·0	16·3	19·4
B.C.	Stationary enginemen	57·0	4·1	5·6	4·4	5·0	4·8	4·9	7·8	5·6	6·8	3·3	4·7	24·7	24·7
Que.	Plumbers, steam fitters, and gas fitters	55·9	6·8	6·8	7·1	6·2	4·8	4·2	6·3	3·5	4·7	1·9	3·6	17·8	20·6
B.C.	Mechanics, n.e.s.—Metal Products (Mfg.)	50·7	4·9	4·2	4·5	3·9	4·7	3·9	6·9	4·1	6·2	2·8	4·7	24·3	24·5
Ont.	Packers, wrappers, and labellers (Warehousing and Storage)	50·2	8·0	7·2	6·6	4·5	4·2	2·8	5·9	2·8	3·6	2·0	2·6	15·9	19·0
Man.	Mechanics, n.e.s.—Metal Products (Mfg.)	49·5	4·6	3·8	4·4	4·4	4·2	4·6	6·2	4·3	6·1	2·7	4·1	23·9	24·4
Sask.	Mechanics, n.e.s.—Metal Products (Mfg.)	48·4	3·2	3·7	3·6	3·0	4·9	3·8	7·2	5·2	7·5	3·3	2·9	26·1	25·5
Ont.	Locomotive firemen	47·7	6·8	6·0	4·8	3·8	3·6	4·1	5·5	3·9	5·2	1·3	2·7	19·8	20·9
Alta.	Mechanics, n.e.s.—Metal Products (Mfg.)	47·5	3·4	3·9	5·0	3·4	3·9	4·3	6·5	4·6	6·7	2·3	3·4	24·7	24·5
Que.	Weavers	47·6	7·1	8·0	7·0	5·0	4·0	2·2	4·5	2·9	3·6	1·2	2·1	14·4	18·3
B.C.	Truck drivers	46·9	4·9	4·8	4·9	5·3	4·0	3·9	6·3	3·6	4·6	2·5	2·0	17·5	21·7
Que.	Blacksmiths, hammermen, and forgemen	47·2	7·1	6·2	5·1	4·0	3·7	4·1	5·1	2·8	3·6	1·1	4·3	18·2	20·8

n.e.s.—not elsewhere specified,
n.s.—not specified.
[1] More than one week.

MEAN DURATION OF UNEMPLOYMENT BY PER CENT LOSING TIME

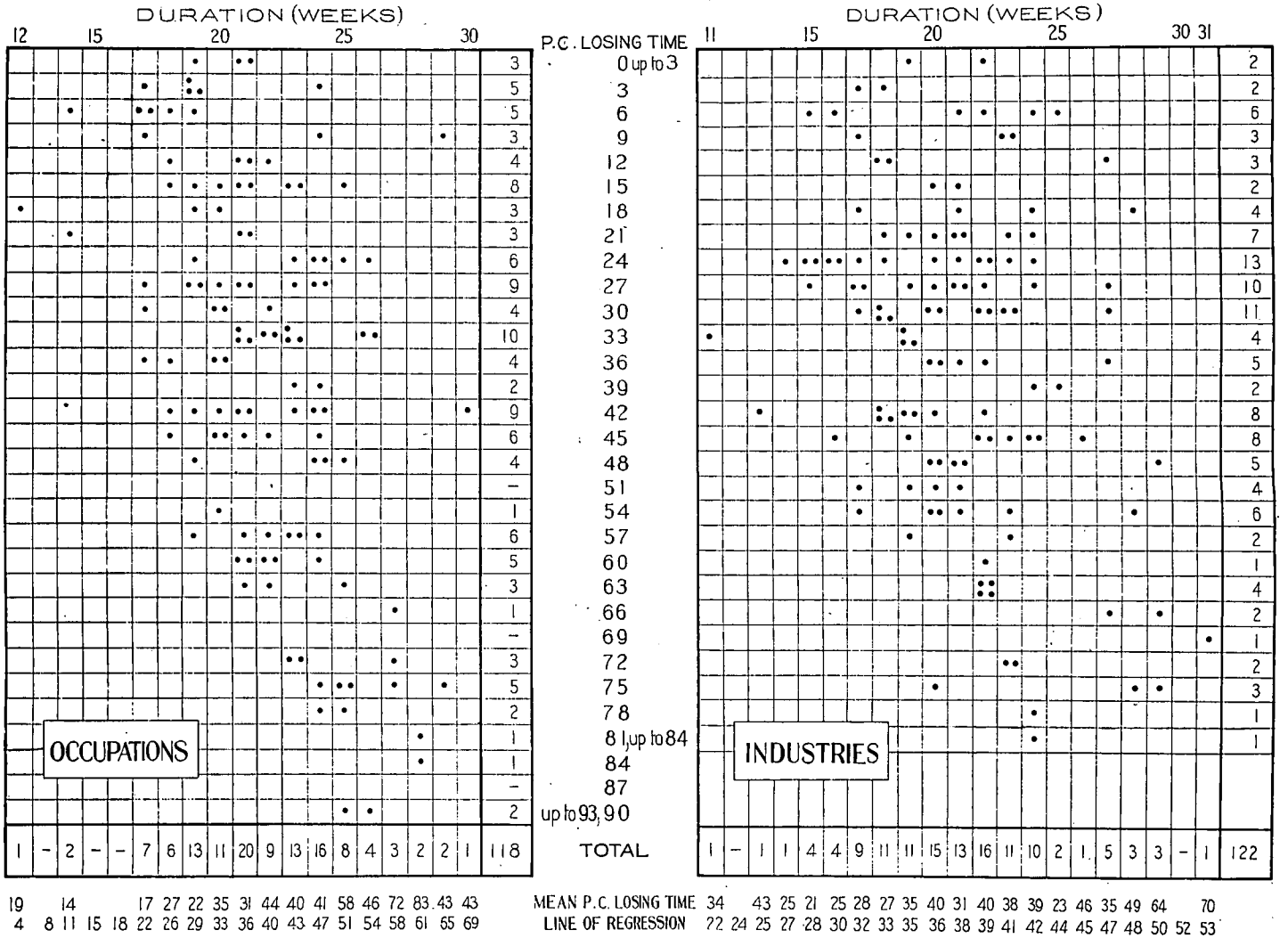

Chart 5

The equation of the line of regression is $Y = 3 \cdot 59X - 38 \cdot 57$
where Y = p.c. losing time,
X = mean duration of unemployment in weeks
$r = \cdot 503$; $\sigma_y = 22 \cdot 71$; $\sigma_x = 3 \cdot 18$

The equation of the line of regression is $Y = 1 \cdot 54X + 5 \cdot 82$
where Y = p.c. losing time,
X = mean duration of unemployment in weeks
$r = \cdot 305$; $\sigma_y = 18 \cdot 60$; $\sigma_x = 3 \cdot 68$

LXXIV. PERCENTAGES OF MALE WAGE-EARNERS LOSING TIME IN THE 118 OCCUPATIONS OF THE SAMPLE, BY WEEK INTERVALS OF DURATION OF UNEMPLOYMENT, SHOWING MEDIAN AND MEAN NUMBER OF WEEKS LOST BY THOSE LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Occupation	P.C. of Male Wage-Earners Losing Time in												Weeks Lost by Those Losing Time	
		Total	Week Intervals of Duration of Unemployment												
			1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-40	41-48	49-52	Median	Mean
Que.	Cooks	45·1	3·6	4·6	5·7	4·9	4·5	4·1	5·5	3·5	4·1	1·6	2·9	20·3	22·1
Ont.	Cooks	44·7	3·4	3·5	4·7	3·9	4·2	4·1	5·8	4·0	5·0	2·6	3·6	23·6	24·4
B.C.	Section foremen, section-men; trackmen	44·9	5·4	4·9	4·7	4·5	4·6	3·7	6·2	3·3	4·1	2·2	1·3	19·6	20·8
Ont.	Boiler firemen	44·7	7·2	5·7	5·7	4·4	3·7	3·0	5·2	2·8	3·4	1·2	2·3	16·4	19·1
Que.	Teamsters, draymen, carriage drivers	44·3	4·8	4·7	5·3	4·3	4·5	3·7	5·8	2·7	3·9	1·8	2·7	19·7	21·4
Ont.	Brakemen	44·5	5·1	5·8	5·3	3·9	3·8	3·6	5·6	3·1	4·1	1·6	2·7	19·2	21·0
Que.	Boiler firemen	44·3	7·0	6·1	6·7	4·2	3·8	4·1	4·4	2·3	2·3	1·4	2·0	15·3	18·3
Man.	Section foremen, section-men: trackmen	44·2	3·1	2·8	3·6	2·2	4·6	6·5	6·0	5·0	5·5	3·0	1·7	24·5	24·8
Man.	Truck drivers	43·6	5·7	3·9	3·6	3·2	3·8	3·9	5·6	3·1	4·8	2·4	3·6	22·6	23·4
B.C.	Cooks	43·1	1·2	2·0	2·6	2·6	3·1	3·1	6·6	4·6	7·4	3·0	6·9	29·4	30·2
Sask.	Section foremen, section-men; trackmen	39·4	1·9	2·2	2·8	2·9	4·3	5·3	7·0	5·4	4·5	2·1	1·0	25·2	24·5
Alta.	Section foremen, section men; trackmen	39·1	2·9	2·9	2·7	3·1	3·0	5·4	6·2	4·5	5·5	1·9	0·9	24·6	23·9
Ont.	Linemen and cablemen	38·0	8·5	6·0	4·5	3·2	3·1	2·6	3·5	1·8	2·1	1·3	1·6	13·1	17·0
N.B.	Farm labourers	37·5	2·7	3·2	4·9	4·3	5·6	3·6	5·0	3·3	3·4	1·2	0·5	19·7	20·8
Que.	Stationary engineмen	36·7	5·4	4·7	3·7	4·2	3·7	2·5	3·8	2·3	2·4	1·1	2·8	17·3	20·3
Ont.	Foremen and overseers—Metal Products (Mfg.)	36·6	5·7	4·9	4·4	3·7	3·2	2·4	5·5	2·2	2·5	1·0	1·2	16·6	18·5
Ont.	Butchers and slaughterers	35·9	5·3	4·6	4·5	2·7	1·9	2·2	4·3	2·0	3·4	1·8	3·2	18·8	21·5
Ont.	Chauffeurs and bus drivers	35·5	4·3	3·2	3·4	2·7	2·6	2·2	4·5	2·7	4·5	2·0	3·3	23·7	23·9
Que.	Chauffeurs and bus drivers	34·6	4·1	3·6	4·2	3·0	2·8	2·9	3·8	2·3	3·1	1·1	3·6	20·4	22·6
Ont.	Bakers	34·8	5·1	4·2	3·7	3·0	2·9	1·7	4·1	2·0	3·0	1·6	3·7	19·1	22·0
B.C.	Seamen, sailors, and deck-hands	34·1	1·9	3·2	2·9	3·0	2·4	1·6	4·8	3·7	4·5	2·0	4·1	26·7	26·3
Ont.	Domestic servants	34·1	3·2	3·9	3·1	2·9	3·2	2·7	3·4	3·3	3·9	2·4	2·1	22·1	23·5
Ont.	Seamen, sailors, and deck-hands	33·7	0·9	1·3	2·0	4·0	5·7	3·5	4·4	3·2	4·0	2·3	2·3	24·3	26·0
Ont.	Waiters	33·3	3·3	2·8	3·6	3·7	2·9	2·3	4·0	2·6	3·3	1·6	3·2	21·6	23·5
Que.	Deliverymen and drivers, n.s.	33·0	5·1	2·8	3·8	3·0	2·9	2·5	3·7	1·8	2·8	2·7	2·0	19·6	21·8
Que.	Waiters	33·0	3·9	4·1	4·0	3·3	2·9	2·4	3·8	2·3	2·9	1·3	2·2	18·7	21·1
Que.	Bakers	32·2	4·2	3·5	3·5	3·4	2·5	2·5	2·9	1·9	2·7	1·5	3·5	19·3	22·3
Que.	Butchers and slaughterers	32·1	5·1	3·2	3·9	3·0	2·4	2·6	3·7	1·7	2·4	1·4	2·6	18·3	20·9
N.S.	Fishermen	31·4	1·6	2·4	4·7	3·2	5·4	4·7	3·5	2·6	2·6	0·4	0·4	19·8	20·9
Que.	Sectionmen, section foremen; trackmen	31·3	6·2	4·1	3·1	2·8	2·9	3·0	3·0	2·1	2·6	0·8	0·6	16·1	17·9
Ont.	Compositors; printers, n.s.	29·8	6·6	4·8	3·1	2·5	1·7	1·3	2·6	1·2	2·0	1·4	2·7	13·7	19·0
Ont.	Messengers	29·3	3·9	2·6	2·5	2·0	1·9	1·9	3·7	2·0	3·3	3·2	2·4	24·7	24·5
Que.	Compositors; printers, n.s.	29·4	6·0	4·0	3·4	2·7	1·8	1·7	2·5	1·5	2·3	0·9	2·8	15·1	19·7
Que.	Shippers	29·5	6·2	4·1	4·3	2·6	2·3	1·8	2·5	1·4	1·3	1·0	2·0	13·2	17·8
Ont.	Barbers, hairdressers, manicurists	29·0	3·4	3·3	2·8	2·3	1·9	1·7	2·8	2·3	3·2	1·9	3·4	22·9	24·1
Ont.	Deliverymen and drivers, n.s.	28·9	6·0	3·9	3·2	2·0	1·8	1·3	2·4	1·5	3·0	2·1	1·7	15·7	20·1
Que.	Seamen, sailors, and deck hands	28·7	1·3	1·7	2·6	3·9	4·2	3·7	3·9	2·1	2·8	1·4	1·3	21·8	23·4
Ont.	Watchmen and caretakers	27·7	3·7	2·7	2·8	2·8	2·1	2·2	3·8	1·8	2·7	1·4	1·7	20·5	21·8
Que.	Watchmen and caretakers	27·4	3·9	2·5	2·8	2·5	2·8	2·1	3·2	2·1	2·5	1·6	1·5	19·9	21·6
B.C.	Bookkeepers and cashiers	26·2	2·5	2·5	1·9	1·7	2·0	1·7	3·0	2·4	3·8	1·6	3·3	26·2	26·0
Que.	Messengers	26·0	3·7	2·4	2·3	2·1	1·4	1·3	3·1	1·6	3·0	2·0	3·0	24·2	24·6
Alta.	Salesmen	26·0	2·7	2·2	3·0	2·1	2·1	2·3	3·1	1·9	2·8	1·3	2·5	22·6	23·8
Ont.	Designers and draughtsmen	25·6	5·4	3·9	2·6	2·2	1·6	1·0	2·2	1·2	1·8	1·0	2·7	14·6	19·7
Sask.	Salesmen	25·3	2·6	2·3	2·3	1·9	2·1	2·1	3·0	2·3	2·9	1·7	2·2	23·8	24·2
Man.	Bookkeepers and cashiers	24·1	2·5	2·1	2·1	2·3	1·5	2·0	2·4	1·3	2·3	1·0	4·6	24·1	25·9
Ont.	Telegraph operators	23·3	4·2	2·7	1·9	1·8	1·7	1·3	2·4	2·0	2·0	0·9	2·4	19·5	21·8
Que.	Domestic servants	22·3	2·6	2·5	2·8	2·4	2·1	1·7	2·2	1·5	2·5	1·0	1·0	18·6	21·0
Ont.	Locomotive engineers	22·6	6·5	4·4	3·0	1·5	1·4	1·0	1·4	0·7	1·1	0·1	1·5	9·5	14·9
N.S.	Salesmen	19·1	3·6	2·3	1·6	1·6	1·7	1·4	2·0	1·0	1·6	0·9	1·4	18·0	20·5
N.B.	Salesmen	18·8	3·6	2·2	1·9	1·5	1·5	2·0	1·3	1·3	1·4	1·0	1·2	17·7	19·8
Ont.	Foremen and inspectors—steam railway	18·3	5·4	4·9	2·3	1·8	0·8	0·5	0·6	0·3	0·3	0·1	1·2	8·0	12·9
Ont.	Civil engineers and surveyors	17·8	2·4	2·4	2·1	1·2	1·2	1·7	1·7	1·1	1·2	0·4	2·3	19·5	21·9
Ont.	Janitors and sextons	17·6	3·0	2·1	2·0	1·3	1·3	1·4	1·9	1·1	1·4	0·7	1·3	18·1	20·5
N.S.	Office clerks	17·5	3·2	2·2	1·8	1·4	1·4	1·6	1·9	1·3	1·2	0·4	1·1	17·4	19·4
N.B.	Office clerks	17·3	4·3	1·7	2·1	1·1	1·3	1·3	1·5	1·2	1·2	0·7	1·0	15·2	18·3
Alta.	Office clerks	16·5	1·9	1·6	1·5	1·4	1·5	1·1	1·8	1·3	1·7	0·8	1·8	22·1	23·7
Ont.	Sales agents, canvassers, demonstrators	16·3	1·6	1·6	1·3	1·1	1·4	1·5	2·0	1·1	1·7	1·0	2·1	24·2	25·3
Sask.	Office clerks	15·5	2·4	1·6	1·2	1·2	1·7	1·0	2·0	0·8	1·8	0·8	1·0	20·2	21·7
Ont.	Commercial travellers	15·0	2·1	1·7	1·8	1·0	0·8	0·8	1·7	0·8	1·6	0·6	2·1	21·5	23·4

LXXIV.—PERCENTAGES OF MALE WAGE-EARNERS LOSING TIME[1] IN THE 118 OCCUPATIONS OF THE SAMPLE, BY WEEK INTERVALS OF DURATION OF UNEMPLOYMENT, SHOWING MEDIAN AND MEAN NUMBER OF WEEKS LOST BY THOSE LOSING TIME, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Occupation	P.C. of Male Wage-Earners Losing Time in												Weeks Lost by Those Losing Time	
		Total	Week Intervals of Duration of Unemployment												
			1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-40	41-48	49-52	Median	Mean
Sask.	Purchasing agents and buyers	13·9	2·6	2·8	1·6	0·9	1·3	0·8	0·6	1·0	1·0	0·4	1·0	12·9	18·2
Que.	Janitors and sextons	13·8	2·0	1·7	1·5	1·0	1·3	1·0	1·6	0·9	1·0	0·9	0·9	19·2	21·3
Ont.	Insurance agents	13·7	2·0	1·5	1·4	1·3	1·0	0·7	1·3	1·1	0·9	0·6	1·6	19·0	22·3
Que.	Insurance agents	12·6	1·8	1·6	1·4	1·0	1·1	0·9	1·4	0·5	1·2	0·3	1·4	18·8	21·6
Que.	Accountants and auditors	11·4	1·5	0·9	1·0	0·8	0·6	0·5	0·7	0·5	0·5	0·5	3·8	27·0	29·2
P.E.I.	Farm labourers	11·3	1·5	1·3	1·9	1·6	1·5	1·2	1·0	0·5	0·3	0·3	0·3	15·5	17·3
Sask.	Teachers—school	10·8	0·7	1·0	1·5	1·0	1·3	0·9	1·1	0·4	0·7	0·7	1·4	20·5	24·2
Que.	Managers—retail stores	8·6	1·9	0·9	1·4	0·9	0·8	0·5	0·6	0·4	0·5	0·1	0·6	13·4	17·4
Que.	Police and detectives	8·5	2·4	1·2	1·0	0·7	0·7	0·3	0·4	0·5	0·4	0·2	0·7	11·6	17·3
Ont.	Managers—retail stores	7·3	1·6	1·2	0·8	0·5	0·5	0·4	0·5	0·3	0·4	0·2	0·8	12·9	19·2
Ont.	Police and detectives	6·4	1·1	0·7	0·9	0·8	0·6	0·5	0·7	0·2	0·4	0·1	0·4	15·5	18·5
Ont.	Postmen and mail carriers	6·3	2·4	1·0	0·6	0·2	0·2	0·4	0·6	0·2	0·3	0·1	0·3	8·0	14·1
Ont.	Public service officials	5·7	1·0	0·6	0·6	0·6	0·3	0·6	0·8	0·2	0·5	0·1	0·3	16·9	19·3
Que.	Public service officials	5·9	1·1	1·0	0·9	0·3	0·6	0·5	0·6	0·3	0·2	0·2	0·2	12·8	17·0
Ont.	Managers—wholesale, import, and export houses; commercial agencies	5·0	1·1	0·5	0·6	0·5	0·4	0·2	0·4	0·3	0·5	1	0·5	15·4	19·5
Que.	Teachers—school	4·2	0·6	0·8	0·3	0·4	0·1	0·3	0·3	0·1	0·3	0·1	0·9	16·9	24·0
Ont.	Teachers—school	4·1	0·6	0·7	0·7	0·4	0·3	0·2	0·2	0·2	0·3	0·2	0·4	14·0	19·8
Ont.	Officials—finance	3·0	0·9	0·4	0·4	0·1	1	0·1	1	1	0·1	0·1	0·6	9·5	19·3
Ont.	Clergymen and priests	1·2	0·5	0·2	0·1	0·1	1	1	0·1	1	1	1	0·2	8·9	21·1
Que.	Clergymen and priests	0·5	1	0·1	1	–	0·1	–	0·1	1	–	–	0·1	20·9	23·9
	Mean													20·14	22·22
	σ													4·79	3·05

[1] Less than one-tenth of one per cent.

occupations. The size of the sample correlated shows that there is no ground for argument that the correlation (r = ·503) is not sufficient to be conclusive. Furthermore it will now be shown that the correlation is lowered by something not inherent in occupation as such. We have mentioned that some occupations (from the viewpoint of the census) are confined to and comprise entire industries. These are the cases where the industry and the occupation are synonymous. Unemployment among "Clergymen and priests" is nearly identical with unemployment in "Religion," and unemployment among "Lumbermen" with "Forestry and logging." The question arises in a case of parallel industries and occupations—does the group take the features of unemployment typical of the occupation or of the industry? It would seem that the answer lies in an analysis of those occupations which conform least to the observed tendency for the percentage losing time to be a function of the duration. The logic of this move is apparent when we remember that when we analysed industrial unemployment we found a strong tendency to a condition directly opposed to that found in occupations. We found that the highly organized industries (on the whole those showing smallest unemployment) while showing only a small percentage losing time indicated that once the wage-earner lost time it was of long duration. Referring again to the second half of Chart 5 we find that on the whole the duration of unemployment is nearly the same for all percentages losing time. The correlation (r = ·305)* would indicate that there is a slight tendency for industry to operate as do occupations. However, since some industries are identical or nearly so to some occupations—to that extent must they behave similarly. Therefore the correlation in industries is destroyed by the counter forces (1) the natural tendency (that of occupations) and (2) the induced tendency (the trend of organized industry to throw out workers who have outworn their usefulness).

* In comparing the correlation of occupations (r = ·503) and of industries (r = ·305) we find that r^2 (which is the true ratio of dependence) in the industries is ·0930, while in occupations it is ·2520 or nearly three times as great as that of industries.

To further illustrate this point let us consider those occupations which do not obey the natural tendency (few wage-earners losing time—little time lost). They are as follows:—

OCCUPATIONS SHOWING GREATER AND LESS DURATION THAN WARRANTED BY THE PERCENTAGE LOSING TIME

Greater		Less	
Ont.	Officials—finance	Que.	Plumbers, steam fitters, and gas fitters
Ont.	Clergymen and priests	Ont.	Cabinet and furniture makers
Que.	Clergymen and priests	Que.	Machine operators—boots and shoes
Que.	Teachers—school	N.B.	Carpenters
Ont.	Teachers—school	Ont.	Sheet metal workers and tinsmiths
Ont.	Managers—wholesale, import, and export houses; commercial agencies	Que.	Labourers—mines and quarries
		Ont.	Plumbers, steam fitters, and gas fitters
Ont.	Public service officials	Ont.	Tool makers, die cutters and sinkers—Metal Products (Mfg.)
Ont.	Managers—retail stores	N.S.	Carpenters
Sask.	Teachers—school	Ont.	Machine tenders, n.e.s.—Metal Products (Mfg.)
Que.	Accountants and auditors	Ont.	Fitters, assemblers, and erectors—Metal Products (Mfg.)
Que.	Insurance agents	N.B.	Lumbermen
Ont.	Insurance agents	B.C.	Miners (Other Mining)
Que.	Janitors and sextons	Ont.	Moulders, coremakers, and casters—Metal Products (Mfg.)
Ont.	Commercial travellers	Que.	Brick and stone masons
Sask.	Office clerks	Que.	Longshoremen and stevedores
Ont.	Sales agents, canvassers, demonstrators	N.S.	Labourers (Coal Mining)
Alta.	Office clerks	B.C.	Coal miners
Ont.	Civil engineers and surveyors	Alta.	Coal miners
Man.	Bookkeepers and cashiers		
Sask.	Salesmen		
Que.	Messengers		
B.C.	Bookkeepers and cashiers		
B.C.	Cooks		

n.e.s.—not elsewhere specified.

Note that those occupations which are in the lower percentage-losing-time intervals not only exhibit the unemployment characteristics of the highly organized industry—they are either identical with organized industries (*e.g.*, occupation "Clergymen and priests," industry "Religion"; occupation "Teachers—school," industry "Education") or they are occupations which dominate organized industries or functionally are characteristic of them. This class includes the managers, officials and office workers which, as we have shown in the previous chapter are a sign of the relative degree of organization of the industry. There are only one or two exceptions to this class. This is to be expected in data of the type we are using and might be due to special local factors, etc.

Now observe the type of occupation which characterizes the other class—where the duration of unemployment is less than is warranted by the percentage of the wage-earners who lose time.

Note immediately that every member of the class shows a large percentage losing time and that they are mainly occupations engaged in mining, construction and logging, metal products manufacturing and water transportation. These are all loosely organized industries* with the exception of metal products manufacturing. The reason for their appearance in this class would seem to be due in part to the "paternal" attitude of the industry, *i.e.*, the attempt to maintain a constant working force by spreading the employment. It has been pointed out in the previous chapter that there were scattered evidences of this practice in certain industries—but that on the whole it was exceptional and contrary to the trend.

There is however, another very significant factor which tends to spread unemployment within the occupation, *viz.*, labour unions. The listed occupations in metal products manufacturing are, in comparison to other manufacturing groups, rather heavily unionized.† One of the aims of labour organizations is to spread employment among its members; in other words, by organizing the occupation to stem the trend of unemployment resultant from the "survival of the fittest" system of selection and discarding of workers employed by the "organizing" industries. Whether this aim is being accomplished in actual practice is a matter of opinion. In a closed shop, theoretically, the effect would be as intended but in an open shop would depend on the extent of unionization. The result is in general the same for a census occupation class—unless the total unionization is high any tendency to spread the unemployment will not be shown in the figures.

* The reader is again reminded that by an "organized" industry we mean one which is able to stabilize and control its working force.

† In 1931 according to "Labour Organization in Canada", 5·73 p.c. of the 310,544 members of labour organizations in Canada were engaged in the Metal Trades.

The Differential Behaviour of Occupational and Industrial Unemployment.—The indications are that the superimposition of the process of "organization" in industries on the natural trend of unemployment and the degree of overlapping between "occupation" and "industry" have lowered the real correlation in occupations between the percentage losing time and the duration of unemployment; also that in industries the natural trend and the trend of organization have tended to offset each other with the result that in industries the unemployed person suffers on the whole as much in one industry as in another. That is, the unemployed person in industry A more closely resembles the unemployed person in industry B, C or D than the *employed* person in his own industry A. But in occupation A, the unemployed person is more similar to the *employed* person in his own occupation than to a person unemployed in another occupation.

Natural Trend.—When we speak of the "natural trend" we mean that condition which appears the more fundamental. What type of unemployment was commonest at various periods of human history?

In primitive stages of human endeavour, occupations and industries were synonymous. One group of people tilled the fields, another group tended the herds, another made clothing and so forth. There was little division of labour, each group carried out the entire industrial process. At an early stage, the different occupation groups found it necessary to protect themselves by some sort of organization. That is, in place of the community being the social unit, the various occupation group subdivisions of the community became units in themselves. To insure the solidity of the group it was found necessary to protect those members who were physically or mentally inferior, so that by virtue of his occupational attachment the weaker individual was safeguarded from undue hardship. The physical welfare of the individual was determined by his occupational status. If a certain occupation was hard hit, the entire body felt the effects of poverty—if the occupation was thriving, everybody lived well. Translated into modern parlance this would mean that in a thriving occupation, only a few lost time and those who lost time lost only a little time, while in a hard hit occupation a great many lost time and those losing time lost a great amount of time. This condition was in evidence when the guild and craft organizations of Europe were at their height prior to the Industrial Revolution. The invention of the machine, division of labour, and mass production tended to break up this occupational alignment and it became necessary for the individual to look after himself in adapting himself to the new technique of production. Industries now commanded individuals not occupation groups and as they became more efficient discarded the unnecessary and obsolescent parts of their labour force. Rivalry became intense between industries, with the result that the most efficient industries commanded the highest type of labour while the less efficient would choose those required from the discards of the efficient and from the reserve of workers of lesser abilities. This is the picture represented in the second half of Chart 5, efficient or highly organized industries showing only a few losing time—but once losing time the worker loses a long time. That is, there are indications that he is discarded. Where does he go ? We shall see. Looking at the loosely organized industries we find a great many losing time—but also that the individual losing time loses only as much as the person losing time in the highly organized industry—and the duration of time lost would be less if the class of worker normally attached to this type of industry were not increased by the discards from the more highly organized industries.

The potential effect of the process of organization in industries is lessened to some extent because certain occupations are still industries and also because of the increasing tendency towards organization of occupational labour unions within the industry.

In short, the renewal of the occupational labour union should be having some effect in restoring the normal trend of unemployment, although the trend of industrial efficiency is still proceeding at such a pace that the occupational influence is merely checking the rate of increase.

To illustrate we will take extreme cases. In a period of depression such as existed in 1931, all industries were discarding labourers but the majority of them found some work in seasonal industries, etc. That is, a large percentage of labourers lost time but as they found intermittent work the duration of unemployment was lessened. Now we will take an occupation of the opposite type "Accountants and auditors." Only a few are thrown off—but once thrown off, there are fewer avenues of re-employment. Therefore, unless the person changes his occupational status, he must remain idle indefinitely.

Occupation, Earnings and Duration of Unemployment.—We have stated that in industries those wage-earners losing time are a different class from those who lose no time. On investigation it was found that those losing time were predominantly occupation groups rather than aggregates of individuals drawn from numerous occupations. From this it was inferred that in occupations the wage-earners whether losing time or losing no time were generally a homogeneous group—the criterion of homogeneity being the occupational attachment. This inference checked with data derived from the census as has been shown in this chapter. We are therefore in a position to utilize census data on earnings by occupations. We will assume that all members of an occupation earn relatively similar wages. That is, when working the rate of earnings is somewhere near the same figure for all members of the occupation.*

Statement LXXV shows the average weekly earnings and the average earnings per week worked during the year preceding June 1. Note the great difference between the average earnings and the average earnings per week worked. If, for the moment, we assume that some wage-earners lost no time and regard the first column of average earnings per week worked as average earnings for those losing no time and the second column as the average earnings of those losing time, we find that those losing no time in most cases earn a living wage, while many of those losing time could not possibly maintain a decent standard of living from their wages. In other words the great mass of those losing time must depend on charity or state relief. This is emphasized when we consider that the average wage-earner has one or more dependents. Even admitting that heads of families have a better chance of losing no time than wage-earners with no dependents, we have figures to show that there were 250,000 male wage-earners in Canada earning less than $450 in the year preceding June 1, 1931, who were heads of families. The average size of the family in this earning class was slightly over 4, meaning that the male wage-earner heads of families in this group earning less than $450 per year has an average of 3 dependents in addition to himself.

Now there were 640,000 male wage-earners in Canada who earned less than $450 during the year preceding June 1, 1931. Therefore, 390,000 wage-earners in this group were not heads of families, *i.e.*, most of them had no dependents. The average number of dependents per male wage-earner earning less than $450 a year would be about 1·2. Having regard for the fact that some members of the family assist the head in supporting the household, we will assume an arbitrary number of dependents per male wage-earner earning less than $450 per annum of 1.

An annual wage of $450 for a wage-earner with 1 dependent is obviously barely a subsistence, being less than $9.00 weekly.

We again refer the reader to Statement LXXVI where we show the percentage of wage-earners in each of the 118 occupations of the sample who must depend upon assistance, *i.e.*, those who on the basis of weeks worked and rate of wages in the occupation are receiving less than a living wage. This is done by determining from the occupation wage rate the number of weeks a wage-earner could lose without bringing his earnings for the whole year below $450. This should be compared with the actual average weeks lost in the occupation.

It will be noted that the occupations which are in the worst conditions are those which are seasonal and cyclical in character and also predominantly from the Prairie Provinces and British Columbia. The occupations which show practically no destitute members are religion, education, Government service, managers and most occupations in railway transportation. These occupations combine a high rate of earnings with a minimum percentage of wage-earners losing time.

It is of interest to note that the actual rate of earnings, while highest in the occupations losing least time, is not correspondingly low in these occupations losing most time. (See Statement LXXVII which is a scatter diagram showing the relationship between the average weekly wage per week worked and the percentage of the occupation earning less than $450 annually.) There are indications that certain cyclical and seasonal occupations which show intermittent employment get a measure of compensation from a somewhat higher rate of earnings than would be expected. This factor combined with the fact that many of the skilled trades, being highly unionized, have increased their rate of earnings but have not lowered the percentage losing time, militates against a high negative correlation between the rate of earnings and the percentage losing time.

* The idea being that those individuals in the occupation earning more are balanced by those earning less and that on the whole the range between high and low earnings is not great within the occupation group.

LXXV.—AVERAGE WEEKLY EARNINGS PER WEEK WORKED (WHICH IS BEING ASSUMED TO BE PER WAGE-EARNER LOSING NO TIME), AVERAGE WEEKLY EARNINGS (WHICH IS BEING ASSUMED TO BE PER WAGE-EARNER LOSING TIME), AVERAGE WEEKS LOST PER WAGE-EARNER AND MAXIMUM WEEKS THAT COULD BE LOST AND STILL HAVE AN ANNUAL WAGE OF NOT LESS THAN $450, WITH PERCENTAGE OF MALE WAGE-EARNERS EARNING LESS THAN $450, IN THE 118 SELECTED OCCUPATIONS OF THE SAMPLE, CANADA, YEAR ENDED JUNE 1, 1931

Province	Occupation	Average Weekly Earnings per Week Worked	Average Weekly Earnings	Maximum Weeks a Wage-Earner Could Lose to Insure a Yearly Income of Not Less than $450	Actual Average Weeks Lost per Wage-Earner	Approximate Percentage of Wage-Earners Earning Less than $450 Yearly
		$	$			
Ont.	Officials—finance	70·52	44·41	45	0·57	1
Ont.	Managers—wholesale, import, and export houses; commercial agencies	68·98	43·14	45	0·98	–
Ont.	Civil engineers and surveyors	54·17	31·33	43	3·90	3
Que.	Accountants and auditors	49·52	26·65	42	3·34	4
Ont.	Public service officials	47·89	30·13	42	1·10	–
Ont.	Locomotive engineers	47·45	33·81	42	3·38	2
Ont.	Managers—retail stores	46·54	29·32	42	1·41	1
Que.	Managers—retail stores	43·20	28·72	41	1·49	1
Que.	Public service officials	41·79	28·10	41	1·00	–
Ont.	Commercial travellers	41·45	22·77	41	3·51	3
Ont.	Teachers—school	39·51	24·48	40	0·81	1
Que.	Insurance agents	36·78	21·47	39	2·73	2
Ont.	Insurance agents	36·25	20·73	39	3·04	2
Ont.	Foremen and inspectors—steam railway	34·58	26·01	38	2·36	1
Ont.	Foremen and overseers—Metal Products (Mfg.)	34·55	22·24	38	6·78	3
Ont.	Locomotive firemen	34·40	20·59	38	9·97	5
Ont.	Sales agents, canvassers, demonstrators	34·24	17·58	38	4·13	4
Ont.	Clergymen and priests	33·75	20·08	38	0·26	–
Ont.	Brakemen	33·01	19·68	38	9·35	5
Ont.	Police and detectives	32·63	21·00	37	1·19	1
Ont.	Designers and draughtsmen	32·11	19·93	37	5·05	5
Ont.	Compositors; printers, n.s.	31·34	19·88	37	5·66	5
Ont.	Telegraph operators	31·25	18·16	37	5·08	4
Que.	Police and detectives	30·34	20·28	36	1·47	1
Que.	Compositors; printers, n.s.	29·99	18·62	36	5·80	5
Ont.	Tool makers, die cutters and sinkers—Metal Products (Mfg.)	29·05	16·40	36	14·29	10
Ont.	Brick and stone masons	28·48	12·68	35	23·64	23
B.C.	Stationary enginemen	28·00	14·72	35	14·05	12
Que.	Brick and stone masons	27·82	14·16	35	20·00	15
Sask.	Purchasing agents and buyers	27·73	18·01	35	2·53	2
Ont.	Linemen and cablemen	27·33	18·41	35	6·45	4
Ont.	Plumbers, steam fitters, and gas fitters	27·26	15·49	35	13·58	11
B.C.	Bookkeepers and cashiers	26·75	13·37	34	6·81	8
Man.	Bookkeepers and cashiers	26·74	13·43	34	6·25	7
Sask.	Teachers—school	26·55	14·18	34	2·62	2
Que.	Stationary enginemen	26·32	16·05	34	7·45	6
B.C.	Miners (Other Mining)	24·09	12·39	32	19·89	25
Alta.	Office clerks	24·57	13·38	32	3·91	4
Alta.	Salesmen	24·29	13·19	32	6·17	7
Ont.	Sheet metal workers and tinsmiths	24·24	13·87	32	13·94	13
Alta.	Carpenters	24·24	11·31	32	20·64	24
Ont.	Cooks	24·10[1]	15·14[1]	32	10·90	11
Sask.	Office clerks	23·95	13·94	32	3·36	4
Man.	Carpenters	23·88	11·22	32	19·97	24
Que.	Plumbers, steam fitters, and gas fitters	23·87	14·40	32	11·54	10
Alta.	Coal miners	23·71	10·70	32	24·19	29
B.C.	Mechanics, n.e.s.—Metal Products (Mfg.)	23·66	12·52	32	12·41	14
Alta.	Mechanics, n.e.s.—Metal Products (Mfg.)	23·47	12·99	32	11·65	13
Que.	Clergymen and priests	23·46	23·05	32	0·12	–
N.B.	Office clerks	23·31	15·09	32	3·17	3
Ont.	Tailors	23·31	12·27	32	15·54	14
Que.	Tailors	23·30	13·09	32	13·49	12
Que.	Cooks	23·28[1]	15·51[1]	32	9·98	9
B.C.	Seamen, sailors, and deckhands	23·10[1]	13·94[1]	32	8·97	11[4]
Que.	Teachers—school	22·91	12·32	31	1·02	1
Ont.	Watchmen and caretakers	22·79[3]	14·09[3]	31	6·03	6
Ont.	Blacksmiths, hammermen, and forgemen	22·72	12·00	31	13·64	13
Ont.	Boiler firemen	22·58	14·27	31	8·55	8
Man.	Mechanics, n.e.s.—Metal Products (Mfg.)	22·30	11·85	31	12·05	14
Sask.	Salesmen	22·12	11·82	31	6·11	7
Que.	Blacksmiths, hammermen, and forgemen	22·06	13·24	31	9·81	10

n.e.s.—not elsewhere specified.
n.s.—not specified.
[1] Includes allowance of $5.00 per week for food and lodging.
[2] Includes allowance of $3.00 per week for food.
[3] Includes allowance of $2.00 per week for lodging.
[4] A large number did not report earnings. The earnings figure is therefore probably too high.

LXXV.—AVERAGE WEEKLY EARNINGS PER WEEK WORKED (WHICH IS BEING ASSUMED TO BE PER WAGE-EARNER LOSING NO TIME), AVERAGE WEEKLY EARNINGS (WHICH IS BEING ASSUMED TO BE PER WAGE-EARNER LOSING TIME), AVERAGE WEEKS LOST PER WAGE-EARNER AND MAXIMUM WEEKS THAT COULD BE LOST AND STILL HAVE AN ANNUAL WAGE OF NOT LESS THAN $450, WITH PERCENTAGE OF MALE WAGE-EARNERS EARNING LESS THAN $450, IN THE 118 SELECTED OCCUPATIONS OF THE SAMPLE, CANADA, YEAR ENDED JUNE 1, 1931—Con.

Province	Occupation	Average Weekly Earnings per Week Worked	Average Weekly Earnings	Maximum Weeks a Wage-Earner Could Lose to Insure a Yearly Income of Not Less than $450	Actual Average Weeks Lost per Wage-Earner	Approximate Percentage of Wage-Earners Earning Less than $450 Yearly
		$	$			
B.C.	Coal miners	22·00	11·00	31	23·54	23
Ont.	Postmen and mail carriers	21·97	16·01	30	0·90	1
Ont.	Fitters, assemblers, and erectors—Metal Products (Mfg.)	21·96	11·88	30	17·44	20
N.S.	Office clerks	21·93	13·77	30	3·39	3
B.C.	Cooks	21·78[1]	17·58[1]	30	13·02	20
Que.	Miners (Other Mining)	21·65	10·99	30	16·42	23
Ont.	Bakers	21·49	12·40	30	7·67	9
Ont.	Moulders, coremakers, and casters—Metal Products (Mfg.)	21·48	10·85	30	19·79	23
Ont.	Butchers and slaughterers	21·26[1]	13·15[1]	30	7·73	10[4]
B.C.	Truck drivers	21·21	12·38	30	10·15	12
Ont.	Seamen, sailors, and deckhands	20·95	12·27	28	8·73	10
Ont.	Janitors and sextons	20·65[3]	13·31[3]	28	3·60	5
Que.	Watchmen and caretakers	20·65[3]	12·89[3]	28	5·94	8
Que.	Shippers	20·62	13·55	28	5·26	6
Sask.	Mechanics, n.e.s.—Metal Products (Mfg.)	20·58	10·50	28	12·32	19
Ont.	Cabinet and furniture makers	20·48	12·82	28	11·08	12
Ont.	Machine tenders, n.e.s.—Metal Products (Mfg.)	20·33	11·06	28	17·44	21
Que.	Boiler firemen	20·31	13·16	28	8·10	8
Ont.	Barbers, hairdressers, manicurists	20·22	15·64	28	7·02	11
Ont.	Chauffeurs and bus drivers	20·13	10·87	28	8·49	13
Que.	Section foremen, sectionmen; trackmen	19·98	13·11	27	5·60	7
Sask.	Carpenters	19·88	8·60	27	22·34	42
Que.	Waiters	19·86[2]	12·33[2]	27	6·98	10
N.B.	Salesmen	19·74	12·22	27	3·73	5
Ont.	Labourers—mines and quarries	19·65	10·61	27	14·16	20
Man.	Truck drivers	19·63	10·81	27	10·20	15
N.S.	Labourers (Coal Mining)	19·51	9·89	27	23·52	31
B.C.	Section foremen, sectionmen; trackmen	19·39	11·65	27	9·33	12
Que.	Butchers and slaughterers	19·37	11·59	27	6·71	9
Que.	Chauffeurs and bus drivers	19·10	10·81	27	7·81	13
Que.	Longshoremen and stevedores	18·91	10·05	26	19·44	28
Que.	Janitors and sextons	18·73[3]	11·21[3]	26	2·95	5
Alta.	Section foremen, sectionmen; trackmen	18·70	10·09	26	9·36	16
Man.	Section foremen, sectionmen; trackmen	18·66	9·77	26	10·94	18
N.B.	Carpenters	18·66	11·12	26	12·72	17
Que.	Bakers	18·58	10·60	26	7·18	11
N.S.	Salesmen	18·55	11·23	26	3·93	6
Ont.	Waiters	18·52[2]	13·52[2]	26	7·81	13
Que.	Seamen, sailors, and deckhands	18·09[1]	12·19[1]	26	6·73	10[4]
N.S.	Carpenters	17·91	10·54	25	14·01	22
Sask.	Section foremen, sectionmen; trackmen	17·90	9·46	25	9·65	16
Ont.	Packers, wrappers, and labellers (Warehousing and Storage)	17·73	11·24	25	9·56	16
Ont.	Deliverymen and drivers, n.s.	17·54	10·77	25	5·80	10
Que.	Teamsters, draymen, carriage drivers	17·15	10·09	25	9·47	16
Que.	Machine operators—boots and shoes	16·43	9·56	23	12·90	24
Ont.	Domestic servants	16·09[1]	11·07[1]	23	8·03	16
Que.	Deliverymen and drivers, n.s.	16·08	9·34	23	7·20	14
B.C.	Fishermen	15·42	7·28	21	18·79	48
Que.	Labourers—mines and quarries	14·90	8·71	19	13·54	32
Que.	Weavers	14·71	9·54	19	8·70	18
Que.	Domestic servants	14·58[1]	10·72[1]	19	4·67	10
N.S.	Fishermen	14·13[1]	10·47[1]	19	6·56	16
N.B.	Lumbermen	14·05[1]	9·85[1]	19	18·47	42
N.B.	Farm labourers	12·47[1]	9·48[1]	13	7·82	26
P.E.I.	Farm labourers	11·60[1]	9·41[1]	9	1·96	8

While the relation between rate of earnings and percentage losing time is not as high as might be expected, the fact remains that by making allowance for the different individual durations of unemployment coupled with the average rate of earnings, we find that the percentage earning less than a living wage bears a distinct relationship to the percentage losing time.

LXXVI.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF THE 118[2] OCCUPATIONS OF THE SAMPLE, ACCORDING TO AVERAGE WEEKLY EARNINGS PER WEEK WORKED IN RELATION TO PERCENTAGE OF OCCUPATION[1] EARNING LESS THAN $450 IN THE YEAR ENDED JUNE 1, 1931

No.	Average Weekly Earnings per Week Worked	P.C. of Wage-Earners Earning Less than $450 Yearly																						
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
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31						1			1			1	1		1	1								
32		1	1		1			1		1	1		1	1	2	1								
33			1		1				1			1				1						2		
34							1	1		1	1	2		1							1			
35	20.....						1		1	1		1	1	1	1		1					1	1	
36							1	1			1		1	1	2			1	1	1				
37												2						2						1
38																		1						
39																1		1						
40	15.....											1								1				
41																		1						
42																								
43	12.....									1														

[1] Male wage-earners.
[2] Messengers, Ontario and Quebec, are omitted, being mostly juveniles.
[3] Includes one occupation having average weekly earnings of $54, one of $69 and one of $71.

I.XXVI.—SCATTER DIAGRAM SHOWING FREQUENCY DISTRIBUTION OF THE 118[2] OCCUPATIONS OF THE SAMPLE, ACCORDING TO AVERAGE WEEKLY EARNINGS PER WEEK WORKED IN RELATION TO PERCENTAGE OF OCCUPATION[1] EARNING LESS THAN $450 IN THE YEAR ENDED JUNE 1, 1931

P.C. of Wage-Earners Earning Less than $450 Yearly

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	No.
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By means of the multiple correlation we have been able to observe the relation of the factors which account for the percentage of wage-earners earning less than $450 per annum. We will denote the various factors by symbols as follows:—

X_1 = percentage of wage-earners earning less than $450 per annum;
X_2 = percentage of wage-earners losing time;
X_3 = average earnings per week worked;
S = other factors.

In accounting for X_1, it was found that the combined weight of X_2 and X_3 accounted for 71·25 p.c. (R = ·84), the remaining factors (S) accounting for 28·75 p.c. It would appear that the main content of S must be the duration of unemployment independent of X_2.

We may say therefore, that the percentage earning less than $450 per annum is determined mainly by the percentage in the occupation who lose time, secondly by the duration of unemployment independent of the percentage losing time, and thirdly by the rate of earnings, the weights derived from the multiple correlation being X_2 = 60·6 p.c., X_3 = 10·6 p.c., S = 28·8 p.c.

These weights are, of course, not applicable to fine measurements but merely serve as indications of the relative importance of certain factors in determining the probability of a person being forced to live under sub-marginal conditions. Broadly stated, this means that if a person, deciding upon an occupational attachment, wishes to avoid poverty and loss of economic independence, he or she should consider first, the chance of losing time, second, the duration of unemployment once a job has been lost and third, the rate of earnings in the occupation. This illustration does not take into account natural ability or individual preference for certain occupations.

The most striking fact is that the rate of earnings is relatively a minor consideration. This of course means that the average earnings tend to approach an amount which would guarantee a living wage, provided the individual were working more continuously. This may seem a very commonplace observation, but on closer examination we find that the problem of workers earning less than a living wage is confined mainly to certain occupations where a great many wage-earners lose time. Note that there are 22 of the occupations in the sample showing less than 3 p.c. earning less than a living wage, while 80 p.c. of those earning less than $450 per annum are contained in 53 occupations or 46 p.c. of the occupations. This appears to be a strong indication of the tendency noted in this and the previous chapter, *viz.*, that when an industry discards workers, the tendency is to discard occupations rather than individuals at random.

Summary.—This chapter does not aim at a complete picture of occupational unemployment. Its purpose is rather to isolate and define the difference between unemployment resulting from the industrial structure, and that resulting from the occupational regimentation of labour.

It has been shown that what differences exist are very real but that their full effect is difficult to show statistically due to the overlapping of industries and occupations.

The essential point of difference appears to be that in industries, the employed, as a class, are different from the unemployed. In occupations this is not the case. From this it seems to follow that the unemployed in industry tend to be certain occupations rather than individuals. It also follows that occupations showing long duration of unemployment tend to be assimilated into the large class—"unspecified industrial connection".*

*In a study of occupations it becomes very apparent that the class "unskilled labour" is a purely relative group, *i.e.*, relative to the condition of the industrial structure at a particular time. In other words, it tends to be a labour reserve—almost a weather gauge of the social side of industry.

CHAPTER V

THE AGE FACTOR IN UNEMPLOYMENT

The Population Background.—Statement LXXVII gives by age group, the number of males and females in Canada, on June 1, 1931 in the categories of population, gainfully occupied, wage-earners, and unemployed. The ratios of successive columns have been calculated in the table.

A simple calculation shows that the gainfully occupied, the wage-earners and the unemployed all reach their numerical peak in the age group 20-24. Likewise we can see that the largest percentage of the population gainfully occupied is in the group 35-44, the largest percentage of the gainfully occupied, who are wage-earners occurs in the group 20-24. The percentage unemployed has two peaks, one at 18-19 and one at 65-69.

It was felt, however, that a graduation of the figures of these four categories would better bring out their relationships and characteristics. The method of graduation used is described briefly in Appendix 6.

LXXVII.—POPULATION 10 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED, WAGE-EARNERS AND UNEMPLOYED, AND PERCENTAGES EACH FORMS OF THE PRECEDING, BY AGE GROUP AND SEX, CANADA, JUNE 1, 1931

Age Group	Population	Gainfully Occupied	Wage-Earners	Unemployed	Gainfully Occupied as P.C. of Population	Wage-Earners as P.C. of Gainfully Occupied	Unemployed as P.C. of Wage-Earners
MALES							
TOTAL	4,249,895	3,261,371	2,022,260	422,076	76·74	62·01	20·87
10–13	437,179	4,840	678	59	1·11	14·01	8·70
14–15	208,219	39,155	11,900	1,767	18·80	30·39	14·85
16–17	216,085	118,546	62,697	12,744	55·12	52·89	20·33
18–19	206,316	165,728	107,926	24,970	80·33	65·12	23·14
20–24	463,120	429,018	308,351	69,755	92·64	71·87	22·62
25–34	766,088	759,361	539,145	111,741	97·73	71·00	20·73
35–44	705,833	690,452	437,893	80,596	97·82	63·42	18·41
45–54	587,919	567,977	327,464	65,744	96·61	57·65	20·08
55–64	355,289	322,507	163,571	37,885	90·77	50·72	23·16
65–69	120,473	90,934	39,461	10,754	75·48	43·40	27·25
70 and over	173,474	72,853	23,174	6,061	42·00	31·81	26·15
FEMALES							
TOTAL	3,935,496	665,859	547,837	47,882	17·05	82·28	8·74
10–13	427,874	557	430	25	0·13	77·20	5·81
14–15	204,281	8,078	7,201	642	3·95	89·14	8·92
16–17	210,744	43,667	41,130	4,657	20·72	94·19	11·32
18–19	201,312	81,319	76,684	8,093	40·40	94·30	10·55
20–24	447,001	189,336	174,474	14,757	42·36	92·15	8·46
25–34	716,131	155,601	132,603	10,097	21·73	85·22	7·61
35–44	627,031	81,410	59,352	4,676	12·98	72·91	7·88
45–54	484,544	55,894	33,867	2,939	11·54	60·59	8·68
55–64	305,266	32,638	16,070	1,484	10·69	49·24	9·24
65–69	110,380	9,595	3,816	369	8·61	40·14	9·67
70 and over	170,932	7,853	2,210	143	4·59	28·14	6·47

LXXVIII.—POPULATION 10 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED, WAGE-EARNERS AND UNEMPLOYED, AND PERCENTAGES EACH FORMS OF THE PRECEDING, GRADUATED IN SINGLE YEARS, BY SEX, CANADA, JUNE 1, 1931

GRADUATED IN FOUR CATEGORIES

Age	Population	Gainfully Occupied	Wage-Earners	Unemployed	Gainfully Occupied as P.C. of Population	Wage-Earners as P.C. of Gainfully Occupied	Unemployed as P.C. of Wage-Earners
			MALES				
10	111,275	–	–	–	–	–	–
11	109,616	570	–	–	0·52	–	–
12	108,343	1,430	150	–	1·32	10·49	–
13	107,666	2,840	630	59	2·64	22·18	9·37
14	107,334	11,743	3,130	410	10·94	26·65	13·10
15	107,032	27,412	8,770	1,360	25·61	31·99	15·51
16	106,450	49,826	23,119	4,048	46·81	46·40	17·51
17	105,273	68,720	39,578	8,696	65·28	57·59	21·97
18	103,316	79,572	50,616	11,661	77·02	63·61	23·04
19	100,790	86,157	57,310	13,256	85·48	66·52	23·13
20	97,969	86,850	60,740	14,049	88·65	69·94	23·13
21	95,135	86,727	61,784	14,179	91·16	71·24	22·95
22	92,446	86,143	62,315	14,146	93·18	72·34	22·70
23	89,689	85,351	62,268	13,976	95·16	72·96	22·44
24	87,059	83,747	61,288	13,616	96·20	73·18	22·22
25	84,608	81,686	59,644	13,094	96·55	73·02	21·95
26	82,386	79,622	57,852	12,537	96·65	72·66	21·67
27	80,443	78,009	56,429	12,071	96·97	72·34	21·39
28	78,818	76,877	55,385	11,699	97·54	72·04	21·12
29	77,474	75,924	54,377	11,336	98·00	71·62	20·85
30	76,359	75,104	53,388	10,979	98·36	71·09	20·57
31	75,416	74,371	52,399	10,624	98·61	70·46	20·27
32	74,593	73,680	51,393	10,266	98·78	69·75	19·98
33	73,990	73,083	50,363	9,892	98·77	68·91	19·64
34	73,640	72,612	49,320	9,504	98·60	67·92	19·27
35	73,398	72,186	48,276	9,123	98·35	66·88	18·90
36	73,120	71,725	47,241	8,772	98·09	65·86	18·57
37	72,661	71,147	46,225	8,473	97·92	64·97	18·33
38	71,986	70,433	45,228	8,234	97·84	64·21	18·21
39	71,192	69,637	44,244	8,039	97·82	63·53	18·17
40	70,330	68,789	43,272	7,878	97·81	62·91	18·21
41	69,449	67,917	42,314	7,739	97·79	62·30	18·29
42	68,600	67,051	41,371	7,613	97·74	61·70	18·40
43	67,893	66,295	40,508	7,522	97·65	61·10	18·57
44	67,295	65,631	39,723	7,472	97·53	60·52	18·81
45	66,639	64,901	38,921	7,430	97·39	59·97	19·09
46	65,758	63,946	38,004	7,362	97·24	59·43	19·37
47	64,484	62,608	36,877	7,236	97·09	58·90	19·62
48	62,725	60,804	35,489	7,038	96·94	58·37	19·83
49	60,593	58,639	33,904	6,792	96·78	57·82	20·03
50	58,226	56,238	32,199	6,515	96·59	57·25	20·23
51	55,759	53,728	30,447	6,225	96·36	56·67	20·44
52	53,330	51,233	28,725	5,939	96·07	56·07	20·68
53	50,890	48,710	27,006	5,654	95·72	55·44	20·94
54	48,349	46,076	25,241	5,356	95 30	54·78	21·22
55	45,778	43,395	23,468	5,054	94·79	54·08	21·54
56	43,249	40,735	21,726	4,754	94·19	53·34	21·88
57	40,832	38,161	20,056	4,462	93·46	52·56	22·25
58	38,481	35,630	18,430	4,175	92·59	51·73	22·66
59	36,146	33,097	16,823	3,888	91·56	50·83	23·11
60	33,902	30,629	15,274	3,608	90·35	49·87	23·62
61	31,819	28,289	13,822	3,341	88·91	48·86	24·17
62	29,970	26,144	12,507	3,094	87·23	47·84	24·74
63	28,671	24,429	11,480	2,904	85·20	46·99	25·30
64	27,400	22,746	10,487	2,711	83·01	46·10	25·85
65	26,158	21,096	9,529	2,516	80·65	45·17	26·40
66	24,943	19,478	8,606	2,319	78·09	44·18	26·95
67	23,753	17,893	7,717	2,119	75·33	43·13	27·46
68	22,589	16,339	6,863	1,917	72·33	42·00	27·93
69	21,451	14,818	6,043	1,713	69·08	40·78	28·35
70	20,338	13,329	5,258	1,507	65·54	39·45	28·66
71	19,091	11,872	4,507	1,299	62·19	37·96	28·82
72	17,743	10,447	3,791	1,088	58·88	36·29	28·70
73	16,229	9,055	3,109	875	55·80	34·33	28·14
74	14,587	7,695	2,462	660	52·75	31·99	26·81
75	12,918	6,367	1,850	442	49·29	29·06	23·89
76	11,321	5,071	1,272	222	44·79	25·08	17·45
77	9,895	3,808	728	–	38·48	19·12	–
78	8,649	2,577	219	–	29·80	8·50	–
79	7,516	1,378	–	–	18·33	–	–
80 and over	34,893	211	–	–	3·25	–	–

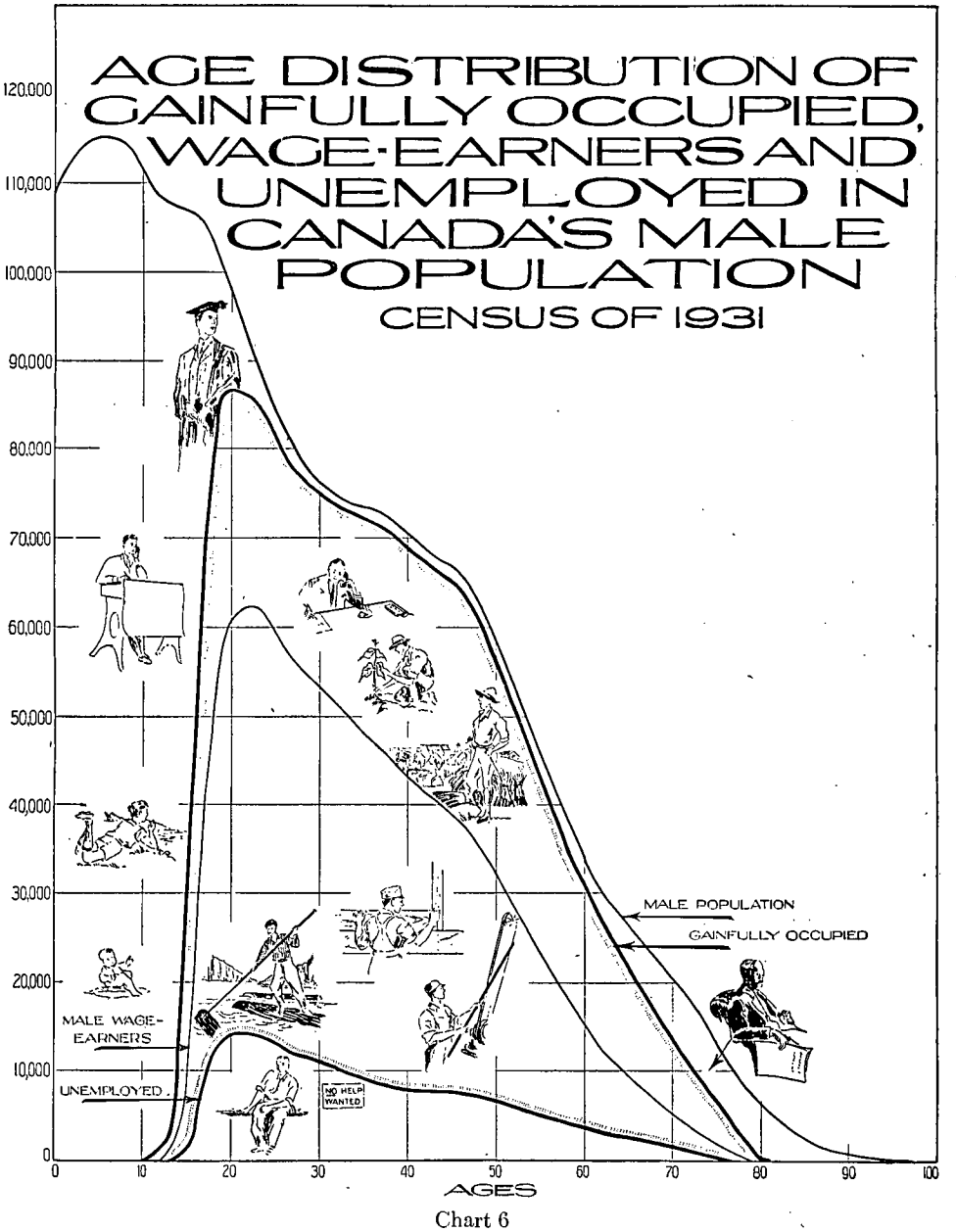

AGE DISTRIBUTION OF GAINFULLY OCCUPIED, WAGE-EARNERS AND UNEMPLOYED IN CANADA'S MALE POPULATION
CENSUS OF 1931
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
10
20
30
40
50
60
70
80
90
100
AGES
MALE POPULATION
GAINFULLY OCCUPIED
MALE WAGE-EARNERS
UNEMPLOYED
NO HELP WANTED

Chart 6

LXXVIII.—POPULATION 10 YEARS OF AGE AND OVER, GAINFULLY OCCUPIED, WAGE-EARNERS AND UNEMPLOYED, AND PERCENTAGES EACH FORMS OF THE PRECEDING, GRADUATED IN SINGLE YEARS, BY SEX, CANADA, JUNE 1, 1931—Con.

GRADUATED IN FOUR CATEGORIES

Age	Population	Gainfully Occupied	Wage-Earners	Unemployed	Gainfully Occupied as P.C. of Population	Wage-Earners as P.C. of Gainfully Occupied	Unemployed as P.C. of Wage-Earners
			FEMALES				
10	108,861	–	–	–	–	–	–
11	107,231	45	–	–	–	–	–
12	105,993	100	47	–	–	47·00	–
13	105,375	412	283	10	–	68·69	3·53
14	105,127	1,973	1,728	105	1·88	87·58	6·08
15	104,904	6,105	5,573	532	5·82	91·29	9·55
16	104,360	15,256	14,222	1,635	14·62	93·22	11·50
17	103,152	28,411	26,908	3,022	27·54	94·71	11·23
18	101,118	37,675	35,543	3,937	37·26	94·34	11·08
19	98,488	43,694	41,141	4,340	44·36	94·16	10·55
20	95,504	42,225	39,534	3,558	44·21	93·63	9·00
21	92,405	40,432	37,549	3,245	43·76	92·87	8·64
22	89,237	38,056	35,054	2,937	42·65	92·11	8·38
23	86,109	36,361	33,361	2,606	42·23	91·75	7·81
24	83,006	32,006	29,124	2,259	38·56	91·00	7·76
25	80,041	27,154	24,449	1,890	33·93	90·04	7·73
26	77,324	22,970	20,445	1,574	29·71	89·01	7·70
27	74,967	19,618	17,220	1,321	26·17	87·78	7·67
28	73,004	17,142	14,816	1,133	23·48	86·43	7·65
29	71,361	15,100	12,828	961	21·16	84·95	7·49
30	69,988	13,425	11,193	822	19·18	83·37	7·34
31	68,831	12,048	9,846	710	17·50	81·72	7·21
32	67,841	10,904	8,725	620	16·07	80·02	7·11
33	67,159	10,106	7,941	563	15·05	78·58	7·09
34	66,820	9,700	7,535	544	14·52	77·68	7·22
35	66,610	9,513	7,342	544	14·28	77·18	7·41
36	66,319	9,373	7,194	547	14·13	76·75	7·60
37	65,731	9,110	6,923	537	13·86	75·99	7·76
38	64,798	8,700	6,508	510	13·43	74·80	7·84
39	63,659	8,257	6,059	479	12·97	73·38	7·91
40	62,393	7,816	5,611	446	12·53	71·79	7·95
41	61,075	7,411	5,197	415	12·13	70·13	7·99
42	59,782	7,076	4,851	391	11·84	68·56	8·06
43	58,546	6,836	4,594	374	11·68	67·20	8·14
44	57,317	6,667	4,404	363	11·63	66·06	8·24
45	56,046	6,535	4,249	355	11·66	65·02	8·35
46	54,679	6,398	4,099	346	11·70	64·07	8·44
47	53,171	6,219	3,921	335	11·70	63·05	8·54
48	51,476	5,991	3,711	320	11·64	61·94	8·62
49	49,629	5,739	3,489	303	11·56	60·79	8·68
50	47,694	5,474	3,264	286	11·48	59·63	8·76
51	45,733	5,209	3,044	268	11·39	58·44	8·80
52	43,811	4,955	2,837	252	11·31	57·26	8·88
53	41,902	4,712	2,643	236	11·25	56·09	8·93
54	39,961	4,471	2,457	221	11·19	54·95	8·99
55	38,032	4,234	2,279	206	11·13	53·83	9·04
56	36,152	4,002	2,108	192	11·07	52·67	9·11
57	34,363	3,777	1,946	178	10·99	51·52	9·15
58	32,638	3,557	1,792	165	10·90	50·38	9·21
59	30,951	3,342	1,645	152	10·80	49·22	9·24
60	29,340	3,134	1,507	140	10·68	48·09	9·29
61	27,846	2,932	1,376	128	10·53	46·93	9·30
62	26,505	2,739	1,253	117	10·33	45·75	9·34
63	25,617	2,564	1,146	108	10·01	44·70	9·42
64	24,713	2,392	1,043	100	9·68	43·60	9·59
65	23,791	2,222	943	91	9·34	42·44	9·65
66	22,854	2,056	848	82	9·00	41·25	9·67
67	21,897	1,894	757	73	8·65	39·97	9·64
68	20,923	1,733	670	64	8·28	38·66	9·55
69	19,931	1,577	587	56	7·91	37·22	9·54
70	18,922	1,423	507	47	7·52	35·63	9·27
71	17,897	1,273	432	38	7·11	33·94	8·80
72	16,854	1,125	361	29	6·67	32·09	8·03
73	15,795	981	294	20	6·21	29·97	6·80
74	14,719	840	231	11	5·71	27·50	4·76
75	13,626	702	172	2	5·15	24·50	1·16
76	12,515	567	116	–	4·53	20·46	–
77	11,389	435	65	–	3·82	14·94	–
78	10,244	306	18	–	2·99	5·88	–
79	9,083	180	–	–	1·98	–	–
80 and over	29,641	58	–	–	0·73	–	–

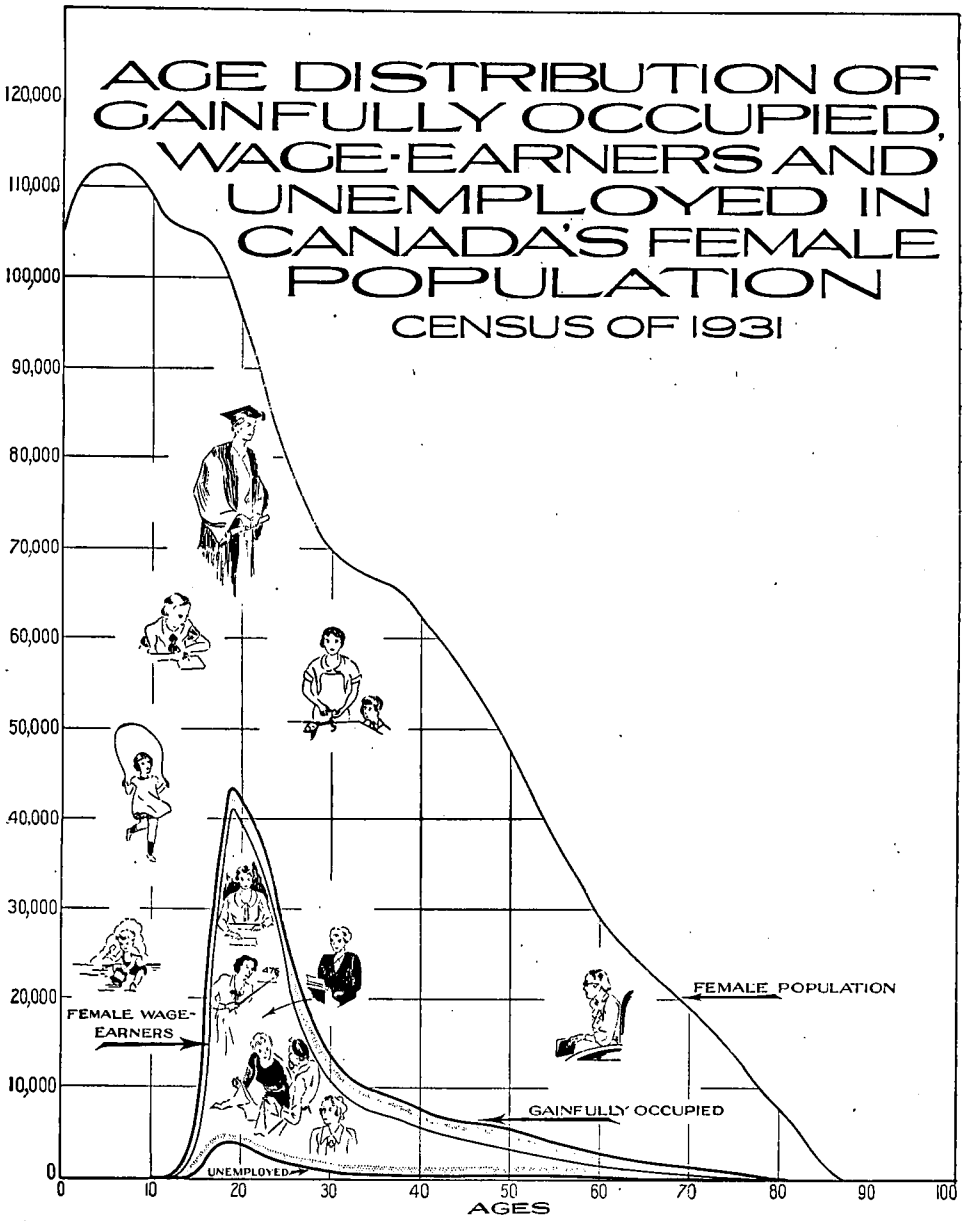

AGE DISTRIBUTION OF GAINFULLY OCCUPIED, WAGE-EARNERS AND UNEMPLOYED IN CANADA'S FEMALE POPULATION
CENSUS OF 1931
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0
10
20
30
40
50
60
70
80
90
100
AGES
FEMALE WAGE-EARNERS
UNEMPLOYED
GAINFULLY OCCUPIED
FEMALE POPULATION

Chart 7

The chart here given (Chart 6) is a frequency distribution by age, and hence its several areas represent the numbers of persons in the several categories. The total area under the top line is the male population of Canada (as of June 1, 1931); under the second line the gainfully occupied; under the third, the wage-earners, and under the fourth the unemployed. Between the top two lines are all the males of Canada not ordinarily engaged in productive enterprise—at the left-hand side because they are too young and on the right because they are too old; the strip through the middle ages includes cases of permanent sickness and of men living on income or in institutions. The area between wage-earners and unemployed represents wage-earners who were actually at work; that between gainfully occupied and wage-earners represents employers, workers on own account, and workers receiving no money payment—factory owners, small shop-keepers, and farmers' sons working for their fathers being typical of the three classes. It is interesting to observe the similarity in profile between the three curves, a reflection of the fact that a regular percentage in each class tends to be included within the next lower class. Similar interpretations may be made concerning the curve for females (see Chart 7).

The Fundamental Curve.—The fundamental curve in a study of unemployment by age is that of the percentage unemployed in each year, or group of years, of life. Whether this curve be drawn for all Canadian males or for males in a specific occupation, industry, or province, the result is in practically all cases similar—a bi-modal or double-humped line. There is a peak in the percentage unemployed about the age of 20, a trough extending from about age 25 to age 50, the bottom of which is about age 40, and a rise towards old age which reaches a crest at about age 65. These facts appear prominently in the subsequent figures and charts for the various divisions of males in Canada.

The age of minimum unemployment comes very close to (somewhat preceding) the age of maximum earnings. Conversely at the ages at which unemployment is high—under 25 and over 55—earnings are low. Average earnings and percentage employment, the two measures of economic fitness, agree for males in the relative productiveness they assign to the different periods of life, except at very young and very old ages. For females the second peak of unemployment is far less distinct than for males, and the relation between unemployment and earnings is not as obvious.

These critical points (the minimum and the two maxima) on the curve of male unemployment by age vary greatly for different groups (occupational or industrial), partly as a result of the age distribution of the population—the background from which the wage-earners are recruited—and partly as a result of the requirements of the particular industry or occupation, *i.e.*, for reasons demographic and economic.

Young Persons.—The low unemployment at the very young ages rising to a peak about age 20 is artificial, a result in part at least of the 1931 Census definition of unemployment. Since no person was considered unemployed who had not previously worked, a boy or girl did not become exposed to risk until after getting his or her first job. The effects of the definition on the figures become plain if we consider a simplified case. If all persons in Canada left school at exact age 15, say, and began looking for work, the rate of unemployment at exact age 15 would be *nil*, as shown in a census taken on the 1931 basis, because only those young people who had *found* jobs would be recorded as wage-earners and therefore exposed to risk of unemployment. As people found jobs and lost them the percentage unemployed would increase steadily from zero at age 15, even though the difference between labour supply and demand (which is the true measure of unemployment) steadily decreased from age 15.

All young persons do not come into the labour market at exact age 15, but the argument is the same for the actual case where entrants are of various ages. Thus the peak at the younger ages is caused by the fact that the unemployment curve consists of two components, due to the rising number of entrants and the falling percentage of "true" unemployment.* At older ages the dip is due largely to a selection whereby the less economically fit persons will consider themselves "retired" instead of "unemployed" for ordinary as well as for census purposes.

The bi-modal curve of unemployment by age, to which attention has been drawn, does not apply to rural industry as it does to urban, for rural groups when taken by age seem to omit the mode about age 20 which is so characteristic of urban groups. An example of this among

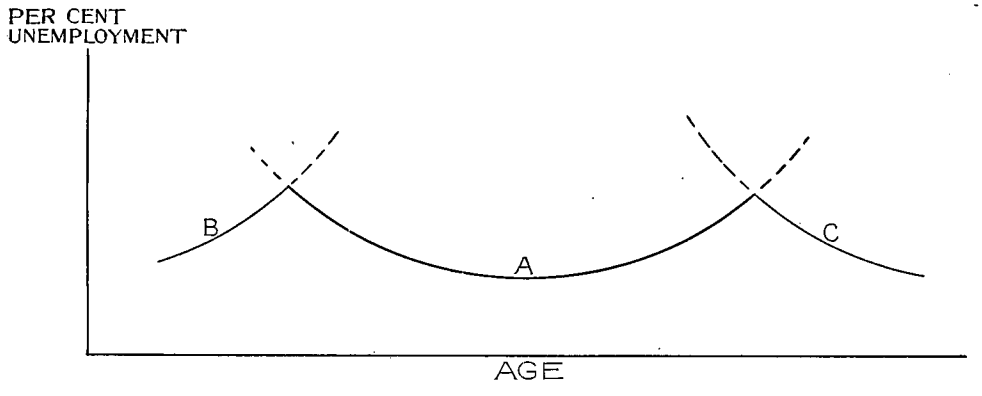
*"True" unemployment includes those who are looking for work but who are not listed as "unemployed" in the census because they have not as yet had jobs, as well as those who have lost jobs.

industries is agriculture; among occupations, farming; among provinces, Prince Edward Island. They show an almost steady rise from the youngest age to about age 65, with usually a fall after that point. The explanation may lie in the farmer's son becoming of "no pay" status instead of remaining unemployed.

Thus because of differences in the job-finding capacities of men at different ages, the curve of percentage unemployed by age shows certain very definite characteristics whether taken for a given industry, occupation, area or moment of time. It seems that if we select a group of people either at random or by some criterion not directly related to unemployment, the ratio of unemployed to employed at each age will have, in general, this well-defined trend.

This bi-modal curve is to be seen in Canada for females as well as for males, though the female wage-earners reach their corresponding minima and maxima at earlier ages than the males in all cases, and also for most provinces, industries and occupations, for the Censuses of 1911, 1921 and 1931.

Hence we may regard the fundamental curve as composed of three elements—a main part (the U-shaped curve which is the inverse of the course of productive efficiency throughout life), a rising element at the beginning of life and a falling element at the end. The main part measures real unemployment—the two other elements result largely from the method of measurement.



The main branch (A in the diagram) runs almost inversely to the earnings trend. B and C are in a sense artificial, but they are not confined to the Canadian Census. The English unemployment insurance definition gives the same result, and so likewise does the United States Census. Figures from these sources taken at a time very close to the Canadian Census of 1931, bring out this point, as also do a specimen (Brooklyn, New York City) from the Special Census of Unemployment of January, 1931 and figures quoted from a book by Miss Margaret Hogg, *The Incidence of Work Shortage* (Statement LXXIX).

Just as a person was not counted as unemployed for Canadian Census purposes until he had found and lost his first job, so he was not counted for the British and United States figures here given. Apparently in all investigations it has been felt that any other definition would be too hard to apply in individual cases.

What are the characteristics of industry and of wage-earning individuals which these varying probabilities of unemployment represent? The two elements, nature of the industry and nature of the worker (for industry and the worker are the two constituents of the labour market, whose preferences and capacities result in the contract of employment) together determine—and completely determine—the percentage figures of unemployment in any group (age, area, etc.).

To begin with the most obvious and universal attribute of the series of curves shown—the dip in percentage unemployed at middle ages—we must consider productive capacity throughout life. In the long run a man will be employed according as there is an employer who can turn his work to profit. Also, on the principles of equilibrium economics, a man's wages will in the long run have a fairly definite relation to his actual producing capacity (*i.e.*, the value of goods he is

able to create which will be related in turn to the profits he can make for his employer). If one group (selected in any manner whatever) has a higher productive capacity than another group, it stands to reason that the marginal worker in the group (as a whole, employed and unemployed) with the higher productive capacity will be nearer to the bottom of the group (arranged in order of skill) than the marginal worker in the second group.

LXXIX.—COMPARISON OF PERCENTAGE UNEMPLOYMENT IN THE UNITED STATES AND BRITISH INVESTIGATIONS, BY AGE GROUP AND SEX

Age Group	Sample of British Insured Wage-Earners[1]	United States April 1930[2] Class A[3]	Brooklyn Borough, New York City, January 1931[4] Class A[3]	Miss Hogg's Sample from Connecticut[5]
MALES				
10-14	11·8	0·6	4·4	-
15-19		7·0	28·1	28
20-24	23·5	6·9	24·6	28
25-29	22·7	5·2	16·3	18
30-34	21·9	4·6	15·2	11½
35-39	21·4	4·6	17·1	11
40-44	22·4	4·9	18·9	14½
45-49	23·1	5·3	19·9	16½
50-54	26·5	5·4	21·3	
55-59	26·9	5·7	20·2	19½
60-64	32·0	5·8	21·4	
65-69	-	5·8	18·0	
70 and over	-	4·3	15·8	
FEMALES				
10-14	5·9	4·6	7·2	-
15-19			23·2	13½
20-24	9·1	3·5	15·4	12½
25-29	9·3	3·3	12·0	8½
30-34	11·8	3·2	11·2	9
35-39	10·9	3·2	11·4	10
40-44	9·4	3·1	12·4	
45-49	17·3	3·1	11·9	
50-54	18·3	3·1	10·8	
55-59	20·6	3·1	8·5	9½
60-64	16·4	2·9	8·9	
65-69	-	2·4	7·0	
70 and over	-		7·9	

[1] Ministry of Labour Gazette, September 1933, p. 314.

[2] Fifteenth Census of the United States, Unemployment, Vol. II, p. 248 (males) and p. 280 (females).

[3] Class A unemployment includes persons out of a job, able to work, and looking for a job.

[4] Special Census of Unemployment, Fifteenth Census of the United States, Unemployment, Vol. II, p. 384.

[5] Study of Miss Margaret Hogg, under auspices of Russell Sage Foundation, on a sample consisting of part of the population of Connecticut. Figures are the percentage idle from lack of work on day of visit (May-June, 1931), of the earners normally members of the full-time unemployment markets, p. 63.

This can be tested for age groups if we take wages earned per week of employment as the measure of skill and "weeks lost" (as reported in the census Volume VI) as the measure of unemployment. The two figures are shown by age groups below (Statement LXXX) and it is easily seen that as far as middle life is concerned, for men there is a peak in earnings to correspond to the trough in the unemployment curve. The fact that earnings are low at early ages suggests that the low unemployment under age 17 is a reflection of the census method, from ages 17 to 69 the two curves seem mirror-images of one another.

LXXX.—AVERAGE NUMBER OF WEEKS WORKED AND AVERAGE EARNINGS PER WEEK WORKED BY MALE WAGE-EARNERS, BY AGE GROUP, CANADA, YEAR ENDED JUNE, 1931

Age Group	Average Weeks Employed	Average Earnings per Week Worked
		$
10–15	42·50	4·56
16–17	40·21	7·15
18–19	39·70	10·20
20–24	40·31	15·20
25–34	41·19	21·84
35–44	42·28	27·68
45–54	41·53	28·95
55–64	40·05	26·73
65–69	38·25	23·49
70 and over	38·74	20·48
	years	years
Age of maximum	40·92	48·64

It may be objected that there is not a free market in labour, that influence—"pull"—counts almost as much in obtaining a job as skill. This is the case, but it is no objection to the theory, for we need only assume that getting a job depends on the possession of a combination of influence and skill, and then we can say that as between two groups of workers, that with the higher average productivity (*i.e.*, the combination of skill and influence which is measured by average wages) will have the lower marginal worker.

The equilibrium theory works out as well on one basis as on the other. An employer may feel it equally suitable to himself to pay his son $30 per week as bookkeeper or to pay a stranger $20, if the two are of equal skill, since keeping the money in the family represents a moral and economic advantage to him. Precisely the same argument will hold with regard to employment. An *entrepreneur* will continue hiring men until he reaches the marginal worker—that one whose productivity is not great enough to yield a profit. But he will go below the margin for the sake of an acquaintance or a relative, though he will not take more than a certain amount of loss, the exact amount depending on his personal interest in the employee.

In agriculture, where the establishment is small and there is a large ratio of managers to workers, more young men will be able to find work with their fathers than will be the case in an industry such as manufacturing where the establishment is larger and there is a lower ratio of managers and employers to wage-earners. In manufacturing fewer persons will have filial relationship to the head of some establishment. By deducting, say, 25 years (approximately one generation) from the average age of employers we arrive in the age group 15-24. This age group would be the one in which relationship would be the most important factor in getting a job, because (a) it is the age at which a person's parents are most likely to be in a position to help him (at older ages they become, economically at least, senile); because also (b) at young ages few of the persons among whom a choice is to be made are likely to have gained a great deal of skill in any case.

Thus it may be anticipated that unemployment at younger ages would be greater in industries of large than in industries of small establishments. The chart and statement of five sample industries shows this for men quite plainly; the hump at the young ages decreases, steadily, when the industries are arranged in order of decreasing size of establishments (cotton goods at the top and women's clothing at the bottom). The ratio of unemployed 10-24 years of age to total unemployed likewise decreases.

PERCENTAGE OF MALE WAGE-EARNERS NOT AT WORK JUNE 1, 1931
AT VARIOUS AGES
FOR FIVE INDUSTRIES OF THE TEXTILE GROUP
ARRANGED IN ORDER OF
CAPITAL INVESTED PER ESTABLISHMENT

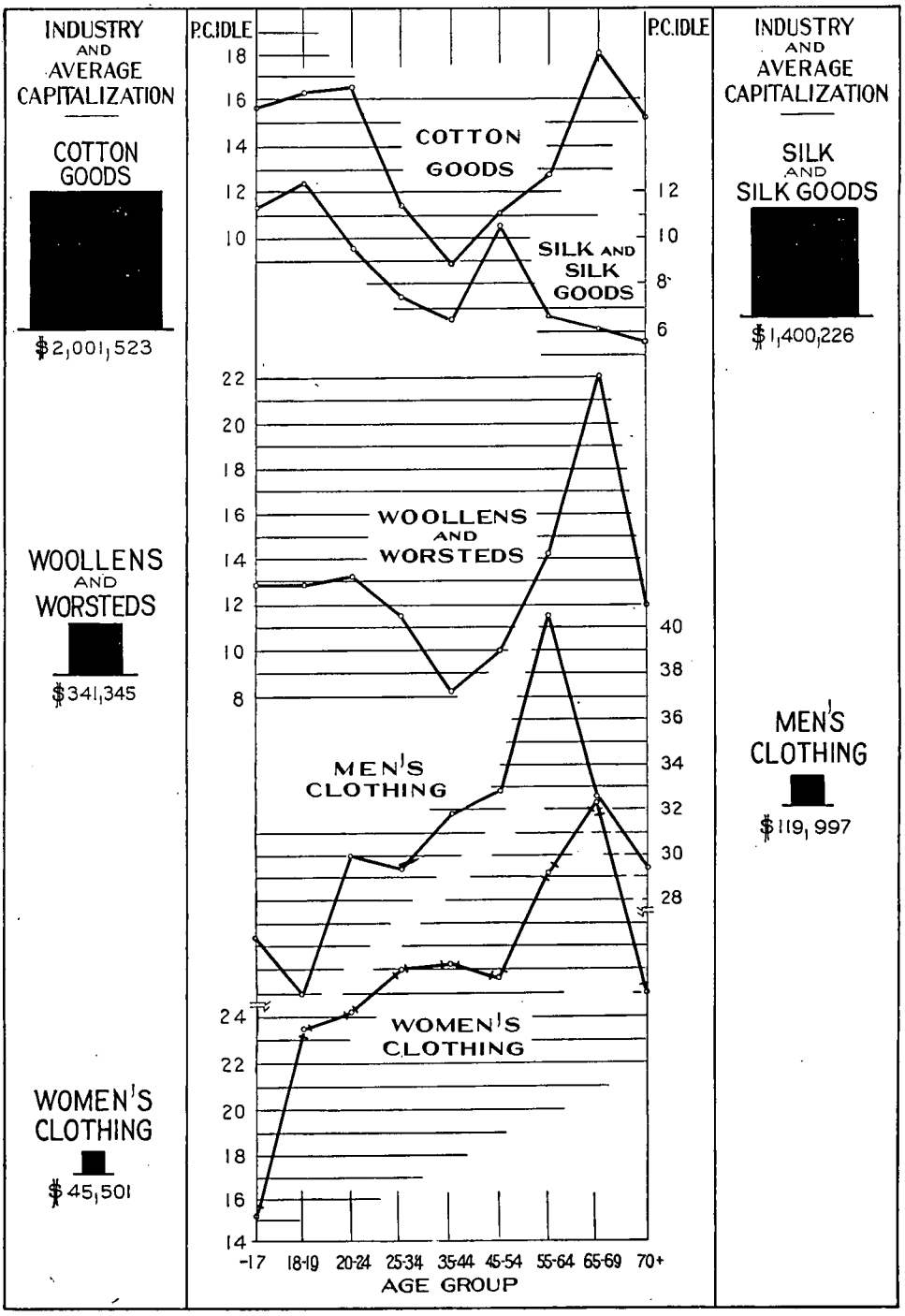


Chart 8

LXXXI.—SIZE OF ESTABLISHMENT AND UNEMPLOYMENT OF YOUNG PEOPLE IN FIVE RELATED INDUSTRIES, CANADA, 1931[1]

Industry	Size of Establishment		P.C. Unemployed		Ratio of P.C. Unemployed Ages 10-24 to P.C. Total Unemployed Col. 4 ÷ Col. 3 (5)
	According to Capital (1)	According to Male Employees (2)	All Ages (3)	Ages 10-24 (4)	
	$	No.			
Manufacturing—					
Cotton goods	2,001,523	247	13·33	16·17	121·31
Silk, silk goods	1,400,226	150	8·94	10·59	118·46
Woollens and worsteds	341,345	39	11·73	13·00	110·83
Men's clothing	119,997	28	30·94	27·94	90·30
Women's clothing	45,501	-	24·99	22·41	89·68

[1] Five largest industries in textile manufacturing group, taken from *The Manufacturing Industries of Canada, 1931*, pp. 28-29

These industries all ultimately cater to and depend on much the same market; the principal difference between them is the size of establishment.

Considering the broader industry groups of the census, we find that agriculture shows steadily rising percentage unemployed with age while finance—the opposite extreme—shows a steadily falling percentage. This corresponds to the circumstance that agriculture involves the greatest number of employers per worker while finance has the smallest. The intermediate industries will be seen to follow much the same rule.

There is no doubt, however, that in the matter of the size of the establishment as it affects the age incidence of unemployment, the circumstance mentioned acts in the same direction as the greater importance of seniority in a large than a small establishment. A large firm, long and solidly established can afford to recognize length of service, both in greater pay and in steadiness of employment, to an extent which would be too expensive for a smaller establishment. Again, the large establishment, especially if, as with a bank, insurance company or department store, it has dealings with the public, will far more than the small one make every effort to avoid dismissing those of its staff who are married and have family responsibilities (who will tend to be its older employees) in order to keep a good name in the community in which it deals. This policy will tend further to favour the older employees.

On account of our immigration history, we have an unusually large body of wage-earners at favourable ages, who, by their competition create unemployment at less favourable ages. As the present male wage-earners between 25 and 50 die or age, we can expect, with a more normal age distribution, *i.e.*, with an increase in the ratio of dependent consumers to wage-earners, an amelioration of the unemployment situation. Time is working with Canada in this respect.

The measurable aspect of the problem may be stated thus: If the population had the life-table age distribution, what would be the total percentage of wage-earners and of unemployed, and their average salary, assuming age-by-age rates the same as now exist? Of course, age-specific rates would not be the same—they would be altered for the better by the larger proportion of infants and retired people in the stationary community. But even assuming them the same, the following changes would have taken place:—

(1) Instead of 475 wage-earners in each thousand males there would be but 465.

(2) Instead of 209 unemployed in each thousand male wage-earners there would be 205.

(3) The average earnings of a wage-earner would be $941 per year instead of $927.

It would be absurd to say that any likely change in age distribution will solve the problem of unemployment; but we can say that, though small, its effect will be in the right direction.

Unemployment by Age and Province.—Statement LXXXII shows the percentages of males unemployed at various ages in the different provinces. The persistence of the bi-modal tendency is clearly brought out in these figures.

LXXXII.—PERCENTAGES OF MALE WAGE-EARNERS NOT AT WORK JUNE 1, BY AGE GROUP, CANADA, BY PROVINCES, 1931

Age Group	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Sum	Sum of Squares
10–13	–	9·52	25·93	7·26	4·65	–	11·11	20·00	34·62	113·09	2559·3019
14–15	4·17	14·89	25·27	14·96	12·32	16·41	20·52	14·45	14·01	137·00	2348·6990
16–17	8·76	22·97	30·32	20·68	17·34	22·23	23·45	21·87	22·59	190·21	4284·6793
18–19	8·54	25·33	30·25	23·93	20·29	24·95	23·43	23·30	27·69	207·71	5095·0255
20–24	7·74	24·92	27·88	22·51	20·29	26·02	22·59	23·17	27·52	202·64	4858·1404
25–34	6·56	22·46	21·92	18·86	18·64	27·00	22·89	25·53	25·61	189·47	4291·7259
35–44	5·50	19·64	17·47	16·42	16·40	21·08	20·69	23·44	24·84	165·48	3298·6586
45–54	6·42	20·48	18·68	18·00	18·03	20·70	20·91	22·59	28·13	173·94	3625·9932
55–64	10·55	23·16	23·30	20·99	20·69	25·36	24·40	24·98	33·37	206·80	5035·2812
65–69	11·89	26·96	28·20	24·36	24·97	29·06	29·01	29·94	40·69	245·08	7118·5076
70 and over	21·51	27·89	29·98	24·49	23·77	27·87	25·62	26·39	38·88	246·40	6945·3134
Sum	91·64	238·22	279·20	212·46	197·39	240·68	244·62	255·66	317·95	2077·82	–
Sum of Squares	1056·8204	5453·2696	7294·1572	4366·5824	3855·5291	5929·2104	5636·2588	6095·1970	9774·3011	–	49461·3260

The table of variance below is an attempt to measure the interaction of "age" and "province" on unemployment. By the usual method, using no weights, we get the following results:—

LXXXIII.—VARIANCE OF UNEMPLOYMENT BETWEEN AGES AND PROVINCES, CANADA, JUNE 1, 1931

Item	Degrees of Freedom	Sum of Squares	Variance
Total	98	5,851	60
Between provinces	8	2,883	360
Between ages	10	1,838	184
Residual	80	1,130	14

The column "variance" is an estimate of the extent to which unemployment varies with province (360), with age (184), and with province and age jointly (14). The residual variance, marking the effect of province on age, or, more exactly, the interaction of the two with regard to unemployment, is seen to be very small compared with the variance between ages (14 to 184). This ratio is a measure of the differences to be expected between the age-curves from province to province. We shall see later that it is much smaller that the ratio of residual variance to age variance in the age-by-industry table. The inference is that the curve of percentage unemployed by age varies more between industries than between provinces. In fact, much of the difference which does appear between provinces is due to the existence of different industries in the several provinces.

To separate in general the effects of population background and industrial* structure on the age profile of unemployment would be difficult, but in certain instances we may do so. The relatively low unemployment shown by British Columbia at younger ages, is in part, at least, due to her peculiarly "middle-aged" population, the result of exceptionally heavy immigration within the last twenty years. Her shortage of younger people is reflected in comparatively low unemployment at ages 15-25; and in the same way her excess of middle-aged people (55·9 p.c. of her males are between 25 and 65, as against 45·2 p.c. for males in all Canada) results in phenomenally high unemployment at middle ages.† Prince Edward Island has low unemployment at younger ages on account of her predominantly agricultural economy; Alberta shares the characteristics of both Prince Edward Island and British Columbia in this respect.

*Most writers on unemployment recognize that the question of their relationship to one another is very difficult. Vladimir Woytinsky gives the formula $CH=S-\frac{V}{T}$ when CH=no of unemployed, S=salaried workers, V=total volume of production and T=output per man.

†Mr. M. C. MacLean's work, 1931 Census Monograph on "Ages" brings out very clearly the effects of the various age types on social factors.

The variability in unemployment of the different ages by provinces* was measured and the following results were obtained:—

Age Group	Coefficient of Variability by Province of Unemployment, June 1, 1931
Under 17	·1560
18-19	·1265
20-24	·1181
25-34	·1500
35-44	·1702
45-54	·1752
55-64	·1816
65-69	·1859
70 and over	·1629

When two areas are compared, it will often happen that unemployment in one is much greater than in the other, though it would seem on the basis of equilibrium economics that population in the district of worse employment conditions would move to the district of better until the chances of getting a job in both were equalized. Many considerations ordinarily prevent such wholesale moving, the possession of property (always difficult, and sometimes, as in the case of land and buildings, impossible, to move), family and community ties, and, most important of all, the receipt of direct relief. A man who leaves his home town in search of a job will certainly not be able to get relief elsewhere for a considerable period—at least six months residence is usually required—and in the meanwhile he loses his relief status in his own community and may have great difficulty in again getting his name on the rolls.

This reluctance to move, of course, varies with age. The figures given above are an attempt to measure the differential tendency by ages and they show that the period of the 20's has the lowest variability, the 60's has the highest, and also that the figure is higher under age 17 than between 20 and 24.

We would expect that in the 20's, after a man has become independent of his parents and before he has in turn assumed parental responsibility, before he is likely to have accumulated a large amount of property and before his personal habits have become fixed, while he has the energy and initiative which are so often lost with advancing age, he is likely to strike out for himself and will move to some place other than his home town if opportunity seems to call. Minimum unemployment variability for males between provinces is at the age of 24·6 years, *i.e.*, about 25 seems to be the age of maximum mobility, if we assume that when movement occurs it will tend to be away from regions of high unemployment and towards regions of relatively low unemployment. From one city to another, from city to farm, from province to province, there will be movement at the more adaptable ages towards the goal of the higher plane of life represented to-day by a steady job. While a moving population is not in itself a desirable thing, yet it would be unfortunate if the manner of administering relief was such as to fail to encourage the youthful elements of the community, who have the quality of adaptability and few ties of family or property, to seek employment to the utmost of their ability.

Duration of Unemployment at Different Ages.—In examining the distribution of wage-earners losing time by the weeks they lost, it was found that there were, in every age group, about twice as many persons opposite the duration 25-28 weeks as opposite 21-24 or 29-32. It was plain that the enumerated population had tended to state their term of unemployment as "about six months", when it was anywhere between 20 and 30 weeks. Some kind of graduation was called for before the duration distributions for different ages could be compared.

An attempt at graduation by a least-squares parabola gave a not unsatisfactory result. By fitting a parabola to the distribution over the period 0-40 weeks only, it was hoped to eliminate the effects of the artificial upper limit of one year and obtain the true modal point. The modal points for the various age groups are shown in Chart 9.

*Coefficient of variability $= \frac{\sigma}{m}$ where σ=standard deviation and m=arithmetic mean. The items were weighted by the number of men exposed in each age-province class. See Appendix 7, p. 372.

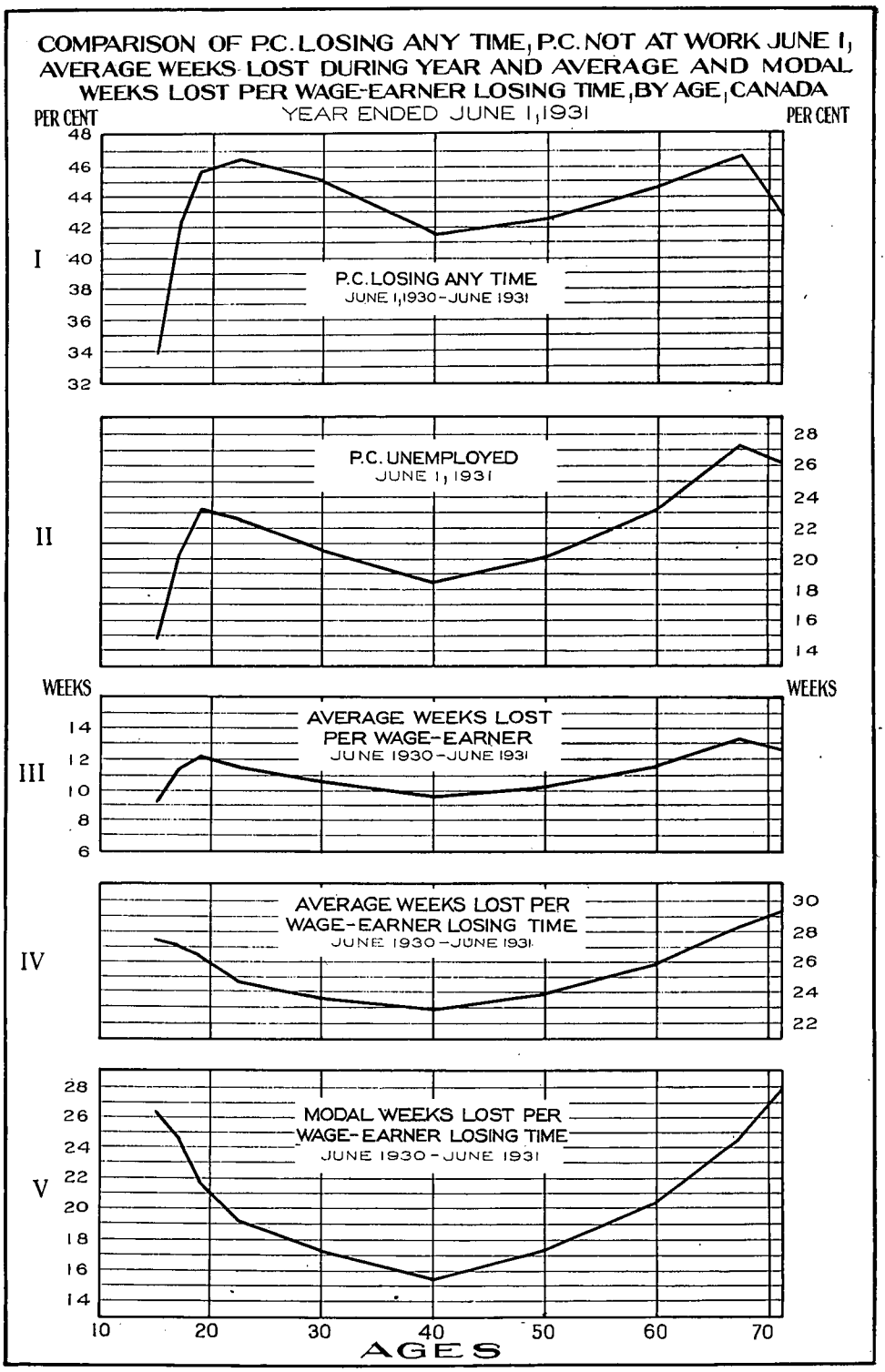

COMPARISON OF P.C. LOSING ANY TIME, P.C. NOT AT WORK JUNE 1, AVERAGE WEEKS LOST DURING YEAR AND AVERAGE AND MODAL WEEKS LOST PER WAGE-EARNER LOSING TIME, BY AGE, CANADA
YEAR ENDED JUNE 1, 1931
PER CENT
PER CENT
I
P.C. LOSING ANY TIME
JUNE 1, 1930 - JUNE 1931
II
P.C. UNEMPLOYED
JUNE 1, 1931
WEEKS
WEEKS
III
AVERAGE WEEKS LOST PER WAGE-EARNER
JUNE 1930 - JUNE 1931
IV
AVERAGE WEEKS LOST PER WAGE-EARNER LOSING TIME
JUNE 1930 - JUNE 1931
V
MODAL WEEKS LOST PER WAGE-EARNER LOSING TIME
JUNE 1930 - JUNE 1931
AGES

Chart 9

LXXXIV.—FIVE MEASURES OF UNEMPLOYMENT GIVING (a) DECREASING WEIGHT TO CHANCE OF A MALE WAGE-EARNER NOW EMPLOYED BECOMING UNEMPLOYED AND (b) INCREASING WEIGHT TO THE PROBABLE DURATION OF HIS UNEMPLOYMENT ONCE HE LOSES HIS JOB, CANADA, YEAR ENDED JUNE 1, 1931

Age Group	I P.C. Losing Any Time	II P.C. Unemployed June 1, 1931	III Average Weeks Lost per Wage-Earner	IV Arithmetic Mean of Weeks Lost per Wage-Earner Losing Time	V Modal Weeks[1] Lost per Wage-Earner Losing Time
All ages	44·00	20·87	10·68	24·28	18·03
14-15	33·89	14·85	9·28	27·38	26·31
16-17	42·44	20·33	11·48	27·06	24·72
18-19	45·86	23·14	12·05	26·28	21·73
20-24	46·48	22·62	11·46	24·66	19·07
25-34	45·05	20·73	10·61	23·54	17·25
35-44	41·55	18·41	9·51	22·90	15·32
45-54	42·70	20·08	10·21	23·92	17·31
55-64	44·72	23·16	11·59	25·93	20·32
65-69	46·71	27·25	13·26	28·39	24·44
70 and over	42·70	26·15	12·49	29·26	27·96

[1] By least-squares parabola.

The series of curves I to V, counting from top to bottom of Chart 9, all relating to unemployment by age, give differing degrees of emphasis to the two elements (a) chance of a wage-earner now employed becoming unemployed, (b) the probable duration of his unemployment once he loses his job. In all unemployment statistics these two elements are mixed—though in varying proportions. An attempt has been made to arrange the five curves in such an order that (a) chance of a worker now employed becoming unemployed is of decreasing importance from I to V and (b) chance of a worker now unemployed remaining unemployed—is of increasing importance. To separate these two elements entirely is impossible, partly because there is a tendency for the enumerated population to fail to report short periods of time lost, partly because the period covered by the census questions is only one year, partly because only the total unemployment for individuals is given, no distinction being made between six months at one time and six separate months throughout the year.

Curve I gives the percentage losing any time during the course of the year. No account at all is taken of the "length of time unemployed" for each person losing time. It will be seen that very low rates are shown at the young and the old ages; and that the ages from about 22 to 67 show the characteristic U-shaped curve.

Curves II and III each involve almost equal elements of (a) and (b). It will be seen that though the young and old ages are both lower than some of the middle ages, yet they do not dip as far below as in Curve I.

Curve IV gives average weeks lost per worker losing time and therefore contains no element of the chance of becoming unemployed for those actually working. It shows no dip at all at either extremity. It does, however, count the wage-earner out of work for the one-year period June, 1930-June, 1931 only, for just as much unemployment as the one who was out the previous ten years as well.

Curve V was obtained by passing a second degree parabola through the histogram formed by the duration-distribution of unemployment in the several age groups. The process is indicated in Appendix 8.

Curve IV may be regarded as the locus of the arithmetic means of the histograms and Curve V as the locus of their modes. As Curve V makes no assumption as to the longer periods of unemployment and Curve IV assumes they are all equal to one year, the former can be expected to approximate better the theoretical shape of (b) representing pure duration in our discussion above. If the histograms are plotted in detail for the various age groups they appear extremely irregular and show little relation to one another; but by the least-squares process we have found a regular sequence of modal points for the successive age groups.

If we compare Curves IV and V at the last age groups, we find that whereas Curve IV shows but a slight increase from 65-69 to 70 and over, Curve V shows a considerable increase. Had the arithmetic mean durations given in IV been taken on the basis of the true periods of unemploy-

ment (instead of on the assumption that the maximum time lost was one year) a greater increase above the preceding group would have appeared in the average duration of unemployment among workers over 70.

We may regard the limiting value* as we pass from I down to V as the curve for (a), *viz.*, the values for the various ages, under perfect reporting of unemployment, in the chance of an individual now out of work getting a job; the limiting value in the other direction represents the chances of a person now employed falling into the ranks of the unemployed. Thus as between the middle ages of life the ideal curve (a) would seem to follow ideal curve (b) but it can be seen that while curve (a) would show very old men and boys more secure in their jobs (once they are employed) curve (b) would show these less efficient age classes as having more difficulty obtaining employment when they are once out of work.

The final method of graduation adopted for duration figures was by a truncated normal†. This was suggested by the following theoretical considerations:—

(1) That the entire wage-earning body might be regarded as liable to unemployment, being distributed normally with respect to such liability. Only those whose liability was above a certain amount (*viz.*, zero) would be represented by the census as liable to unemployment; and the degree of liability of these would be measured by the number of weeks they lost during the year.

(2) That the possible number of weeks that can be lost by the wage-earner whose employment is least stable will tend towards an indefinitely large number, if all time rather than merely one year is considered as the period of exposure.

The following statement gives the modal point and the standard deviation of the uncurtailed normal curve fitted by the method of moments for males and females respectively:—

LXXXV.—MODE AND STANDARD DEVIATION OF UNCURTAILED NORMAL CURVE OF WHICH STUMPS HAVE BEEN FITTED TO DURATION-DISTRIBUTION OF UNEMPLOYMENT FOR SEVERAL AGE GROUPS, CANADA, YEAR ENDED JUNE 1, 1931

Age Group	Duration of Unemployment in Weeks			
	Males		Females	
	Mode	Standard Deviation	Mode	Standard Deviation
All ages	11·40	15·42	− 35·58	27·68
14–15	15·62	14·53	11·61	16·37
16–17	15·82	14·33	2·76	19·01
18–19	14·80	14·46	− 13·23	22·97
20–24	12·93	14·76	− 78·68	34·93
25–34	10·46	15·57	−172·13	46·97
35–44	7·98	16·46	− 39·11	27·99
45–54	10·57	15·65	− 21·02	24·61
55–64	13·74	14·76	0·89	19·78
65–69	17·24	13·53	9·78	16·36
70 and over	18·98	12·94	8·65	16·98

The mode of the truncated normal seems to represent the centre of unemployment. It is, of course, at a lower number of weeks than the mode of the parabola, but follows very closely the trend from age to age of the latter. It reaches its minimum for males at ages 35-44 where it is 7·98 weeks, having fallen steadily from 15·82 weeks at ages 16-17; subsequently it rises by remarkably uniform steps to 18·98 weeks for the group aged 70 and over. For females, where unemployment rates are much lower, the mode of the normal curve stands at 11·61 weeks at ages 14-15 and drops to −172·13 weeks at ages 25-34. Subsequently there is a rise to a peak of 9·78 weeks at ages 65-69.

The standard deviations vary less both for males and for females than the modes but their trends are equally definite. For the age-sex groups at which unemployment is low the standard deviation is large; for those at which unemployment is high, the standard deviation is small. The steadiness of the rise to a peak (at ages 35-44 for males and 25-34 for females) and of the subsequent falls are particularly notable. Since a small standard deviation means a more

*The conception of a limiting or ideal curve to which a given set of curves are tending is familiar in mathematics. A limiting value is one which the terms of a series are continually approaching but which they never reach.

†For method used, see Appendix 5, p. 369.

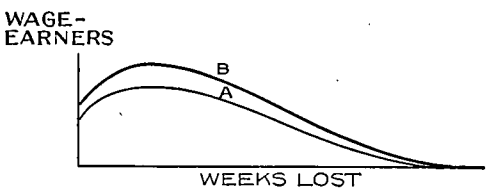
definite average or centre for a distribution, while a large standard deviation means an indefinite centre, we have here the evidence that the more unemployment there is in a sex-age group the more definite the average about which individual wage-earners losing time will group. Where unemployment is light the curve of distribution is flat—spread out, as though determined by random individual cases with no common law; when heavy the central tendency is strong and a similarity in the circumstances of all of the unemployed is indicated, which makes the modal duration of unemployment truly a typical representative measure.

From the evidence available, the mode and standard deviation of the uncurtailed normal curve seem to give good relative representations of the position and the definiteness, respectively, of the "centre" of unemployment.

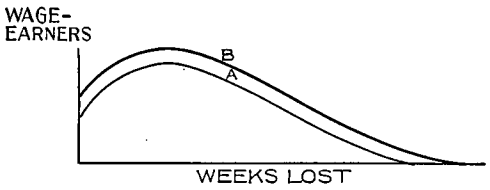
It is interesting to observe that the modal points of both the parabola and normal fitted to the duration figures show a far greater similarity to the earnings curve by age than the "frequency" (*i.e.*, the chance of a wage-earner now employed losing his job) measures of unemployment. It seems that the relatively low productiveness of very old and very young people is best measured, therefore, by the duration, rather than the frequency, of their unemployment.

Before starting the above investigation a consideration of the possible forms of the "weeks lost" distribution seemed to indicate that if, of two age groups A and B, A has less unemployment, then the two distributions might be related to one another in any of the following ways:—

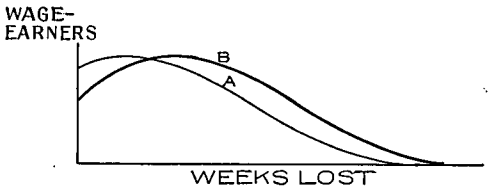
(1) Distribution A might be lower in proportion to its height, *i.e.*, $f_A(w) = \frac{1}{K} f_B(w)$ where $K > 1$ and $f(w)$ refers to the frequency for a particular week group.



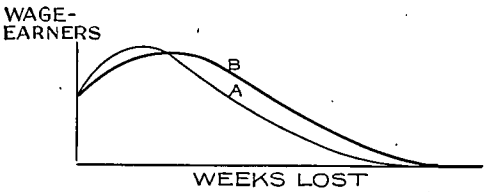
In this case the entire curve A would be flatter and lower than B, its ordinates being a constant proportion $\frac{1}{K}$ of B.



(2) It might happen that $f_A(w) = f_B(w) - K$, where $K > 0$ and Curve B would simply be curve A lowered by a constant amount K.



(3) It might happen that A would be obtained from B by a shifting to the left, so that $f_A(w) = f_B(w + K)$, where K is a certain number of weeks, $K > o$.



(4) It might happen that A would be obtained from B by shrinkage towards the left, $f_A(w) = f_B(Kw), K > 1$.

The evidence given by the fitting of a truncated normal shows that in general where there is an increase of unemployment from group A to group B, two changes take place. There is a sideways shrinkage (as in case 4 above), which decreases the volume of unemployment—but this is more than compensated for by the shifting of the whole curve to the right (as in case 3 above).

For women, the standard deviations of the uncurtailed normals vary more from age to age than for men. We find a sharper closing in of the curve towards old age, *i.e.*, a greater decrement from the ranks of the unemployed.

According to Table 28 of Volume VI of the 1931 Census the average weeks lost by all female wage-earners rises to a peak at ages 65-69. From the same table we find, however, that this peak is shown but very slightly in the percentages losing any time, while it is intensified in the average weeks lost by those losing time; thus we can attribute it almost entirely to greater duration, not to greater frequency of unemployment. This is different from the picture presented for males at ages 70 and over where rising duration is accompanied by falling frequency. Both cases show the importance of analysing a given percentage unemployment at one moment (or what is almost the same thing, a given average number of weeks lost by all wage-earners) into the two components of frequency and duration. The frequency and duration are roughly correlated, yet the variation of the one when the other remains fixed is great enough in amount to be very important from the point of view of relief and unemployment insurance.

Another illustration of the importance of taking these two factors into account is in agriculture. We have pointed out that the percentage unemployed on June 1 in this occupation rises steadily from the very youngest ages to about 65. So also, as we should expect from this, does the average weeks lost by all wage-earners. This, of course, is contrary to the trend by age of most other occupations, which usually are high in unemployment around ages 20-24. But, as Statement LXXXVI below shows, this almost steady rise of column 2, from ages 10-24, is made up of a combination of a sharp rise in column 1 and a less sharp fall in column 3, these being the two components of column 2.

LXXXVI.—PERCENTAGES LOSING TIME AND AVERAGE NUMBER OF WEEKS LOST DURING YEAR BY ALL MALE WAGE-EARNERS AND BY THOSE LOSING TIME, IN THE AGRICULTURAL OCCUPATIONS, BY AGE GROUP, CANADA, YEAR ENDED JUNE 1, 1931

Age Group	P.C. Losing Time (1)	Average Weeks Lost by	
		All Wage Earners (2)	Those Losing Time (3)
Under 17	24·58	6·50	26·43
18-19	27·29	6·49	23·79
20-24	30·52	7·04	23·07
25-44	35·66	8·83	24·77
45-54	38·14	9·78	25·63
55-64	40·48	10·79	26·66
65-69	38·80	11·32	29·17

If, after we had fitted the normal curve, we found that the proportion of the stump to the whole was approximately equal to the percentage losing time, we should have proven that liability to unemployment is truly a normal distribution, being negative for those not losing any time during the year. Among the sex-age groups, however, males of 20-24 (with 46 p.c. losing time) show about 72 p.c. of their curve on the right-hand side of zero. This was in 1931, a year of worse than average unemployment in a group very much affected. For females at 25-34, on the other hand, the part of the normal curve on the right hand side of zero is a smaller portion (less than 1 p.c.) of the whole than the percentage of females losing any time (25 p.c.). Females of this age were an especially favoured group. Somewhere between the two cases, say at the level of unemployment of 30 p.c. losing some time during the year, a condition that we might call average unemployment exists where the percentage losing time is exactly equal to the percentage

of the area of the normal curve that appears on the right-hand side of zero. In such a group, liability to unemployment is normally distributed ranging from minus infinity for those most secure in their jobs up to a lifetime of unemployment for those least able economically. In sex-age groups where unemployment is lower than this level of 30 p.c. losing time during the year (which corresponds to about 15 p.c. idle at any given moment) the area of the normal curve on the left-hand side of zero tends to be greater than necessary to represent the constantly employed workers, while when unemployment is higher than this level the area on the left-hand side of zero tends to be less. The statement below gives the results of the numerical calculation; it can be seen that no very strict relationship seems to exist; it is believed that a year of more normal employment would show a more definite relation between columns 2 and 3, and 5 and 6.

LXXXVII.—FRACTION OF FITTED NORMAL CURVE ON RIGHT-HAND SIDE OF ZERO AND PERCENTAGE OF WAGE-EARNERS LOSING TIME, BY AGE GROUP, CANADA, 1931

Age Group	Males			Females		
	$\frac{a}{\sigma}$ (1)	Fraction of Normal Curve on Right-Hand Side of Zero (2)	P.C. Losing Time (3)	$\frac{a}{\sigma}$ (4)	Fraction of Normal Curve on Right-Hand Side of Zero (5)	P.C. Losing Time (6)
All ages	0·480	0·684	44·00	−1·430	0·076	25·14
14–15	0·800	0·788	33·89	0·465	0·679	30·63
16–17	0·825	0·795	42·44	−0·065	0·474	36·13
18–19	0·747	0·772	45·86	−0·750	0·227	31·17
20–24	0·605	0·727	46·48	−2·367	0·009	24·98
25–34	0·415	0·661	45·05	−3·750	0·00009	21·65
35–44	0·242	0·596	41·15	−1·540	0·062	21·42
45–54	0·420	0·663	42·70	−1·017	0·155	21·48
55–64	0·660	0·745	44·72	−0·247	0·402	20·73
65–69	0·979	0·836	46·71	0·353	0·638	20·47
70 and over	1·158	0·877	42·70	0·274	0·608	13·17

Age and the Causes of Unemployment.—The curve of total unemployment by age follows very closely the curve of percentage unemployed by age on account of "no job", as is to be expected since the latter is by far the largest component of the former (see Chart 10 and Statement LXXXVIII).

The other components are quite different. "Illness" rises steadily from the youngest ages to the oldest. "Temporary lay-off" is very low in youth since an individual must, to a certain extent at least, be entrenched in a job before he is exposed to the risk of temporary lay-off. In fact, the chart shows that this cause of unemployment attains maximum importance at precisely those ages where earnings and total weeks worked are highest, between ages 30 and 50. Judging from the smoothness of this curve and the way in which it follows the earnings curve, we may conclude that the cause "temporary lay-off" as distinct from "no job" was on the whole correctly interpreted by the enumerator and the enumerated. This view is strengthened by the fact that the average duration for "lay-off" among males is 15·36 weeks as against 26·56 weeks for "no job."

In the accident curve there is a well marked and steady rise from the younger to the older years of life. This corresponds to the trend of the curve of accidental death by age, as found by insurance company experience on the so-called "Double Indemnity"* policy. This latter trend by age may be expected to be similar because, among those exposed to the risk of incapacitation by accident, there will be a certain percentage (approximately constant for different ages) of deaths due to accident.

*A policy which pays double the sum assured in the event of accidental death.

WEEKS LOST BY MALE WAGE-EARNERS

DUE TO VARIOUS CAUSES, IN CANADA

YEAR ENDED JUNE 1, 1931

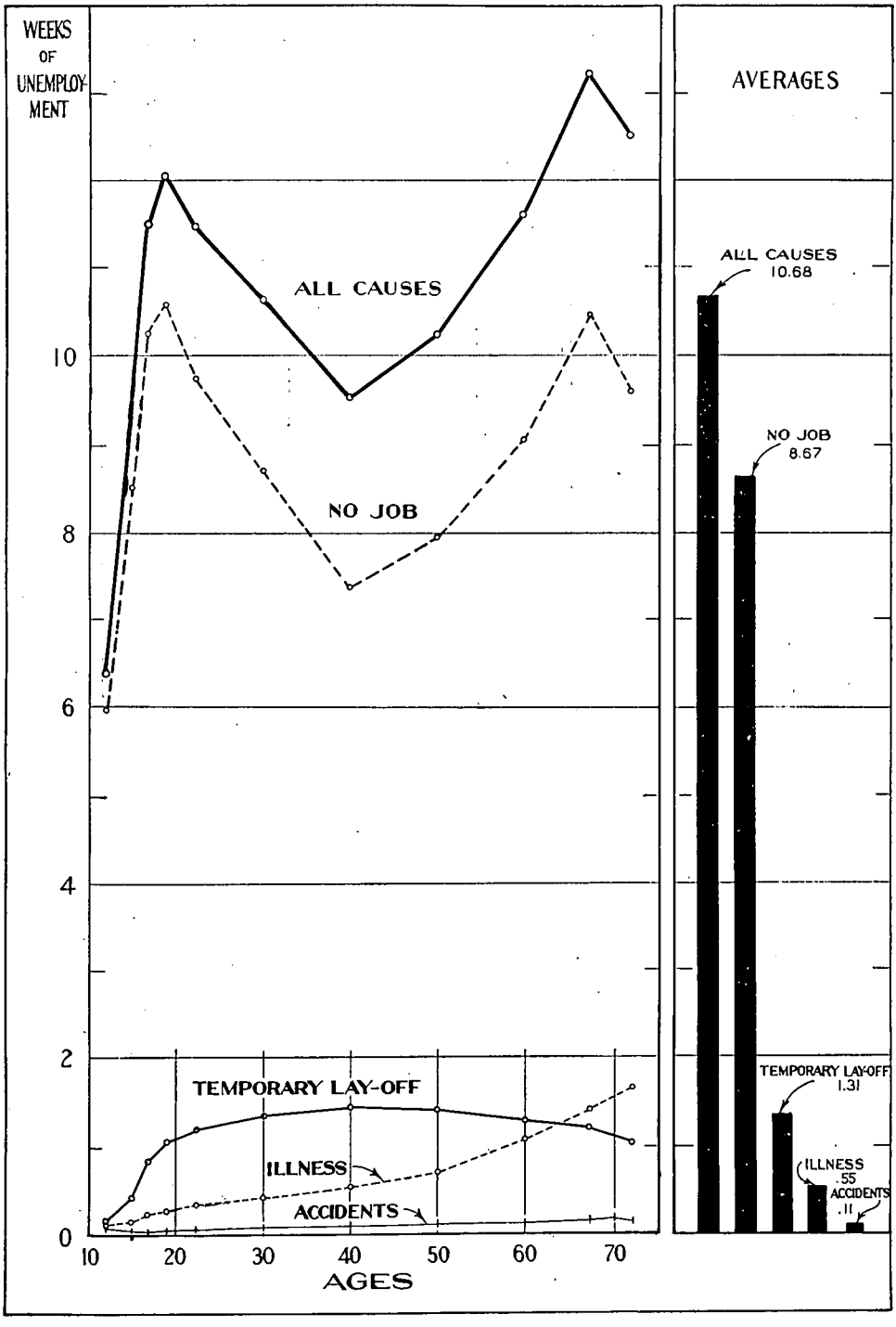


Chart 10

LXXXVIII.—AVERAGE WEEKS LOST BY WAGE-EARNERS, BY CAUSE, AGE GROUP AND SEX, CANADA, YEAR ENDED JUNE 1, 1931

Age Group	Average Weeks Lost Due to									
	All Causes		No Job		Lay-Off		Illness		Accident	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
All ages	10·68	5·29	8·67	3·90	1·31	0·79	0·55	0·51	0·11	0·02
10–13	6·38	4·61	5·95	4·23	0·20	0·36	0·12	0·01	0·05	–
14–15	9·28	7·82	8·53	6·79	0·43	0·67	0·17	0·18	0·03	0·01
16–17	11·48	8·77	10·26	7·29	0·84	1·07	0·24	0·28	0·06	0·01
18–19	12·05	6·90	10·58	5·43	1·07	1·00	0·29	0·37	0·07	0·01
20–24	11·46	4·99	9·78	3·62	1·20	0·80	0·36	0·48	0·08	0·02
25–34	10·61	4·24	8·70	2·88	1·35	0·68	0·42	0·61	0·09	0·02
35–44	9·51	4·40	7·38	2·97	1·44	0·71	0·54	0·63	0·11	0·03
45–54	10·21	4·58	7·93	3·18	1·40	0·68	0·71	0·64	0·13	0·04
55–64	11·59	4·76	9·04	3·33	1·29	0·56	1·06	0·75	0·16	0·07
65–69	13·26	5·05	10·42	3·51	1·20	0·56	1·40	0·86	0·19	0·06
70 and over	12·49	3·08	9·57	2·14	1·07	0·30	1·66	0·54	0·14	0·06

From the weeks lost by wage-earners on account of illness and accident we can make up a table showing at each age the probability of a Canadian wage-earner becoming ill, or disabled by accident. These figures might serve as premiums for a health insurance project to apply to a group taken from the general Canadian wage-earning population (conditions being such that there would be no adverse selection against the insurer). The rates obtained for males and for females are as below, in weeks of lay-up on account of sickness and accident per thousand man-weeks.

LXXXIX.—PROBABLE NUMBER OF WEEKS IDLE CAUSED BY ILLNESS AND ACCIDENT PER 1,000 WORK-WEEKS, BY AGE GROUP

Age Group	Weeks Idle Calculated from 1931 Census Data		Age	Weeks Idle Calculated from Insurance Company Disability Tables[1]	
	Males	Females		Males	Females
14–15	3·8	3·6	15	4·49	5·98
16–17	5·8	5·6	17	4·24	6·24
18–19	6·9	7·5	19	4·03	6·54
20–24	8·4	9·5	23	3·76	7·30
25–34	9·8	12·1	30	3·99	9·71
35–44	12·6	12·5	40	5·57	13·82
45–54	16·3	13·1	50	9·21	16·65
55–64	23·5	15·7	59	14·39	21·99
65–69	30·5	17·8			
70 and over	34·5	11·5			

[1] *Transactions of the Actuarial Society of America*, Volume XXX, pp. 419, 427.

The rates calculated follow generally the trend of rates based on the disability experience of insurance companies, but are somewhat higher throughout. The lower rates of females at the older ages suggest that the less healthy women drop out of the wage-earning group.

The average ages of wage-earners losing time through various causes by the weeks of time they lost during the census year, 1930-31 are as follows:—

	Males	Females
All causes	36·7	26·9
No job	36·2	26·4
Temporary lay-off	37·5	27·0
Illness	43·0	30·8
Accident	40·3	34·2
Strike or lockout	35·9	26·2

The average age for "no job" is slightly under that for "all causes." "Temporary lay-off," because it affects persons at least partially secured in their jobs, has a somewhat higher average

than "no job." Since liability to illness increases through life, its average is higher than "all causes" by 6·3 years in the case of men and 3·9 years in the case of women. The tendency to accident is known to be greater for higher ages than for younger. "Strike or lockout" has the lowest average age being 0·8 years younger than "all causes" for males and 0·7 for females. Industrial disputes apparently tend to involve the younger members of the working community.

Those industries with a high rate of unemployment on account of "no job" were likewise those with a high rate of "temporary lay-off," while as between ages, those with high "no job" rate had low "temporary lay-off" rates. It is an illustration of the important distinction between age (representing the personality of the worker) and industry (representing the market for his labour) that "no job" and "temporary lay-off" correlate positively when taken with regard to the latter and negatively when with regard to the former.

We have seen that illness takes an increasing number of weeks with increasing age. The tabular statement below shows that it also becomes more important compared with other causes of unemployment. Of total weeks lost by men in the 20-24 age group 3 p.c. were lost on account of "illness" and 85 p.c. on account of "no job"; at age 45-54 "illness" took 7 p.c. and "no job" 78 p.c. The table shows that the trend of the relative importance of illness runs fairly smoothly through the ages.

XC.—PERCENTAGE OF TOTAL WEEKS LOST FOR EACH CAUSE BY MALE WAGE-EARNERS LOSING TIME DURING YEAR, BY AGE GROUP, CANADA, YEAR ENDED JUNE 1, 1931

Cause of Unemployment	P.C. of Total Weeks Lost in Age Group										
	All Ages	14-15	16-17	18-19	20-24	25-34	35-44	45-54	55-64	65-69	70 and over
All causes	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
No job	81·17	91·97	89·37	87·78	85·33	82·05	77·57	77·66	77·98	78·59	76·58
Temporary lay-off	12·25	4·64	7·33	8·85	10·48	12·75	15·17	13·69	11·15	9·02	8·58
Illness	5·19	1·84	2·13	2·42	3·10	3·93	5·71	6·98	9·18	10·57	13·25
Accident	1·00	0·29	0·51	0·56	0·72	0·89	1·17	1·31	1·35	1·40	1·12
Strike or lockout	0·04	0·01	0·03	0·04	0·05	0·05	0·05	0·04	0·03	0·04	0·02
Other causes	0·34	1·25	0·63	0·36	0·32	0·33	0·32	0·31	0·31	0·38	0·45

Like "illness," "accident" rises steadily throughout life accounting for ·51 p.c. of all time lost at age 16-17 and steadily rising amounts at later ages to 1·40 p.c. at 65-69, then dropping off to 1·12 p.c. at 70 and over. Perhaps the drop is due to the withdrawal of men at the very old ages from the more dangerous occupations.

"Strike or lockout" rises from 0·01 at ages 14-15 to 0·05 at 25-34, and declines to 0·02 at ages over 70. With it may be classed "temporary lay-off" which shows a similar steady rise from young to middle age (7 p.c. at 16-17 to 15 p.c. at 35-44) and the same decline in later life (to 9 p.c. at ages 65-69). It is reasonable that these should show similar trends, for both are applicable to the period of life when economic productiveness is greatest, the persons affected being only those who were at work shortly before.

We noticed in the section on duration by age, that at the middle ages, where unemployment rates were lowest, both the number of wage-earners losing time and the length of time they lost were at a minimum. This relationship of frequency of unemployment to its duration is apparent also in the analysis by causes (Statement XCI). "No job" shows the characteristic U-shaped curve for duration which we observed for frequency, "illness" and "accident" the same steady rise toward old age. "Temporary lay-off" fails to follow the rule, showing somewhat of a rise

toward the younger and the older ages, indicating, what a reading of the enumerations suggests, that a certain number of cases of unemployment due to "no job," have been classified as "temporary lay-off" in addition to the fact that middle-aged men are probably taken back sooner after a lay-off than young or old ones.

XCI.—AVERAGE WEEKS LOST BY MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER LOSING TIME, BY CAUSE AND AGE GROUP, CANADA, YEAR ENDED JUNE 1, 1931

Age Group	Average Weeks Lost Due to				
	All Causes	No Job	Lay-Off	Illness	Accident
All ages	24·28	26·56	15·36	12·60	11·80
10–13	26·38	27·81	17·13[1]	8·78[1]	6·80[1]
14	28·28	28·98	18·38	10·60	9·55[1]
15	27·13	28·47	14·57	8·66	9·04[1]
16–17	27·06	28·73	15·93	9·91	9·61
18–19	26·28	28·16	15·90	10·26	9·81
20–24	24·66	26·46	15·48	10·93	10·33
25–34	23·54	25·69	15·21	10·88	10·61
35–44	22·90	25·52	15·22	11·51	11·62
45–54	23·92	26·55	15·20	13·37	12·95
55–64	25·93	28·45	15·51	16·27	14·80
65–69	28·39	30·47	16·51	19·00	17·22
70 and over	29·26	30·88	17·87	20·84	18·54

[1] Less than 25 persons.

The Joint Action of Age and Industry in Unemployment.—In any given age group there seems on inspection to be more fluctuation from industry to industry (see Statement XCIII and Chart 11) than there is from age to age in a given industry. This corresponds to the figures obtained previously (·0932 for the age-to-age variation in "all industries" and ·6148 for the industry-to-industry variation in "all ages").

We can measure the age variance, the industry variance, and the age-industry joint variance by the usual method for the table of percentage unemployment by industry and province.

XCII.—VARIANCE OF AGE AND INDUSTRY IN UNEMPLOYMENT, CANADA, JUNE 1, 1931

Variant	Degrees of Freedom	Sum of Squares	Variance
Ages	9	411	46
Industry	8	11,133	1,392
Age-Industry	72	760	11
Total	89	12,304	138

The variance of industry is considerably greater than that of age, while the industry effect on age (or the age effect on industry) is small compared with either separately. The variance of industry relative to age is about 30 to 1, or not far from what we established it to be when we calculated each separately with weights.

Statement XCV shows the percentage age distribution of wage-earners and unemployed, respectively. It is plain that some industries show greater differences between their wage-earners and their unemployed than do others. If we calculate the sum of the squares of the differences of

PERCENTAGE OF MALE WAGE-EARNERS NOT AT WORK JUNE 1, 1931

AT VARIOUS AGES FOR THE DIFFERENT INDUSTRIES

CANADA

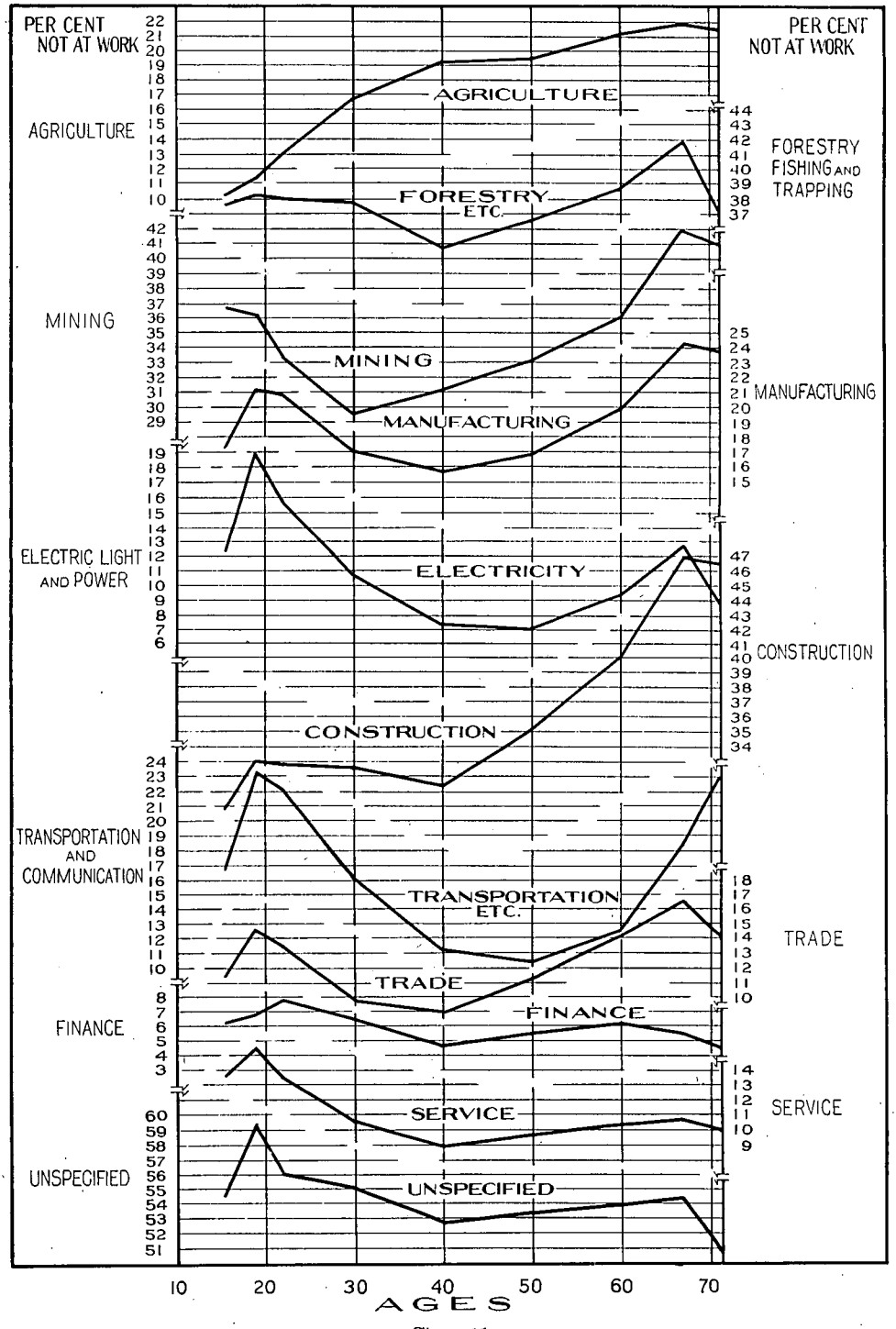


Chart 11

XCIII.—PERCENTAGES OF MALES NOT AT WORK JUNE 1, BY INDUSTRY AND AGE GROUPS, CANADA ,1931

Age Group	P.C. Not at Work June 1, in Industry										Sum	Sum of Squares
	Agriculture	Forestry, Fishing, and Trapping	Mining	Manufacturing	Electric Light and Power	Construction	Transportation and Communication	Trade	Finance	Service		
Under 17	10·15	37·41	36·77	17·16	12·24	29·96	16·76	11·45	6·25	13·57	191·72	4,831·6558
18–20	11·27	38·17	36·26	21·11	18·89	33·04	23·30	14·61	6·95	15·53	219·13	5,838·6807
20–24	13·01	37·95	33·30	20·72	15·75	32·81	22·19	13·53	7·86	13·41	210·53	5,389·2943
25–34	16·65	37·87	29·61	17·02	10·77	32·69	16·13	9·80	6·42	10·42	187·38	4,568·4306
35–44	19·17	34·65	31·04	15·50	7·29	31·32	11·24	9·02	4·76	8·84	172·83	4,114·4307
45–54	19·34	36·50	33·01	16·82	7·08	35·04	10·45	11·18	5·46	9·73	184·61	4,715·4655
55–64	21·07	38·61	36·07	19·75	9·31	40·06	12·57	14·28	6·15	10·30	208·17	5,823·0999
65–69	21·95	41·80	41·89	24·23	12·71	46·93	18·61	16·63	5·45	10·71	240·91	7,702·1721
70 and over	21·49	37·14	40·98	23·66	8·82	46·44	23·04	14·22	4·56	9·96	230·31	7,167·8669
Sum	154·10	340·10	318·93	175·97	102·86	328·29	154·29	114·72	53·86	102·47	1,845·59	–
Sum of squares	2,805·6100	12,881·0206	11,440·7817	3,519·2099	1,299·9882	12,307·0215	2,847·0793	1,512·6920	331·1488	1,206·5445	–	50,151·0965

the percentages of wage-earners and unemployed for a given industry in the several age groups, we get the following sequence of industries, arranged from greatest to least:—

XCIV.—INDUSTRY GROUPS RANKED IN DESCENDING ORDER OF MAGNITUDE OF THE SUMS OF THE SQUARES OF THE DIFFERENCES IN PERCENTAGES OF WAGE-EARNERS AND UNEMPLOYED IN EACH AGE GROUP, CANADA, JUNE 1, 1931

Rank	Industry Group	Sum of Squares
1	Electric light and power	149
2	Transportation and communication	120
3	Finance	60
4	Agriculture	54
5	Trade	49
6	Service	30
7	Manufacturing	18
8	Construction	9
9	Mining	8
10	Forestry, fishing, and trapping	3
11	Unspecified	1

It can be seen that the industry groups most highly "organized" (in the sense in which the word is used in Chapter III) are those which come at the top of the statement. Somewhat exceptional is the position of agriculture which ranks too high on the list; perhaps the apparent exception it offers throughout this study is due to its wage-earners constituting a poorer sample of its total personnel than is the case in other industries.

The arrangement indicates that the employed wage-earners in the highly organized industries tend to be a class separate from the unemployed in those industries, the latter being mere hangers-on; in the cyclical industries on the other hand, whether or not a man is working is rather a matter of chance, hence the result that the unemployed are in the same class, as to age at least, as the wage-earners.

XCV.—PERCENTAGE DISTRIBUTION OF MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER AND UNEMPLOYED, BY INDUSTRY AND AGE GROUPS, CANADA, JUNE 1, 1931

No.	Age Group	All Industries		Agriculture		Forestry, Fishing, and Trapping		Mining		Manufacturing	
		Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed
		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
1	All ages	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
2	Under 17	3·72	3·45	8·71	5·69	3·28	3·31	1·53	1·77	3·61	3·48
3	18–19	5·34	5·92	10·48	7·59	5·23	5·37	3·37	3·82	5·10	6·05
4	20–24	15·25	16·53	24·05	20·13	16·75	17·11	12·65	13·15	14·27	16·61
5	25–34	26·66	26·47	27·74	29·70	29·59	30·17	31·63	29·23	26·60	25·44
6	35–44	21·65	19·10	13·03	16·06	20·27	18·91	24·73	23·96	22·66	19·73
7	45–54	16·19	15·58	8·59	10·69	14·72	14·46	16·93	17·44	16·94	16·01
8	55–64	8·09	8·98	4·98	6·74	7·28	7·57	7·22	8·13	8·10	8·99
9	65–69	1·95	2·44	1·48	2·09	1·83	2·06	1·34	1·75	1·79	2·43
10	70 and over	1·15	1·44	0·95	1·31	1·03	1·03	0·60	0·76	0·94	1·25

Since it happens to be the industries with considerable unemployment that show the most similarity between wage-earners and unemployed, it might be suspected that the reason for the greater similarity of these "depressed" industries was simply the fact that their wage-earners included so many unemployed, and that, therefore, a mathematical necessity existed for the result obtained. To avoid this objection the whole process was repeated, using the distribution of wage-earners working on the one hand, and of unemployed, as before, on the other. The result previously obtained was brought out even more strongly:—

XCVI.—INDUSTRY GROUPS RANKED IN DESCENDING ORDER OF MAGNITUDE OF SUMS OF THE SQUARES OF THE DIFFERENCES IN PERCENTAGES OF WAGE-EARNERS EMPLOYED AND UNEMPLOYED IN EACH AGE GROUP, CANADA, JUNE 1, 1931

Rank	Industry Group	Sum of Squares
1	Electric light and power	184
2	Transportation and communication	164
3	Agriculture	76
4	Finance	68
5	Trade	62
6	Service	37
7	Manufacturing	27
8	Construction	22
9	Mining	18
10	Forestry, fishing, and trapping	6
11	Unspecified	6

Agriculture seems, as before, to be out of line; otherwise the arrangement fully demonstrates the point previously made.

In similar calculations performed for a number of the finer industry groups of the census the same observation was made, that in general the unemployed on June 1, were most nearly of the age distribution of the employed of their own industry in those cases where unemployment was least.

Unemployment by Occupation and Age.—Following the train of reasoning developed earlier in this chapter on the relation between earnings and unemployment, we have calculated ages of maximum earnings and ages of minimum unemployment for the various occupation groups. These are given, along with the figures on which they are based, in Statements XCVII and XCVIII. The relationship is obvious—plainly those occupations in which the peak of earnings is attained at an early age are those in which the peak of employment is early, and *vice versa*. The zero order correlation between the peaks of unemployment and earnings is ·63.

It might be thought that this relationship is due merely to the fact that the maxima of earnings and employment both depend on the age distribution of the several occupations, and that the relationship between them is due to their common base. To ascertain whether or not this is the case we can perform a correlation of each with the median ages of the workers (given in Statement XCIX) in the various occupations, and then partial out the effect of age background. The correlation of age of maximum earnings with median age is ·41 and of maximum employment is ·03. The partial correlation between ages of maximum earnings and employment turns out to be ·68. (Because it behaves erratically in average weeks of employment, agriculture was omitted throughout.)

The fact that this relation between earnings and weeks of work exists, independently of the age bases of the occupations, verifies the point made at the beginning of this chapter, that weeks of employment and earnings are really measures of the same thing—productive capacity of the worker.

XCV.—PERCENTAGE DISTRIBUTION OF MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER AND UNEMPLOYED, BY INDUSTRY AND AGE GROUPS, CANADA, JUNE 1, 1931

Electric Light and Power		Construction		Transportation and Communication		Trade		Finance		Service		Unspecified		No.
Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	Wage-Earners	Unemployed	
p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	
100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	1
1·13	1·36	1·79	1·56	1·65	1·89	6·76	6·83	2·53	2·55	2·01	2·61	4·81	4·79	2
3·00	5·62	3·64	3·53	3·30	5·27	7·22	9·31	7·62	8·53	3·23	4·78	6·88	7·47	3
13·63	21·31	12·80	12·31	12·52	19·03	17·70	21·12	20·78	26·27	11·93	15·26	16·60	17·04	4
29·78	31·82	25·98	24·90	27·90	30·83	26·44	22·85	25·24	26·08	24·44	24·30	25·63	25·86	5
26·06	18·86	22·44	20·60	25·80	19·87	20·23	16·10	21·55	16·50	23·95	20·19	17·96	17·33	6
17·22	12·10	19·29	19·81	18·60	13·32	13·72	13·54	13·65	11·99	18·95	17·59	14·54	14·20	7
7·07	6·53	10·04	11·79	8·23	7·08	5·90	7·44	6·16	6·09	10·51	10·33	9·00	8·88	8
1·35	1·70	2·56	3·52	1·42	1·81	1·30	1·91	1·36	1·19	2·94	3·00	2·74	2·73	9
0·78	0·68	1·47	2·01	0·57	0·90	0·72	0·90	1·09	0·80	2·03	1·93	1·84	1·70	10

XCVII.—AVERAGE NUMBER OF WEEKS EMPLOYED OF MALE WAGE-EARNERS 16 YEARS OF AGE AND OVER, BY AGE AND OCCUPATION GROUPS, AND AGE OF MAXIMUM NUMBER OF WEEKS EMPLOYED, CANADA, YEAR ENDED JUNE 1, 1931

Occupation Group	Average Weeks Employed of Age Group									Age of Maximum Employment
	16-17	18-19	20-24	25-34	35-44	45-54	55-64	65-69	70 and over	
All occupations	40·21	39·70	40·31	41·19	42·28	41·53	40·05	38·25	38·74	40·92
Agriculture	44·97	45·34	44·79	43·27	42·14	41·84	40·75	39·88	40·38	–
Fishing, hunting, and trapping	41·79	39·86	40·37	40·61	40·94	40·24	39·05	38·18	38·58	38·20
Logging	33·72	33·92	34·60	33·29	34·20	33·14	32·36	32·04	33·35	39·62
Mining, quarrying, oil and salt wells	29·38	31·01	33·89	36·23	35·61	34·40	32·59	29·55	29·61	35·12
Manufacturing	41·87	40·56	40·39	42·03	42·70	42·26	40·53	38·04	38·24	41·04
Electric light and power	38·59	38·65	41·47	43·54	44·03	43·80	42·89	41·38	40·56	41·81
Building and construction	40·22	38·01	36·31	37·21	38·05	36·16	33·77	30·60	30·33	38·08
Transportation and communication	42·86	39·64	40·01	43·35	46·33	46·96	46·28	44·59	44·45	49·81
Warehousing and storage	40·96	43·06	43·63	46·27	47·13	46·69	45·34	46·04	45·01	41·62
Commercial	44·93	44·85	45·73	48·03	48·52	47·86	46·45	45·50	46·50	39·26
Finance, insurance	–	46·79	46·92	48·95	49·83	49·23	48·52	49·06	49·25	40·95
Service	42·77	43·09	45·73	47·65	47·84	47·30	47·05	47·02	47·40	37·60
Clerical	47·00	47·42	47·52	48·43	48·82	48·15	47·36	46·73	48·27	38·68
Other	30·74	30·02	31·78	32·73	33·89	33·46	32·40	30·60	30·93	42·30

XCVIII.—AVERAGE EARNINGS PER WEEK EMPLOYED OF MALE WAGE-EARNERS 16 YEARS OF AGE AND OVER, BY AGE AND OCCUPATION GROUPS, AND AGE OF MAXIMUM EARNINGS, CANADA, YEAR ENDED JUNE 1, 1931

Occupation Group	Average Weekly Earnings of Age Group									Age of Maximum Earnings
	16-17	18-19	20-24	25-34	35-44	45-54	55-64	65-69	70 and over	
	$	$	$	$	$	$	$	$	$	
All occupations	7·15	10·20	15·20	21·84	27·68	28·95	26·73	23·49	20·48	48·64
Agriculture	4·10	5·23	6·56	7·98	9·74	10·38	9·66	9·11	7·95	49·71
Fishing, hunting, and trapping	5·57	7·05	9·29	11·77	13·12	13·75	11·84	10·92	8·09	47·48
Logging	7·14	8·75	10·63	13·45	16·20	16·41	15·25	13·33	12·35	46·53
Mining, quarrying, oil and salt wells	12·47	15·92	19·50	23·26	25·32	26·31	24·43	21·31	18·37	48·45
Manufacturing	8·39	11·85	17·84	24·50	29·27	31·89	30·50	29·12	25·21	50·80
Electric light and power	11·38	16·51	21·35	25·70	28·48	29·20	28·42	25·72	24·67	49·73
Building and construction	7·57	12·32	19·15	23·98	26·65	26·95	24·46	21·81	18·32	46·08
Transportation and communication	7·23	11·38	17·10	22·75	28·90	31·95	31·77	28·21	20·53	54·44
Warehousing and storage	9·37	12·81	17·59	23·05	26·68	27·29	25·52	24·01	20·95	47·56
Commercial	8·00	11·36	18·14	28·81	37·46	39·47	35·97	31·51	28·69	48·65
Finance, insurance	–	14·73	23·74	39·14	52·43	62·26	59·19	49·57	51·55	52·62
Service	7·23	11·05	18·31	28·17	34·08	35·05	32·79	28·88	25·91	48·00
Clerical	9·65	12·89	18·92	27·00	31·72	31·48	29·81	28·26	25·05	44·52
Other	8·02	10·45	12·94	15·16	16·49	16·60	15·69	14·20	12·60	46·08

Since occupations are representative of the individual workers (industries offering a cross-section of occupations), and since age is likewise representative of the individual workers, we should expect greater age differences between occupation and occupation, in the distribution of wage-earners, than between industry and industry. As a rough test of this we have calculated the standard deviations of the median ages between the fourteen occupation groups and between the eleven industry groups.

The standard deviation for industries is 2·961, for occupations, 3·433 (Statement XCIX).

In the preceding section considerable stress was laid on differences between the age characteristics of the wage-earners and of the unemployed; the conclusion there drawn being that in general the most highly organized industries show the most difference between working wage-earners and unemployed ones.

Now the question is, how do the occupations behave as to this quality of similarity between wage-earners and unemployed? Do the occupations on the whole behave like the "organized" or like the "unorganized" industries? Unfortunately we can not follow through the detailed procedure of the preceding section for occupations because no tabulation is available in the occupation classification in comparable ages.

We can, however, get an estimate of the age difference between workers and non-workers from median ages. Subtracting the median ages of the wage-earners from those of the unemployed, adding the squares of the differences and averaging, as shown in the calculation below (Statement XCIX), we arrive at 3·27 for the average squared difference for occupations and 5·38 for industries. This is in spite of the fact that, as we have seen above, the age backgrounds of the occupations vary more than those of the industries. We thus find that the occupations are less "organized" than the industries, they seem to exercise less control over their personnel. Making the same comparison by provinces we find the differences less again than for occupation, 1·64 being the average square difference.

Thus as between industries, occupations and provinces, we find that the group employed is most dissimilar to the group unemployed for industries and most similar for provinces. In other words, the selection of the employed wage-earners from the total wage-earners has been done most carefully in industries, less carefully in occupations, and least carefully in provinces.

The inference to be drawn is that it is essentially by industries that the selection of personnel is made—that such differences in "organization" as exist for occupations are the result of a concentration of certain occupations in certain industries which gives the occupational classification an industrial tinge. To a lesser extent the same is true of provinces. To the individual worker the situation is one where he has little trouble becoming a member of an occupation, but great difficulty in becoming attached to one of the more or less organized industries, unless he is of a select type.

XCIX.—MEDIAN AGES OF WAGE-EARNERS AND UNEMPLOYED 10 YEARS OF AGE AND OVER, IN INDUSTRIES, OCCUPATIONS AND PROVINCES, CANADA, JUNE 1, 1931

Industry Group	Median Age			Occupation Group	Median Age			Province	Median Age		
	Wage-Earners (1)	Unemployed (2)	Wage-Earners—Unemployed Col. 1—Col. 2 (3)		Wage-Earners (1)	Unemployed (2)	Wage-Earners—Unemployed Col. 1—Col. 2 (3)		Wage-Earners (1)	Unemployed (2)	Wage-Earners—Unemployed Col. 1—Col. 2 (3)
All industries	34·637	34·105	0·532	All occupations	35·640	35·388	0·252				
Agriculture	27·439	30·586	−3·147	Agriculture	28·660	31·787	−3·127	Prince Edward Island	31·528	32·321	−0·793
Forestry, fishing, and trapping	33·358	33·023	0·335	Fishing, hunting, and trapping	35·926	36·552	−0·626	Nova Scotia	34·643	33·576	−1·067
Mining, quarrying, oil and salt wells	35·326	35·849	−0·523	Logging	34·109	34·449	−0·340	New Brunswick	33·892	31·260	2·632
Manufacturing	35·186	34·376	0·810	Mining, quarrying, oil and salt wells	36·246	36·257	−0·011	Quebec	33·168	32·027	1·141
Electric light and power	35·951	31·821	4·130	Manufacturing	36·092	35·826	0·266	Ontario	35·235	34·717	0·518
Construction	37·583	38·745	−1·162	Electric light and power	41·446	41·432	0·014	Manitoba	35·333	33·767	1·566
Transportation and communication	36·790	32·722	4·068	Building and construction	39·964	41·420	−1·456	Saskatchewan	32·619	32·191	0·428
Trade	31·928	30·572	1·356	Transportation and communication	35·995	32·488	3·507	Alberta	34·327	34·088	0·239
Finance, insurance	32·557	29·851	2·700	Warehousing and storage	36·422	33·498	2·924	British Columbia	38·686	40·034	−1·348
Service	38·500	36·506	1·994	Commercial	35·170	32·654	2·516				
Unspecified	33·469	33·005	0·464	Finance, insurance	39·886	39·362	0·524				
				Service	39·125	38·040	1·085				
				Clerical	30·027	27·920	2·107				
				Other	35·241	34·788	0·453				
Sum	378·681				504·309						
Average	34·371				36·022						
Sum of squares	13,091·485		59·222		18,331·133		45·752				14·775
Average of squares	1,190·135		5·384		1,309·367		3·268				1·642
σ^2	8·769				11·783						
σ	2·961				3·433						

Correlations were attempted between various age and employment factors among the major industry groups of the census, but in all cases they failed to be significant, the supposed reason being the heterogeneity of the industry groupings—the manner in which their boundaries cut across the boundaries of a grouping by some natural criterion as, for example, organization* or liability to unemployment itself. There would likewise be little attained in relating factors in the different occupation groups of the census, since these are similar in constitution to the major industry groups.

For a sensitive technique like correlation analysis the best approach is to use the finest available industrial or occupational classification. As an approximation to the comparison of similar groups, a correlation was performed between certain factors relevant to unemployment in 12 railway occupations. "Steam railways" offers the largest number of occupations working under identical industrial conditions of any census industry. All steam railway occupations in which there were more than 1,000 male wage-earners are included in the 12 used. The elements that were correlated between these occupation groups were:—

(1) average age of wage-earners;
(2) average age of unemployed;
(3) average duration of unemployment;
(4) weeks lost through causes other than "illness", including "no job";
(5) average earnings per week employed.

Statement C below gives the data used and Statement CI the results of the correlation.

C.—DATA RELATING TO AGE AND UNEMPLOYMENT IN TWELVE STEAM RAILWAY OCCUPATIONS, CANADA, YEAR ENDED JUNE 1, 1931

Occupation	Median Age of		Average Duration of Unemployment	Time Lost Through Causes Other than Illness	Average Earnings per Week Employed
	Total Wage-Earners (1)	Unemployed (2)	(3)	(4)	(5)
	years	years	weeks	weeks	$
Officers	48·674	47·727	13·545	0·244	73·83
Foremen, inspectors	46·926	46·604	13·170	1·682	34·85
Agents—ticket and station	41·109	32·043	19·470	1·311	37·61
Baggagemen and expressmen	43·384	39·222	15·933	2·590	30·64
Brakemen	37·560	35·999	22·020	9·940	32·09
Locomotive engineers	47·048	45·296	16·485	3·398	45·87
Locomotive firemen	36·107	35·025	23·024	10·962	32·05
Porters	38·932	36·818	20·074	5·430	20·05
Conductors	48·114	46·986	13·812	1·932	43·37
Section foremen, sectionmen; trackmen	37·827	35·662	21·999	7·874	19·33
Switchmen, signalmen, and flagmen	40·978	38·117	21·059	7·274	27·52
Yardmen, n.e.s.	39·405	37·139	16·721	5·469	27·37

CI.—CORRELATION OF FIVE FACTORS RELATING TO AGE AND UNEMPLOYMENT IN TWELVE STEAM RAILWAY OCCUPATIONS, CANADA, YEAR ENDED JUNE 1, 1931

Item	Coefficient of Correlation of				
	Median Age of		Average Duration of Unemployment	Weeks Lost Through Causes Other than Illness	Average Earnings per Week Employed
	Total Wage-Earners	Unemployed			
Median age of total wage-earners	1·00	0·91	−0·90	−0·84	0·73
Median age of unemployed		1·00	−0·84	−0·60	0·66
Average duration of unemployment			1·00	0·86	−0·60
Weeks lost through causes other than illness				1·00	−0·58
Average earnings per week employed					1·00

There is a high negative correlation between the average unemployment and the average age of the wage-earners, *i.e.*, the older the average age of an occupation group the shorter the average unemployment for that group (factors 1 and 4). Elsewhere in this chapter it has been pointed out that the greater the age of an individual wage-earner the longer his probable unemployment. The apparent contradiction between these two statements is resolved when we consider that the occupation groups are not random with regard to age, but that the groups

*In the special sense in which this is used throughout the monograph.

of higher average age represent types of occupation different from those of lower average age. The executive and more responsible supervisory jobs tend to be held by older people; when the correlation is performed by occupation groups and not by individual persons, as here, the manner in which persons are selected for occupations will affect the result.

It will be seen from the similarity of the first two rows of Statement CI that a similar result is given for the relation of the average age of the wage-earners as for the average age of the unemployed to the various factors considered.

This bears out the point that, for a given industry, the unemployed of various occupations seem to behave very much as the wage-earners of their occupations; indicating that it is between industries as wholes that the sharp cleavage exists between wage-earners and unemployed.

Unemployment by Age in Previous Censuses.—Questions relating to unemployment have been asked in the Censuses of both 1911 and 1921. Unfortunately for a comparison or determination of time trend the results have not been tabulated in the same age groups. Further the definition of unemployment as "time not employed in usual occupation" adopted in 1911 makes the absolute figures of unemployment for that year an over-statement in comparison with 1921 and 1931; it is believed, however, that the rougher age-to-age differences in the two years can be compared. The figures of employment are as follows:—

CII.—AVERAGE WEEKS EMPLOYED OF WAGE-EARNERS, BY AGE GROUP AND SEX, CANADA, YEARS ENDED JUNE 1, 1911-1931

Age Group	Average Weeks Employed in 1911		Age Group	Average Weeks Employed in 1921		Age Group	Average Weeks Employed in 1931	
	Males	Females		Males	Females		Males	Females
All ages.....	41·40	41·38	All ages.....	46·45	48·27	All ages.....	41·07	46·59
15–24.....	40·79	41·35	10–14.....	45·72	44·97	10–15.....	42·50	44·01
						16–17.....	40·21	42·99
			15–19.....	45·73	46·98	18–19.....	39·70	44·95
			20–24.....	46·12	48·73	20–24.....	40·31	46·94
						25–34.....	41·19	47·70
			25–49.....	46·85	48·86	35–44.....	42·28	47·48
25–64.....	41·75	41·43				45–54.....	41·53	47·23
			50–64.....	46·09	48·70	55–64.....	40·05	46·98
						65–69.....	38·25	46·57
65 and over..	39·17	40·60	65 and over	44·81	49·08			
						70 and over	38·74	48·57

The general parallelism of the three sets of figures is apparent.

Summary.—1. In the course of this chapter we have noted the parallelism of earnings and employment at different ages, and concluded, from this and from theoretical considerations, that they are both representative of the rise and decline of productive efficiency from youth to old age.

2. We have noticed, as an apparent exception to the above, that very young persons and very old ones have less unemployment than we should expect from the relative lowness of their earnings. This was explained as partly due to a selection, whereby those persons not actually employed at the time of the census tend to report themselves to the enumerator as not in the wage-earner class. This is especially true of married women.

3. That this is not the only factor at work, however, is clearly shown in the separation of unemployment, by a necessarily somewhat devious method, into the two categories of frequency and duration. Frequency of unemployment may be regarded as the answer to the question, "What is the chance of a wage-earner now working losing his job?"; duration as the answer to the opposite question, "What is the chance of a wage-earner now out of work finding a job?" —more precisely "How long on the average will he be idle?" We found that both frequency and duration are low in middle life and rise toward the older and younger ages; at the very young and very old ages, however, it was plain from charting of the figures that duration continues to rise though frequency drops sharply; in short, boys and old men are more secure in their jobs, once they are employed, but once out they have a far harder time getting in again than the more favoured ages.

4. As between a number of similar industries there seems to be a tendency for seniority to appear most strongly in those where establishments are largest; this is indicated by the decreasing percentages of unemployment at older ages in such industries.

5. The very force that would do most to develop Canada, given suitable economic conditions, *viz.*, the high ratio of persons of producing age to consumers, was a handicap under the unfavourable conditions of 1931, intensifying the competition for such jobs as were available. As this abnormality of age structure vanishes in the natural course of demographic evolution, Canada's position will improve.

6. The variation in unemployment between provinces was found to increase towards the older and younger ages. This is partly at least because 25 is the age of greatest mobility; a differential shortage of jobs suitable for persons of an age of great mobility will be more nearly ironed out by the movement of wage-earners than differences at ages when moving is less practicable.

7. A certain degree of success was attained in fitting a truncated normal to the very rough distribution of wage-earners by weeks lost, in that the progression of modal points and standard deviations was extremely smooth from age to age. The truncated normal, involving only three constants of fit, gave a very much better fit than could be expected with four or even five constants in a parabolic curve.

It seemed that where unemployment was what we might call "normal", about 30 p.c., the Gaussian curve represents the entire wage-earning population and shows them normally distributed, all liable to unemployment but in varying degrees, from the man most secure in his job to the one who lost the whole year. The unemployment of the former is to be considered negative, of course. But where unemployment becomes more severe a hard core develops; a rising concentration sets in as evidenced by the narrowing of the standard deviation about the mode; the diverse causes and conditions which act where unemployment is of "normal" amount only, become narrowed down to a single, definite, widespread and uniformly-acting cause; a cause which tends to operate on all of the unemployed alike. Its characteristic is that it acts from a definite centre, and draws all those wage-earners of the group who lose any time at all within a narrow interval in respect of the number of weeks they lose. In the very old and very young age groups, therefore, we have a situation where those who happen to lose no time seem in no danger of losing time, while those who do lose suffer lengthy but relatively definite stretches, after which they either find a job or give up the search and are considered unemployable.

8. Comparing the age incidence of the various causes of unemployment we found that "no job" follows "all causes", running inversely to earnings; while "temporary lay-off", "strike or lockout", and to a lesser extent "accident" correspond directly to earnings as is to be expected from the fact that those exposed are persons recently at work. Illness rises steadily throughout life as a cause of unemployment—which steady rise corresponds to the claim rates for disability experienced by insurance companies.

9. It was shown numerically that in industries of high organization there is a great dissimilarity of age structure between the wage-earners working and those unemployed; in those of poor organization the two classes are very much alike. When unemployment is low (as it is in industries of high organization) there seems to be the very definite distinction between those working and those not working—the latter seem almost an outcast class; in industries of high unemployment, on the other hand, there is a constant movement of persons from employed to unemployed and back again, so that the two groups at any moment are of similar structure.

Looking at the matter from a slightly different viewpoint, we may regard the people actually working as a group selected from the larger aggregate of total wage-earners. Then our previous statements are the same as saying that the working group are more carefully and permanently selected in the well organized than in the poorly organized industries, in favourably situated industries than in unfavourably situated ones.

CHAPTER VI

THE TREND OF UNEMPLOYMENT

INTRODUCTION

The following study of the trend of unemployment is practically confined to calculations of unemployment month by month since June, 1920. The task of making such calculations, especially for the period following the Census of 1931, is not only great but perilous. It is a fact, however, that no worthwhile constructive work has ever been accomplished without tackling such difficulties and the pressing need for some quantitative guide to current unemployment conditions justifies the risk of an estimate.

While the figures herein are only estimates, every care has been taken in their construction and in checking them against known facts and even theories—as will be seen by reading the description of the methods used. They must not, however, be accepted as taking the place of sampling in the field, much less a census. They are rough guides, reflecting the trend of the known facts bearing upon unemployment—but they remain only estimates.

Even a census of unemployment, it may be remarked, does not give exact results, and this would still be true even if the census enumerator failed in no instance to follow instructions. The multiplicity of definitions stands in the way of any clear or exact concept of unemployment. To some the unemployed person is any person not working, whether he ever worked before or not, or whether or not he is able to or wants to work. In the following estimates the definition of unemployment is rigid and must be constantly kept in mind as it is absolutely necessary to know what we mean. *The unemployed person, in the following estimate, is the person who could tell a census enumerator that he had worked as a wage-earner or that he had a wage-earning occupation, but is at present out of work (not through illness, accident, strike or lockout, etc.).*

It is clear that this definition of unemployment excludes the boy or girl of working age who has never worked at a steady job; also the boys or girls on the farm who would be wage-earners under better employment conditions. The former no doubt constitutes a very serious problem, but to consider him unemployed would destroy any attempt at giving a clear concept of unemployment in the present sense. He should be considered as a separate problem, but to add him to the unemployed when conditions are bad and forget that in many cases he was not looking for employment when conditions were good, would give a distorted picture of conditions.

In Tables 1 and 2 (Part II) the estimates of unemployment are given under several forms to meet different persons' conceptions or definitions of unemployment. The first column (Table 1), which shows the percentage *employed* in index form, is considered the soundest of the columns; in other words, placing them thus in index form suggests to the reader that their legitimate use is as a barometer. There follows estimates of percentages employed, number of wage-earners, number unemployed, etc. One of the columns shows the number normally gainfully occupied (as distinguished from wage-earners) and another the number of wage-earning jobs per person gainfully occupied. This in itself is a barometric figure and meets certain persons' definitions of employment. There is also an attempt in Tables 3 and 4 to show the number remaining in rural parts during the depression period and the changing gap between the number of wage-earners and the totality of gainfully occupied. The latter include not only wage-earners but employers, independent workers and "no pay" workers such as farmers' sons, etc.

There are certain concepts given by the figures of these estimates that may be new to the reader. One is that the proportion of wage-earners to independent workers changes with employment conditions. When conditions are good the person is apt to rush to wage-earning jobs; when bad to go back. One very striking illustration of this is furnished by the Censuses of 1921 and

1931, not by these estimates. In 1921 wage-earners formed 62·1 p.c. of the gainfully occupied; in 1931 they formed 65·4 and probably all of this increase (or more) took place in 1926-29. Such experience as this makes it obvious that an estimate of unemployment in Canada or any other country that is *in process* of becoming industrialized is much more difficult than in older countries which have completed this process. In 1921 the percentage unemployed of the wage-earners in Canada was about 9. Had the country been industrialized in 1931 only to the extent that it was in 1921, the number of jobs had increased by 1931 sufficiently to keep 87·3 p.c. at work, leaving 12·7 p.c. unemployed. Owing to the increased industrialization (65·4 instead of 62·1) there were 17·0 p.c. unemployed in 1931. Another way of looking at it is that in the ten years the jobs increased a little faster than the population; but the wage-earner, or the person at risk increased one and one-third times as fast. According to the increase in proportion of wage-earners in 1926-29 every gainfully occupied person would be a wage-earner in twenty-five years—an inconceivable situation.

It has already been pointed out that an estimate of this kind does not take the place of a sample in the field. In a study of the census of unemployment (Chapter I), a reasonable method for taking such a sample is suggested. It was discovered that places of roughly the same size when fully enumerated have on the aggregate the same unemployment as the whole of Canada. Several such size groups are shown, but of course the smaller the place the easier it is to sample. Consequently 138 towns were selected and examined for unemployment and industrial structure with a view to investigating their "sampleability". They seem quite satisfactory, and are so small that any official could tell how many persons are unemployed. Of course, larger places may be taken instead, the principle being what is important, *viz., that it is better to procure a complete sample of places of the same size than an equally large sample of places of different sizes.* This refers to sampling for total unemployment.

When it comes to sampling for unemployment in industries, it was discovered that the middle-sized industry seemed to be the best basis. The larger industries tended to show slightly more and the smaller slightly less than the average unemployment. Consequently the principle of sampling for unemployment in industries was to take a complete sample of industries of a certain medium size. Such a selection could easily be made from the firms reporting. A periodical questionnaire to these firms as to the number of unemployed would be expected to procure a representative sample.

The method of estimating the employment and unemployment is given in detail later in the chapter and a full set of the tables used as basic material is added in Part II (Tables 1-15). It may be advisable to give a brief summary of the method in this introduction.

Summary of Method.—Four sets of independent data were used.

1. The labour union figures of members and persons unemployed from May 31, 1920, to the present time were corrected for obvious defects and other defects demonstrated by analysis. As thus corrected the percentages unemployed agreed with the census figures of June 1, 1921 and 1931. In estimating the employment and unemployment since 1931 these figures in index form were taken as the upper limit of percentages employed.

2. The population of 1931 was projected by age groups to the present time by means of a life table and the number normally gainfully occupied from month to month was calculated from this, using as a base the percentages gainfully occupied (as distinguished from wage-earners) in 1931 by ages. It is conceded not only from experiences in Canada but also by authorities in other countries that these percentages are normally either constant or subject to very slight fluctuations and probably constant as regards trend.

3. The Dominion Bureau of Statistics' index of employment based upon the monthly reports of firms was regarded as a reliable index of persons *employed.* Using the census of persons employed in 1931 as a base and deducting teachers and Federal Government employees (figures currently available) the index was used to project the number employed month by month (less these deductions) to the present time. To these figures were then added the teachers and Government employees for an estimate of the *number employed.*

4. The index of the number normally gainfully occupied as in § 2 was divided into the index of persons employed to answer the question *"How many wage-earning jobs are available per person normally gainfully occupied?"* This figure is regarded as reliable and in itself forms a barometer of employment to meet some definitions (see Table 1). This index was used as a lower limit to employment since 1931.

5. The two limits are shown in Chart 15. Although obtained independently they showed a correlation for two consecutive periods of ·98 and ·93. The *estimate of employment* was calculated on the basis of these two limits, the corrected labour union figures being used to give "body" or dimension to the estimate, and the jobs per gainfully occupied to control the movements.

Tables 3, 4 and 5 were used as checks. Table 5 shows the movement of population between 1921 and 1931 making it clear that there was a large exodus not only of wage-earners, but of population from 1921 to 1926 and a subsequent inrush. Tables 3 and 4 deal entirely with the estimate from 1931 to the present. It goes counter to the reasoning of many that the wage-earners should be shown to decrease from 1931 to the low point of the depression in March, 1933, and that subsequently, when employment was on the up-grade, the *unemployed* were not reduced *pari passu*. But it may be mentioned that even at the best of times there is a considerable gap between *wage-earners*, who alone are subject to risk of *unemployment*, and all gainfully occupied, and a much larger gap between this and the population. As the wage-earning jobs decrease the wage-earners may be decreased in many ways—by wage-earners transferring to the class of independent workers, etc., but principally by young persons on coming of age failing to become wage-earners. Tables 3 and 4 show these principal constituents. They are largely in rural communities. Under normal conditions they would move into city or other wage-earning jobs. Under depression conditions they probably remain at home as "no pay" workers displacing paid agricultural labourers. There are also "no pay" gainfully occupied in cities (working for parents) and no doubt a considerable number of young persons would be added to these during the depression. Tables 3 and 4 attempt to calculate their number. They are shown to be large enough to account almost entirely for the decrease in the wage-earners from May 31, 1931, to March 31, 1933. Of course, in addition to these there would probably be an exodus from wage-earners to independent workers on the part of older wage-earners leaving the city for the farm, lodging-house keeping, etc. There is really no contradiction in a decrease in wage-earners with decrease in employment.

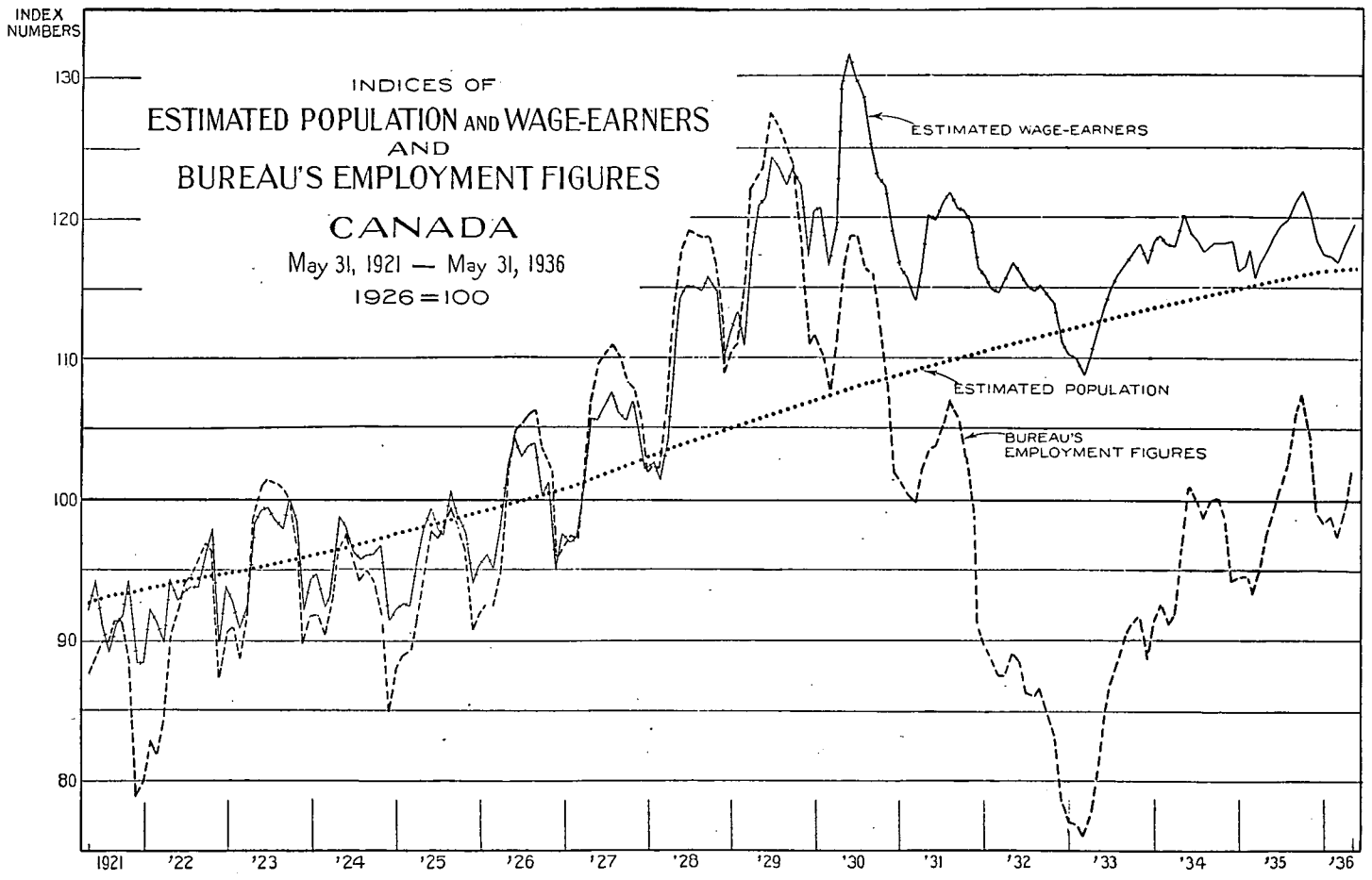
If anyone wishes to add these "no pay" workers to the number unemployed he can find material in Tables 1-4 to do so. It is not suggested here that this be done. The figures are given only as checks and for information. They also make it clear that when the tide turned, the unemployed were not reduced *pari passu* with the increase in wage-earning jobs. As these jobs increased the unemployed had as competitors these persons who had left the ranks of wage-earners. As a concept figure it may be mentioned that at the bottom of the depression (March, 1933) the number of unemployed wage-earners was estimated at 708,000 and the decrease in wage-earners from May, 1931, at 243,000.

The situation as estimated from May 31, 1921, to June 30, 1936, is shown in Chart 12 following.

Table 1 is the estimate of employment and unemployment for the period following the Census of 1931. This, of course, is a matter of post-censal estimate and must be considered a different problem from an inter-censal estimate, partly because it has only one known boundary for checking purposes and partly because we have to look forward to the necessity of keeping it up to date. The background to employment figures in this table are the independent and "no pay" workers who must always be kept in mind when visualizing the employment situation.

Table 2 is inter-censal material involving less difficulty in estimating since we have two boundaries as checks. As these estimates coincide with the census for these two boundaries without being forced to do so, it is reasonable to believe that they express the situation for the remainder of the period.

Tables 3, 4 and 5 are composed entirely of subsidiary material showing the population background of the employment situation.


INDEX NUMBERS
130
120
110
100
90
80
INDICES OF
ESTIMATED POPULATION AND WAGE-EARNERS
AND
BUREAU'S EMPLOYMENT FIGURES
CANADA
May 31, 1921 — May 31, 1936
1926=100
ESTIMATED WAGE-EARNERS
ESTIMATED POPULATION
BUREAU'S EMPLOYMENT FIGURES
1921
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'24
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'36

Chart 12

Difficulties Besetting an Estimate of Unemployment.—To estimate unemployment is an even more difficult task in Canada than in other countries, and this, it must be admitted, is saying a great deal. The reason why it is so difficult—and of this excessive difficulty there is no doubt—is the complexity added to the problem by the fact that a country in process of becoming industrialized is subject to violent transitions between the wage-earner and the independent worker classes. In 1921, Canada had 62·1 p.c. of her gainfully occupied population in the wage-earning class; in 1931 she had 65·4 p.c. in this class. In other words her industrialization increased 5·3 p.c. in the decade and there is not the slightest doubt that most of this increase took place between 1926 and 1929. Now it is reasonable to expect that if a sudden expansion in employment could produce a sudden increase in industrialization, a continued depression will have the opposite effect.

To use the census figures, in 1921 Canada had 3,173,000 gainfully occupied, increasing to 3,927,000 in 1931, *i.e.*, 23·8 p.c. The number with wage-earning jobs increased from 1,789,000 in 1921 to 2,133,000 in 1931, *i.e.*, 19·2 p.c. If Canada in 1931 had the same proportion of wage-earners to her gainfully occupied population as in 1921 (*viz.*, 62·1 p.c.) she would have had 2,439,000 wage-earners to 2,133,000 wage-earning jobs in 1931, leaving 306,000 or 12·5 p.c. without jobs. Instead of this she had 2,570,000 wage-earners to these jobs, leaving 437,000 or 17 p.c. without jobs. This means that 131,000 persons, or 5·1 p.c. of all the wage-earners, were jobless due to the increased industrialization in the decade. The error in an estimate of unemployment in 1931 on the basis of the 1921 industrialization would have been this 5·1 p.c., or in absolute numbers 131,000, too low, *i.e.*, it would have been useless.

To use another illustration, in December, 1935, we had about 4,261,000 normally gainfully occupied persons. This is very nearly a correct figure. We had 2,041,000 wage-earning jobs—also a close figure as we have a good index of employment from the monthly reports of firms. Now if the December, 1935 industrialization of Canada had been the same as in 1921, there would have been 2,646,000 wage-earners, leaving 605,000 or 22·9 p.c. without jobs; if the same as in 1931, there would have been 2,787,000 wage-earners leaving 746,000 or 26·84 p.c. without jobs. The truth probably lies close to our estimate of 500,000 without jobs. If industrialization is a process like other forms of growth, we expect it to be more or less gradual, woven into the population. It is incredible that something that happened in three years (1926-29) owing to a more or less artificial stimulus should be woven into our population. Emphatically it must be stated that the change in industrialization from 62·1 p.c. in 1921 to 65·4 p.c. in 1931 was the work of the years 1926-29. From evidence submitted in Table 5, that wage-earners left in hundreds of thousands for the United States, it can be concluded that between 1921 and 1926 industrialization, instead of mounting, actually declined. No doubt many others left the class of wage-earners to become once more independent workers and, still more important, some hundreds of thousands of boys who would have left the farm for the city at a time of industrial expansion would stay on the farm in times of depression. Consequently, the mounting to 65·4 p.c. by 1931 was not from a low point 62·1 in 1921 but from a lower point sometime around 1926 to a higher point than 65·4 in 1929—let us say from 60 p.c. to 70 p.c., an increase of 10 p.c. in three years or about 3 p.c. a year. If this was a permanent process in Canada in these three years, what was happening in all the last hundred years before 1921 when it grew only up to 62·1 p.c. industrialization? And what has happened in old countries with hundreds of years of industrialization? Great Britain (according to Woytinsky) between 1861 and 1911 only changed from 56·8 to 59·5 p.c. in industries of the gainfully occupied. Evidently the process is a slow one, and when we see it increasing as it did in Canada in the last decade, we are justified in feeling that it is not likely to remain at the 1931 high point of 65·4.

In a country like Canada where industrialization is thus subject to violent changes, it is obviously very difficult to make an estimate of unemployment—much more difficult than in countries where industries are stabilized. In such countries estimates can be fairly safely made inductively. For example (to use the illustration we have just given), since we are reasonably sure that the gainfully occupied have increased from 3,927,000 in 1931 to 4,261,000 at the end of 1935, that wage-earning jobs have changed from 2,133,000 to 2,041,000 in the meantime

and that the percentage of the gainfully occupied who were wage-earners in 1931 was 65·4, in a country where industries were stabilized we could fairly safely say that the present number of wage-earners was 2,787,000, the number without jobs 746,000 and the percentage unemployed 26·8. It is clear that we in Canada can not safely make this estimate. There is little doubt that this inductive method of building up an estimate would be the best if possible, but it should be obvious from the above facts that it is not possible.

Results and Weakness of Inductive Method.—Can we still adhere to the purely inductive method and say that we can calculate from the age distribution of 1931 how many at gainfully occupied ages are at present rural and assume that these have remained rural since 1931? Such an estimate would give us (at wage-earning ages) June 1, 1935, 3,982,000 rural out of a total of 8,759,000. Now calculating this rural population according to the percentage at each age that would normally be gainfully occupied if they had moved into cities at their usual rate, *i.e.*, calculating the gainfully occupied of these rural persons according to the percentage normally gainfully occupied in the total population instead of the rural population, we have 1,950,000 of these gainfully occupied. We might use these figures with certain other estimates in connection with agriculture as a means of estimating the present number of wage-earners inductively, but this method fails to take into account the number of persons who return to the country from the cities and a much larger group of young persons in the city who arrived at wage-earning ages but have not yet connected with a job. In addition, it would break down later when good times returned and these rural persons began flocking once more to cities. All this is merely to show that there are too many unknowns to build up an estimate by this method. We are fairly certain that all these things are happening, but to put these happenings in figures is a different thing. The historian can philosophize about these happenings, but the statistician must answer not only the question "What is happening?" but also the question "To what extent is it happening?" Now there is danger that even when this philosophy is being translated into figures, the figures are based upon the experience in the philosopher's country, probably an old country with stabilized industries. The difference between these figures and what they would be if based upon the experience of newer countries mounts into staggering figures—as did the difference between 605,000 and 746,000 persons without jobs as estimated for December, 1935, according to the industrialization of 1921 and 1931—in other words, the difference between an estimate safe for an old country and a reasonable estimate for a country in process of becoming industrialized. We submit that an error of 141,000 in an estimate of jobless persons renders such an estimate useless.

On the other hand, can we attack the problem by a deductive method, *i.e.*, by means of curves or mathematical calculations? There are a good many correlations discoverable in such data as we have on employment, population, etc., and it is very tempting to try projections on the basis of such correlations. Now, even if we could discover a law governing unemployment acting either constantly or changing in a definite manner, it could not be safely applied in projection owing to mechanical difficulties arising out of the irregularities in the figures. No one knows better than the statistician that calculations based upon mathematical curves are extremely dangerous; but while he concedes that the results are only approximations at best, if he commits himself to such a curve he must apply it consistently; if he changes it arbitrarily according to circumstances, he no longer knows by what laws he is going. A calculation over a series of years or months may be completely thrown out by a few extreme figures at the end. His calculation according to such a curve may be very good for the intervening months but a projection may lead to all kinds of absurdities. Thus the best mathematical expression of what happened between 1921 and 1931 might lead to the worst absurdities if projected beyond 1931. Take for example a gradation of the industrialization of Canada from 62·1 in 1921 to 65·4 in 1931. If industrialization had continued at this rate it would have reached 67·1 p.c. by May 31, 1936, and the resulting figures would be 2,859,000 wage-earners with 758,000 jobless. The point of the illustration is this: there is no doubt that if we knew the true process of industrialization we could easily estimate the unemployment. However, even if we knew the actual process, month by month, from 1921 to 1931 and attempted to measure the true process by a mathematical curve, our calculations would have been thrown out, for prediction purposes, by the fact that the industrialization decreased from 1921 to 1926 and then increased violently from 1926 to 1929—instead of increasing steadily or fluctuating over the whole period.

METHOD ADOPTED

Now the method actually followed was neither purely inductive nor yet deductive but a combination of both, leaning to the inductive as much as possible. When making use of deduction the following principles were laid down and strictly adhered to:—

1. Any mathematical calculation was so simple that it would be done by a high school pupil.

2. When any use was made of a smooth curve fitted by least squares to describe a process constantly changing its rate, non-linear equations were avoided. Processes were measured only over short periods, taking into account (in determining the length of the periods) the trend upward or downward, as shown by the crude figures on a chart. The rates of change were then graduated. This is not mathematical any more than smoothing by moving averages is mathematical.

3. No reliance whatever was placed upon projections by mathematical measurements. In the few cases where they were used, they were confined to interpolations.

The reasons for thus avoiding mathematical calculations have already been given. Already we had an estimate of unemployment obtained largely by means of such calculations. This estimate agrees well with that given in Table 1 but the method of arriving at it was so complicated that it was not deemed desirable to issue the results as official estimates. To the inherent difficulties of the task of estimating unemployment was added the demand that the method used should be intelligible to the layman. In the mind of the average person is a very reasonable suspicion of results arrived at by processes he can not understand. The method actually used was intended to meet this situation. Figures purely inductive were also calculated but used only as checks.

Definition.—Before describing the method actually used, one point must be emphasized, that is the point of definition of unemployment. According to census usage and also that of unemployment insurance schemes, a person to be unemployed must be a wage-earner. *The person who, at a census, can say that he has a gainful occupation and is not an independent worker, employer, or "no pay" worker is a wage-earner. If this person is out of a job or temporarily laid off he is considered "unemployed".* Clearly this definition does not include boys or other persons who have never worked at a regular job or are unable to work. The fact that they are not working constitutes a serious problem but to confound them with the unemployed upsets all calculations. Their numbers are roughly calculated and shown in Table 1, but according to our definition they are not "unemployed".

THE BASIC MATERIALS USED

1. **Monthly Reports from Firms.**—The Dominion Bureau of Statistics receives monthly reports from industrial firms. From these reports is compiled an index of employment which we find withstands severe tests and is considered good. From this index and the bases of the Censuses of 1921 and 1931 the number of persons employed from month to month was calculated with the understanding that the reports are a representative sample. An adjustment for the months of June, 1931 to June, 1934 was made by using the number reported by firms as employed for each month, increasing it by the index and adding the number of teachers and government employees which remained fairly constant.

2. **Population of Working Age.**—The number of persons, by single years of age, in 1931 was projected by means of a life table to obtain an estimate of the persons of working age subsequent to 1931. The results are shown by age groups in Table 6. This is considered sufficiently reliable owing to the ascertained fact that the number of immigrants is being practically balanced recently by the emigrants. Although the projection is thrown forward to 1941 for the convenience of the reader, it is clear that corrections will have to be made once the number of immigrants increases or once employment conditions improve in the United States and elsewhere and the doors are again thrown open to emigrants from Canada.

3. **Constant Proportion in Gainful Occupations.**—In accordance with our past history and with the experience of other countries, the proportion of the population in gainful occupations, when age is taken into consideration, is remaining fairly constant. Use was made of this principle in calculating the number normally gainfully occupied since 1931 by taking

the percentage in the various age groups as obtained in 1931. The results are shown by sex in Table 7. This figure is likewise regarded as sufficiently reliable. It is also shown in Table 1 (scaled from month to month).

4. **Wage-Earning Jobs per Normally Gainfully Occupied.**—The yearly figure of gainfully occupied (as distinguished from wage-earners) was then scaled from month to month (arithmetically) and divided into the index of employment. This answers the question "How many wage-earning jobs are there per normally gainfully occupied person?" In addition to the wage-earning jobs, these persons have independent work such as farming, etc. This, in index form, is a barometer in itself and indeed meets the average person's conception of employment. It is shown since 1931 in Table 1.

5. **Rural Population of Working Age.**—As a check to the calculation and as a matter of information for the reader, the same calculation as in §2 was made for the rural population. This is shown by age groups in Table 8.

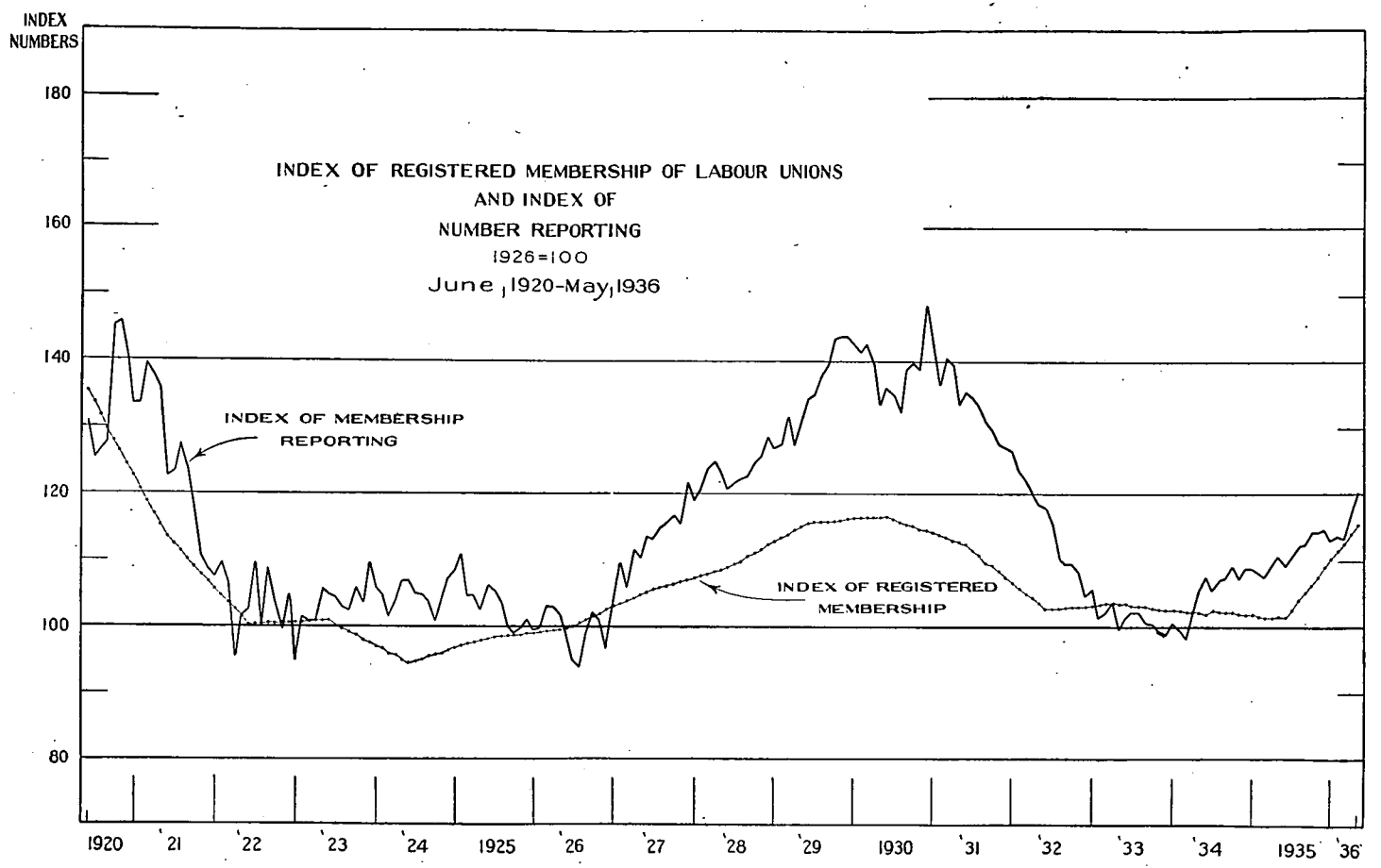
6. **Numbers of Rural Population Forced to Remain on Farms by the Depression.**—This rural population was then given the same distribution by gainful occupation and age as obtained for all persons in 1931 on the assumption that if the depression had not existed these persons would have continued to drift into city occupations. The results give an idea of the number of persons who probably were forced to stay on farms, etc., by the depression. They are not used in the calculation of unemployment. Their figures are shown in Tables 9-11, and also (scaled from month to month) in Table 3.

This series forms one set of the basic figures. We now turn to another set, *viz.*, reports from labour unions.

7. **Labour Union Reports.**—One mathematical principle to which this task felt itself committed is the constancy of large numbers. The labour union registered membership is something like 300,000 or about one-eighth of our wage-earning population. Where a sample as large as this is obtainable it is reasonable to expect that by the very weight of numbers it should tell us something about unemployment. The objection that the organization of labour unions brings about employment conditions different from those prevailing among the generality of wage-earners is here regarded as frivolous. If we could obtain an estimate of unemployment as close to the truth as the difference caused by labour union organization we should have not only the best estimate in the world, but also figures better than those of any census, since definitions of employment are subject to very wide variations. This is not the trouble with the labour union figures. The real drawback is that from month to month the number of unions reporting their unemployment varies, and more particularly that the sample reporting varies in kind according to employment conditions. When employment is on the up-grade the reports of the unions seem to be fairly representative; when it is on the down-grade there is a clearly marked tendency for the reporting unions to have better employment conditions than the non-reporting unions. We have to prove this, but in the meantime it may be stated, for the information of the reader, that an assemblage of the following data from the *Labour Gazette* since June 30, 1920, was made, pertaining not only to labour unions, but also to employment conditions. These facts are shown in Table 12. The other conditions mentioned were reports of employment agencies. They are thrown in to complete the picture of the conditions prevailing over the fifteen-year period. They are not used in the calculation, but were used in a previous calculation of unemployment already referred to and described as too complicated to be acceptable to the general public. The facts given for labour unions in Table 12 are: (1) number of registered members (reported for years only but scaled arithmetically from month to month); (2) number of unions reporting; (3) number of members reporting; (4) number of reporting members unemployed (not counting those ill, on strike, etc.), and (5) percentage unemployed. To this is added (6) percentage reporting of the registered members which we shall from time to time refer to as "per cent sample."

It will now be necessary to examine these labour union figures. If they were reliable, we would need no other estimate of unemployment, because most certainly the sample is large enough. However, it may be possible to render them more reliable.

(1) *Unemployment Decreases with Membership.*—The membership is illustrated in Chart 13. This refers to the registered membership, not the membership reporting. It will be seen that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AND INDEX OF
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1920
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Chart 13

it also drops with depression in employment. It will also be shown that as it drops, the unemployment percentage decreases showing that the persons dropping out of the unions are more apt to be unemployed than those remaining.

(2) *Correlation of Indices of Membership Employed and Reporting and Per Cent Sample.*—An attempt will now be made to show that the percentage unemployed is affected by the per cent sample. To ascertain this, a calculation was made from June, 1920, to June, 1934, dividing the period into seven periods of 25 months each. The three sets of figures, as in Table 13, are (1) index of membership employed; (2) index of membership reporting and (3) percentage of membership reporting, *i.e.*, per cent sample. These three sets were correlated merely for the purpose of examining their behaviour. If x_1 = deviation from mean of membership employed; x_2 = deviation from mean of membership reporting, and x_3 = deviation from mean of per cent sample, we have the following seven sets of equations.

1. $x_1 = 1{\cdot}1609\ x_2 - 1{\cdot}4172\ x_3$	$r = {\cdot}95$	June, 1920–	June, 1922
2. $x_1 = 1{\cdot}6438\ x_2 - 0{\cdot}8725\ x_3$	$r = {\cdot}92$	" 1922	" 1924
3. $x_1 = 0{\cdot}5064\ x_2 + 0{\cdot}2375\ x_3$	$r = {\cdot}75$	" 1924	" 1926
4. $x_1 = 2{\cdot}2647\ x_2 - 3{\cdot}7727\ x_3$	$r = {\cdot}99$	" 1926	" 1928
5. $x_1 = 0{\cdot}3722\ x_2 + 0{\cdot}6994\ x_3$	$r = {\cdot}80$	" 1928	" 1930
6. $x_1 = 2{\cdot}1221\ x_2 - 3{\cdot}7868\ x_3$	$r = {\cdot}99$	" 1930	" 1932
7. $x_1 = 5{\cdot}6753\ x_2 - 9{\cdot}1364\ x_3$	$r = {\cdot}80$	" 1932	" 1934

(3) *Correlation of Percentage Employed and Per Cent Sample.*—In the next instance the period from June, 1920 to June, 1934 was divided into six periods according to the falling and rising trends shown in Chart 14 and two sets of figures were taken, *viz.*, (1) percentage employed and (2) per cent sample. Both of these were first corrected for trend. The figures thus corrected were then correlated and the results are shown as follows: (x_1 = percentage employed; x_2 = per cent sample).

1. $x_1 = -0{\cdot}63\ x_2$	$r = -{\cdot}62$	June, 1920–Feb., 1922
2. $x_1 = -0{\cdot}03\ x_2$	$r = -{\cdot}04$	Feb., 1922–Aug., 1926
3. $x_1 = -0{\cdot}49\ x_2$	$r = -{\cdot}38$	Aug., 1926–Dec., 1929
4. $x_1 = -0{\cdot}71\ x_2$	$r = -{\cdot}81$	Dec., 1929–Dec., 1930
5. $x_1 = -0{\cdot}27\ x_2$	$r = -{\cdot}30$	Dec., 1930–Feb., 1933
6. $x_1 = -0{\cdot}19\ x_2$	$r = -{\cdot}23$	Feb., 1933–Dec., 1935

It is thus seen that in every case the percentage employed varies inversely as the per cent sample. Now there is no logical reason why this should happen except that those employed were more likely to report than those unemployed. It is also noticeable that little or no correlation is shown during normal periods of employment.

(4) *Inductive Method Applied to Labour Union Data.*—Before attempting any correction on the basis of these findings, an attempt was made to use the labour union figures inductively. On May 31, 1921 the percentage unemployed in labour unions was 15·5; in the census (June 1) about 9 (the percentage not working was 9·8 but this included those not working on account of illness, etc.). In 1931 the labour unions reported 16·2 unemployed, the census 17·0. If these discrepancies could be reconciled inductively it was considered that a basis of estimate was reached. In 1931 the labour union and the census figures, industry group for group, compare as follows:—

CIII.—COMPARISON OF LABOUR UNION REPORTS WITH CENSUS REPORTS OF UNEMPLOYMENT, BY INDUSTRY GROUPS, CANADA, JUNE 1 (MAY 31 IN THE CASE OF LABOUR UNIONS), 1931

Industry Group	Labour Unions			Census	
	No. Reporting		P.C. Unemployed	Wage-Earners	P.C.[1] Unemployed
	Unions	Members			
TOTAL	1,808	198,059	16·2	2,570,097	17·0
Manufacturing	488	57,745	17·9	606,617	15·5
Coal mining	45	16,639	12·8	31,296	39·9
Building and construction	253	29,899	37·7	217,105	32·2
Transportation and communication	803	76,661	8·9	283,675	12·6
Retail trade	5	1,257	4·9	228,720	10·3
Public employment	73	7,451	2·1	50,888	12·0
Fishing	3	1,305	1·1	9,437	26·0
Lumbering and logging	7	910	31·8	47,409	37·8
Miscellaneous[2]	131	6,192	16·8	1,094,950	16·0

[1] Due to "no job" and "temporary lay-off" only.
[2] Hotel and restaurant employees, stationary engineers and firemen, theatre employees, barbers and unclassified workers.

According to a publication of the Department of Labour, *Labour Organization in Canada*, for the calendar year 1934, the distribution of union membership was as follows:—

	Membership	P.C. of Total
Mining and quarrying	23,614	8·4
Building	22,038	7·8
Metal	12,149	4·3
Printing and paper making	14,224	5·1
Clothing, boots and shoes	22,253	7·9
Railroad employees	67,346	23·9
Other transportation and navigation	19,523	6·9
Public employees, public service and amusements	26,398	9·4
All other trades and general labour	74,229	26·3
Total	281,774	100·0

Now although individually manufacturing, transportation and communication, and building and construction show different results from the census, combined they show results remarkably close. The total union membership, May 31, 1931, was 311,537 (or 1·104 times that of 1934). If the different industries in 1931 were represented in labour unions to anything like the same extent they were in 1934, manufacturing, transportation and communication, building and construction must have been fairly fully reported by the labour unions in that year. If we add these three, the labour unions and census unemployment figures compare as follows:—

	Unions	Census
Total reporting	164,305	1,107,397
Number unemployed	28,468	199,651
Percentage unemployed	17·3	18·0

This indicates that the labour union personnel and the census fare very much the same in regard to unemployment, and that the chief cause of disagreement is the sample. This would be very promising, if the same approximation were found in 1921 but in this case the results were very disappointing. However, this can not be regarded as the fault of the union figures as much as of the census since the classification in 1921 was not only incomparable with that of the labour union reports but also with that of the Census of 1931. Indeed the discrepancy in individual industry groups, shown above for 1931, may be set down to classification. Nothing can be concluded from the differences in 1921. The difference in classification may be understood from the fact that an attempt to compare the personnel by occupation class, in tabular form, had to be abandoned.

(5) *Numbers Reporting and Unemployed.*—As material of historical interest and also of possible use in estimating or appraising unemployment conditions in the fifteen years, Table 14 shows, from month to month, the number reporting and the number unemployed in labour unions from June, 1920, to December, 1935.

(6) *Industries Failing to Report.*—An attempt to build up inductive estimates from Table 14 by watching the particular industries that failed to report in any month and estimating their probable number unemployed from the percentage shown by the few that reported and the largest number that reported at a nearby month and weighting the totals accordingly, failed, partly because the failure to report was not confined to a few occupations, partly because of the aforementioned incomparability in classification of industries. That there was good reason to expect results in this way may be seen as follows: in 1931 the census (as mentioned) showed 17·0 p.c. unemployed while the labour unions showed only 16·2. Now it so happened that lumbering (unions) in that month reported only 910 members while it should have reported several thousand. Estimating the number unemployed of these several thousand from the percentage unemployed of the 910 reporting, we could easily add sufficient to the total unemployed in labour unions to bring the union figures in exact accord with the census. A similar experiment for 1921 failed to effect satisfactory results. However, use will be made later of Table 14, in estimating unemployment for particular industry groups.

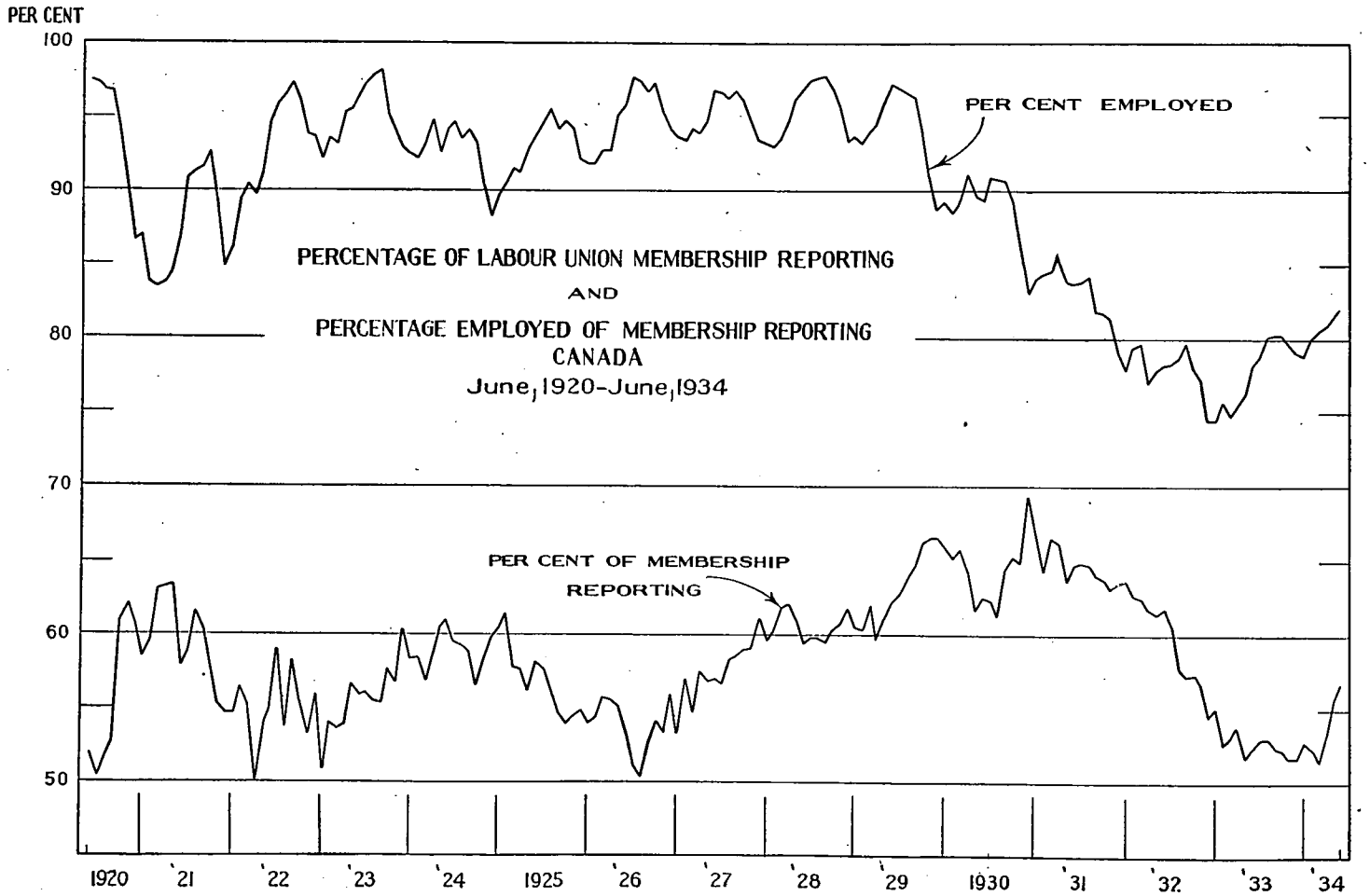
PER CENT
100
90
80
70
60
50
PER CENT EMPLOYED
PERCENTAGE OF LABOUR UNION MEMBERSHIP REPORTING
AND
PERCENTAGE EMPLOYED OF MEMBERSHIP REPORTING
CANADA
June, 1920-June, 1934
PER CENT OF MEMBERSHIP REPORTING
1920
21
22
23
24
1925
26
27
28
29
1930
31
32
33
34

Chart 14

(7) *Correction for Sample.*—Accordingly it was decided that the only recourse was to correct the labour union percentages unemployed on a mathematical basis, *i.e.*, correct them for sample on the basis of the results shown in §3 above. The periods of increasing employment needed little or no correction. The corrections and the labour union figures thus corrected are shown in Table 13. It will be noticed that, as thus corrected, the May 31, 1921, and 1931 agree almost exactly with the census figures of June 1. No use whatever was made of these census figures to bring about these results. It is hardly credible that such agreement should be reached by accident and it seems safe to conclude that from June, 1920 to May 31, 1931 the figures as thus corrected are very close approximations of the truth. No further correction therefore was considered necessary.

(8) *Correlation of Index of Membership and Percentage Employed.*—The figures thus corrected were not regarded as satisfactory for the period following June, 1931. The long depression period in employment was accompanied by a dropping out of registered members and this caused a further error in addition to that caused by the per cent sample. This dropping out is seen in Chart 14. We could assume, possibly, that the members thus dropped from the unions remained unemployed, but this was considered too long a shot. However, it seemed safe to conclude that the members dropping out were unemployed *at the time they dropped out* to the extent that the percentage dropping out correlated with the percentage employed (of those remaining) after both were corrected for long-term trend. This merely means that the fluctuations from month to month of the percentage dropping out were dependent upon the percentage employed.

If x_1 = index of membership and x_2 = percentage employed, both corrected for long-term trend:—

1. From June, 1931-March, 1934 $x_1 = \cdot 54\, x_2$ $r = \cdot 68$.
2. From March, 1934-December, 1935 $x_1 = \cdot 29\, x_2$ $r = \cdot 11$.

The coefficient of x_2 in both cases was used as a correcting factor and the corrections, using May 31, 1931 as base, were as seen in Table 13. These corrections were considered as unemployed and subtracted from the percentage employed already corrected for sample. The percentage employed in labour unions, as thus corrected, is seen in Chart 15 as an index.

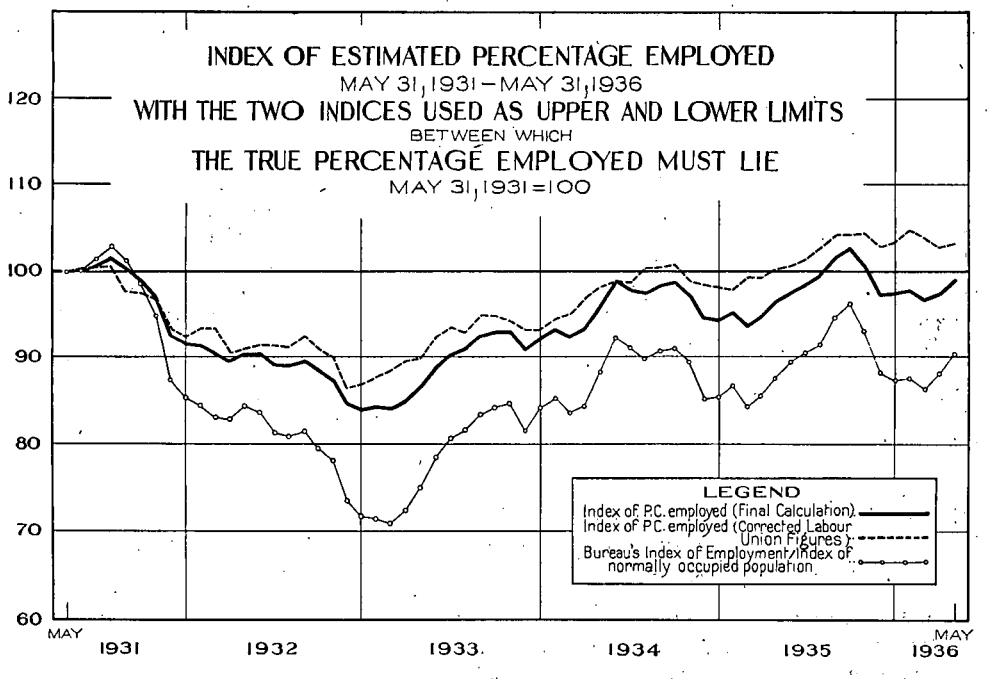

Chart 15

Now if the labour union percentages unemployed as thus corrected were the estimate of unemployment to which we were to be committed, dissatisfaction would be amply justified. There is a speculative element at one point, *viz.*, the correction made for the members dropping out of the unions. Here it was assumed that the correlation caused by the number of members thus dropping out (freed from long-term trend) with the decrease in percentages employed was due to the percentages employed as a causal factor. This, of course, is reasonable enough. There seems to be no other explanation of a non-trend drop in membership in sympathy with a drop in employment and a rise with a rise, except that the members thus dropping out are unemployed at the time they drop out. Further, we have the evidence, or the opinion, of persons familiar with the organization of labour unions on this matter. In a publication, *Labour Organization in Canada* (Department of Labour, 1934) we have the following comment: "Owing to the fact that union members, through being out of employment, were unable to pay their monthly dues . . . . their names removed from the records . . . . it is . . . . contingent upon the regular payment of the prescribed fees that membership in the union is maintained." However, this assumption of course is not very good statistics and is not submitted as such. Emphatically, these figures are not submitted as the final estimates of employment or unemployment and were not intended as such. Their purpose was twofold as will now be explained.

Upper and Lower Limits of Estimate.—It was desired to obtain a figure in some way commensurate with the percentages employed (or unemployed) on which to hang an estimate. Our great difficulty in making estimates of unemployment is that while we may know or can estimate satisfactorily the number of persons employed we have nothing on which to base the number of wage-earners at risk. It has already been shown and laboured that these are subject to violent fluctuations especially in Canada. To base an estimate of unemployment upon the number employed at present and the number of wage-earners in 1931, or these as increasing with the population, is clearly out of the question. We may have a great deal of current evidence of movements in the wage-earning population by which we may know the *nature* of what is happening, but to know the *extent* of this happening is a different thing. We could work out a good many correlations from current events, were it not for the fact that we have nothing with which to correlate them. A figure like the corrected labour union percentages is something *commensurate* with the true percentages. They hit the truth sometimes. This is evident from the fact that they concurred with the census figures both in 1921 and 1931.

They (in index form) are submitted as the upper limit of an estimate of which the lower limit is (the index of) *the number of wage-earning jobs per person normally gainfully occupied.* The two indices are shown in Chart 15, the index submitted as the final estimate being shown as well. It is postulated that the labour union unemployment does not vary as much as the actual unemployment of the main mass, for the very good reason that they *can not.* Even if they were perfect in every other respect they are only a sample and a sample can not vary as much as its universe. They coincide with the census at one end, *viz.*, May, 1931. The census is taken as the true figure. If they subsequently vary less than the true figures, it follows that to this extent they are in error, but the error is clearly one in excess (they are percentages *employed*, not *unemployed*) because the employment was going down, not up. Consequently they may safely be regarded as the upper limit. Similarly, the index of wage-earning jobs per person normally gainfully occupied may be regarded as the lower limit of variability since we are practically certain that the number of wage-earners contracts to some extent in sympathy with contraction in employment and *vice versa.* Between these two limits the truth must lie (see Introduction to this chapter).

If the limits are thus fixed, it is seen that even averaging the upper and lower charts would bring us within a reasonable distance of the true figures. Such an estimate would be far better than none at all and it is clearly impossible to make an estimate that will give the exact truth. However, it seems possible to give a better estimate than the average of the two charts.

It is seen that these two limits move in sympathy not only in respect to trend but also to monthly fluctuation. There are lags here and there but this was to be expected. Now there must be something in the fact that they correlate in this manner. They were obtained quite independently. The one set is taken entirely from the reports of labour unions; the other set

entirely from reports of firms, the census of gainfully occupied and the census of the age distribution of the population. Both are aimed logically at the truth we are seeking and from this it would seem more far-fetched to conclude that their correlation was accidental or irrelevant to this truth than to conclude that it was due to the truth.

Final Estimate.—In brief, we have three sets of facts: (1) a large sample of labour union members with their unemployment from month to month; (2) an index of the number employed in business firms from month to month based on a large sample which, however, is from the employer (rather than the worker) side of employment, giving the quantity of employment available; (3) the knowledge that the number of persons gainfully occupied in a population is a fairly constant proportion, age for age, to the population over a period of time.

Now, either of the first two of these would alone give us the condition of unemployment if the sample were as representative as its size would lead us to expect, but we know it is not. The labour union figures of employment give a different picture according as unemployment increases or decreases because of changes in their membership and the number of those reporting. We believe that we have made allowance for this in so far as it can be done by a mathematical correction but there are always the non-mathematical elements with which to contend. However, we show a figure of the percentage employed for the month based on these labour union figures which, without calling upon any other set of data, estimated correctly the unemployment of the censuses of 1921 and 1931, and consequently must approximate the figures for other dates.

Next, the index of employment for firms seems to be very good as measuring the movement of the volume of employment. Consequently, by using the 1931 number of persons employed and calculating forward on the basis of this index we should have a figure for a subsequent month close to the actual figure for the number employed in that month. This would enable us to calculate the number unemployed if the number of wage-earners were independent of the condition of employment but we know this is not so. We attempt to make allowance for this by estimating the number of persons in the population normally gainfully occupied and getting a figure for the percentage employed of the persons normally gainfully occupied. Now, supposing this percentage is accurate we have something which ties the employment figures to the population better than the unemployment figures alone can do. If the ratio of wage-earners to the gainfully occupied remained constant we could use this figure directly, *e.g.*, in 1931, the number of persons gainfully occupied was 3,927,000 and the number of wage-earners employed was 2,133,000 so that the percentage wage-earners employed of the gainfully occupied was 54·3. Now, from 1931 on, the employment index dropped rapidly and the index of employed per 100 gainfully occupied dropped from 100 in June, 1931, to 70·8 in March, 1933. Applying this, we could calculate the percentage employed per gainfully occupied in March, 1933 as 70·8 p.c. of 54·3, or 38·4. If the gainfully occupied in the latter month held the same relationship to the wage-earners as in 1931 we could calculate the percentage of wage-earners employed in the latter month as 1·529 times 38·4, or 58·7, or we can take a short cut. The percentage employed of the wage-earners in 1931 was 82·9 which, multiplied by 70·8, is 58·7. We believe this for the reason that we have observed that, as employment shrinks, the number of wage-earners decreases, largely because new workers from various sources do not come in to take the place of those eliminated by death, old age, etc., (our definition of unemployed refers entirely to wage-earners) and partly because existing wage-earners go back to "own account" occupations.

On the other hand an estimate from labour union figures for this month, March, 1933, was 73·4 p.c. Now, this is in accordance with the correct figure in June, 1931, *viz.*, 79·1, but we believe it is too high. However, it should be noted that the two sets of figures thus derived correlate at least to the extent of ·96.

We have two bases of estimates, both of these largely factual—how should we use them? We could depend entirely upon the weights given to the two by the mathematical correlation which is very high (·96), but to this there is the objection that no matter how high the correlation is, the difference between it and perfection may make a considerable difference in the weight (depending of course upon the size of the standard deviation it has to work on). Again, we might average the two without weighting and, if we are to use the two at all, this would be

splitting the error if we believe one is too high and the other too low. But this would make the range of error too great and furthermore, we have reason to believe that the corrected labour union figure is closer than the other.

Consequently we adopt a method which with all its arbitrariness has the advantage of being true to a reasonable mean. A weight of one was given to each of the crude estimates and of two to the estimate based upon the correlation and the result was divided by four. For example, in March, 1933, (for percentage of wage-earners employed) the corrected labour union figure was 73·4, the percentage based upon the firms index was 58·7, the estimated percentage on the basis of the multiple correlation (·96) was 73·2. Applying the weights just mentioned, we have a final estimate of employed on this date of 69·6, *i.e.*, 30·4 p.c. unemployed. This figure (30·4) was arrived at already by another method too complicated to use for monthly estimates and it has the advantage of giving us reasonable results since a higher figure would involve the assumption that the wage-earners decreased in number between June, 1931 and March, 1933 more than we believe that they did.

Value and Uses of the Estimates.—The final estimate thus computed is given in the second column of Table 1, the first column showing the same figures in index form. The point of placing this index first is to indicate that when all care has been taken to procure the best possible estimate, the most we can say of it is that it is *barometric*. It is not perfect and can not take the place of sampling, much less of a census. Estimates of all kinds are subject to a peculiar danger from their clientele, who are apt either to swallow them bait and hook or treat them with absolute scepticism. There seems to be no such thing as treating them as guides that will prevent wandering too far astray. This is all the more remarkable when we remember that there is nothing in our physical world that is absolutely accurate. Even a measurement with a yard stick is subject to the personal equation, while the direct report even under oath in a law court is carefully scrutinized before acceptance. All that is claimed for this estimate of employment is that it is much better than nothing. Without it we are absolutely at sea; with it we can not wander very far from the truth.

Once the estimate of the percentage employed is thus fixed it is easy enough to calculate the number of wage-earners and the number of unemployed, since the number employed is assumed to be known. Since we also assume that the total number of normally gainfully occupied is known it is a simple matter to calculate the number of persons who are normally gainfully occupied but not wage-earners. All these calculations are given in Table 1, and, of course, subject to all the errors to which the percentage employed is subject. Even so, a concept of these figures is useful. It is important to have a rough guide as to the number of persons who drifted away from the wage-earning class during the depression into the independent worker class or failed to leave the independent worker class as they would have done if employment had been expanding. To interpret these figures properly it must be remembered that the "gainfully occupied" included not only farmers and employers but also a large number of persons who may be designated as "no pay" workers. These refer to farmer's sons, boys and girls working in the stores or shops of their parents, etc.

Chiefly in order to qualify or explain the drift between wage-earner and gainfully occupied since 1931, a further calculation was made. The survivors of the rural population of each sex from 1931 to 1935 were calculated on the basis of the age distribution in 1931 and life tables. The results, by age groups, are shown in Table 8. From these figures two further calculations were made: (1) the number of these that would normally be gainfully occupied (on the basis of the age distribution of the normally gainfully occupied and the percentage occupied of the whole population, not the rural) and (2) the number that would normally be occupied as agriculturists.

It would be highly desirable to estimate the wage-earners and unemployed by provinces and industry groups. It is felt, however, that this is beyond the scope of the present monograph. The same reasoning and the same methods used in calculating the unemployment among the wage-earners *in toto* can not be used in calculating the parts. There is one principle assisting us in making the calculation from the total, *viz.*, the constancy of large numbers. Where we have a sample as large as 300,000 labour union members, even if this is not a very representative sample, we have something, owing to its very size. The same applies to the reports of firms

making up the index of employment; also to such matters as age distribution, etc.. When we come to specialize we lose this prop as well as involving ourselves in such traps as specialized age, sex, racial distribution, etc., as well as seasonal differences. It is submitted that the only manner in which unemployment estimates can be made for provinces and industry groups is by pure induction with a reliable estimate for the total as a base or check. In Table 15 the labour union figures for three industry groups combined—manufacturing, transportation and construction are shown since June, 1920. They are something near the truth. These are shown against the index of employment (reports of firms) in these three groups and against our own estimate of unemployment. The reader can make what use of them he likes, but it is here felt that to estimate a figure for these industries that might be misconstrued as official, would be too risky.

Industrialization.—Now that an estimate of unemployment has been submitted that was built almost entirely independently of theory, it may be considered safe to call attention to a point that may have important theoretical implications.

It was mentioned that a good line of reasoning upon which to base deductively an estimate of the number of wage-earners and consequently of the percentage employed or unemployed would be as follows: if we define "industrialization" as the number of wage-earning jobs per person normally gainfully occupied, then the *percentage wage-earners per normally gainfully occupied would be expected to vary in the long run with the long-term trend of industrialization.* The reasoning underlying this deduction is that industrialization must be considered a fairly smooth process. A sudden inrush from the ranks of independent workers to the ranks of wage-earners as a result of a sudden expansion in industries like that which took place from 1926 to 1929 must not be regarded as a permanent thing. Industrialization is something more stable than this. At the rate that Canada's population grew (from 62·1 p.c. wage-earners in 1921 to 65·4 in 1931), *viz.*, 3·3 p.c. in ten years, the whole body of gainfully occupied would be wage-earners in about a hundred years. This is, of course, absurd. No country is 100 p.c. industrialized. It is seen to be still more absurd when we remember that this 3 p.c. (or rather more than this 3 p.c., for it is almost certain that there was a drift away from industrialization between 1921 and 1926), took place in three years, 1926 to 1929. There is fairly good evidence of this in Table 5 and more could be produced. At this rate the population would be 100 p.c. industrialized by 1963, *i.e.*, in thirty-two years from 1931. This alone will give some idea of the abnormality of the years 1926 to 1929—probably fully as abnormal as the subsequent depression and from which the subsequent depression might have been expected. If the law "to every action there is an equal and opposite reaction" is true in the world of the natural sciences why should it not be true in the world of the social sciences?

If then, we regard the wage-earner per gainfully occupied as likely in the long run to follow the true process of industrialization, it follows that after a long period of depression it would come down to, or indeed go below, this process. Now it is remarkable that in our estimates achieved independently of this theory we should unexpectedly encounter this theory. Referring once more to Chart 15 it is seen that two independent indices—the corrected percentage employed in labour unions and the number of jobs per normally gainfully occupied—move in sympathy; also it is to be recalled that correlations between the two for two consecutive periods were roughly ·98 and ·93, which means that the percentage employed calculated from the jobs per gainfully occupied was subject to an error of only about 1 p.c. unemployed. (The standard deviation of the percentage employed was 3·4.) It should be made clear that these curves were obtained independently, *i.e.*, there was no previous doctoring of the one to make it agree with the other, nor was there any coincidence between the sources of information. We can not ignore a correlation so high as this.

Estimates Free from Common Fallacies.—Although the relationship expressed in this theory seems at first sight obvious, it is far from obvious when studied closely. If the theory is sound to the extent of standing up to mathematical expression, it points out a ready method of calculating unemployment so long as we have an index of employment. In any case—whether perfectly sound or not—a calculation made on this basis is certain to be nearer the truth than one made on the increase in employment and population. Indeed the idea was not uncommon at

the time employment took an upward swing after March, 1933, that for every unit increase in employment there should be a decrease in unemployment to the extent of this unit. This was ignoring the increase in the number of persons at risk. An equally common fallacy during the worst part of the depression was that the number of wage-earners increased with the population from the point this number had reached in 1931. This ignored the possibility of a large number of wage-earners going back to independent work, and what is still more important, a still larger number remaining in the "own account" or the "no pay" worker class and thus failing to fill the gap caused by deaths, etc., among the wage-earners; and yet, if we ignore this possibility we are taking the stand that what has happened repeatedly does not happen again. It is more reasonable to believe that the proportion of wage-earners changes than to believe that it does not, if experience counts for anything.

Significance of the Trend of Unemployment.—The foregoing part of this chapter has been devoted to estimates of employment and unemployment and the methods of estimating. No comments have been made upon the significance of the trend revealed. From the ordinary point of view of unemployment no such comments seemed necessary. Not only are seasonal and cyclic trends quite manifest in the figures but also a long-term trend of increasing unemployment is noticeable. Chart 12 which compares indices of employment with those of population is intended to save lengthy verbal comments. We may well believe that until the trend of employment once more crosses that of population, a condition of normalcy has not been restored. This is so familiar to observers on all sides that there does not seem to be anything new revealed by the estimates. However, when we read them in the light of the other chapters of the monograph we discover something not only new but apparently highly significant in the trend, *viz.*, a growing tendency to what we are calling "rigidity," *i.e.*, a tendency for unemployment, instead of being distributed among the workers as a whole, to be so concentrated that the volume of it at any given time is confined to one set of workers while others are immune. We do not know as yet whether the year-by-year monthly figures bear this out, but we find it quite apparent in a progression from the weakest to the strongest industries and occupations and in a comparison (for all workers) of the census years 1921 and 1931. It has been suggested that conclusions based upon a comparison between the two censuses are unsafe because the latter census was further advanced on a cycle of depression than the former. Consequently, we are under the necessity of finding data which show, not two points in the trend, but all the points. Now we have such data in the estimates, but the advisability of using estimates for purposes of arriving at conclusions on trend may be questioned. Emphatically, it would not be safe if the estimates were first based upon our theory of the trend, but our estimates are not. What estimating we have done has been merely a smoothing out of obvious defects to make samples more representative. Otherwise the figures are factual in so far as samples are factual. If the estimates contain errors, these errors must be casual as care was taken to remove trends before corrections were made in the samples. Such long-term trends as were originally in the factual figures are still there. It would seem from this that we are justified in using these estimates in investigating trends, in spite of a slight natural hesitancy in doing so.

Now if our quest has been made clear, *viz.*, to investigate whether there is a trend of concentration of unemployment, it will be seen that we have to make use of certain other findings of the monograph, particularly those shown in Chapter XI and Appendix 1, in measuring the trend. Our measure of concentration is the quantity i in the equation $p^i = A$, where i stands for "interchange," *i.e.*, number of major interchanges between the condition of being employed and the condition of being unemployed; p is the percentage of the year not worked and A is the percentage of the wage-earners losing no time during the year. The greater the i for a given size of p the more the employment is distributed among the workers; the smaller the i the greater the concentration.

If we had means of knowing how the size of i varies with the years we could tell the trend of concentration in industries. We have no direct means except from the Censuses of 1921 and 1931 and from these we know that i was smaller in 1931 than in 1921. However, we can derive certain facts from the month-to-month index of employment of the Dominion Bureau of Statistics which, while not identical with our i, is analogous to it. Statement CIV below shows this index from 1920 to 1935. Statement CV shows certain derivations from this index which must now be discussed.

The first column of Statement CV shows the mean index of the employed for the years 1921 to 1935; column 2 shows the standard deviation of the months around the mean of the year. This standard deviation is not seasonality since it is influenced by trend as well as seasonal variations. Of course our i is likewise so influenced. The standard deviation is a "foot-rule" or unit of measurement of change. One feature making for a large standard deviation is particularly important to us here. A larger standard deviation is produced by one large change than by many smaller ones. This may be illustrated as follows:—

Suppose we take two sets of five digits with a range of 8 from the largest to the smallest, but so that the sum of both sets is the same:

(1)	(2)
10	10
8	10
6	4
4	4
2	2
30	30

The standard deviation of the first set is 2·83 and of the second set 3·35. The first set spreads its changes evenly throughout the range; the second set changes spasmodically.

This is analogous to what happens in employing or dismissing workers. If due to seasonality or other causes there is a larger number employed in one month of the year than in another, it must mean either that the difference were laid off (permanently or temporarily) and consequently left unemployed, or that they were taken on from the ranks of the previously unemployed. Theoretically this assumption is not strictly justified in so far as some of those taken on came from own accounts, but in reality it was unemployment of a sort that made them change category so that no great error is involved in the assumption. Now if the persons affected were dismissed

CIV.—INDEX OF EMPLOYMENT AS REPORTED TO THE DOMINION BUREAU OF STATISTICS BY EMPLOYERS IN INDUSTRIES OTHER THAN AGRICULTURE, 1920-1935

(1926 = 100)

Month	Crude Index of Employment in															
	1920[1]	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935
January 1	–	88·8	78·8	87·3	89·8	84·9	90·7	95·9	100·7	109·1	111·2	101·7	91·6	78·5	88·6	94·4
February 1	–	91·2	79·9	90·6	91·7	87·1	91·8	96·6	102·0	110·5	111·6	100·7	89·7	77·0	91·4	94·6
March 1	–	89·1	82·9	91·0	91·8	88·1	92·6	97·5	102·6	111·4	110·2	100·2	88·7	76·9	92·7	96·4
April 1	–	85·1	81·8	88·7	90·4	88·3	92·5	97·4	102·3	110·4	107·8	99·7	87·5	76·0	91·3	93·4
May 1	105·9	85·1	84·3	92·5	92·9	91·9	95·4	101·8	106·8	116·2	111·4	102·2	87·5	77·6	92·0	95·2
June 1	107·5	87·7	90·3	98·5	96·4	95·6	102·2	107·2	113·8	122·2	116·5	103·6	89·1	80·7	96·6	97·6
July 1	109·1	88·6	92·2	100·7	97·1	98·0	105·0	109·7	117·7	124·7	118·9	103·8	88·7	84·5	101·0	99·5
August 1	109·7	90·0	94·2	101·4	95·8	97·5	105·5	110·5	119·3	127·8	118·8	105·2	86·3	87·1	99·9	101·1
September 1	108·8	89·8	94·8	101·2	94·2	97·8	106·2	111·0	119·1	126·8	116·6	107·1	86·0	88·5	98·8	102·7
October 1	108·6	91·3	95·8	100·7	95·0	99·5	106·5	110·3	118·8	125·6	116·2	105·9	86·7	90·4	100·0	106·1
November 1	107·1	91·3	97·0	100·0	94·1	98·3	104·0	108·8	118·9	124·6	112·9	103·0	84·7	91·3	100·2	107·7
December 1	101·5	88·3	96·3	96·9	91·9	96·5	102·3	108·1	116·7	119·1	108·5	99·1	83·2	91·8	98·9	104·6

[1]These figures can not be considered as strictly comparable with later indices.

or taken on gradually, a few each month, this would be indicated in a smaller standard deviation than if they were all dismissed or taken on in one month. In the illustration there were six changes altogether; in the one case they caused a standard deviation of 2·83, in the other of 3·35. Consequently, 6 ÷ 2·83 and 6 ÷ 3·35 or 2·12 and 1·79, respectively, have a real meaning as a measure of smoothness of change. Consequently the range divided by the standard deviation from year to year indicates the comparative spread of the unemployment among the workers and is analogous to, though not quite the same as, the i already discussed. The more a fixed amount of unemployment is spread among the workers, the less the individual worker suffers, *i.e.*, the shorter the time he is unemployed during the year. In Statement CV the range is obtained by fitting a line through each year's monthly figures arranged from the largest to the smallest, the range being twelve times the slope of this line. It can easily be shown that the figures in column 5 of Statement CV are merely functions of the coefficient of correlation between the line

and the actual figures. The highest possible (implying a perfect correlation) is 3·48 so that any of the measures in column 5 divided by 3·48 gives the coefficient of correlation. Since 3·48 is the highest possible, it is obvious that small differences as between the figures of column 5 are very significant. The highest is 3·46 in the year 1924; the lowest is 3·27 in 1928 and this is a significant difference. The purpose of the calculation, however, is to ascertain whether any trend is noticeable. If we divide column 5 by column 1—and it seems reasonable to do so since the changes must depend somewhat upon the number of workers—we have a fairly definite trend of decrease from 1921 on. If we leave the figures as they stand we have another kind of trend. The figures are smaller for the boom years and larger for depression years. The interpretation of this is that unemployment is more evenly spread in depressions than in booms, although, of course, the volume of unemployment is less in booms. Consequently we have reason to feel certain that the decrease in the *i* between 1921 and 1931 was not caused by the fact that 1931 was two years on in the depression while 1921 was only one year. The position in the cycle mitigated rather than exaggerated the growing tendency to rigidity or concentration of unemployment so that those who lose any time lose more time as the years go on. This conclusion alone is very important.

CV.—MEAN INDEX OF EMPLOYMENT AS REPORTED TO THE DOMINION BUREAU OF STATISTICS BY EMPLOYERS IN INDUSTRIES OTHER THAN AGRICULTURE, AND RELATED DATA, 1921-1935

Calendar Year	Mean Index (1)	Standard Deviation (2)	Standard Deviation ÷ Mean Index (3)	12-Month Range (4)	12-Month Range ÷ Standard Deviation (5)
1921	88·9	2·03	0·23	6·751	3·33
1922	89·0	6·67	0·75	22·527	3·38
1923	95·8	5·15	0·54	17·241	3·35
1924	93·4	2·27	0·24	7·851	3·46
1925	93·6	5·01	0·54	16·611	3·32
1926	99·6	6·09	0·61	20·236	3·32
1927	104·6	5·92	0·57	19·486	3·29
1928	111·6	7·59	0·68	24·810	3·27
1929	119·0	6·87	0·58	23·236	3·38
1930	113·4	3·71	0·33	12·663	3·41
1931	102·7	2·44	0·24	8·425	3·45
1932	87·5	2·19	0·25	7·431	3·39
1933	83·4	5·96	0·71	20·194	3·39
1934	96·0	4·24	0·44	14·140	3·33
1935	99·4	4·73	0·48	16·200	3·42
Year ended June 1, 1931	108·3	7·50	0·69	24·150	3·22

CHAPTER VII

SEX IN RELATION TO UNEMPLOYMENT

Concentration of Female Wage-Earners.—The narrower female occupation structure is shown in the fact that among males the largest group (labourers) contains only a little more than one-fifth of all wage-earners, while among women the largest group (service) has almost one-half of the total. In fact, one-third of all women wage-earners are in personal service, a sub-group. The three most important female groups (service, clerical, manufacturing) take in 84 p.c. of the women wage-earners, while the three most important male groups (labourers, manufacturing, and transportation) only contain 50 p.c. of the wage-earning class.

This difference in distribution between the sexes appears with even greater prominence among industry groups. There we have 90 p.c. of the women wage-earners in service, manufacturing and trade, while the three most important male industries only contain 51 p.c. The six least important female industry groups have 2 p.c. of the wage-earners, the lower six male groups 28 p.c.

On June 1, 1931, the percentage of males not at work in Canada was 20·87, of females 8·74. It would seem that the force of unemployment struck males two and one-half times as hard as females. But this statement, like all averages, requires analysis and breakdown for its interpretation. The fact that females are concentrated in certain positions in the economy and males are spread very widely, affects the question basically from the viewpoint of explanation and remedy.

For example, 8·10 p.c. of the male wage-earners were in construction and only 0·02 p.c. of the female wage-earners. Construction was one of the hardest hit of the occupation groups in 1931, 29·24 p.c. of its workers being idle on June 1 of that year. Obviously this will affect the male total more than the female due to the greater number of men affected. Such females as were engaged in construction occupations (90 in number, mainly tinsmiths and sheet metal workers) showed 24 p.c. unemployed on June 1.

Consider the occupation groups containing more than 1 p.c. of the female wage-earners, as listed below:—

CVI.—PERCENTAGE OF WAGE-EARNERS NOT AT WORK JUNE 1, FOR CERTAIN OCCUPATION GROUPS, BY SEX, CANADA, 1931

Occupation Group	P.C. of Wage-Earners Not at Work June 1	
	Males	Females
Manufacturing	18·34	14·10
Transportation and communication	13·31	5·99
Commercial	9·19	10·30
Professional service	6·48	4·88
Personal service	12·77	7·74
Clerical	8·81	8·13
Labourers	38·28	15·65

It is plain that except for labourers, none of the seven groups show two and one-half times as much male unemployment as female.

If we average in somewhat unorthodox fashion, paying no attention to the different numbers engaged in the different occupations, we find that the male occupations average 15 p.c. unemploy-

ment and the females 10 p.c.—the males thus showing one and one-half instead of two and one-half times female unemployment. Thus a part of the more heavy male unemployment is explained by the distribution of the sexes into occupation groups.

Occupational Differences.—Statement CVI shows a considerable difference between occupations in the amount of the sex differential. Clerical and commercial occupations have very small differences between the sexes. Manufacturing and service show considerable differences, all in the same direction, while male labourers' and transportation workers' unemployment is out of all proportion to that of females.

In the commercial group the largest class is salesmen and saleswomen. Three-fifths of the men and nine-tenths of the women of the group are among its 140,000 wage-earners. Average weeks lost during the year ended June 1, 1931, by men were 5·7, by women 6·2. Thus we see that in this large class of men and women working under similar conditions, doing almost interchangeable work, women actually lose somewhat more time than men. In the clerical group the class bookkeepers and cashiers record 4·5 weeks unemployment for males and 3·4 for females; general office clerks have a similar differential, males and females respectively losing 3·8 and 2·7 weeks.

In professional service 90 p.c. of the females engaged are school teachers or nurses. Nursing is essentially a female occupation; we can make no sex comparisons within it. Males in professional service are not comparable with females except in the class of school teachers. Male school teachers lost 1·5 weeks in the census year and females 1·9 weeks. Though the value of this profession as a guide for comparison is somewhat diminished by its small unemployment it does indicate at least equal idleness for women as for men. Of the women in transportation and communication 84 p.c. are telephone operators, in which class few are men; the men are engaged as sectionmen, seamen, teamsters, truck drivers, where there are no women. Thus here again the sex incidence of unemployment in a definite occupational class can not be determined.

As for the category of labourers, in which females suffer two and one-half times as heavily from unemployment as males, we have an indication from Table 59 of Volume VII of the 1931 Census, that among the gainfully occupied females of this group 80·87 p.c. work in the industry of manufacturing while the males are more scattered, including a considerable number in construction, steam railways, etc., where they are in general temporary labour of the most casual kind. The females in the class are often attached, in factories, to fairly definite, though unskilled jobs. This information is given only for the gainfully occupied but it happens that 99 p.c. of the class "labourers" of the census are wage-earners. It thus seems that considerations of differences in industrial attachment would explain a good part of the sex differential in unemployment of this group.

Cause and Duration.—Thus the census shows that part of the employment differences between males and females is due to their situation in different occupations; and much also in their situation in different classes within the major groups. But some of the difference still remains. It will be of interest to see how it is distributed as between causes of unemployment, and duration groups.

Consider the classes of sales persons, office clerks and school teachers. In the first and third class the sexes lose about equal lengths of time due to "no job," but male "office clerks" lose more than female. Male office clerks lose more time due to "temporary lay-off" than do female, but in the other two classes females are higher. Females in all three classes are more affected by illness than males; though the total of all occupations shows a slight difference in the opposite direction (0·55 weeks lost through illness by males, 0·51 by females), perhaps because in the total are included many less favoured male occupations, *e.g.*, construction in which males lose 0·85 weeks on account of sickness. The greater female liability to illness has been reflected in relatively unfavourable disability experience of life insurance companies; at the present time the practice is to grant women applicants a policy of more restricted benefits than is granted males and at a higher price.

CVII.—WEEKS LOST PER WAGE-EARNER AND PER WAGE-EARNER LOSING TIME IN THREE SELECTED OCCUPATIONS, BY CAUSE, CANADA, YEAR ENDED JUNE 1, 1931

Occupation	No Job		Temporary Lay-Off		Illness		Accident	
	Males	Females	Males	Females	Males	Females	Males	Females
WEEKS LOST PER WAGE-EARNER								
Salesmen and saleswomen	4·76	4·67	·36	·76	·48	·64	·04	·03
Office clerks	2·90	1·85	·47	·38	·33	·38	·03	·01
Teachers—school	1·13	1·20	·12	·17	·24	·47	·01	·01
WEEKS LOST PER WAGE-EARNER LOSING TIME								
Salesmen and saleswomen	26·11	26·53	11·83	12·37	12·53	10·83	10·70	11·43
Office clerks	26·16	24·02	12·78	10·59	11·03	9·84	10·89	9·07
Teachers—school	27·04	30·60	12·95	16·09	18·96	20·16	15·08	22·31

The greater liability of males to accident, likewise known to insurance companies, is shown in the three occupations above, and more strongly still for all occupations (0·11 weeks lost by males against 0·02 by females). Perhaps part of this difference among Canadian wage-earners is due to the higher average age of the males, since, as noted in Chapter V, liability to accident of both sexes increases sharply with age.

As far as these three occupations are concerned there do not seem to be any important differences between the sexes in duration of unemployment by those losing time; for Canada as a whole we find that females lose shorter periods than men when they do lose time for each of the causes "no job," "lay-off," "illness" and "accident" separately. "Strike or lockout" shows longer duration for women than for men, which is more likely to be due to the smallness of the figures than to any real tendency for strikes involving women to last longer than strikes involving men.

Females Leaving Ranks of Wage-Earners.—The problem arises of the extent to which such greater male unemployment as has not been explained by differences of occupational structure between the two sexes can be due to the tendency of women, particularly married women, to cease to consider themselves members of their occupation after a certain period of unemployment.

In Statement CVIII below for groups and classes containing more than 5,000 men and 5,000 women we see that in manufacturing a greater percentage of females than of males lose time during the year. But among the males who do lose time, in Canada, 6·82 p.c. lose 49 or more weeks, while among females only 3·20 p.c. lose 49 or more weeks. It is hardly likely that there is a tendency for employers to re-hire dismissed females more quickly than males. The most probable explanation is that females cease to consider themselves wage-earners after a year's unemployment and are recorded in the census, if they are married, as homemakers. In the branches of manufacturing shown, for each of the four largest provinces, there was only one case (wood products in British Columbia) where the percentage of females losing time who lost 49 weeks was greater than of males. Warehousing and storage, and commercial occupations, and the main branch of each separately, tell the same story. But school teachers, with a slightly higher percentage of females than of males losing time, show, in Ontario and British Columbia in particular, very considerably greater proportions remaining idle the whole year. Finally, in clerical occupations females behave in very nearly the same fashion as men.

Can the exceptions, clerical occupations and school teachers, to the general rule that a smaller percentage of females than of males losing time lose the whole year, be due to the lesser proportion of married women in these two classes? The figures below* indicate that the lower percentage of single women in manufacturing is, in fact, associated with the smaller percentages of those losing time who lose the whole year. The three occupations with the highest percentage of single women on the list are school teachers, professional and clerical workers. It is, of course, plain that the differences in the distribution of women in various occupations as to conjugal condition are small, yet such differences as exist are in the anticipated direction.

* Applying to the gainfully occupied as a whole.

CVIII.—PERCENTAGE OF WAGE-EARNERS LOSING TIME AND PERCENTAGE OF THOSE LOSING TIME WHO LOST 49 WEEKS AND OVER, BY SEX, FOR SELECTED PROVINCES AND OCCUPATIONS, CANADA, YEAR ENDED JUNE 1, 1931

Occupation	P.C. Losing Time (Canada)		P.C. of Those Losing Time[1] Who Lost 49 Weeks and over										P.C. of Females Single (Canada)
			Canada		Quebec		Ontario		Manitoba		British Columbia		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
All occupations	44·00	25·14	8·17	6·65	7·99	4·91	8·80	6·21	10·92	10·56	10·44	10·31	80·75
Manufacturing	48·53	52·32	6·82	3·20	6·27	2·96	7·11	3·13	8·35	6·56	8·36	5·76	83·75
Vegetable products	41·26	58·49	7·29	2·84	5·80	2·32	7·85	3·36	10·24	6·35	10·00	5·93	83·47
Animal products	43·36	51·43	7·58	2·29	7·53	2·16	7·16	2·34	11·06	7·14	7·88	1·35	83·69
Textile products	53·47	52·48	6·11	3·31	5·60	3·16	6·06	3·05	10·61	6·96	13·51	6·53	82·81
Textiles	49·94	54·82	4·47	2·53	4·03	2·47	4·79	2·43	–	13·64	27·27	3·45	87·02
Textile goods and wearing apparel	56·12	51·54	7·20	3·64	6·71	3·42	6·94	3·40	10·77	6·76	12·41	6·73	81·67
Wood products; pulp, paper, and paper products	44·80	44·96	6·10	3·68	4·79	2·97	6·52	3·75	9·00	4·59	7·20	8·06	87·49
Transportation and communication	34·57	19·91	5·66	5·27	5·94	4·55	5·64	5·25	7·47	5·85	6·83	6·59	88·84
Other transportation	22·23	19·96	7·90	5·30	10·34	4·59	6·80	5·23	9·62	5·95	8·73	6·75	89·57
Warehousing and storage	33·24	50·65	6·51	3·11	5·87	2·43	6·28	3·79	8·54	3·90	8·16	2·73	92·00
Commercial	20·01	28·08	10·54	7·94	9·82	7·49	10·87	6·85	14·46	11·60	13·06	9·88	81·36
Salesmen and saleswomen	24·54	28·47	10·89	8·13	10·08	7·55	10·88	7·03	15·67	12·27	13·44	10·32	88·27
Service	19·79	18·77	10·33	7·35	8·74	6·19	9·78	7·08	14·77	9·86	13·76	9·22	78·74
Professional	11·97	9·60	*15·63*	*16·67*	*15·88*	*16·93*	14·44	14·25	*18·44*	*20·81*	19·78	15·96	93·90
Teachers—school	6·41	7·36	*16·59*	*22·46*	22·22	21·32	*10·75*	*20·02*	*27·84*	*28·74*	*17·54*	*24·18*	94·83
Personal	29·70	22·19	8·63	5·76	6·75	4·98	7·97	5·79	12·45	8·22	12·11	7·99	71·31
Cooks	45·11	23·04	10·73	5·05	6·47	4·69	8·05	5·84	17·70	4·96	16·03	7·03	60·74
Domestic servants, n.e.s.	30·31	21·48	7·89	5·50	*4·62*	*4·76*	6·28	5·66	9·82	8·34	13·45	7·51	86·42
Waiters and waitresses	34·25	36·70	8·20	5·70	6·71	6·21	9·58	4·27	10·34	7·62	*6·24*	*7·48*	81·07
Laundering	37·38	33·66	10·97	3·77	7·35	3·05	9·39	3·80	32·73	5·97	16·38	5·39	62·74
Clerical	18·02	17·41	*11·42*	*12·12*	10·54	9·09	12·46	10·98	*13·77*	*14·80*	*11·40*	*17·82*	93·84
Bookkeepers and cashiers	19·13	16·82	13·61	10·01	8·88	6·93	17·40	10·72	18·86	13·35	12·61	9·89	91·50
Other	17·49	14·86	10·40	6·43	10·84	6·70	10·77	6·05	14·70	8·24	10·67	7·34	92·48
Other	69·20	52·73	10·89	5·35	10·67	4·61	11·81	5·82	14·36	13·92	14·72	8·24	86·44

n.e.s.—not elsewhere specified.
[1] Italics used when figure for females greater than that for males.

Female Content and Percentage Unemployed.—The fifty occupations having the highest proportion of females were selected and arranged in order of percentage unemployment on June 1, 1931, running from least to highest (Statement CIX). Included are 10 representatives of the manufacture of textile wearing apparel, 6 of the manufacture of basic textiles, 6 occupations in professional service and 7 in personal service, 3 in each of tobacco products and vegetable foods, the remaining 15 scattered. On the whole, the list is representative of female occupations and it indicates how narrow, in comparison with males, is the field of their economic activities.

Showing least unemployment among the fifty occupations are proof readers and showing most are actresses, the range being from 2 p.c. up to 38 p.c. Scatter diagrams of the occupations show a small, though probably significant positive correlation among these occupations between female unemployment and that of males under 20, and a slightly greater correlation between females and males of all ages.

A scatter diagram of occupations by percentage male unemployment and percentage of women in occupation, showed no recognizable correlation. It is interesting that among industries (Chapter III) there was a very considerable correlation between these elements. This is partly because of the nature of the industrial classification as compared with the occupational (in the former the element of organization, which is associated with both female content and unemployment, being important) and partly because we used only those cases (28 in number) in which there were considerable numbers of both females and males. It is not unlikely that a large part of such correlation as exists among industries between percentage unemployment and female content results from the fact that certain types of industries, *e.g.*, logging, construction, mining, which are subject to very high unemployment, happen also to have very few women wage-earners.

The percentage of unemployment among women is lower than that among men; it is believed that there are two main causes for this: (1) the fact that women are only suited to employment in the organized industries whose characteristic is stability of employment for such persons as are taken on; (2) the fact that women, if single, reside with their parents and tend to report no occupation when they are idle, or, if married, live with their husbands and report themselves as homemakers.

CIX.—FIFTY OCCUPATIONS WITH HIGHEST PERCENTAGE OF FEMALES, ARRANGED IN ORDER OF PERCENTAGE[1] UNEMPLOYMENT AMONG FEMALES, CANADA, JUNE 1, 1931

Occupation	Occupation Group	Females as P.C. of Wage-Earners	P.C. of Females Unemployed
Proof readers	Mfg.—Printing, publishing, bookbinding	45·1	1·8
Librarians	Service—Professional	80·1	1·9
Nurses—in training	Service—Professional	100·0	2·08
Social welfare workers	Service—Professional	64·20	2·9
Teachers—school	Service—Professional	77·44	3·99
Housekeepers, matrons, and stewards	Service—Personal	95·65	5·27
Other	Service—Personal	46·55	6·02
Telephone operators	Transportation and Communication—Other transportation	93·73	6·06
Domestic servants	Service—Personal	94·04	7·07
Electric lamp makers	Mfg.—Electrical apparatus	78·5	7·8
Forewomen and overseers	Mfg.—Textile goods and wearing apparel	61·65	8·2
Knitters	Mfg.—Textile goods and wearing apparel	56·16	8·48
Inspectors, lookers, and menders	Mfg.—Textiles	85·30	8·75
Other	Mfg.—Textiles	65·42	8·86
Washing and drying machine operators	Service—Laundering; cleaning, dyeing, and pressing	50·0	9·1
Finishers and calenderers	Mfg.—Textiles	43·56	9·3
Office appliance operators	Clerical	86·47	9·45
Other	Service—Laundering; cleaning, dyeing, and pressing	55·63	9·59
Stenographers and typists	Clerical	94·85	9·78
Cigarette makers	Mfg.—Tobacco products	73·	10·
Glove makers	Mfg.—Leather products	63·2	10·0
Weavers	Mfg.—Textiles	45·89	10·08
Nurses—graduate	Service—Professional	100·00	10·46
Dressmakers' apprentices	Mfg.—Textile goods and wearing apparel	100·00	10·7
Cigar makers	Mfg.—Tobacco products	52·11	11·0
Spinners	Mfg.—Textiles	58·18	11·03
Paper box, bag, and envelope makers	Mfg.—Pulp, paper, and paper products	65·86	11·03
Spoolers, warpers, and beamers	Mfg.—Textiles	82·52	11·38
Other	Mfg.—Tobacco products	72·08	11·51
Other	Mfg.—Electrical apparatus	53·42	11·9
Dressmakers	Mfg.—Textile goods and wearing apparel	100·00	12·02
Sewers, seamstresses—not in factories	Mfg.—Textile goods and wearing apparel	92·78	12·40
Packers, wrappers, and labellers	Warehousing and Storage	64·09	13·20
Charworkers and cleaners	Service—Personal	87·37	13·37
Bookbinders	Mfg.—Printing, publishing, bookbinding	58·70	13·62
Waitresses	Service—Personal	53·31	13·64
Other	Mfg.—Printing, publishing, bookbinding	62·94	13·9
Other	Mfg.—Textile goods and wearing apparel	57·14	14·07
Hairdressers' apprentices	Service—Personal	44·0	14·3
Health professionals, n.e.s.	Service—Professional	81·5	14·5
Other	Mfg.—Vegetable foods	43·1	15·1
Sewers, sewing machinists—shop, factory	Mfg.—Textile goods and wearing apparel	86·46	15·90
Confectionery and biscuit makers	Mfg.—Vegetable foods	46·73	16·00
Nurses—practical; orderlies	Service—Personal	65·53	18·34
Milliners	Mfg.—Textile goods and wearing apparel	98·37	19·71
Milliners' apprentices	Mfg.—Textile goods and wearing apparel	100·00	21·5
Hat and cap makers	Mfg.—Textile goods and wearing apparel	43·58	24·9
Canners—fruit and vegetable	Mfg.—Vegetable foods	55·24	25·6
Fish canners and curers	Mfg.—Animal foods	55·07	36·81
Actresses	Service—Recreational	45·9	37·9

n.e.s.—not elsewhere specified.

[1]Where the base of the percentage is less than 100, the percentage is given to the nearest whole number; between 100 and 1,000, to one place of decimals, and 1,000 and over, to two places of decimals.

CHAPTER VIII

JUVENILE UNEMPLOYMENT

Occupations of High Juvenile Content.—In the same way as for females a list was made up of the 50 occupations with the largest percentage of juveniles (defined for our present purpose as males under 20) among their number. They run from 17·23 p.c. of their male workers under age 20 to 88·07 p.c., arranged in order of percentage unemployment among juveniles on June 1, 1931. "Other" occupations in trade and "newsboys" seem to be least affected by juvenile unemployment, while haulage workers and drivers in coal mining are lowest in the list. Included are 19 apprenticeship occupations.

CX.—FIFTY OCCUPATIONS WITH HIGHEST PERCENTAGE[1] OF JUVENILES, *I.E.*, MALES UNDER 20 YEARS OF AGE, ARRANGED IN ORDER OF PERCENTAGE UNEMPLOYMENT AMONG JUVENILES, CANADA, JUNE 1, 1931

Occupation	Occupation Group	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
Other	Trade	18·84	3·66
Newsboys	Trade	68·2	4·69
Printers' and bookbinders' apprentices	Mfg.—Printing, publishing, bookbinding	70·74	4·96
Office appliance operators	Clerical	27·7	5·11
Jewellers' and watchmakers' apprentices	Mfg.—Precious metals and electroplate	72·1	6·07
Farm labourers	Agriculture	19·15	6·50
Stenographers and typists	Clerical	24·41	6·60
Other	Mfg.—Printing, publishing, bookbinding	19·6	7·04
Bakers' apprentices	Mfg.—Vegetable foods	88·07	7·55
Messengers	Transportation and Communication—Other transportation and communication	78·92	7·65
Machine tenders	Mfg.—Printing, publishing, bookbinding	44·50	8·01
Other	Mfg.—Miscellaneous products	20·79	8·27
Domestic servants	Service—Personal	20·12	8·79
Ushers	Service—Recreational	42·9	8·87
Blacksmiths' apprentices	Mfg.—Metal products	62·5	8·97
Other	Transportation and Communication—Other transportation and communication	48·3	9·08
Delivery men and drivers, n.s.	Transportation and Communication—Road transportation	26·85	9·19
Cabinet and furniture maker's apprentices	Mfg.—Wood products	85·3	9·25
Barbers' and hairdressers' apprentices	Service—Personal	82·7	9·27
Machinists' apprentices	Mfg.—Metal products	61·84	9·69
Boot and shoe makers' apprentices	Mfg.—Leather products	86·6	9·97
Sewers, seamstresses—not in factory	Mfg.—Textile goods and wearing apparel	21·8	10·19
Plumbers' apprentices	Building and Construction	66·61	10·28
Electricians' and wiremen's apprentices	Building and Construction	67·25	10·28
Paper box, bag and envelope makers	Mfg.—Pulp, paper, and paper products	20·0	10·41
Knitters	Mfg.—Textile goods and wearing apparel	23·91	10·41
Other	Unspecified	23·17	10·68
Weavers	Mfg.—Textiles	17·23	10·83
Tailors' apprentices	Mfg.—Textile goods and wearing apparel	84·0	10·99
Other	Mfg.—Tobacco products	21·5	11·03
Spoolers, warpers, and beamers	Mfg.—Textiles	36·0	11·20
Other	Mfg.—Textiles	25·57	11·58
Spinners	Mfg.—Textiles	28·80	11·61
Packers, wrappers, and labellers	Warehousing and Storage	20·69	11·79
Confectionery and biscuit makers	Mfg.—Vegetable foods	18·53	12·30
Sheet metal workers' apprentices	Building and Construction	75·0	12·38
Box, basket, and packing case makers	Mfg.—Wood products	21·5	12·39
Carpenters' apprentices	Building and Construction	72·29	12·80
Moulders' apprentices	Mfg.—Metal products	72·8	12·95
Button makers	Mfg.—Miscellaneous products	27·	13·63
Painters' apprentices	Building and Construction	83·2	13·79
Bootblacks	Service—Personal	36·5	13·92
Other	Mfg.—Electrical apparatus	17·5	14·14
Sewers, sewing machinists—shop, factory	Mfg.—Textile goods and wearing apparel	17·92	14·20
Boilermakers' apprentices	Mfg.—Metal products	61·7	14·30
Upholsterers' apprentices	Mfg.—Wood products	75·9	14·81
Other	Service—Recreational	38·23	15·67
Plasterers' and lathers' apprentices	Building and Construction	71·7	15·71
Brick and stone masons' apprentices	Building and Construction	66·6	16·62
Haulage workers—drivers, cagers	Mining—Coal mining	21·80	23·53

[1] See footnote to Statement CIX.

Apprentice Occupations.—The apprentice occupations were picked out and each was paired with the major trade or occupation bearing the same name. Thus jewellers' apprentices were paired with jewellers, bakers' apprentices with bakers and so on.

Percentage unemployment among apprentices was then correlated with unemployment in the corresponding occupation classes (Statement CXI) and the correlation was found to be ·85, indicating that over 70 p.c. of the unemployment in the apprenticeship occupation was determined by the corresponding master occupation—the rest being due to random causes.

CXI.—UNEMPLOYMENT IN CERTAIN OCCUPATIONS AND IN CORRESPONDING APPRENTICESHIP OCCUPATIONS, MALES ONLY, CANADA, JUNE 1, 1931

Trade	P.C. Unemployed June 1, 1931	
	In Trade	Among Apprentices to Trade[1]
Printers and bookbinders	14·30	10·40
Jewellers	17·91	13·8
Bakers	16·13	13·45
Blacksmiths	24·58	17·4
Cabinet and furniture makers	22·91	18·9
Barbers	13·62	14·8
Machinists	19·50	15·01
Boot and shoe makers	19·68	13·7
Plumbers	26·69	21·36
Electricians and wiremen	18·07	19·46
Tailors	30·84	20·1
Sheet metal workers	24·58	20·6
Carpenters	32·61	19·91
Moulders	31·98	26·8
Painters	28·44	20·5
Boilermakers	24·50	19·1
Upholsterers	31·28	27·8
Plasterers and lathers	48·29	25·8
Brick and stone masons	41·92	28·4

[1] See footnote to Statement CIX.

It is interesting to observe that average unemployment in the 19 master occupations was 25·68 p.c., while in the 19 apprentice occupations it was 19·33 p.c.—much lower. Referring to the conclusions of the chapter on "Ages", we believe that this difference is an example of the inability of younger people to enter occupations in the first place and thus to come under the census definition of unemployment. The study of duration in Chapter V, showed plainly that it is not easier for a very young man to get a job than for one over 20—even though the percentage unemployment is higher at ages 20-24 than at 18-19.

The standard deviation of the apprenticeship occupations is 6·14 while that of the master occupations is 8·87—the latter show rather wider scatter considered on an absolute scale, but about the same when both are referred to their means. In duration of unemployment of those losing time there was a much smaller scatter both for apprentices and their master trade; the correlation, though rather lower, was still quite significant.

Dependency of Juvenile upon Older Unemployment.—A correlation was performed to find whether in the detailed occupation classes the unemployment among young persons was dependent on that of the older persons in the occupation. Excluding the 50 juvenile occupations (see list of the 50 occupations with highest percentage of male workers under 20) and those occupations in which less than 5 p.c. of the male workers were below 20 years of age, we get 129 occupations with significant numbers both of adults and juveniles. Among these there is a correlation of slightly under ·60. Perhaps because the occupations are not as well defined, the correlation was definitely lower than that between apprentices and their trade proper. In cases other than apprentices where the percentage of juveniles was over 17·00, *i.e.*, in the non-apprentice occupations attracting younger men, the correlation between unemployment among juveniles and the occupation as a whole is not as high as in the 129 occupations of more even age distribution.

CHAPTER IX

REGIONAL ASPECTS OF UNEMPLOYMENT

Introduction.—The regional aspects of unemployment are treated incidentally in many of the chapters of this monograph, notably in Chapters II, IV and XI. Although it is a very important subject, its importance in a population study would seem to lie chiefly in its measurement of the results of unemployment to the population rather than in any explanation of unemployment. We have the regional distribution of population, revealing the evenness or unevenness of spread of this population over the country. We have, in a large country like Canada, the population settled in spots, with an unreasonably large proportion of it congregated in cities and towns and other units. We have the consideration of mobility, *i.e.*, the power or inclination of this population to move away from a locality of low to one of high employment. If this mobility were perfect it is evident that a great deal of the seriousness of the unemployment problem would be removed. One could say in objection to this inference that unemployment would still be (say in 1931) the average for Canada in that year. This might be true if *unemployment* as a population phenomenon were perfectly correlated with *employment* as an economic event but most assuredly it is not. Changes in volume of employment as an economic feature, could so correlate with changes in unemployment only if there was such a degree of mobility that the moment a job fell open a worker could be at hand to take it, but this is an impossibility, first, since the worker to be available had to be unemployed; secondly, since this mobility does not exist and the unemployed worker may not hear of the job, may not be financially able to move on account of the distance and other difficulties between him and the job, may not be willing to move, or may be legally prohibited from entering a new municipality. It is possible—indeed probable—that even in times of great unemployment some industries may be under-staffed for want of available workers.

Responsibility of the Region.—All this has a bearing upon regional unemployment. Chapter II provides information upon the volume of this kind of unemployment and upon the geographical distribution of unemployment. Chapter III introduces an index by which the influence of locality as a factor explaining unemployment is measured. The conclusion there is that it does not explain it—locality is merely a circumstance attendant upon the presence of the industry. If the industry were elsewhere situated the unemployment would probably be the same. Of course the locality may be held responsible for the *fact* that the industry situated there but this seems far-fetched. There seems to be only a limited number of responsibilities that can be attached to a region as such: (1) the nature of the industry that *can* be there situated; (2) its geographical situation from the point of view of facilitating mobility; (3) its actual powers to restrict the inflow of workers; (4) the versatility and mobility propensities of its own population; (5) the extent to which the region specializes in industry or occupation; (6) its seasonal condition (*i.e.*, in the sense of comparative severity of winter and summer). Against these we have many factors which may influence the volume of unemployment in a region but over which the region may have no control, such as: (1) the powers of a central body in matters of immigration; (2) the powers of other regions to prevent an outflow of its workers; (3) trading restrictions; (4) the manipulation of business interests by other interests of the locality regardless of whether these business interests would be better served by being spread. For illustration of the last mentioned, let us suppose that a big industry was established in a large city and that that city by means of concessions, etc., did its best to retain that industry. Or let us suppose that a big industry situated in another country wishing to control the output of its particular product exerted pressure to prevent competition arising from a similar industry starting up in a particular locality where by virtue of its possibilities the same product could be produced more cheaply for certain markets. The locality which thus suffered could not be blamed for the lack of employment arising out of these causes.

Our observations in other chapters lead to the conclusion that the regional aspects of unemployment belong at least as much to the second set of categories as to the first, *i.e.*, are due to causes over which the region has no control.

We have frequently observed that there are two ways of looking at unemployment: (1) the likelihood of losing a job once it is held; (2) the likelihood of remaining out of employment once a job is lost. Of the two the second would seem to be the more serious for the worker at large. On the whole the two probabilities go together, *i.e.*, the person who is most likely to lose his job is the person who finds it most difficult to regain it, but this is only true within limits—"other things being equal." But other things are not equal and we find not only individual exceptions but a general principle behind these exceptions which leads to the belief that this principle is extending its sphere of action in time; *e.g.*, two workmen equally likely to lose their jobs would have different degrees of difficulty in regaining them according to what industries they were attached.

Likelihood of Losing Jobs.—Taking the regional behaviour of unemployment from these two points of view, and consulting the data and charts in Chapters II, IV and XI we find: first, as regards the likelihood of losing jobs, the provinces in 1931 compared as follows:—

CXII.—PROVINCIAL COMPARISON OF PERCENTAGES OF MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER NOT AT WORK JUNE 1, IN ALL INDUSTRIES AND IN TWO OF THE MAJOR INDUSTRIES OF THE COUNTRY, CANADA AND PROVINCES, 1931

Province	P.C. Not at Work June 1		
	All Industries	Agriculture	Manufacturing
CANADA	20·87	15·55	17·80
Prince Edward Island	7·72	3·01	(3·97)
Nova Scotia	22·43	10·20	18·87
New Brunswick	22·85	14·46	17·05
Quebec	19·44	11·49	15·50
Ontario	18·68	9·63	18·61
Manitoba	24·02	22·46	17·50
Saskatchewan	22·28	20·98	18·27
Alberta	24·00	19·56	16·78
British Columbia	27·45	23·15	21·97

We see in column 1 two eastern provinces and four western provinces faring much worse than the two large central provinces with their much more powerful industrial structure. Pushing this point a little further and taking one type of industry—agriculture (*i.e.*, the agricultural labourers)—we see that while the facts remain the same as regards the four western provinces, it is no longer true as regards the eastern. In another main industry group—manufacturing—we see that the geographical distinction is very vague if existent. The real reason for the geographical distinction when all workmen (instead particular groups) were considered was the distribution of types of industries.

Likelihood of Regaining Jobs.—Let us now take the other aspect of unemployment, the likelihood of remaining out of work once the job was lost. We have devised a method of measuring this, but for the moment instead of using this method we can use a much simpler and more direct measure. We show below the number of wage-earners idle at any time during the year and the number of these who were back at work on June 1. This is so obviously factual that there is no difficulty in seeing what is meant by the percentage going back to work before June 1 of those who lost any time during the year. It is not as good as another measure to be given later as it does not indicate the time lost, but when we consider that June 1, 1931, was on a falling trend which lasted till March, 1933 we can see that the chances of those who were out of work on June 1 to regain employment for some time to come were very small. The data refer to males only.

CXIII.—MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER LOSING ANY TIME DURING YEAR AND NOT AT WORK JUNE 1, AND NUMBER AND PERCENTAGE OF THOSE LOSING ANY TIME WHO WERE BACK AT WORK JUNE 1, CANADA AND PROVINCES, YEAR ENDED JUNE 1, 1931

Province	Male Wage-Earners				
	Total	Idle		Idle Some Time but Back at Work June 1, 1931	
		Any Time during Year	June 1, 1931	No.	P.C.
CANADA	2,022,260	889,743	422,076	467,667	52·56
Prince Edward Island	9,159	2,143	707	1,436	67·01
Nova Scotia	95,244	47,200	21,365	25,835	54·74
New Brunswick	66,310	32,099	15,152	16,947	52·80
Quebec	535,203	232,769	104,066	128,703	55·29
Ontario	752,851	322,376	140,666	181,710	56·37
Manitoba	132,883	57,074	31,916	25,158	44·08
Saskatchewan	116,157	44,105	25,884	18,221	41·31
Alberta	116,005	49,953	27,846	22,107	44·25
British Columbia	198,448	102,024	54,474	47,550	46·61

It will be noticed that there is a faint Central Canada trend in the percentages going back to work and a definite Prairie Provinces trend in the percentages not going back. There is a definite eastern as compared with western trend. The east to west trend will be seen much more definitely in a later table where duration is taken into consideration.

Growth in Wage-Earning Body.—One thing is certain—we can not ascribe this geographical distinction to any single reason. We have investigated whether it was a matter of more time being lost through other causes than "no job"; whether a matter of specialized industries, etc. It appears to partake of specialization but the evidence is not conclusive—at any rate this can not be the only cause. Let us make one more test, *viz.*, examination of the growth in the wage-earning body between 1921 and 1931.

CXIV.—MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER IN 1931 EXPRESSED AS A PERCENTAGE OF MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER IN 1921, CANADA AND PROVINCES, 1931-1921

Province	Male Wage-Earners 1931 as P.C. of 1921
CANADA	138·1
Prince Edward Island	112·7
Nova Scotia	102·1
New Brunswick	104·9
Quebec	138·3
Ontario	128·6
Manitoba	133·2
Saskatchewan	140·5
Alberta	137·2
British Columbia	140·5

There is an undoubted negative correlation between this set of figures and percentage going back to work before June 1 of those losing time during the year, although there are not enough cases listed to measure the size of this correlation. What is interesting, however, is that the correlation between the growth in wage-earners and the liability to lose jobs is different from that with the ability to regain jobs once lost. In other words, the growth figure correlates independently with the two kinds of unemployment figures so that the multiple correlation with the two is higher than the simple with either one. Each of the unemployment figures has an independent valuation in so far as it depends upon the rate of growth of wage-earners. Consequently this growth enters very significantly into unemployment and the regions were widely distinguished in the matter of this growth.

What ingredients entered into this growth? (1) Wage-earners came in various numbers to regions in time of prosperity or boom; (2) they left in various numbers during the part of the depression that came before June 1, 1931. Localities to which they came in large numbers and failed to leave showed heavy unemployment in one form or another. Consequently the differentiation in regions in 1931 must have been very considerably a matter of differentiation in the degree in which the boom operated in various regions, but it must also have something to do with the mobility of the worker. This applies particularly to the form of unemployment, "inability to regain jobs." Where this form of unemployment is independent of mobility it must be, dependent upon the versatility of the worker. To measure this versatility we would have to take a partial correlation between the ability to regain jobs and the diversification of occupations of the worker after rendering constant the mobility (*i.e.*, the proportion of workers who had left the region between the boom period and 1931). This would be an exceedingly difficult task because of lack of data.

Employment Mobility.—We have a much better method of measuring the chances of regaining employment than the percentage of those losing time during the year who went back to work before June 1. This method is described in detail in Appendix 1. The figures we have just used involve the chance of losing jobs since the proportion idle on June 1 is a measure of this chance of losing the job. We need a measure of the difficulty or facility of going back to work independent of the chances of losing the job. This is really the chance of interchange between employment and unemployment during the year. In other words, it is a measure of the mobility in and out of employment, a different concept from mobility in and out of the locality. Let us refer to this as "employment mobility," *e.g.*, let us suppose the measure of this mobility to be 2 and that the percentage of the year lost was 20 (the average for males in 1931). Then this 2 would tell us: (1) that the percentage losing no time was 64 and, of course, that the percentage losing some time was 36; (2) that the average number of weeks lost by those losing time was 28·9; (3) that the probable percentage losing the whole year was 4. If, however, employment mobility was 4 (instead of 2) and the percentage of the year lost was still 20, then we would have: (1) percentage losing no time 40·96, and percentage losing time 59·04; (2) average number of weeks lost by those losing time 17·6; (3) probable percentage losing the whole year 0·16. The measure of mobility for the different provinces in 1931 is shown in the following statement placed in juxtaposition to the growth in male wage-earners over the decade and the percentages regaining employment to show the correlation between them.

CXV.—INDEX OF EMPLOYMENT MOBILITY OF MALE WAGE-EARNERS 10 YEARS OF AGE AND OVER, RATIO OF 1931 WAGE-EARNERS TO 1921 AND THE PERCENTAGE OF THOSE LOSING TIME DURING THE YEAR WHO WENT BACK TO WORK BY JUNE 1, CANADA, BY PROVINCES, 1931

Province	Index of Employment Mobility	Male Wage-Earners 1931 as P.C. of 1921	P.C. Idle during Year Going Back to Work before June 1
Prince Edward Island	2·69	112·7	67·01
Nova Scotia	2·79	102·1	54·74
New Brunswick	2·83	104·9	52·78
Quebec	2·69	138·3	55·29
Ontario	2·55	128·6	56·37
Manitoba	2·24	133·2	44·08
Saskatchewan	2·19	140·5	41·31
Alberta	2·32	137·2	44·24
British Columbia	2·36	140·5	46·61

We see now a definite east to west trend in the mobility, from regions of greater to regions of less mobility. We also see a more definite correlation with the population growth over the preceding ten years, varying from 2·79 in Nova Scotia with the least increase in growth to 2·19 in Saskatchewan, one of the two with the greatest increase in growth. However, it is evident that growth is not the only factor. The index means something more than the percentage going back to work before June 1, because it recognizes duration of unemployment on the part of those losing time, independently of that condition of the rest of the wage-earners, *e.g.*, Quebec and Ontario, by this index, are shown to be less mobile than the Maritimes.

The index of employment mobility measures something that ordinary employment data do not measure. The question remains as to whether it is the *mobility* (physical or geographical) or the *versatility* of the Eastern Provinces that make them less subject to remaining out of employment once the job is lost. It is a most important sociological question. Is employment mobility, regionally considered, determined by (1) the character of the people, (2) the nature of the industries situated therein, (3) considerations apart from either of these two?

The growth of the labour force as has already been explained, was introduced to show that either one of two things must have taken place: (1) a boom in the region with the result that a large body of wage-earners were attracted thereto; (2) after the boom and during the depression the unemployed workman had moved away to other fields of employment. The "other fields", could mean either another occupation or industry in the same locality or another locality. In either case it is mobility, but if it means another field in the same locality, it argues versatility. The workman is not specialized. He can do more than one thing. In the Prairies there is a specialization of work—agriculture as a business proposition; in central Canada there is industrialization; in the Maritimes there is lack of specialization except in certain spots. Knowing this we might say at once that the better position of the Maritimes was entirely due to absence of specialization and we would probably be right, but we can not be absolutely certain. In a statement of Chapter XI, borrowed from Volume I of the 1931 Census (see page 271), can be seen the number of occupations engaged in to a significant extent by different races of people. There we find the Scottish, Italian, Japanese and Hebrews among the most versatile, the Central Europeans, Eastern Europeans, Dutch and Chinese the least. This leads us to the character of the people and to wonder whether this has something to do with the situation in the Maritime Provinces with their strong Scottish and Irish bias, the Prairie Provinces with their Central and European bias, and British Columbia with its British and Japanese bias. Notice that this latter western province shows greater mobility than the Prairie Provinces in spite of its more rapid growth.

Rigidity.—It is desirable to investigate further the reasons for regional trend in the liability to remain unemployed once the job is lost. Here if anywhere we can get away from such pitfalls as peculiarities of classification, enumeration, etc., to which arrangements by occupations and industries are liable. A difficulty in the investigation arises from the fact that we have so few regional divisions—only nine provinces. We have also fifteen cities but the behaviour in cities is so different from that in the rest of their provinces that manipulation of figures to bring the two into line is almost impossible. As will be seen in the following statement the cities are much more rigid than the province as a whole. If regional liability to remain unemployed depended upon diversification of occupations alone one would expect the city to fare better than the rest of the province since the city is much more diversified. In the following statement the index of rigidity (or liability to stay out of employment) of each province and of each of the fifteen principal cities is shown in comparison with certain other features which might be expected to correlate with this rigidity. These features are: (1) size; (2) increase in wage-earners between 1921 and 1931, and (3) diversification of occupation. This diversification is measured by finding the average number of workers per occupation in the region and then taking the number of occupations in which the workers are represented by this average or more. Thus if there are 300 occupations listed in a city with 30,000 workers, the average number of workers per occupation is 100. If there are 30 occupations in which 100 or more workers are found this 30 is taken as the measure of diversification. It is a striking fact that diversification as thus measured is higher for regions than for immigrant races. It was mentioned in another place that the largest number of occupations represented by any immigrant race was 24 (Scottish). No city in Canada and only one province (Prince Edward Island) has a representation as small as this.

The number of different regions is not sufficient for a reliable multiple correlation between the index of rigidity and these three factors, but it seemed worth while working out such a correlation to ascertain the tendency of such regions as are represented. The fact that the cities showed greater rigidity than the provinces was puzzling considering their greater occupational diversification. Consequently it was at least interesting to see whether size had anything to do with it. In other words a city has, say, 300 occupations and a province the same number, but in the province these occupations are found repeated in different parts while in the city they are confined to a limited area. The same occupation in ten different parts of a province would really

be 10 occupation groups while in the city it would be only 1. This consideration alone indicates how little can be obtained from general averages from large aggregates and the need of a break up in any analysis of attributes.

The following statement is in two parts (1) by provinces, (2) by cities. With the index of rigidity are shown the three features described above. Even to the naked eye it is apparent that these features correlate with the rigidity but the measure of correlation from such a small number of cases would be meaningless. What seems to be most interesting is that when the provinces are taken by themselves a correlation is found and when the cities are taken by themselves it is also found; but the two sets are obviously heterogeneous and incapable of being correlated as one set. In spite of all the advantages of the city (save in rapid growth) it is more rigid than the whole province. It is suggested that the reason for this is that the occupation in the province is broken up into several localities whereas in the city there is only one locality. A question arises which for the present we are unable to answer: if, say, 30,000 workers were found in a city and another 30,000 workers were found distributed among ten localities with about 3,000 workers each; further if the city and the ten localities had the same occupational distribution would the worker in the city be more liable to remain unemployed once out of work than those in the ten localities? The indicated answer is "yes," but for the present we can not prove it.

CXVI.—NUMBER OF MALE WAGE-EARNERS AND NUMBER PER 100 IN 1921, SHOWING INDEX OF RIGIDITY AND NUMBER OF MALE OCCUPATIONS OVER AVERAGE SIZE, CANADA, BY PROVINCES AND CITIES OF 30,000 AND OVER, JUNE 1, 1931

Province and City	Index of Rigidity (male wage-earners)	Male Wage-Earners		Male Occupations over Average Size
		In 1931 (000's)	In 1931 as P.C. of 1921	
(1) Province—				
New Brunswick	2·83	66	105	32
Nova Scotia	2·79	95	102	41
Quebec	2·69	535	138	54
Prince Edward Island	2·69	9	113	16
Ontario	2·55	753	128	53
British Columbia	2·36	198	141	56
Alberta	2·32	116	137	31
Manitoba	2·24	133	133	47
Saskatchewan	2·19	116	141	24
(2) City—				
Halifax	2·67	15	108	56
London	2·67	18	121	63
Saint John	2·64	12	104	45
Montreal	2·60	224	152	62
Quebec	2·52	30	151	53
Hamilton	2·47	44	142	61
Toronto	2·41	176	134	72
Ottawa	2·37	31	124	58
Calgary	2·26	25	159	61
Edmonton	2·22	21	162	59
Windsor	2·13	18	165	60
Winnipeg	2·12	63	136	72
Vancouver	2·07	77	231	64
Regina	1·99	15	167	56
Victoria	1·92	12	113	55

CHAPTER X

RACIAL ORIGIN IN RELATION TO UNEMPLOYMENT

Introduction.—The subject of this chapter has been discussed incidentally in many of the other chapters of this monograph and treated in considerable detail in a monograph *Racial Origins and Nativity of the Canadian People* by Prof. W. B. Hurd. In the present chapter, therefore, it seems sufficient to collect and pass in review the findings already discussed.

In Prof. Hurd's analysis the unemployment by race was shown in relation to characteristics apparently non-racial which these different races displayed, as concomitants of their degree of unemployment—age, year of arrival, occupation, etc. When allowance is made for these non-racial concomitants it would seem that there is little or no unemployment that can be associated with race as such. Of course the fact still remains that there are wide differences in the degree of unemployment shown by one race as compared with another, and when such differences can be associated with the occupational difference it is impossible to say whether the unemployment is due to the race or the occupation. The negative findings do not prove that there is *no* racial distinction. Why should one race differ from another occupationally? The answer first occurring to one is "original habitat," but this is almost exactly what we mean by race in the census, *original* being stressed as distinguished from country of last permanent residence. Many of the races come from several countries and yet members of those races representing different countries of birth or emigration show common characteristics in the matter of occupation and (closely connected with occupation) distribution over the country. In an atlas of the Prairie Provinces* by Prof. Hurd and Dr. Grindley it is not difficult to see that races are differentiated by these very characteristics. As subtle a differentiation as that between Russians and Ukrainians can be detected by the practice of Russians to settle along railways and of the Ukrainians to settle in mixed farming districts—both true to original habitat. Now when we have similarity of occupation in the case of the same race coming from different countries and dissimilarity in the case of different races coming from the same country it is difficult to dissociate these from racial characteristics.

Mobility.—However, we will discover one feature of unemployment in Chapter XI that seems to be more directly connected with race than other features. In that chapter a measure of mobility in and out of employment (developed in Appendix 1) will be applied to different immigrant races by year of arrival in Canada. This index measures the ease or difficulty with which the wage-earner can re-enter employment once he is unemployed (probably it also measures the ease or difficulty with which a person can secure a job for the first time). Now when the immigrant races are classified by means of this index and cross-classified by the usual unemployment percentage (*i.e.*, by the liability to be thrown out of employment) it is found that there is a considerable racial difference. There is, for example, a wide separation between Hebrews and Eastern and Central Europeans although both came from the same countries; there is a wide difference between Japanese and Chinese (see Statement CXXI, Chapter XI). We can not associate this with year of arrival, because allowance has already been made for this. When we remember that what we are trying to measure is difficulty in securing employment when unemployed, it looks as if language had something to do with it, but from the statement referred to it is obvious that this is not the only reason.

Specialization.—Races do not seem to be so much diversified in occupation as they are in the extent to which they specialize in occupations. From a statement† also in Chapter XI it will be seen that the race which represents the greatest number of different occupations is the

**Agriculture, Climate and Population of the Prairie Provinces of Canada.* Dominion Bureau of Statistics. King's Printer, Ottawa.

†p. 271; borrowed from 1931 Census Vol. I, p. 294.

Scottish and the least the Dutch although the Japanese come very close to the latter. And yet the Japanese are the most mobile in employment. This would also seem to indicate that the differentiation in unemployment status is not entirely occupational.

Again, in the 1931 monograph *Illiteracy and School Attendance* the earnings and other concomitants of unemployment are shown to be associated with illiteracy and illiteracy is closely associated with race.

It is only by taking one by one the features of unemployment commonly associated with race and showing that each is *not* due to anything else that it could be proven that there is a *racial* differentiation, and obviously this is impossible. As it is, the fact that there is another possible explanation does not prove that there is *not* a racial differentiation. The question is open. Meanwhile there is no doubt whatever that features of unemployment *are* associated with race whether these are "racial" or not. Among these features are: (1) liability to be thrown out of work; (2) liability to staying out of work once the job is lost; (3) different rates of earnings; (4) different sizes of families with the attendant implications; (5) different degrees of earning-power of the members of these families; (6) different proportions of these families earning; (7) differences in the main occupation followed; (8) differences in the number and variety of occupations followed indicating different degrees of versatility. This list could be extended but it seems sufficiently long. Chapter XI points to the suggestion that if there is a "racial" differentiation in unemployment it is along the lines of different degrees of versatility.

CHAPTER XI

PROBABILITY OF CONTINUOUS EMPLOYMENT IN RELATION TO SEASONAL AND OTHER FLUCTUATIONS

Introduction.—The main objective of this chapter is to show the principles behind fluctuations in the year's unemployment and to classify industries, occupations, etc. in terms of strength or weakness as based upon both their liability to unemployment and the nature of their unemployment from the point of view of these fluctuations. For purposes of this classification a method has been developed in Appendix 1 so that it will not be necessary here to enter upon the details of this method. The method itself has been developed from the behaviour of unemployment as shown in other chapters of the monograph, particularly Chapters III and IV.

Fluctuation Type.—"Seasonal" fluctuations in employment involve many different concepts. An industry may be seasonal in the sense that the work is slack in the winter and active in the summer, usually with a low month or week in the slack and a high in the active seasons and with the other months fairly evenly graduated in chronological order between these extremes. This is the usual concept of "seasonal" in Canada. There are, however, other concepts, *e.g.*, strawberry picking is seasonal, its season being confined to one month; logging in the East has its high point in the winter, and probably in the summer in British Columbia. Then there are other industries with possibly several seasons. In so far as this is true this chapter may be regarded as one on seasonal fluctuations, because most of the fluctuations discussed are really seasonal. However, there are some fluctuations (within the year) coming under observation which can not be regarded as seasonal. When employment is on a downward trend (or an upward) some industries respond to it in a different manner from others. (1) For example, an industry may let off its men very gradually responding faithfully to the trend; in its case there are no fluctuations, seasonal or otherwise. (2) Another industry may let off its men in a series of steps—holding on to them as they were at the beginning of the year for two or three months, then dropping a large number; then holding on to the remainder for another two or three months and dropping some more, and so on till the end of the year. During the year it may have dropped the same number as the first-mentioned (gradual) industry, but it has shown, not fluctuations in the dictionary meaning of the term, but irregularities which are measured by a foot-rule called standard deviation, this standard deviation being higher than shown by the first mentioned. (3) Still another industry, which drops the same proportion of its men as the other two in the course of the year, may drop them all at once and retain the remainder the rest of the year. This industry shows the highest standard deviation of all three. (4) The true "fluctuation" is the case where an industry drops some men, later takes on some more, still later drops some more and so on. This industry may or may not have a higher standard deviation than the third mentioned industry but the deviation has a different cause. It may exist where there is no downward or upward trend.

However, we are not concerned with this type of variation because we are taking the trend, not chronologically but as a differential from the high to the low point. Having this in mind we can see that while theoretically there is a possibility of no downward trend, actually there is no possibility. As a matter of fact the smaller the downward trend the smaller the standard deviation is likely to be and the greater the number of interchanges.

Classification.—From our observations on the unemployment situation in 1931, industries of type 3 are apt to show similar characteristics throughout different degrees of unemployment from the fact that they show the same relationship of standard deviation to trend. The only way in which we can distinguish them is according to the percentage unemployment shown. On this assumption we can classify them by arranging them in order from those showing the least to the greatest unemployment, keeping the relation between the standard deviation and the trend constant.

On the other hand, by keeping the percentage unemployed (or employed) constant we can assume that there is a graduation according to the relationship of standard deviation to trend and classify them according to the various degrees of the relationship, *i.e.*, the number of changes during the year.

The reasoning underlying the latter classification and the demonstration of its validity are treated in detail in Appendix 1. In this chapter attention will be confined to its significance. Take the case of an industry (or provincial, or age, or race, or occupation) group that shows throughout the year an average of 5 p.c. unemployment or 95 p.c. employment. This means that the workers as a whole in this industry lost 2·6 weeks and worked 49·4. So far as the industry is concerned it probably would not matter much how these weeks were lost or who lost them. In their accounting and setting a money value to them, the loss would be a definite amount except, of course, that it would be more serious to lose them at one part of the year than another and among the most necessary part of its staff than its least necessary. However, this is not likely to happen because of other considerations. The industry in all probability would lose the work of the least necessary and poorest paid of its staff and the loss would happen at the time when its work was ordinarily slack. From the point of view of the workers, on the other hand, it makes a vast amount of difference by whom and how these weeks were lost. If the loss were equally distributed among them it would mean that everybody worked 49·4 weeks in the year. The individual simply had two weeks holidays without pay. If only 5 p.c. lost any time during the year it would mean that this 5 p.c. lost 52 weeks, *i.e.*, did not work at all. If the 5 p.c. were evenly distributed among the workers of all rates of pay, it would mean very little hardship for those paid well enough to leave a margin over the year's expenses, and the hardship would be confined to those with sub-marginal pay. If it were confined to say the lower half or third it would have the effect of reducing a large number of the super-marginal to sub-marginal. Take the case where it was confined to the lower half, it would mean 5·2 weeks unemployment for this half. If the upper limit to their year's earnings were $1,000 (about the average in 1931 for all wage-earners), it would have the effect of reducing this to $900 so that this half were scaled down from the $900. The wages for all this half would be reduced by $8.50 a month. All persons in this lower half of the earnings range are usually living so close to their earnings that this reduction would mean a drastic change in the mode of living of every one of them. Moreover, we must remember that we are talking of a year of only 5 p.c. unemployment, not of a "bad" year but of a very "good" year.

It would also make a difference *when* these persons lost their 5·2 weeks—did they lose them all at once or was their loss scattered throughout the year? Did their loss occur in the winter season when they are apt to be unemployed or in the summer season when they are usually employed? A person, however unthrifty, makes *some* kind of adjustments to meet his ordinary expectations. When these expectations are tampered with a certain amount of unemployment may mean a loss out of all proportion to what the same amount would mean had it been more or less anticipated.

Periodicity.—In the classifications in this chapter an attempt is made to recognize these factors. Taking the case of the class which shows 95 p.c. employment, this class is subdivided so as to show varying degrees of what we may call "periodicity" of employment or unemployment. This periodicity is designated by numbers 1, 1·5, 2, 2·5 and so on, according to the number of changes in the year undergone by the industry, occupation, etc., and in the statements is called "index of mobility." The industry which shows only one change probably throws out the men (suffering from any unemployment) all at once. If it threw them out at the beginning of the year this would be reflected in a higher percentage of unemployment for the industry as a whole; if it threw them out at the end the reflection would be a lower so that we can not have these possibilities since the class has constantly 95 p.c. employment. Keeping the employment class constant through varying degrees of periodicity, therefore, shows differences which do not involve possibilities such as that of one throwing them out at the beginning, another at the end and so on.

If there are two industries in the 95 p.c. employment class and one shows 1 change in the year and another 4, which of these two industries is the more favourable to the worker? We have seen that the industry which shows only 1 change, *i.e.*, throws them out all at once, confines its unemployment to a certain fraction of its workers leaving them a long period

unemployed. It is the type of industry which creates the drastic situation already described. The industry which shows 4 changes is spreading its unemployment among its workers. Within the limits of the 5 p.c. unemployment for the whole body of workers it is mitigating the circumstances of the individual by preventing his relegation from the super-marginal to the sub-marginal class. There would seem to be no fallacy in this reasoning. It is in a sense providing part-time work for all instead of providing full-time work for some. In this connection and following from the derivation of the basis of classification, let us hypothesize two industries each with 1,000 workers. The one has 5 p.c. unemployment and only 1 change, the other has 4 changes (and not necessarily the same percentage unemployment). Now a certain number of workers in the first industry is idle the whole year (unless they worked in some other industry later)—say 50; what percentage unemployment in the second industry would leave the same number out of work the whole year? Let us assume that q is the percentage. Supposing $q^4 = 0{\cdot}05$, then $q = 0{\cdot}47$ and the answer is that it would take 47 p.c. unemployment in the whole of the second industry to leave as many unemployed the whole year as the 50 in the first industry. However, in the second industry only the fourth power of $0{\cdot}53$ or $7{\cdot}9$ p.c. would be working the whole year, *i.e.*, would lose no time. Now there were some industries in 1931 that on the whole lost as much as 47 p.c. or near it, but very few. Consequently the industry with only 5 p.c. unemployment and only one change would be as hard on some of its workers as the very weakest industry in Canada in 1931. If it had undergone 2 changes instead of 1 there would have been less than 3 men losing the whole year; if it had undergone 3 changes there would have been only 1 man out of 8,000 losing the whole year; if it had undergone 4 changes there would have been only 1 man out of 160,000 losing the whole year. The figures are not quite this definite as some individuality has to be allowed, but they are a very close approximation.

The effect of such an industry with a small percentage unemployed and only 1 change is obviously to shift the responsibility for re-employing its men upon some other industry or to throw them on relief. Probably one reason why their percentage unemployment is low is because they have thrown them out near the beginning of the year and those thrown out reported to the census under some other industry, or no industry.

It is seen, therefore, that the classification by periodicity is a highly important one. Our next step will be to give this double classification by different types of worker groups.

1. **Main Occupation Groups by Sex.**—This classification is shown in Statement CXVII. The sexes are shown separately by occupations. It is clear that the females show greater diversity than the males. We may look at the comparison as one in which we appraise the chances of regaining employment once it is lost. Those in the first vertical class find it most difficult and those in the last vertical class least difficult to regain employment. Those in the top horizontal class are the least apt to lose a job once they have it and in the bottom the most apt. The average female is less apt to lose the job than the average male but she has the same difficulty in regaining it once it is lost. This is purely a result of occupational distribution. When we take the sexes, occupation by occupation, we find striking differences. The female professional and agricultural show greater rigidity, *i.e.*, find it more difficult to regain employment than the male. On the other hand the females in transportation, building and construction, fishing and logging, unskilled labour and especially manufacturing find it much easier to regain employment. That this is due to the greater diversity of industries in which most female occupations are found is easily seen when we take such a female occupation as telephone operator. On the other hand female professional service covers a very narrow range of occupations; education absorbs about 58 p.c. of the group, while health absorbs almost 27 p.c.

The direct significance of the vertical classification is, of course, the fact that on the extreme left changes in employment status—*i.e.*, transfer from the employed to the unemployed class—take place infrequently and on mass scale; on the extreme right, frequently and in small proportions. The further to the right, the less distinction there is between the employed and unemployed classes and the more likely the worker is to find himself or herself in one category to-day and in another to-morrow. On the whole, the female is less definitely divided into the two classes than the male.

Taking now the occupations themselves and confining attention to the males, we find in general that the greater the unemployment the less the rigidity or periodicity. However we

CXVII.—CLASSIFICATION OF WAGE-EARNERS IN THE MAIN OCCUPATION GROUPS, BY INTERVALS OF PERCENTAGE OF YEAR WORKED, MOBILITY INDICES AND SEX, CANADA, YEAR ENDED JUNE 1, 1931

P.C. of Year Worked	Males					Females						
	Index of Mobility					Index of Mobility						
	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00	3·00–3·25	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00	3·00–3·25	3·25–3·50	3·50–3·75
94 and under 96.	Finance, Insurance	Professional Service				Professional Service Finance, Insurance						
92–94.....		Clerical						Clerical				
90–92.....		All Services Commercial					Personal Service				Transportation and Communication	
88–90.....								All-Canada Wage-Earners Commercial				
86–88.....		Personal Service		Transportation and Communication								
84–86.....		Agricultural										
82–84.....												
80–82.....					Manufacturing							Manufacturing
78–80.....			All-Canada Wage-Earners							Labourers and Unskilled Workers		
76–78.....												
74–76.....												
72–74.....												
70–72.....				Building and Construction								
68–70.....				Fishing and Logging								
66–68.....					Mining, Quarrying, Oil and Salt Wells							
64–66.....												
62–64.....			Labourers and Unskilled Workers									

CXVIII.—CLASSIFICATION OF WAGE-EARNERS IN THE MAIN INDUSTRY GROUPS, BY INTERVALS OF PERCENTAGE OF YEAR WORKED, MOBILITY INDICES AND SEX, CANADA, YEAR ENDED JUNE 1, 1931

P.C. of Year Worked	Males					Females							
	Index of Mobility					Index of Mobility							
	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00	3·00–3·25	1·50–1·75	1·75–2·00	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00	3·00–3·25	3·25–3·50
96 and under 98											Electric Light and Power		
94–96	Finance, Insurance								Finance, Insurance				Transportation and Communication
92–94													
90–92				Electric Light and Power					Service				
88–90		Service	Trade						Construction	All-Canada Wage-Earners	Trade		
86–88								Agriculture	Mining, Quarrying, Oil and Salt Wells				
84–86		Agriculture	Transportation and Communication										
82–84													Manufacturing
80–82					Manufacturing								
78–80			All-Canada Wage-Earners										
76–78													
74–76													
72–74													
70–72					Mining, Quarrying, Oil and Salt Wells								
68–70				Forestry, Fishing, and Trapping									
66–68													
64–66				Construction		Unspecified							
62–64													
60–62													
58–60													
56–58													
54–56		Unspecified											

find personal service and transportation and communication in the same percentage employment class but with considerable difference in rigidity. Personal service is apt to suffer unemployment infrequently but in large proportions, regaining employment with difficulty; in transportation and communication the individual is just as apt to lose some time as in personal service but he loses less time—unemployment is better spread among the workers. That this is due partly to the variety of occupations included under transportation and communication is undoubtedly true, but it will be seen in Statement CXXII that when this main occupation is broken up into its parts the same is true of the parts.

It is rather striking to find two such widely different occupations as transportation and communication and logging in the same rigidity class differing widely however in exposure to some unemployment; similarly two such occupations as professional service and agriculture. This gives us a line on the characteristics of seasonal unemployment, which can be studied better in connection with the homogeneous occupation groups in Statement CXXII than with the main groups as here shown. The seasonal occupation seems to have varying degrees of rigidity—contrast, agriculture and mining and quarrying. It would seem that seasonal occupations differ from other occupations only in their greater liability to loss of time in the occupation as a whole, *i.e.*, of the individual being thrown out of a job. When it comes to distinction between individuals we find seasonal occupations varying widely, but we can not say as yet whether this is due to the stages of development of these seasonal occupations. Taking the agricultural labourer and the professional—the only reason why an individual suffers less unemployment during the year in the latter than in the former is because the occupation as a whole loses less time. On the other hand, taking the agricultural worker and the miner—the average individual in the former loses less time than in the latter because the occupation as a whole loses less time, but the individual losing time loses more time than in the latter because when he does lose time he is apt to lose a great deal of time. In fact if we took an unemployed agricultural worker where the chances of the occupation as a whole to be idle on a certain day was 1/20 and an unemployed miner where the chances of the occupation as a whole to be idle on a certain day was also 1/20, the individual agricultural worker would be three and a third times as apt to lose the whole year as the individual miner.

Another way in which the lateral classification may be looked at is as a gradation from least to greatest mobility (left to right). The statement affords a means of assessing occupations from this point of view. There is no doubt that the occupation in which the worker can move freely out of and into employment is more mobile than that where he has to stay either in or out. If the occupation is at the same immobile as shown by its lateral classification and subject to heavy unemployment as shown by the vertical, that occupation is in a bad position. Notice from this point of view the position of labourers. We do not realize that there is any tendency to immobility in their case because in 1931 it was about average. If, however, we compare 1931 with 1921 we find that the immobility has moved $5\frac{1}{2}$ intervals to the left (of the classes shown above, *i.e.*, from 3·9 to 2·5). How much this means may be judged from the fact that a labourer unemployed in 1921 had thirteen times as many chances of regaining employment within the year as the labourer unemployed in 1931. A small difference in the lateral intervals from left to right means a very considerable difference in mobility.

2. **Main Industry Groups by Sex.**—Statement CXVIII shows the main industries cross-classified by what as already explained in connection with Statement CXVII are (a) the chances of the worker losing his job (vertical column) and (b) the chances, when it is lost, of regaining it (from right to left lateral column). The groups are so heterogeneous that detailed discussion is postponed until there is opportunity to bring under review homogeneous industry groups as in Statement CXXII. However, a few general observations may be considered.

We find finance and insurance in the most rigid class, *i.e.*, although the chances of holding a job once one has it are greater than in the others, the chances of regaining it once it is lost are very small. In other words, the mobility between the employment and unemployment status is very small. Next considering two industries giving equal chances of holding the job, *viz.*, agriculture and transportation and communication, we find the chance of regaining it during the year once it is lost is greater in the latter. In other words, the agricultural labourer is taken on only at one or two periods in the year. Examining two industries in the same mobility class—electric light and power production and distribution and construction, the chance of losing the job is seen to be much greater in the

latter than in the former. Finally, we have manufacturing where the mobility is greatest of all, but manifestly because "manufacturing" covers such a great variety of industries. Statement CXXII will show how manufactures differ among themselves.

The group of industries designated as "unspecified" occupies a remarkable position. In the case of males it is composed almost entirely of unskilled labourers; in the case of females of typists and stenographers. Now why should the stenographers, not attached to any industry, be less mobile than those attached (*cf.* Statements CXVII and CXVIII)? It is a striking fact that strong attachment and non-attachment show the same degrees of immobility. Of course this could happen if the non-attached were the discards of strongly attached. Notice in all the statements so far the immobility of what are obviousiy the bad classes—and then see from Statement CXIX the types of ages that are in the immobile classes, the very old and the very young.

3. **Main Age Groups.**—Statement CXIX shows the same sort of classifications as the previous statements only this time placing the age groups under review. If the interpretation of the classification is clear by this time, we can dispense with further explanation and call the lateral intervals from right to left a gradation from mobility to rigidity *into* and *out of* employment, while from top to bottom we have a gradation of the chances of losing a job once it is held. It is clearly seen that the lateral gradation is one from the most fit to the least fit ages. The oldest and youngest are together on the extreme left. This is easily understood since we know that these extreme ages are selected, because, in the case of the young, most have not yet entered employment and are not counted, while in the case of the extremely old, many have retired and likewise are not counted. This also explains why the 10-13 males are nearer the top than the other ages. The chief significance of what thus happens to the extreme ages is in providing us with a lead as to why the rigid industries show low degrees of unemployment, *i.e.*, are near the "top". It is because they have undergone a process of *contraction* either by discarding their unemployed for so long a period that these do not consider themselves as any longer attached to the industry, or by failing to take on additional wage-earners.

The most significant feature of this age classification is the position of the 18-19's and 55-64's. Neither of these age groups is, or, at any rate, should be, influenced by retirement or failure to enter. There was a time when the young man of 18 was married, and it is still true that the man of 55-64 has family dependents. Not only are these at the foot of the vertical classification but they are in the second worst class of rigidity, which forces our attention upon these ages. Looking over the age distribution of the Canadian population we see that the 55-64 group is certain to increase very rapidly in number during the next twenty years while the same is true for some time to come of the 18-19 group—both of them much faster than the population as a whole. This makes retirement at ages under 65 almost an impossibility. And yet we have the situation that in 1931 a person of 18 or 60 who once lost his job had 2·4 times as many chances of remaining idle the whole year as the man of 45, while he had more than 1·05 times as many chances of losing his job when he had it. If he had a job at $1,000 a year his prospects, counting on that wage for the whole year, would be only 67 p.c. as good as that of the man of 45. The 19-year-old has prospects of improving his present condition, but the 60-year-old has not. And yet he is at the best years of his life because if he does hold a job he is getting as much as or more than the man of 45. Even in active war service the man of 60 is the high command. The age group 20-24 is superior to the 19's and 60's in mobility only but this is a very important form of superiority.

4. **Provinces by Sex.**—Statement CXX shows mobility by provinces. It is obvious that there is decreasing mobility from east to west in the case of both sexes, except that British Columbia and Alberta with their more diversified industries are more mobile than Manitoba and Saskatchewan in the case of the males which, of course, is the sex with the bulk of the wage-earners. The position of the Maritimes can be judged best by comparing the different statements. This of course is true of any of the features of these mobility statements. One can interpret them only by comparison. So far we find the extreme ages, the unspecified industries and the Prairie Provinces in the least mobile classes, together with industries and occupations which show a low degree of unemployment and great permanency among the staff.

CXIX.—CLASSIFICATION OF WAGE-EARNERS IN AGE GROUPS, BY INTERVALS OF PERCENTAGE OF YEAR WORKED, MOBILITY INDICES AND SEX, CANADA, YEAR ENDED JUNE 1, 1931

MALES

P.C. of Year Worked	Index of Mobility		
	2·00–2·25	2·25–2·50	2·50–2·75
86 and under 88	10–13 years		
84–86			
82–84	14–15 years		
80–82			35–44 years 45–54 years
78–80			25–44 years All ages
76–78	16–17 years	55–64 years 18–19 years	20–24 years
74–76	65–69 years 70 years and over		

FEMALES

P C. of Year Worked	Index of Mobility			
	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00
94 and under 96		70 years and over		
92–94				
90–92	10–13 years 65–69 years	55–64 years	35–44 years 45–54 years	20–24 years 25–34 years
88–90			All ages	
86–88			18–19 years	
84–86	14–15 years			
82–84		16–17 years		

CXX.—CLASSIFICATION OF WAGE-EARNERS IN PROVINCIAL GROUPS, BY INTERVALS OF PERCENTAGE OF YEAR WORKED, MOBILITY INDICES AND SEX, CANADA, YEAR ENDED JUNE 1, 1931

MALES

P.C. of Year Worked	Index of Mobility			
	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00
90 and under 92			Prince Edward Island	
88–90				
86–88				
84–86				
82–84				
80–82	Saskatchewan		Quebec Ontario	
78–80		Alberta	Canada	New Brunswick Nova Scotia
76–78	Manitoba			
74–76				
72–74		British Columbia		

FEMALES

P.C. of Year Worked	Index of Mobility			
	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00
94 and under 96		Prince Edward Island		
92–94			Nova Scotia	
90–92				Quebec New Brunswick
88–90	Saskatchewan	Manitoba Alberta	Canada	Ontario
86–88		British Columbia		

CXXI.—CLASSIFICATION OF MALE IMMIGRANT WAGE-EARNERS ACCORDING TO RACIAL ORIGIN AND YEAR OF ARRIVAL, BY INTERVALS OF PERCENTAGE OF YEAR WORKED AND OF MOBILITY INDICES, CANADA, YEAR ENDED JUNE 1, 1931

	Index of Mobility						
P.C. of Year Worked	1·50–1·75	1·75–2·00	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00	3·25–3·50
94 and under 96					Japanese (1930–31)		
92–94							
90–92							
88–90							
86–88		Chinese (1921–25)				Japanese (1926–29)	
84–86		Indian (1921–25)		British (1930–31)		Dutch (1930–31)	Japanese (1921–25)
82–84				French (1930–31)	British (1926–29) British (1911–20) British (before 1911)	Hebrew (1930–31)	Japanese (1911–20)
80–82					Scandinavian (1930–31) French (1926–29) British (1921–25) Dutch (1921–25) French (1921–25) Dutch (1911–20)	Hebrew (1921–25)	
78–80				Other races (1921–25) Male immigrants, all races (1911–20) and (before 1911) Dutch (before 1911) Hebrew (before 1911)	Dutch (1926–29) French (1911–20)	Hebrew (1926–29) French (before 1911)	
76–78				Other races (1926–29)	Male immigrants, all races (1921–25) Hebrew (1911–20) Japanese (before 1911)		
74–76	Chinese (1911–20)		Male immigrants, all races (1930–31)	Other races (1911–20) Other races (before 1911)	Indian (1911–20) Scandinavian (1911–20)		
72–74				Central European (1911–20) Central European (before 1911) Scandinavian (before 1911)	Scandinavian (1926–29)		
70–72			Other races (1930–31)	Male immigrants, all races (1926–29)	Italian (before 1911)	Italian (1921–25) Italian (1911–20)	
68–70	Chinese (before 1911)				Scandinavian (1921–25)	Italian (1926–29)	
66–68				Central European (1921–25) Eastern European (before 1911)		Indian (before 1911)	
64–66			Central European (1930–31)	Eastern European (1921–25) Eastern European (1911–20)			
62–64			Central European (1926–29)				
60–62			Italian (1930–31)				
58–60				Eastern European (1926–29)			
56–58			Eastern European (1930–31)				

CXXIII.—CLASSIFICATION OF MALE WAGE-EARNERS IN THE 122 INDUSTRIES OF THE SAMPLE, BY INTERVALS OF PERCENTAGE OF YEAR WORKED AND MOBILITY INDICES, CANADA, YEAR ENDED JUNE 1, 1931

No.	P.C. of Year Worked	Index of Mobility: 1·75-2·00	2·00-2·25	2·25-2·50	2·50-2·75	2·75-3·00	3·00-3·25	3·25-3·50	3·50-3·75	3·75-4·00	4·00-4·25	4·25-4·50	4·50-4·75	4·75-5·00	5·00-5·25	5·25-5·50	No.
1	96 and under 98			Religion—Ont.	Religion—Que.												1
2	94-96					National defence—Ont.	Police (Municipal)—Ont.										2
3	92-94		Banking—Que.		Education—Que.			Postal service—Que. Police (Municipal)—Que.									3
4	90-92		Education—Man.	Education—B.C. Education—Alta.													4
5	88-90			Education—Sask.			Mixed and general farming—P.E.I.										5
6	86-88																6
7	84-86	Investment and loan—Que.				Health—Que.	Storage—Sask.										7
8	82-84				Dairy farming—Que. Health—Ont.												8
9	80-82		Laundries, laundering—Ont.				Electric railways—B.C.										9
10	78-80	Investment and loan—Ont.		Drugs and toilet preparations—Retail Trade—Ont.	Hardware and builders' supplies—Retail Trade—Que. Dairy products—Retail Trade—Que. General and departmental—Retail Trade—Que.												10
11	76-78			Lodging and boarding houses—Ont.	Telegraph systems—Ont.	Dairy products—Retail Trade—Ont.	Electric light and power production and distribution—Que.										11
12	74-76			Private domestic service—Que. General and departmental—Retail Trade—B.C.	Automobiles and accessories—Retail Trade—Ont. Printing, publishing, bookbinding—Man.		Butter, cheese, condensed milk—Mfg.—Ont.	Telephone systems—Ont.	Telephone systems—Que.	Electric railways—Ont.							12
13	72-74		Hotels, restaurants, and taverns—Sask.	Printing, publishing, bookbinding—B.C.	Barber and hairdressing shops—Que. Bread and other bakery products—Mfg.—Que. Hardware and builders' supplies—Retail Trade—Ont.			Silk, silk goods—Mfg.—Que. Steam railways—N.B.	Electric railways—Que.	Pulp and paper—Mfg.—B.C.							13
14	70-72			Barber and hairdressing shops—Ont.	Meat, poultry, fish—Retail Trade—Que.	Illuminating and fuel gas—Mfg.—Ont.	Mixed and general farming—N.S. Flour and grain milling—Ont.		Liquors, beverages—Mfg—Que.								14
15	68-70			Private domestic service—Ont.				Steam railways—N.S. Electrical apparatus—Mfg.—Que.									15
16	66-68		Hotels, restaurants, and taverns—B.C.		Meat, poultry, fish; Filling stations—Retail Trade—Ont. Non-ferrous smelting and refining—Ont.	Slaughtering and meat packing—Mfg.—Ont. Fishing—N.S.	Paper products—Mfg.—Ont. General and departmental—Retail Trade—Man.										16
17	64-66						Boilers, engines, and machinery—Mfg.—Que. Biscuits and confectionery—Mfg.—Que. and Ont.									Non-ferrous smelting and refining—B.C.	17
18	62-64				Taxicabs, livery and bus service—Que.	Nickel-copper mining and milling—Ont. Storage—Ont.											18
19	60-62		Hotels, restaurants, and taverns—Man.			Mixed and general farming—N.B.											19
20	58-60			Hotels, restaurants, and taverns—Alta. Taxicabs, livery and bus service—Ont.													20
21	56-58					Coal and wood—Retail Trade—Que.	Coal and wood—Retail Trade—Ont.	Women's clothing—Mfg.—Que.						Petroleum products—Mfg.—Ont.			21
22	54-56				Automobile repair service—Ont.	Cartage, trucking and haulage service—Que. Water transportation—N.S. Automobile repair service—Que.		Forestry and logging—N.S. Hosiery, knitted goods—Mfg.—Ont. Tobbacco, cigars, cigarettes—Mfg.—Que. Furniture—Mfg.—Que.									22
23	52-54			Gardening, truck farming—Ont. Grain growing—Alta.	Billiard halls and sporting clubs—Ont.					Tanning—Ont.							23
24	50-52		Gardening, truck farming—B.C.			Iron smelting, converting, refining, rolling—Que.	Brass and copper products—Mfg.—Ont.					Liquors, beverages—Mfg.—Ont.					24
25	48-50					Sheet metal products—Mfg.—Ont.	Pulp and paper—Mfg.—N.B.										25
26	46-48						Shipbuilding—Que.	Boots and shoes—Mfg.—Ont.		Woollens and worsteds—Mfg.—Ont.							26
27	44-46			Mixed and general farming—B.C.			Wire and wire goods—Mfg.—Ont.										27
28	42-44					Glass and its products—Mfg.—Ont. Men's clothing—Mfg.—Que.	Quarries, gravel pits, salt wells—Que.	Hardware and tools—Mfg.—Ont.		Rubber products—Mfg.—Que.							28
29	40-42							Cotton goods—Mfg.—Ont.									29
30	38-40					Bricks and tile—Mfg.—Ont.											30
31	36-38						Women's clothing—Mfg.—Ont. Quarries, gravel pits, salt wells—Ont.										31
32	34-36						Building and structures—N.S. Building and structures—N.B.										32
33	32-34				Fishing—B.C.												33
34	30-32			Agricultural implements and machinery—Mfg.—Ont.													34
35	28-30		Fish curing and packing—B.C.														35
36	26-28							Sawmill products—Mfg.—N.B.									36
37	24-26							Forestry and logging—N.B.									37
38	22-24				Building and structures—Alta. Building and structures—Sask.					Asbestos mining—Que.							38
39	20-22							Iron smelting, converting, refining, rolling—N.S.									39
40	18-20							Coal mining—B.C.									40

CXXII.—CLASSIFICATION OF MALE WAGE-EARNERS IN THE 118 OCCUPATIONS OF THE SAMPLE, BY INTERVALS OF PERCENTAGE OF YEAR WORKED AND MOBILITY INDICES, CANADA, YEAR ENDED JUNE 1, 1931

No.	P.C. of Year Worked	Index of Mobility: 1·75–2·00	2·00–2·25	2·25–2·50	2·50–2·75	2·75–3·00	3·00–3·25	3·25–3·50	3·50–3·75	3·75–4·00	4·00–4·25	4·25–4·50	No.
1	98 and under 100.....		Clergymen and priests—Que. School teachers—Que.		Managers—wholesale firms—Ont. Clergymen and priests—Ont. School teachers—Ont. Officials—Finance—Ont.		Public service officials—Que.			Postmen and mail carriers—Ont.			1
2	96–98.....				Public service officials—Ont.	Police, detectives—Ont. Managers—retail stores—Ont.	Police, detectives—Que. Managers—retail stores—Que. Farm labourers—P.E.I.						2
3	94–96.....		School teachers—Sask.	Insurance agents—Ont. Insurance agents—Que.	Janitors, sextons—Que.	Purchasing agents and buyers—Sask.						Foremen and inspectors—steam railway—Ont.	3
4	92–94.....	Accountants and auditors—Que.	Sales agents, canvassers and demonstrators—Ont.	Office clerks—Alta. Commercial travellers—Ont.	Janitors, sextons—Ont. Salesmen—N.S. Civil engineers and surveyors—Ont. Office clerks—Sask.	Salesmen—N.B. Office clerks—N.S.	Office clerks—N.B.			Locomotive engineers—Ont.			4
5	90–92.....				Telegraph operators—Ont. Domestic servants, Que.	Designers and draughtsmen—Ont.							5
6	88–90.....			Salesmen—Sask. Salesmen—Alta.	Watchmen, caretakers—Ont. Watchmen, caretakers—Que.	Compositors, printers—Que. Deliverymen and drivers—Ont.	Compositors, printers—Ont.	Shippers—Que. Section foremen, sectionmen and trackmen—Que.					6
7	86–88.....		Bookkeepers, cashiers—Man. Bookkeepers, cashiers—B.C.	Barbers, hairdressers and manicurists—Ont. Messengers—Que. Messengers—Ont. Seamen, sailors and deckhands—Que.	Butchers and slaughterers—Que. Bakers—Que. Deliverymen and drivers—Que.	Fishermen—N.S. Waiters—Que.		Foremen and overseers—Metal products—Mfg.—Ont.	Linemen and cablemen—Ont.				7
8	84–86.....			Domestic servants—Ont. Waiters—Ont.	Bakers—Ont. Chauffeurs and bus drivers—Que.	Farm labourers—N.B. Butchers and slaughterers—Ont. Stationary enginemen—Que.		Boiler firemen—Que.					8
9	82–84.....		Seamen, sailors and deckhands—B.C. Seamen, sailors and deckhands—Ont.	Chauffeurs and bus drivers—Ont. Section foremen, sectionmen and trackmen—Alta.		Brakemen—Ont.	Section foremen, sectionmen and trackmen—B.C.	Boiler firemen—Ont.	Weavers—Que.				9
10	80–82.....			Section foremen, sectionmen and trackmen—Sask.		Truckdrivers—B.C. Cooks—Que. Teamsters, draymen and carriage drivers—Que.	Blacksmiths, hammermen, forgemen—Que. Locomotive firemen—Ont.	Packers, wrappers, labellers—Warehousing—Ont.		Truck drivers—Man.			10
11	78–80.....			Section foremen, sectionmen and trackmen—Man.	Cooks—Ont.				Cabinet and furniture makers—Ont.				11
12	76–78.....			Mechanics—Sask.	Mechanics—Alta. Mechanics—Man. Mechanics—B.C.			Plumbers, steam fitters, gas fitters—Que.					12
13	74–76.....	Cooks—B.C.				Tailors—Que.	Machine operators—boots and shoes—Que.	Carpenters—N.B.					13
14	72–74.....				Stationary enginemen—B.C.	Blacksmiths, hammermen, forgemen—Ont. Labourers—mines and quarries—Ont.	Sheet metal workers, tinsmiths—Ont. Plumbers, steam fitters, gas fitters—Ont. Toolmakers, die cutters, sinkers—Ont.	Labourers—mines and quarries—Que. Carpenters—N.S.					14
15	70–72.....					Tailors—Ont.							15
16	68–70.....				Miners (other than coal)—Que.								19
17	66–68.....						Fitters, assemblers, erectors—Ont.	Machine tenders—Metal products—Mfg.—Ont.					17
18	64–66.....							Lumbermen—N.B.					18
19	62–64.....				Fishermen—B.C.			Longshoremen, stevedores—Que.					19
20	60–62.....				Carpenters—Man. Carpenters—Alta.		Moulders, coremakers, casters—Ont. Miners (other than coal)—B.C. Brick and stone masons—Que.						20
21	58–60.....												21
22	56–58.....				Carpenters—Sask.								22
23	54–56.....					Brick and stone masons—Ont.				Coal miners—B.C.	Labourers—coal mining—N.S.		23
24	52–54.....						Coal miners—Alta.						24

5. **Immigrants by Racial Groups and Year of Arrival.**—Statement CXXI has probably the most human interest of the statements in this chapter. In regard to mobility it shows a number of striking facts. We find the Chinese and Japanese at opposite poles, so to speak, the former being the least mobile. The Italians and Hebrews are among the most mobile classes; the Central Europeans among the least. The British are naturally average since the index of mobility is strongly influenced by the population composing the greatest proportion of the wage-earners and the British immigrants are of the same race as this dominant population. What is significant here is the position of the other races in relation to the British, as well as their position in the lateral columns in relation to other classes shown in the other statements. The year of arrival seems to have some slight bearing upon mobility, the year 1930-31 being the least mobile. With this exception, however, the older immigrants tend to be less mobile than the newer, probably because of more specialized occupations. It would seem that the position in this statement is strongly connected with the diversity of occupations. This can be seen by reference to the short statement immediately following reproduced from Volume I of the 1931 Census* and showing the number of occupations out of 30 considered, in which different races are represented in proportions greater than their own races in all occupations. Here also it shows the Japanese and Chinese far apart.

NUMBER OF OCCUPATIONS IN WHICH THE VARIOUS RACES HAVE THEIR SHARE OR MORE OF GAINFULLY OCCUPIED MALES, CANADA 1931

Racial Origin	Number of the 30 Occupations Listed	Racial Origin	Number of the 30 Occupations Listed
Scottish	21	Eastern European	6
English	20	German and Austrian	5
Italian	18	Other Central European	5
Irish	14	Scandinavian	5
Hebrew	13	Chinese	4
French	11	Indian	3
Japanese	10	Dutch	2

It is clear from this list that causes other than diversity of occupations are also influential. These causes may be very numerous, but certainly include age, year of arrival of the immigrant portion, etc. There is little doubt for instance, that one strong reason for the position of the pre-1911 arrivals is age. The youngest of these in 1931 would be around 40 so that the average would probably be in the age categories which, as shown in Statement CXX, are very rigid.

6. **Occupations of the Sample.**—Statement CXXII shows the mobility in and out of employment by occupation groups. It is in this statement and Statement CXXIII on industry groups that the full force of the classification can be seen, although the previous statements are useful aids to interpretation of these two. In considering Statement CXXII continual reference should be made to Chapter IV on occupation to which this is supplementary.

We notice that the occupation, "Foremen and inspectors—steam railway", Ont., comes in as the extreme of mobility and "Accountants and auditors", Que., as the extreme of rigidity but teachers come very close. Remembering that both extremes in this case lose very little time on the whole, it is easy to interpret their position. Railway foremen and inspectors take holidays without pay and take them at different parts of the year. This time is counted as unemployment. The average number of weeks lost by the whole occupation is about 2·4 or very little more than their holidays. They are, therefore, extremely mobile, because to the extent that they move out they move in again in less than three weeks. On the other hand, within the year the mobility of teachers is normally confined to one date, *viz.*, the beginning of the year in such schools as hire teachers then. There is, however, another form of mobility, particularly apparent in the Prairie Provinces. The teachers are hired on an annual salary but in cities they receive a monthly cheque to the amount of one-tenth of this salary, so that they are paid in full by the end of the school year. It is impossible to convince some of these teachers that their two months vacation is not unemployment. The cases of these two occupations help to interpret the other cases. Lack of mobility

* Op. cit. chap. XVII, p. 294.

arises from infrequent and large changes between unemployment and employment, increase in mobility by frequent and small changes. This, of course, is true to the definition, but these cases show the process actually at work.

On the whole we see that mobility slows up from east to west, as has already been noted. It explains why the same occupation group is more mobile in some provinces than another. It is clear that this is connected with seasonality, especially in the sense of summer and winter seasons. True to the definition seasonality slows up mobility—it causes large changes at infrequent periods. This throws into the same mobility classes types of occupations which seem at first sight to be widely different. They are widely different in their liability to be thrown out of work, but it is a question whether they are not intrinsically, as well as apparently, similar in their liability, when thrown out of work, to remain out a long time. We also see that the cyclical occupations, such as construction, are very immobile. The odd companions—seamen, sailors, and deckhands and such occupations as bookkeepers and cashiers—are in the same class for different reasons, the former because of seasonality, the latter because of the difficulty in entering the occupation. The steady forms of employment maintain permanent staffs, but through their very permanency their numbers are limited and it is very difficult for any new member to enter; the seasonal increase their staff at one season but when the season is over the would-be-entrants have to wait six months for another season; the cyclical have to wait until another cycle if they wish to re-enter the same form of employment. Now what types are left to the mobile class? We have already seen that they are types analogous to the railway men who take leave without pay; in other words they are workers who are subject to short periods of unemployment a small number at a time. Among these are the occupations and industries which at slack times retain full staffs and give them part-time work. At first sight it seems startling to find among the mobile classes such occupations as coal miners (not other miners), carpenters and Quebec longshoremen and stevedores. When the reasons are examined it will be seen how excellently this form of classification suits. Taking first the case of coal miners, it will be noticed that they are among the worst in subjectivity to unemployment—*i.e.*, they were extremely subject to be thrown out of employment, but at the same time they were very mobile, *i.e.*, found their way back with ease. We have direct data to explain this. The unemployment of 1931 was given by causes—no job, temporary lay-off, etc. When temporary lay-off was a large cause it meant that the men were getting back into employment; otherwise, with no jobs where they were detached from their industry. Now coal miners compared with other mining and all occupations in the percentage of those losing time who gave temporary lay-off as a cause as follows: coal mining, 70 p.c.; other mining, 20 p.c.; all occupations, 19 p.c.

This is conclusive. It is not the reason in the case of longshoremen and stevedores where the percentage was less than one-half of 1 p.c., being small also in other provinces, but they are a notoriously unselected class. What work they do get is just as apt to fall to the lot of one man as another. They are continually passing in and out of jobs. The case of carpenters is illuminating. In the Maritimes they are mobile; in the Prairies, immobile. This is one of the cases where we can see a decided distinction between occupation and industry. The industry, construction, is immobile because it is cyclical. In the Prairies there was a tremendous movement in building when sod houses were being replaced by frame or when small towns and cities were springing up over night. This state is apt to continue a number of years after the immediate "boom" is over, but it is sure to come to an end as "newness" disappears. In the Maritimes, an old country where this expansion in building had not taken place, the carpenter does all sorts of things besides building. In building he probably repairs more than he builds. The number of carpenters is apt to be more nearly commensurate to the constant demand than where a large element is transferred into carpenters over night and report themselves carpenters in the census. The carpenters in the Maritimes move into and out of employment. In Saskatchewan about 67 p.c. of the carpenters losing time in building and construction lost between 25 weeks and the whole year; in Nova Scotia less than 38 p.c. lost this much. We can take such an occupation as cooks in British Columbia which is very immobile. In Statement CXXI we find the Chinese to be also very immobile. Of course we can not argue that cooks are immobile because they are Chinese and at the same time that Chinese are immobile because they are cooks, but in some way the two seem to be associated. Again take printers and compositors in Ontario. They have greater than average mobility. By looking up the causes of unemployment we find a

smaller than average proportion of these out of work from "no job", the chief causes being temporary lay-off and illness. It is impossible to label all the occupations listed, but the foregoing should indicate main reasons for mobility and immobility and especially the number of ways in which they are brought about.

It would be a fascinating task to run down the whole list and explain why weavers in Quebec hold the position they do. Of the 1,133 males who lost time during the year in this occupation all but 298 were back at work on June 1. The great part of those who lost time lost only short periods. They behave throughout in a normal manner, but we can not say why. All in all it seems most significant that seasonal occupations are thrown into the same lateral classes as occupations which are very difficult to re-enter (once the door is shut) because of their exalted position—accountants and auditors, etc.—and that they are thus thrown into the same class for explicable reasons. In the latter case a number of trained individuals who have been idle for a long time fail to re-enter their occupation; in the former case a number employed in the busy season were in the slack season thrown out together and irrevocably. Both processes give the same results as far as rigidity is concerned. The statement is best studied by examining occupations in the same class of percentage of year lost as they proceed from left to right until we reach such an occupation as railway foremen and inspectors whose loss of time is largely voluntary or habitual. This seems to be the ideal class.

7. **Industries of the Sample.**—Statement CXXIII shows mobility in and out of employment in industries. This would seem to be the most interesting of all. Notice that the industries are much more widely spread by mobility classes than are occupations. This in itself is highly significant—the industrial attachment superimposed upon occupations manifestly influences these occupations so as to spread them into wider classes from the point of view not only of likelihood of retaining their jobs but also and more particularly from the point of view of regaining employment once it is lost. Taking the mobility index, the widest spread in occupations is 1·827 to 4·347; in industry from 1·908 to 5·259. This is a difference between occupation and industry of almost four intervals and each interval signifies a wide difference. This can best be illustrated by supposing the two extremes of both occupations and industries showed the same average number of weeks lost during the year—say 5·2 weeks or 10 p.c. of the year. What difference would there be in the chances of losing the whole year? The chances would be such that the spread would be eight times as great in industries as in occupations. We bring out the true significance better, however, if we compare the two in another way. The normal number of interchanges within the year is (as shown in Appendix 1) 2·9. Let us now compare industries and occupations from the point of view of the time lost by workers losing time.

Let us first take the average time lost during the year 1931 by all male wage-earners, *viz.*, 10·5 weeks (approximately) or 20 p.c. of the year. Applying our normal index of interchanges (2·9) we derive the number of weeks lost by those losing time as follows. If p = percentage of the year worked by all wage-earners, then $1-p$ = percentage of the year lost, and $1-p^{2\cdot9}$ = percentage of the wage-earners who lost any time. Therefore $\frac{1-p}{1-p^{2\cdot9}}$ = percentage of year lost by those losing time and $\frac{52(1-p)}{1-p^{2\cdot9}}$ = average number of weeks lost by those losing time. This, it must be remembered, refers to the normal interchange or mobility applied to the actual time lost by all wage-earners of Canada in 1931. Let us now compare the spreads of occupations and industries. The standard deviation (say from this 2·9) of occupations was 0·46 meaning that the extremes caused by the total spread (three times this standard deviation on either side of 2·9) was from 1·52, the least mobile, to 4·28 the most mobile. Applying the above formula we have:— $\frac{52(1-\cdot8)}{1-\cdot8^{1\cdot52}}$ as compared with $\frac{52(1-\cdot8)}{1-\cdot8^{4\cdot28}}$ or in average weeks lost by those losing time respectively of 36·2 and 16·9 or a spread of 19·3 weeks.

Taking industries, the standard deviation was ·58 so that the spread in the index (around the 2·9) was from 1·16 to 4·64. Applying the formula we have in average weeks lost by those losing time 45·6 weeks to 16·1 weeks, a spread of 29·5. The difference in spread between the industries and occupations, therefore, was 10·2 weeks or a fifth of the year, *i.e.*, the industrial attachment in the given occupation increased the difference between the chances of one set of unemployed workers losing a long time and another set a short time by one-fifth of the year, the chances of being unemployed remaining the same.

The extreme industries actually shown, but not quite coinciding with this calculation are investment and loan in Ontario and Quebec on the immobile side and non-ferrous smelting in British Columbia on the mobile. The latter seems to be a paternal sort of industry which holds on to its workers through good and bad times and spreads the unemployment among them probably by giving them part-time rather than dismissing them. Only about 39 p.c. of those who lost time during the year lost it through "no job"; the remainder through temporary lay-off, etc. Those who lost any time in the extreme of non-paternalism, investment and loan in Ontario and Quebec, might as well give up hope for re-employment. Close to these came banking in Quebec, education in Manitoba, laundering in Ontario, hotels, restaurants, and taverns in Manitoba, Saskatchewan and British Columbia and gardening and truck farming, fish curing and packing in British Columbia. The last mentioned is a case of a huge expansion during the boom period and drastic contraction by 1931. It is interesting to find this industry in the company of banking and education.

Summary of Periodicity Statements.—Let us pass in review all seven statements, having regard to the ingredients that enter into (1) the immobile, (2) the mobile, groups. (1) Among the most immobile are the Prairie Provinces with their specialization, the male sex, the oldest and youngest ages, the Chinese and Central European races, the immigrant arrivals of 1930-31, the occupations, cooks in British Columbia and accountants and auditors in Quebec, the industries, investment and loan in Ontario and Quebec, education in Manitoba, hotels, restaurants, and taverns in three western provinces and other seasonal and cyclical industries. (2) Among the most mobile we find the Maritime Provinces, the ages around the 40's for males and the 30's for females, the female sex, the Japanese, Hebrew and Italian races, the immigrant arrivals of 1921-25; the occupations, railway workers in Ontario, labourers in Nova Scotia coal mines, etc., the industries, non-ferrous smelting and pulp and paper manufacturing in British Columbia, petroleum products and liquors and beverages manufacturing in Ontario, and asbestos mining and rubber products manufacturing in Quebec. Is there any common bond between the members of each of these two sets?

It is clear from the age ingredient that mobility is somehow associated with fitness. The years of arrival 1921-25 were years of depression and with this free *emigration* so that we find Canadians in hundreds of thousands leaving for the United States, etc. The immigrants who came then and survived until 1931, from the fact that they did not join these emigrants, must have possessed some qualities of fitness. The position of the female sex can not be attributed to good fortune in being in the strong industries for these industries are apt to show greater immobility than the others, but the female has one quality which makes it easy for her to regain employment, *viz.*, the willingness to accept low wages.

Test by Fundamental Criteria of Unemployment.—The foregoing section deals with the question of rigidity, etc., in a more or less deductive manner, basing the deduction on what seems to be the inevitable conclusions from Appendix 1. To be satisfied that these conclusions are free from bias let us attack the problem from an entirely different standpoint to see if we arrive at the same conclusion. Instead of being guided in selecting occupations by the index of rigidity let us arrange the occupations in the order of two fundamental criteria of unemployment and select blindly from the scatter diagram.

Correlation of Frequency and Duration.—The 389 occupation classes of Canada were used to form the scatter diagram of duration of unemployment against percentage losing time, which latter we may consider as representing frequency of unemployment (Chart 16). The basic figures appear in Table 18.

While some correlation of the two factors was to be observed, it was not shown in the same striking form as appeared in Chapter IV where it was found equal to ·503. The reason lay in the heterogeneity of the groups here used with regard to size, (the number of persons in a group varying from a hundred to a hundred thousand) and also their mixed composition in the matter of province; not improbably the correlation is obscured through one province cancelling out another and one observes merely the resultant central tendency.

Now the question that comes to the mind on a first view of an elaborate scatter diagram such as this is "What types of occupations are represented by the different areas of the chart?" If there is any significance in the distribution it should place in contiguous positions occupations of similar type.

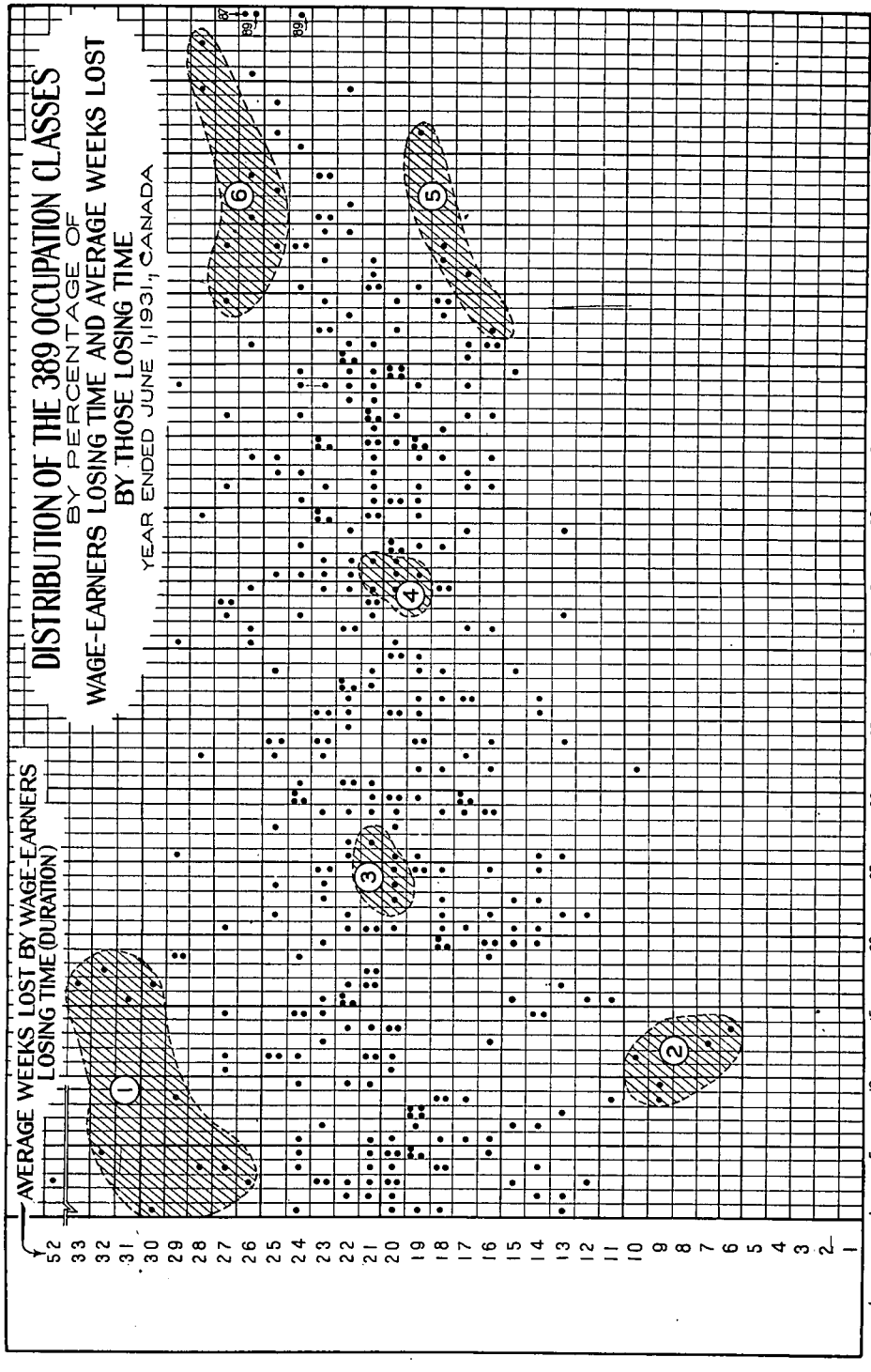
DISTRIBUTION OF THE 389 OCCUPATION CLASSES
BY PERCENTAGE OF
WAGE-EARNERS LOSING TIME AND AVERAGE WEEKS LOST
BY THOSE LOSING TIME
YEAR ENDED JUNE 1, 1931, CANADA
AVERAGE WEEKS LOST BY WAGE-EARNERS LOSING TIME (DURATION)
PER CENT OF WAGE-EARNERS LOSING TIME (FREQUENCY)
1
2
3
4
5
6
87
89
89

Chart 16

For the purpose of investigation, rings were drawn about groups of five to ten points in various parts of the diagram. The coordinates of the points were then looked up in the original tables and the occupations identified. In each of the six areas of the diagram that were thus investigated, significantly uniform results were obtained.

In Area 1 duration was exceptionally great, but frequency very low. The occupations here included four "owner and manager" classes,—tobacco products, bus and taxicab lines, furs and fur goods and printing and publishing,—the remainder being occupations of a professional nature—lawyers and notaries, osteopaths and chiropractors, mission workers—or else, what is closely allied, of a quasi-own account or employer status—pawnbrokers, stock brokers, real estate agents. In fact each of the occupations in this group except justices and magistrates has a far smaller percentage of wage-earners among its gainfully occupied than non-agricultural occupations in Canada as a whole. The figures follow. The rule used in regard to decimal places in Table 18 was dependent on the number of wage-earners of specified sex in each occupation as follows: under 100 wage-earners, percentages to nearest whole number; between 100 and 999 wage-earners, percentages to one place of decimals; 1,000 and over wage-earners, percentages to two places of decimals.

CXXIV.—PERCENTAGE OF MALE WAGE-EARNERS LOSING TIME AND DURATION OF UNEMPLOYMENT, IN WEEKS, OF THOSE LOSING TIME IN THE OCCUPATIONS INCLUDED IN SELECTED AREAS OF THE SCATTER DIAGRAM (CHART 16) CANADA, YEAR ENDED JUNE 1, 1931

Occupation	P.C. Losing Time during Year	Duration of Unemployment among Those Losing Time
Area 1		
Owners and managers—Mfg.—Tobacco products	2·7	52·00
Owners and managers—Mfg.—Furs and fur goods	4·	26·50
Owners and managers—Mfg.—Printing, publishing, bookbinding	3·35	25·82
Owners and managers—bus and taxicab line	9·3	29·27
Justices and magistrates	0·7	30·25
Mission workers	4·9	32·31
Osteopaths and chiropractors	17·	32·50
Real estate agents	17·97	31·61
Stock brokers	16·69	29·78
Pawnbrokers	16·	31·00
Lawyers and notaries	3·59	27·95
Area 2		
Foremen and overseers—Mfg.—Printing, publishing, bookbinding	8·6	8·93
Foremen and overseers—Other transportation	9·9	9·18
Foremen, inspectors—electric railway	12·0	9·50
Foremen and overseers—bus and taxicab line	13·	7·40
Foremen and overseers—garage	13·8	6·13
Area 3		
Collectors—Commercial	22·89	20·20
Designers and draughtsmen	24·15	20·41
Butter and cheese makers—Mfg	24·55	19·96
Printers' and bookbinders' apprentices—Mfg	26·17	20·37
Stage hands	26·63	21·27
Area 4		
Teamsters, draymen, carriage drivers	44·50	21·04
Brush and broom makers—Mfg	45·1	20·20
Boiler firemen	45·70	19·56
Other—Drinks and beverages—Mfg	46·7	19·78
Instrument and appliance assemblers	47·28	20·67
Tanners—Mfg.—Leather products	46·2	18·93
Area 5		
Cigarette makers—Mfg	63·	16·41
Other—Mfg.—Rubber products	66·62	16·87
Tire builders and tube makers—Mfg	67·92	17·85
Breakers, pickers, and wool sorters—Mfg.—Textiles	69·4	17·92
Rubber shoe makers—Mfg.—Rubber products	77·08	18·96
Area 6		
Brick and stone masons' apprentices	65·3	26·54
Carpenters	69·40	24·55
Labourers—Other	69·20	27·43
Glass blowers—Mfg	70·6	26·10
Roofers (not metal) and slaters	74·2	25·80
Brick and stone masons	80·10	27·70
Plasterers and lathers	83·16	27·75

CXXV.—PERCENTAGE OF GAINFULLY OCCUPIED MALES WHO ARE WAGE-EARNERS AND PERCENTAGE OF ALL TIME LOST DUE TO "NO JOB" IN THE OCCUPATIONS OF AREA 1, CHART 16, CANADA, YEAR ENDED JUNE 1, 1931

Occupation	P.C. of Gainfully Occupied Males Who Are Wage-Earners	P.C. of All Time Lost Due to "No Job"
Osteopaths and chiropractors	2·7	20[1]
Lawyers and notaries	13·6	66
Owners and managers—bus and taxicab line	16·1	80[1]
Owners and managers—Mfg.—Furs and fur goods	18·2	98[1]
Real estate agents	33·8	85
Owners and managers—Mfg.—Printing, publishing, bookbinding	39·5	79
Pawnbrokers	41·7	64[1]
Owners and managers—Mfg.—Tobacco products	55·8	100[1]
Stock brokers	59·6	85
Mission workers	74·5	58[1]
Justices and magistrates	100·0	30[1]
All occupations	62·0	81
All occupations except agriculture	84·6	80

[1]Occupations with less than 10 persons losing time.

Interpretation of the Chart.—Of course, there are as yet no data, either in Canada or in any other country, on the employment condition of workers whose status is other than that of wage-earner. But our scatter diagram seems to have gathered into one corner the wage-earners whose condition of employment, while technically wage-earner, comes very close to "employer" and "own account". While admittedly the number losing time in each of these occupations is very small, yet their similar nature is striking. An indication is given that unemployment among men of independent economic status is similar to that of this group—few cases of short pauses due to actual unemployment and extremely long stretches whenever unemployment actually does occur. This, of course, is not to count as unemployment the odd day that an employer might take off—such a day would be more similar to a holiday with pay for a wage-earner.

In Area 2 there is a low percentage losing time, as in Area 1, but here we have the opposite extreme in duration—such losses of time as exist being very brief. Strikingly enough, when the occupations of this group were looked up they were found to be foremen in every one of the five cases—printing, other transportation, electric railways, bus and taxicab service and garage. It seems that in this part of the chart we have men of an essentially wage-earning type of occupation, in a high classification as regards earnings, absolutely indispensible to the business of production and therefore able to find new jobs quickly when dismissed. Much of such time as is lost is due to temporary lay-off. This and the high level of wages is seen in the following statement:—

CXXVI.—AVERAGE EARNINGS PER WEEK WORKED AND PERCENTAGE OF ALL TIME LOST DUE TO "NO JOB" IN THE OCCUPATIONS OF AREA 2, CHART 16, CANADA, YEAR ENDED JUNE 1, 1931

Occupation	Average Earnings per Week Worked	P.C. of All Time Lost Due to "No Job"
	$	
Foremen and overseers—Mfg.—Printing, publishing, bookbinding	39·77	62
Foremen and overseers—Other transportation	35·51	69
Foremen and overseers—electric railway	33·95	47
Foremen and overseers—bus and taxicab line	31·46	43[1]
Foremen and overseers—garage	32·80	33
Average for all occupations	22·56	81

[1]Less than 10 persons losing time.

Area 3 represents a slightly less than average duration of unemployment as well as a less than average percentage losing time. It is somewhat above the trend line of the scatter diagram.

Its occupations seem to be more independent in nature than those of Area 4 following, but fairly heterogeneous.

Area 4 is slightly below the line of trend. It represents as miscellaneous a group of occupations as could be gathered. They, along with Area 3, are the "average" occupations from the point of view of the quality of rigidity previously defined.

Area 5 contains occupations in which from 65 to 75 p.c. of the men in the occupation lose time far greater than in "all occupations", but the average time lost by those losing time is only about 15 weeks as against 24 weeks for "all occupations". It was found that these occupations belong to the rubber, textile and tobacco industries—the three most highly organized types of manufacturing, in which the heavy unemployment which falls to the occupation is spread evenly among individuals so that each loses a relatively short time.

Area 6 is normal in that it shows a duration of unemployment consistent with a frequency running up to over 80 p.c. losing time. All but one of the eight occupations are in the very seasonal construction industry. They show a rigidity almost exactly equal to that of "all occupations".

Considering this quality of "rigidity", as defined elsewhere in the monograph, possessed by each of the six groups of occupations of Chart 16, we find that Group 1 ranks very high, its rate of interchange being measured by the coefficient of 1·7. Group 2 has the least rigidity with a coefficient of interchange between employed and unemployed of 8·5. Groups 3 and 6 are very slightly above the average rigidity of all occupations, and 4 and 5 are significantly above.

It was found in locating the various clerical and office occupations that in general they fall between 1 and 2 and are somewhat veered towards 3—in other words their duration of unemployment, once they lose time, is about half-way between the most rigid and the least rigid classes represented by managers and foremen respectively, and their chance of losing time is rather greater than either, putting them in the class of collectors, designers, etc., the better-off section of the rather miscellaneous group which the diagram gathers to its centre.

In order to make sure that the occupation types which our method of investigating brings out are really representative of their respective areas of the diagram, neighbouring points were looked up. The nearest points to Area 1 are other laundering, health professionals, hotel managers and owners and managers in drinks and beverages; every one of these justifies the description of Area 1 indicated previously as representative of occupations verging on the "own account" and professional statuses. Group 2 is further shown to locate the field of "foremen" by the fact that its three nearest occupations are also foremen—in "Telegraphs", "Electric light and power", and "Electrical apparatus". The four nearest to Group 5 are button makers, compounders and moulders in rubber products, spoolers, warpers, and beamers in textiles and carders and drawing frame tenders, also in textiles. These tell the same story as the occupations of Area 5—they are typical members of industries in which lay-offs are frequent but of short duration because of the policy of spreading work among their employees followed by the large establishments that dominate the rubber and textile fields. The closest points to Area 6 are carriage builders, painters, decorators and glaziers, structural iron workers, lumbermen, longshoremen, cement finishers, fitters, assemblers and erectors. Six of the seven occupations here given are characterized by very definite seasonality in most parts of Canada; three of them refer strictly to construction; lumbermen to a winter industry, and longshoremen, in many parts of Canada, to a summer industry. It is interesting to observe the striking difference in industrial connection between Areas 5 and 6, though they have about the same percentage losing time. The two criteria of unemployment—frequency and duration—are essential for a satisfactory analysis.

The striking distinction between the three criteria of unemployment—percentage of wage-earners unemployed June 1, the percentage losing time during the year and the weeks lost per person losing time—is brought out in considering the 50 cases at the bottom of the list of 389 occupations by each of the three criteria. We shall refer to the three criteria as average, frequency and duration of unemployment respectively.

Relationship of Managers and Foremen to Their Establishments.—When the 389 occupations were arranged in order of the three criteria of unemployment the number of managers (and foremen) who appeared in the first 25, and in the first 50 cases, are given below.

Criterion	First 25 Occupations		First 50 Occupations	
	Managers	Foremen	Managers	Foremen
Average	9	3	22	7
Frequency	11	–	27	–
Duration	3	14	4	24

Total managers 37
Total foremen 32

It is plain that while managers' occupations take more of both the first 25 and the first 50 places in the average of net unemployment, yet they are considerably below the foremen in the list by duration, where 24 foremen against 4 managerial occupations appear in the top 50.

To investigate the relationship of managers and foremen respectively to their establishments, a list was made of the 37 managers in order of the general percentage unemployment in the industry of which they are a part, in so far as the census classification enabled that industry to be identified and separated and showing percentage unemployment among foremen and overseers in the same industry. It was found that managers show a correlation of ·48 with their industry, while foremen show a correlation of ·54. This seems to indicate what we would naturally suspect, that the manager is more closely bound to the establishment, and less likely to share the vagaries of unemployment that fall to the lot of the wage-earners, though one would have anticipated a greater difference between the correlations.

"Other" Occupations.—Less definite in constitution than "foremen" or "managers" is the class "other" attached to each main occupation group. Here are assembled the occupations either insufficiently defined or existing in very small numbers—maintenance staff, messengers, telephone operators, etc.

CXXVII.—SELECTED INDUSTRIES WITH PERCENTAGE UNEMPLOYMENT AMONG MANAGERS, FOREMEN AND THE CLASS "OTHER", CANADA, YEAR ENDED JUNE 1, 1931

Industry	P.C.[1] Unemployment			Average Weeks Lost among "Other" Occupations
	In Industry as a Whole	Among Managers	Among Foremen	
Trade—Wholesale	9·64	2·52	–	–
Electric Light and Power	10·07	0·6	3·3	–
Mfg.—Chemica and allied products	10·15	0·8	4·8	15·31
Printing, publishing, bookbinding	10·17	2·07	1·3	19·71
Mfg.—Drinks and beverages	10·73	3·3	6·8	19·78
Service—Laundering	11·00	0·9	1·2	29·47
Other transportation	11·23	0·64	0·9	24·30
Telegraph and telephone systems	11·73	0·5	1·75	–
Trade—Retail	11·79	3·19	3·95	–
Mfg.—Textile products	11·97	3·1	4·86	19·00
Mfg.—Vegetable foods	12·28	2·01	4·5	17·12
Mfg.—Tobacco products	12·36	2·7	7·1	14·70
Other entertainment	12·69	8·6	–	–
Mfg.—Miscellaneous products	14·11	1·7	5·1	21·65
Mfg.—Electrical apparatus	14·37	0·9	3·1	21·23
Mfg.—Non-metallic mineral products	14·67	2·0	4·04	21·01
Mfg.—Animal foods	15·38	3·0	5·2	23·01
Service—Personal—Hotels, restaurants, and taverns	15·79	6·27	–	–
Mfg.—Rubber products	15·88	2·1	6·4	16·87
Service—Recreational—theatres	16·23	6·3	–	–
Road transportation—bus and taxicab	16·43	5·1	–	–
Road transportation—garage	17·15	3·3	2·2	–
Mfg.—Leather products	17·32	2·3	5·7	18·68
Mfg.—Precious metals	18·17	1·	3·0	20·98
Mfg.—Paper products	18·68	1·4	11·65	15·86
Mfg.—Metal products	20·99	2·20	8·06	23·30
Road transportation—Cartage and transfer	21·00	3·5	5·6	–
Mfg.—Wood products	21·35	3·97	7·13	20·71
Water transportation	21·81	1·4	9·8	22·15
Mfg.—Furs and fur goods	22·72	2·	7·00	–
Mfg.—Textile goods and wearing apparel	26·83	2·1	7·6	21·15
Building and Construction	34·13	7·20	11·45	22·67
Logging	39·35	13·6	18·6	–
Other mining	39·87	5·7	9·99	22·05
Coal mining	43·56	6·6	13·4	22·12
Unspecified	54·54	3··	8·0	26·59

[1]Where the base of the percentage is less than 100, the percentage is given to the nearest whole number; between 100 and 1,000 to one place of decimals, and 1,000 and over, to two places of decimals.

Here we find that certain groups of occupations—"Coal mining", "Unspecified", "Building and construction", stand very far below the straight-line trend which describes the relationship in the remaining industries between the "other" occupations and the industry as a whole. It is as though the "other" occupations in such an industry as mining do not rise to the same high percentage of unemployment as workers in the pits in bad times, consisting to some extent, as they do, of maintenance staff.

Confirmation of Index of Rigidity.—The percentage of wage-earners losing time (frequency) and the length of time lost by those losing time (duration) give, as a kind of average, the third measure of unemployment, average weeks lost by all wage-earners (or percentage unemployment on a given day), which is the measure most commonly used. Table 18 shows that if we arrange the occupations by any one of these criteria alone we do not get the same decisive segregations of different types of work that the distribution on the basis of two measures shows.

The index of mobility was defined earlier in the chapter as the ratio of the logarithm of the percentage losing no time to that of the percentage of the year worked by all wage-earners; it gives the relationship between the elements of frequency and duration. Thus by taking it along with the percentage of the year worked as in statements of this chapter we get, for the various ages, the various immigrant races and years of immigration, the provinces, the sample of industries, and occupations representing the various provinces, layouts describing the employment situation and indicating that rigidity or lack of mobility refers to the very young and very old ages; to the more recent immigrants and particularly to those of Chinese or Eastern European stock; and to the financial, clerical and professional occupations. Finally the entire list of occupations for Canadian males was shown as a scatter diagram (Chart 16) of the percentage of male wage-earners losing time and the weeks they lost, the figures being given in the second and third columns of Table 18. When items of the scatter diagram were looked up in the table they verified the theory that to different rigidity values correspond essentially different occupational types.

Does this quality of "rigidity" in unemployment between classes really have an occupational significance? Can we be sure that we are not building up an argument by attributing to occupations what are really only variations in unemployment between individuals? It seems from the way in which items adjacent in location in the scatter diagram (Chart 16) represent similar types of occupations that more than accidental occupational connection is present.

The fact that in one corner of the scatter diagram we find occupations of an independent nature (managers in various industries, etc.), in another those of a supervisory nature, *e.g.*, foremen, in a third those attached to the industries characterized by the stronger and more paternal firms, as the manufacture of rubber and textile goods, etc., seems to bear out the point that these criteria of unemployment are representative of the actual economic basis of unemployment.

CHAPTER XII

THE 1936 CENSUS OF UNEMPLOYMENT IN THE PRAIRIE PROVINCES

Changes in the Relations between Population, Gainfully Occupied and Wage-Earners, 1931-1936.—Perhaps the two most outstanding changes in the relations between the population, the total working population, and the wage-earners between 1931 and 1936 have been, first, the decline in the proportion of persons of working age, *i.e.*, 14 years of age and over, having a gainful occupation and, secondly, the diminishing importance of wage-earners in the gainfully occupied population itself. For the males these changes have occurred uniformly in each of the Prairie Provinces. On the other hand, wage-earners represented a greater proportion of all gainfully occupied females in 1936 than in 1931 in Saskatchewan and Alberta.

CXXVIII.—NUMBER AND PERCENTAGE OF POPULATION 14 YEARS OF AGE AND OVER GAINFULLY OCCUPIED AND PROPORTION OF WAGE-EARNERS IN GAINFULLY OCCUPIED POPULATION, PRAIRIE PROVINCES, 1931 AND 1936

Item	1931			1936		
	Both Sexes	Males	Females	Both Sexes	Males	Females
MANITOBA						
Total population	700,139	368,065	332,074	711,216	368,580	342,636
Population 14 years of age and over	496,535	264,843	231,692	523,617	273,588	250,029
Gainfully occupied population	270,466	225,573	44,893	269,820	224,009	45,811
As p.c. of population 14 years and over	54·47	85·17	19·38	51·53	81·88	18·32
Wage-earners	170,712	132,863	37,849	158,407	119,939	38,468
As p.c. of population 14 years and over	34·38	50·17	16·34	30·25	43·84	15·39
As p.c. of gainfully occupied population	63·12	58·90	84·31	58·71	53·54	83·97
Employers, own accounts and no pays	99,754	92,710	7,044	111,413	104,070	7,343
As p.c. of population 14 years and over	20·09	35·01	3·04	21·28	38·04	2·94
As p.c. of gainfully occupied population	36·88	41·10	15·69	41·29	46·46	16·03
SASKATCHEWAN						
Total population	921,785	499,935	421,850	931,547	498,608	432,939
Population 14 years of age and over	616,265	345,055	271,210	651,690	356,513	295,177
Gainfully occupied population	338,720	301,261	37,459	346,604	304,893	41,711
As p.c. of population 14 years and over	54·96	87·31	13·81	53·19	85·52	14·13
Wage-earners	145,552	116,148	29,404	142,411	108,839	33,572
As p.c. of population 14 years and over	23·62	33·66	10·84	21·85	30·53	11·37
As p.c. of gainfully occupied population	42·97	38·55	78·50	41·09	35·70	80·49
Employers, own accounts and no pays	193,168	185,113	8,055	204,193	196,054	8,139
As p.c. of population 14 years and over	31·34	53·65	2·97	31·33	54·99	2·76
As p.c. of gainfully occupied population	57·03	61·45	21·50	58·91	64·30	19·51
ALBERTA						
Total population	731,605	400,199	331,406	772,782	417,954	354,828
Population 14 years of age and over	507,761	286,938	220,823	553,299	306,886	246,413
Gainfully occupied population	286,048	252,599	33,449	297,619	261,365	36,254
As p.c. of population 14 years and over	56·34	88·03	15·15	53·79	85·17	14·71
Wage-earners	142,404	115,995	26,409	144,669	115,875	28,794
As p.c. of population 14 years and over	28·05	40·43	11·96	26·15	37·76	11·69
As p.c. of gainfully occupied population	49·78	45·92	78·95	48·61	44·33	79·42
Employers, own accounts and no pays	143,644	136,604	7,040	152,950	145,490	7,460
As p.c. of population 14 years and over	28·29	47·61	3·19	27·64	47·41	3·03
As p.c. of gainfully occupied population	50·22	54·08	21·05	51·39	55·67	20·58

It will be noticed that the gainfully occupied males as a percentage of all males at working ages, *i.e.*, 14 years and over, fell off between 1931 and 1936 in each province. With the exception of Saskatchewan where there was a slight gain in this respect, the same tendency may be observed for females. A glance at Statement CXXIX will indicate in what age groups this decline in the proportion gainfully occupied took place.

CXXIX.—PERCENTAGES OF POPULATION GAINFULLY OCCUPIED, BY AGE GROUP AND SEX, PRAIRIE PROVINCES, 1931 AND 1936

Age Group	1931		1936	
	Males	Females	Males	Females
Manitoba	85·15	19·37	81·88	18·32
14–24	66·90	30·27	60·42	26·41
25–44	97·89	16·96	97·70	19·32
45–64	95·24	10·76	94·65	9·49
65 and over	55·20	5·55	45·34	4·53
Saskatchewan	87·28	13·81	85·52	14·13
14–24	70·76	20·49	67·77	20·31
25–44	98·30	11·03	98·33	12·85
45–64	96·19	9·00	96·10	8·22
65 and over	59·38	6·47	54·13	5·21
Alberta	88·01	15·15	85·17	14·71
14–24	68·82	22·68	63·86	20·96
25–44	98·66	12·59	98·16	13·68
45–64	96·43	9·97	94·95	9·41
65 and over	65·13	6·59	56·41	5·75

The significant feature of this statement is the decrease in the proportions of young persons 14-24 years of age, and of persons in the oldest age group, 65 years and over, reporting a gainful occupation in 1936 as compared with 1931. Owing to the depression many young persons who normally would have entered the ranks of the gainfully occupied population failed to do so, and, on the other hand, a considerable number of aged workers having lost their jobs and being unable to secure employment were reported as retired from gainful occupations at the 1936 Census.

Some idea of the number of young people 14-24 years of age, who had never followed a gainful occupation at the 1936 Census but were seeking employment at that time may be gained from the statement that follows.

CXXX.—COMPARISON OF THE CHANGE IN THE NUMBER OF GAINFULLY OCCUPIED AND WAGE-EARNERS 14-24 YEARS OF AGE, BETWEEN 1931 AND 1936, WITH THE NUMBER OF YOUNG PERSONS SEEKING WORK JUNE 1, 1936, WHO HAD NEVER WORKED PRIOR TO THAT DATE, BY SEX, PRAIRIE PROVINCES, 1931 AND 1936

Item	Population 14-24 Years			
	1931		1936	
	Males	Females	Males	Females
MANITOBA				
Total	79,139	77,612	80,867	81,263
At school	21,093	21,833	22,096	21,566
Gainfully occupied	52,946	23,492	48,858	21,460
Wage-earners	31,383	22,101	24,003	19,633
No occupation, seeking work	–	–	8,041	8,622
SASKATCHEWAN				
Total	106,308	97,760	110,465	106,919
At school	27,118	29,579	30,202	32,051
Gainfully occupied	75,226	20,035	74,857	21,710
Wage-earners	32,230	18,228	28,938	19,855
No occupation, seeking work	–	–	3,514	5,295
ALBERTA				
Total	80,017	74,466	84,990	82,411
At school	22,245	24,678	25,632	26,682
Gainfully occupied	55,071	16,886	54,273	17,272
Wage-earners	26,735	15,200	24,062	15,707
No occupation, seeking work	–	–	3,581	4,313

It will be seen that the number of young persons in this category of potential workers was considerably larger than the decline in the total number having a gainful occupation between 1931 and 1936. For the males the decrease in the number following wage-earning occupations more nearly corresponded with the number of males who had never worked at the date of the

1936 Census but were seeking work on that date. No doubt this class existed in 1931 but an addition of the gainfully occupied and the students for that year compared with the total population between 14 and 24 years would indicate that the number must have been much smaller than in 1936. For the females the growth of the population at working ages in the three provinces combined was considerably more rapid than for those attending school or having a gainful occupation. Hence the creation of a considerable class of young women at the 1936 Census who had never worked but were seeking employment.

As already mentioned, the other noteworthy change that had taken place between 1931 and 1936 in the Prairie Provinces was the decline in the importance of the wage-earning element in the gainfully occupied population. It is true that in Alberta wage-earners showed a small numerical increase but even in this province the growth recorded by this class of worker was not as rapid as among persons on own account, employers, and unpaid family workers, the latter being mainly farmers' sons. The decrease in the number of wage-earners during this period, a drop of no less than 12,000 in Manitoba, is of some consequence from the standpoint of the phenomenon of unemployment. It indicates that a contraction in employment for wage-earners may not be fully matched by a corresponding increase in unemployment. The supply of wage-earners, as is evident from the figures in Statement CXXVIII, is not a fixed quantity changing only with the growth or decline in the population at working ages.

During these five years of depression many persons dropped out of the ranks of the wage-earners and a not inconsiderable proportion seem to have returned to the farm. Contrary to the general trend since the beginning of the century the proportion of the total gainfully occupied population in agriculture rose in 1936 over the preceding census period. Similarly, reversing what had been the trend previous to 1931, the rural population in these provinces grew at a more rapid rate than the urban from 1931 to 1936, the urban population actually declining in Manitoba and Saskatchewan during this period.

The Trend of Employment, 1931-1936.—Table 19 shows the relation of unemployment on the census dates, June 1, 1931 and June 1, 1936, and during the census years 1931 and 1936, to changes in employment in selected industries in the Prairie Provinces, showing (a) expanding and (b) declining employment over this five-year period. The industries listed are all those with 100 or more wage-earners actually at work on the census date, June 1, 1931, in the provinces of Manitoba, Saskatchewan, and Alberta combined, with the exception of a few industries where there was some doubt as to the comparability of the figures on employment for 1931 and 1936 owing to differences in classification at the two censuses. The number of wage-earners in 1931 and 1936 is shown for the industries lacking comparability under the heading, "Industries not classified," but no rates or averages have been calculated. The same procedure has been followed for the balance of wage-earners, *viz.*, those in industries with less than 100 wage-earners at work on June 1, 1931. Finally as a basis of comparison for individual industries, figures showing the changes in employment and unemployment for all industries appear at the foot of the table.

To ensure a more exact comparison of the figures for certain industries, wage-earners employed in the manufacturing, merchandising and repairing of the product of these industries were combined to form one industrial class, *e.g.*, "electrical apparatus manufacturing, retail dealing, and repair." The expanding industries are listed in the order of the percentage gain in employment between 1931 and 1936, those with the largest gains being listed first, while the industries with decreases in employment are arranged to show first those recording the least decline, followed next by those with greater contraction in employment, and last, those with most severe losses in employment. In all but a few cases it is believed that the percentage increases or decreases shown measure fairly accurately the actual changes in employment that have taken place between 1931 and 1936.

In a general analysis of the British unemployment insurance records by W. H. Beveridge* a similar study of the relative unemployment among growing and declining industries was made covering the period between 1923 and 1935. He concluded this study with the following statement: "It is as fallacious to speak of 'unemployment' in general as to speak of 'labour' in general without distinguishing between the different industries and types of unemployment. Even in

*"An Analysis of Unemployment in Great Britain"—Series of three articles in *Economica*—I, Nov., 1936; II, Feb., 1937; III, May, 1937.

industries where the growth of employment has been most pronounced unemployment is still as great as in many industries that have shown little change in the numbers employed." The same conclusion may be drawn from Table 19 with respect to unemployment by industry in the Prairie Provinces between 1931 and 1936.

Several of the industries showing the greatest expansion in employment over this period recorded an average period of unemployment during the census year which was considerably above the average for all industries in these provinces. The average of 14·33 weeks in 1936 which was shown for the expanding industries, though approximately the same as for the industries with declining employment, reflects the weight of the numbers of wage-earners among this group of industries that are in agriculture. This industry which accounted for about one-third of all wage-earners in the expanding industries had an average of 19·04 weeks of unemployment during the census year ended June 1, 1936. In both the expanding industries and those showing a decrease in employment between 1931 and 1936 unemployment was less at the census date, June 1, 1936 than on June 1, 1931 although the average period of unemployment during the census year 1936 was longer than in 1931. For a number of the industries with the greatest losses in employment between 1931 and 1936, the duration of unemployment in 1936 was rather high. This was particularly true of the building industry and of certain non-metallic mineral manufacturing industries associated with this industry.

Duration of Unemployment, 1931-1936.—A casual examination of the percentages of unemployment on June 1, 1931 and June 1, 1936 for the industries shown in Table 19 would indicate that on the whole unemployment was less on the census date, 1936 than on the same date in 1931. Incidentally, the expanding industries in this table record 32 cases where this is true and only 13 cases where unemployment was higher in 1936 than in 1931. Even for the industries with declining employment 33 of them had less unemployment on June 1, 1936 than on June 1, 1931 and only 29 showed a higher percentage of unemployment on the census date, June 1, 1936 than in 1931. On the other hand, the average number of weeks lost by all wage-earners was in most cases greater during the census year ended June 1, 1936 than during the previous census year period. Further evidence of this will be found in Statement CXXXI where the percentages of unemployment in all industries on the first of June, 1931 and 1936 as compared with the percentage distribution of wage-earners losing time according to stated periods of unemployment during the census years ended June 1, 1931 and June 1, 1936 for the provinces of Manitoba, Saskatchewan, and Alberta.

CXXXI.—COMPARISON OF RATE OF UNEMPLOYMENT AMONG WAGE-EARNERS ON JUNE 1, AND OF DURATION OF UNEMPLOYMENT AMONG THOSE LOSING TIME DURING THE CENSUS YEARS, BY SEX, PRAIRIE PROVINCES, 1931 AND 1936

Item		P.C. of Wage-Earners Reporting No Job on June 1	P.C. of Wage-Earners Losing Time			
			20 or less Weeks	21-32 Weeks	33-48 Weeks	49 and over Weeks
MANITOBA						
Males	1931	21·52	37·24	29·63	22·21	10·92
	1936	18·43	27·96	26·85	25·39	19·80
Females	1931	9·55	48·44	23·32	17·68	10·56
	1936	8·43	34·08	24·53	29·29	12·10
SASKATCHEWAN						
Males	1931	20·57	33·53	35·70	24·61	6·16
	1936	13·04	27·57	30·88	30·43	11·13
Females	1931	8·30	43·62	27·07	19·93	9·38
	1936	6·69	31·67	27·40	33·68	7·25
ALBERTA						
Males	1931	19·12	36·43	34·67	22·74	6·16
	1936	14·26	29·74	31·30	24·66	14·30
Females	1931	7·99	47·67	25·82	17·56	8·96
	1936	7·27	31·54	26·13	31·63	10·70

The percentages in Statement CXXXI clearly show that in each of the Prairie Provinces the rate of unemployment among males on the first of June, 1936 was lower than in 1931—in fact about one-third lower in Saskatchewan and Alberta. On the other hand, an examination of the percentage distribution of wage-earners losing time discloses the existence of more long-time unemployment in 1936 than at the 1931 Census. In each province the proportion losing between 33 and 48 weeks was greater in 1936 than in 1931, while the percentage losing 49 weeks and over (roughly a year or more) in 1936 was almost double the 1931 figures shown for Manitoba and for Saskatchewan and more than double the 1931 percentage in the case of Alberta. The figures for females, though not so striking, show the same tendency. This result is closely in accord with the British experience. In the analysis of the British unemployment insurance records, already referred to, Beveridge* concludes: "In September, 1929 nearly 90 p.c. of the applicants had been out of work for less than six months, and less than 5 p.c. had been out for twelve months or more. In September, 1936, these proportions have become 66 p.c. and 24 p.c., respectively. The legacy of the great depression is a mass of long-period unemployment."

Further evidence of the extent of long-period unemployment in the Prairie Provinces at the 1936 Census is contained in Table 20 where the percentages of total wage-earners reporting no weeks of employment during the 12 months ended June 1, 1936 and the percentages reporting 1-11 weeks, or roughly the proportion with less than 3 months' employment during the census year, are given by industries. Viewed in another way the statement reveals the amount of casual employment in these industries during the year period prior to the date of the census. The segregation of wage-earners with no employment at all during the census year from those showing 1-11 weeks of employment brings out distinctly the proportion of casual employment in each industry.

The industries listed in Table 20 are those with 100 or more wage-earners in the industry in the three Prairie Provinces combined at the 1936 Census. Industries with less than this number are added as a group total at the foot of the statement. The industries listed are arranged in the order of the percentage importance of the wage-earners reporting less than 12 weeks of employment during the census year ended June 1, 1936. As in Table 19 a few industries were combined where there was difficulty in distinguishing wage-earners employed in the manufacturing of specific products from those engaged in their sale or repair. As giving greater assurance that the figures in Table 19 correctly represent the proportions of workers having an attachment to these industries, though very little employment in them, the percentages are based on those wage-earners who reported as usual industry the same industry as that in which employed at the census date, or in which last employed previous to that date.

It will be observed that several of the industries recording the greatest decline in the number of wage-earners between 1931 and 1936, as shown in Table 19, are in Table 20 included among those with the highest percentages of wage-earners with no employment whatsoever during the 12 months prior to the census date, June 1, 1936. Incidentally, industries with less than 100 wage-earners in the three provinces combined in 1936 showed 9·51 p.c. of their number with no employment during the census year as compared with 5·39 p.c. for the industries with 100 or more wage-earners taken as a group.

Age and Unemployment.—Basing his conclusions upon the records of unemployment insurance in Great Britain, Beveridge* enunciates the following three propositions: (a) the risk of being unemployed is half as much again from 60 to 64 as from 35 to 44 years of age; (b) the risk of losing employment is much the same from 60 to 64 as from 35 to 44; (c) the risk of unemployment prolonged for a year or more is two and a half times as great at the later age as at the earlier.

Data from the 1936 Census showing the incidence of unemployment by age tend to confirm these propositions, though, of course, the ratios, partly for the reason given in the next sentence are not exactly the same. Figures are not available for the age group 60-64 years, but a comparison can be made for males between the age groups 35-44 years, and 55-64 years of age. There is no information from the census to show the number of wage-earners of various ages falling out of employment at particular dates. However, each unemployed wage-earner on the census date was asked to state the period of his unemployment or length of time since last employed. This information was tabulated, the shortest period shown in the tabulation being

*See footnote, p 283.

less than 13 weeks (or about 3 months) of unemployment prior to June 1, 1936. The percentage of wage-earners out of work on June 1, 1936 who had been unemployed less than 13 weeks is used in Statement CXXXII to test the validity of proposition (b) with respect to the unemployment at the 1936 Census of the Prairie Provinces, *viz.*, that the risk of losing employment is much the same from 60 to 64 as from 35 to 44 years of age.

CXXXII.—COMPARISON OF DURATION OF UNEMPLOYMENT AMONG MALE WAGE-EARNERS 35-44 AND 55-64 YEARS OF AGE, UNEMPLOYED ON JUNE 1, PRAIRIE PROVINCES, 1936

Age Group	P.C. Unemployed		
	Any Period	Less than 13 Weeks	Over a Year
MANITOBA			
35–44	18·50	3·58	6·48
55–64	21·39	2·96	9·93
SASKATCHEWAN			
35–44	13·85	3·78	2·47
55–64	19·75	4·11	4·43
ALBERTA			
35–44	15·17	3·40	4·00
55–64	20·37	2·89	7·58

Statement CXXXII shows that although the percentage of males in the age group 55-64 years, unemployed any period on the census date, June 1, 1936, was considerably greater than for the males 35-44 years, in each province, being almost half as much again in Saskatchewan, the percentage that had been unemployed 13 weeks or less on that date actually represented a smaller proportion of total wage-earners in the older age group than in the younger, in Manitoba and Alberta, and only a slightly higher percentage in Saskatchewan. These results correspond very closely with the conclusions reached by Beveridge* in his analysis of an entirely different set of data, which are contained in propositions (a) and (b) in the first paragraph of this section. Statement CXXXII further shows that unemployment of over a year's duration was much more characteristic of the wage-earners in the older age group than among those 35-44 years of age. This has been the experience in Great Britain, as enunciated in proposition (c) above.

*See footnote, p 283.

PART II

TABLE 1. Estimates of employment, unemployment and normally gainfully occupied, with basic data, May 31, 1931-June 30, 1936

(000's omitted)

Month	Estimate of Employment and Unemployment							Basic Data Used in Estimate		
	Index of Estimated P.C. Employed (1)	Estimated P.C. Employed (2)	No.[1] of Wage-Earners Employed (3)	No. of Wage-Earners (Col. 3÷Col. 2) (4)	No. of Wage-Earners Unemployed (Col. 4 — Col. 3) (5)	No. of Persons in Gainful Occupations (6)	No. of Independent or "No Pay" Workers (Col. 6 — Col. 4) (7)	Bureau's Index of No. Employed (base May, 1931) (8)	P.C. Employed (corrected labour union figures) (9)	Wage-Earning Jobs per Gainfully Occupied Person (Col. 8÷Index of Col. 6) (10)
May, 1931	100·0	82·9[2]	2,133	2,573[2]	440	3,927	1,354	100·0	82·9	100·0
June	100·1	83·0	2,132	2,569	437	3,931	1,362	100·2	83·2	100·1
July	100·7	83·5	2,166	2,594	428	3,939	1,345	101·5	83·3	101·2
August	101·7	84·3	2,201	2,611	410	3,944	1,333	103·4	83·5	103·0
September	100·1	83·0	2,144	2,583	439	3,953	1,370	102·2	80·8	101·5
October	98·6	81·7	2,108	2,580	472	3,962	1,382	99·4	80·6	98·5
November	96·6	80·1	2,051	2,561	510	3,967	1,406	95·7	80·0	94·8
December	92·5	76·7	1,913	2,494	581	3,972	1,478	88·4	77·5	87·4
January, 1932	91·3	75·7	1,878	2,481	603	3,981	1,500	86·6	76·6	85·4
February	91·1	75·5	1,858	2,461	603	3,986	1,525	85·6	77·6	84·3
March	90·5	75·0	1,839	2,452	613	3,994	1,542	84·5	77·6	83·1
April	89·6	74·3	1,837	2,472	635	3,999	1,527	84·5	74·9	83·0
May	90·3	74·9	1,871	2,498	627	4,008	1,510	86·0	75·4	84·2
June	90·3	74·9	1,863	2,487	624	4,015	1,528	85·6	75·7	83·8
July	89·1	73·9	1,820	2,463	643	4,023	1,560	83·3	75·6	81·3
August	89·0	73·8	1,815	2,459	644	4,027	1,568	83·0	75·5	81·0
September	89·5	74·2	1,829	2,465	636	4,034	1,569	83·7	76·7	81·5
October	88·3	73·2	1,796	2,454	658	4,038	1,584	81·8	75·3	79·6
November	87·3	72·4	1,764	2,436	672	4,045	1,609	80·3	74·6	78·0
December	84·6	70·1	1,670	2,382	712	4,049	1,667	75·8	71·7	73·5
January, 1933	84·0	69·6	1,643	2,361	718	4,057	1,696	74·3	72·1	71·9
February	84·1	69·7	1,641	2,354	713	4,065	1,711	74·2	72·9	71·7
March	84·0	69·6	1,622	2,330	708	4,069	1,739	73·4	73·3	70·8
April	84·8	70·3	1,657	2,357	700	4,076	1,719	74·9	74·2	72·2
May	86·4	71·6	1,717	2,398	681	4,080	1,682	77·9	74·5	75·0
June	88·8	73·6	1,790	2,432	642	4,087	1,655	81·6	76·7	78·4
July	90·3	74·9	1,845	2,463	618	4,091	1,628	84·1	77·4	80·7
August	91·0	75·4	1,872	2,483	611	4,098	1,615	85·4	77·1	81·8
September	92·3	76·5	1,909	2,495	586	4,102	1,607	87·3	78·7	83·5
October	92·8	76·9	1,932	2,512	580	4,109	1,597	88·1	78·6	84·2
November	92·8	76·9	1,943	2,527	584	4,116	1,589	88·6	78·0	84·5
December	90·8	75·3	1,881	2,498	617	4,120	1,622	85·5	77·3	81·5
January, 1934	92·2	76·4	1,935	2,533	598	4,124	1,591	88·2	77·3	84·0
February	93·4	77·4	1,965	2,539	574	4,128	1,589	89·5	78·4	85·2
March	92·5	76·7	1,938	2,527	589	4,136	1,609	88·1	78·8	83·7
April	93·4	77·4	1,955	2,526	571	4,140	1,614	88·8	80·4	84·3
May	96·0	79·6	2,046	2,570	524	4,147	1,577	93·2	81·3	88·3
June	98·7	81·8	2,080	2,543	463	4,152	1,609	97·5	82·0	92·2
July	97·9	81·2	2,056	2,532	476	4,160	1,628	96·4	81·8	91·0
August	97·6	80·9	2,035	2,515	480	4,165	1,650	95·4	83·3	89·9
September	98·2	81·4	2,058	2,528	470	4,173	1,645	96·5	83·3	90·8
October	98·4	81·6	2,063	2,528	465	4,177	1,649	96·7	83·6	90·9
November	97·1	80·5	2,037	2,530	493	4,185	1,655	95·5	81·9	89·6
December	94·3	78·2	1,943	2,485	542	4,193	1,708	91·1	81·5	85·3
January, 1935	94·2	78·1	1,947	2,493	546	4,198	1,705	91·3	81·3	85·4
February	95·2	78·9	1,986	2,517	531	4,205	1,688	93·1	81·2	86·9
March	93·8	77·8	1,924	2,473	549	4,209	1,736	90·2	82·5	84·1
April	94·7	78·5	1,960	2,497	537	4,217	1,720	91·9	82·2	85·6
May	96·3	79·8	2,009	2,518	509	4,221	1,703	94·2	83·3	87·6
June	97·3	80·7	2,048	2,538	490	4,226	1,688	96·0	83·5	89·2
July	98·3	81·5	2,082	2,555	473	4,234	1,679	97·6	84·1	90·5
August	99·4	82·4	2,114	2,566	452	4,238	1,672	99·1	85·2	91·8
September	101·7	84·3	2,184	2,591	407	4,246	1,655	102·4	86·5	94·7
October	102·7	85·1	2,218	2,606	388	4,250	1,644	104·0	86·4	96·1
November	100·8	83·6	2,154	2,577	423	4,257	1,680	101·0	86·5	93·2
December	97·2	80·6	2,041	2,532	491	4,261	1,729	95·7	85·3	88·2
January, 1936	97·3	80·7	2,026	2,511	485	4,266	1,755	95·0	–	87·5
February	97·9	81·2	2,037	2,509	472	4,271	1,762	95·5	–	87·8
March	96·7	80·2	2,005	2,500	495	4,277	1,777	94·0	–	86·3
April	97·6	80·9	2,048	2,532	484	4,282	1,750	96·0	–	88·1
May	99·0	82·1	2,101	2,559	458	4,288	1,729	98·5	–	90·2
June	100·7	83·5	2,154	2,580	426	4,294	1,714	101·0	–	92·4

[1] *i.e.*, number at work June 1, 1931, according to the census plus number not at work through causes other than "no job" or "temporary lay-off."

[2] The census figure for June 1, 1931, was 83·0. It was not considered necessary to correct to this census figure as it was desirable to show how closely the estimated came to the census. However, this makes a difference of 3,000 in the wage-earners, the census figures being 2,570,000.

TABLE 2. Estimates of employment and unemployment, June 30, 1920-May 31, 1931.

(000's omitted)

Month	Index of P.C. Employed (base 1926) (1)	P.C. Employed Corrected for Size of Sample (2)	P.C. Unemployed (3)	No. Employed[2] (4)	No. of Wage-Earners (5)	No. Unemployed (6)
June, 1920	102·3	97·5	2·5	-	-	-
July	101·0	96·3	3·7	-	-	-
August	100·6	95·9	4·1	-	-	-
September	101·8	97·0	3·0	-	-	-
October	104·2	99·3	0·7	-	-	-
November	100·6	95·9	4·1	-	-	-
December	96·1	91·6	8·4	-	-	-
January, 1921	94·9	90·4	9·6	1,860	2,058	198
February	92·3	88·0	12·0	1,817	2,065	248
March	94·1	89·7	10·3	1,735	1,934	199
April	94·3	89·9	10·1	1,735	1,930	195
May	95·2	90·7	9·3	1,789	1,972	183
June	93·9	89·5	10·5	1,807	2,019	212
July	93·7	94·1	5·9	1,835	1,950	115
August	100·8	96·1	3·9	1,832	1,906	74
September	100·2	95·5	4·5	1,862	1,950	88
October	99·7	95·0	5·0	1,862	1,960	98
November	93·8	89·4	10·6	1,801	2,015	214
December	89·2	85·0	15·0	1,608	1,892	284
January, 1922	90·3	86·1	13·9	1,629	1,892	263
February	95·0	90·5	9·5	1,690	1,867	177
March	94·9	90·4	9·6	1,669	1,846	177
April	93·8	89·4	10·6	1,719	1,923	204
May	95·7	91·2	8·8	1,842	2,020	178
June	99·4	94·7	5·3	1,880	1,985	105
July	100·7	96·0	4·0	1,921	2,001	80
August	101·0	96·3	3·7	1,934	2,008	74
September	102·1	97·3	2·7	1,953	2,007	54
October	100·8	96·1	3·9	1,978	2,058	80
November	98·3	93·7	6·3	1,964	2,096	132
December	98·2	93·6	6·4	1,780	1,902	122
January, 1923	96·5	92·0	8·0	1,848	2,009	161
February	98·1	93·5	6·5	1,857	1,986	129
March	97·7	93·1	6·9	1,808	1,942	134
April	100·0	95·3	4·7	1,887	1,980	93
May	100·2	95·5	4·5	2,009	2,104	95
June	101·4	96·6	3·4	2,053	2,125	72
July	101·9	97·1	2·9	2,068	2,130	62
August	102·6	97·8	2·2	2,064	2,110	46
September	102·8	98·0	2·0	2,053	2,095	42
October	99·9	95·2	4·8	2,039	2,142	103
November	98·4	93·8	6·2	1,976	2,107	131
December	97·5	92·9	7·1	1,832	1,972	140
January, 1924	97·2	92·6	7·4	1,871	2,021	150
February	96·9	92·3	7·7	1,873	2,029	156
March	97·9	93·3	6·7	1,844	1,976	132
April	99·7	95·0	5·0	1,894	1,994	100
May	97·4	92·8	7·2	1,966	2,119	153
June	99·0	94·3	5·7	1,980	2,100	120
July	99·4	94·7	5·3	1,953	2,062	109
August	98·2	93·6	6·4	1,921	2,052	131
September	98·8	94·2	5·8	1,937	2,056	119
October	97·8	93·2	6·8	1,919	2,059	140
November	94·9	90·4	9·6	1,875	2,074	199
December	92·9	88·5	11·5	1,731	1,956	225
January, 1925	94·3	89·9	10·1	1,776	1,976	200
February	95·2	90·7	9·3	1,798	1,982	184
March	96·0	91·5	8·5	1,801	1,968	167
April	95·8	91·3	8·7	1,875	2,054	179
May	97·6	93·0	7·0	1,950	2,097	147
June	98·5	93·9	6·1	1,998	2,128	130
July	99·5	94·8	5·2	1,989	2,098	109
August	100·3	95·6	4·4	1,994	2,086	92
September	98·8	94·2	5·8	2,030	2,155	125
October	99·5	94·8	5·2	2,005	2,115	110
November	98·8	94·2	5·8	1,968	2,089	121
December	96·5	92·0	8·0	1,850	2,011	161

[1]Census figures.

[2]The number employed does not vary exactly with the Bureau's employment index, especially before 1926. Corrections were made in this index for the whole period 1921-1931 on the basis of the number of firms reporting. This was necessary in view of the ascertained fact that the employed reported by firms were a much smaller sample of the Census of 1921 than of 1931. However, the corrections thus made from 1926 on were small as the greatest care has been taken since that time when constructing the index to allow for firms existing in the base year, but not reporting until a later year.

TABLE 2. Estimates of employment and unemployment, June 30, 1920-May 31, 1931—Con.

(000's omitted)

Month	Index of P.C. Employed (base 1926) (1)	P.C. Employed Corrected for Size of Sample (2)	P.C. Unemployed (3)	No. Employed[2] (4)	No. of Wage-Earners (5)	No. Unemployed (6)
January, 1926	96·3	91·8	8·2	1,873	2,040	167
February	96·3	91·8	8·2	1,889	2,058	169
March	97·3	92·7	7·3	1,889	2,038	149
April	97·3	92·7	7·3	1,948	2,101	153
May	99·8	95·1	4·9	2,086	2,193	107
June	100·5	95·8	4·2	2,143	2,237	94
July	102·3	97·5	2·5	2,154	2,209	55
August	102·2	97·4	2·6	2,168	2,226	58
September	102·4	97·6	2·4	2,175	2,228	53
October	103·8	98·9	1·1	2,125	2,149	24
November	101·0	96·3	3·7	2,089	2,169	80
December	101·0	96·3	3·7	1,959	2,034	75
January, 1927	99·1	94·4	5·6	1,973	2,090	117
February	100·6	95·9	4·1	1,993	2,078	85
March	100·2	95·5	4·5	1,993	2,087	94
April	101·2	96·4	3·6	2,082	2,160	78
May	101·5	96·7	3·3	2,191	2,266	75
June	104·0	99·1	0·9	2,243	2,263	20
July	103·7	98·8	1·2	2,259	2,286	27
August	103·4	98·5	1·5	2,270	2,305	35
September	104·1	99·2	0·8	2,257	2,275	18
October	103·3	98·4	1·6	2,227	2,263	36
November	101·3	96·5	3·5	2,213	2,293	80
December	101·2	96·4	3·6	2,061	2,138	77
January, 1928	100·1	95·4	4·6	2,087	2,188	101
February	100·1	95·4	4·6	2,100	2,201	101
March	101·3	96·5	3·5	2,095	2,171	76
April	102·6	97·8	2·2	2,188	2,237	49
May	103·5	98·6	1·4	2,331	2,364	33
June	103·0	98·2	1·8	2,409	2,453	44
July	103·8	98·9	1·1	2,442	2,469	27
August	103·8	98·9	1·1	2,438	2,465	27
September	103·8	98·9	1·1	2,434	2,461	27
October	102·9	98·1	1·9	2,436	2,483	47
November	101·9	97·1	2·9	2,391	2,462	71
December	99·8	95·1	4·9	2,236	2,351	115
January, 1929	99·4	94·7	5·3	2,264	2,391	127
February	98·6	94·0	6·0	2,282	2,428	146
March	100·1	95·4	4·6	2,264	2,373	109
April	99·4	94·7	5·3	2,383	2,516	133
May	101·5	96·7	3·3	2,504	2,589	85
June	103·1	98·3	1·7	2,556	2,600	44
July	103·0	98·2	1·8	2,619	2,667	48
August	103·0	98·2	1·8	2,599	2,647	48
September	103·0	98·2	1·8	2,576	2,623	47
October	101·4	96·6	3·4	2,556	2,646	90
November	97·8	93·2	6·8	2,443	2,621	178
December	95·5	91·0	9·0	2,282	2,508	226
January, 1930	93·2	88·8	11·2	2,291	2,580	289
February	91·8	87·5	12·5	2,263	2,586	323
March	93·1	88·7	11·3	2,214	2,496	282
April	93·7	89·3	10·7	2,288	2,562	274
May	90·3	86·1	13·9	2,391	2,777	386
June	90·8	86·5	13·5	2,442	2,823	381
July	92·0	87·7	12·3	2,440	2,782	342
August	91·1	86·8	13·2	2,395	2,759	364
September	93·4	89·0	11·0	2,388	2,683	295
October	92·4	88·1	11·9	2,320	2,633	313
November	89·3	85·1	14·9	2,230	2,620	390
December	88·0	83·9	17·9	2,093	2,549	456
January, 1931	87·5	83·4	16·6	2,071	2,483	412
February	87·4	83·3	16·7	2,062	2,475	413
March	88·2	84·1	15·9	2,053	2,441	388
April	88·9	84·7	15·3	2,103	2,483	380
May	87·1	83·0[1]	17·0[1]	2,133[1]	2,570[1]	437[1]

TABLE 3. Normally gainfully occupied population as distributed among (1) rural residence, (2) agriculture, (3) urban residence and (4) "no pay" agricultural workers, May 31, 1931-December 31, 1935

(000's omitted)

Month	Normally Gainfully Occupied Population					Normally "No Pay" Agricultural Workers
		Rural				
	Total	Total	In Agriculture	In Occupations Other than Agriculture (Col. 2 —Col. 3)	Urban (Col. 1 —Col. 2)	
	(1)	(2)	(3)	(4)	(5)	(6)
May, 1931	3,927	1,787	1,131	656	2,140	295
June	3,931	1,790	1,133	657	2,141	295
July	3,939	1,793	1,135	658	2,146	296
August	3,944	1,796	1,137	659	2,148	296
September	3,953	1,799	1,139	660	2,154	297
October	3,962	1,803	1,141	662	2,159	297
November	3,967	1,806	1,143	663	2,161	298
December	3,972	1,809	1,145	664	2,163	298
January, 1932	3,981	1,812	1,147	665	2,169	299
February	3,986	1,816	1,149	667	2,140	299
March	3,994	1,819	1,151	668	2,175	300
April	3,999	1,824	1,153	671	2,175	300
May	4,008	1,829	1,155	674	2,179	301
June	4,015	1,831	1,157	674	2,184	301
July	4,023	1,834	1,159	675	2,189	302
August	4,027	1,836	1,160	676	2,191	302
September	4,034	1,839	1,162	677	2,195	303
October	4,038	1,842	1,164	678	2,196	303
November	4,045	1,845	1,166	679	2,200	304
December	4,049	1,848	1,168	680	2,201	304
January, 1933	4,057	1,852	1,169	683	2,205	305
February	4,065	1,855	1,171	684	2,210	305
March	4,069	1,859	1,173	686	2,210	306
April	4,076	1,862	1,175	687	2,214	306
May	4,080	1,866	1,177	689	2,214	307
June	4,087	1,869	1,179	690	2,218	307
July	4,091	1,872	1,181	691	2,219	307
August	4,098	1,875	1,182	693	2,223	308
September	4,102	1,878	1,184	694	2,224	308
October	4,109	1,882	1,186	696	2,227	308
November	4,116	1,886	1,188	698	2,230	309
December	4,120	1,889	1,190	699	2,231	309
January, 1934	4,124	1,893	1,191	702	2,231	309
February	4,128	1,896	1,193	703	2,232	310
March	4,136	1,900	1,195	705	2,236	310
April	4,140	1,904	1,197	707	2,236	310
May	4,147	1,908	1,199	709	2,239	311
June	4,152	1,911	1,201	710	2,241	311
July	4,160	1,915	1,203	712	2,245	312
August	4,165	1,918	1,205	713	2,247	312
September	4,173	1,922	1,207	715	2,251	313
October	4,177	1,925	1,209	716	2,252	313
November	4,185	1,929	1,210	719	2,256	314
December	4,193	1,932	1,212	720	2,261	314
January, 1935	4,198	1,936	1,214	722	2,262	315
February	4,205	1,939	1,216	723	2,266	315
March	4,209	1,943	1,218	725	2,266	316
April	4,217	1,946	1,220	726	2,271	317
May	4,221	1,950	1,222	728	2,271	318
June	4,226	1,954	1,224	730	2,272	318
July	4,234	1,959	1,227	732	2,275	319
August	4,238	1,963	1,230	733	2,275	319
September	4,246	1,968	1,233	735	2,278	320
October	4,250	1,972	1,236	736	2,278	320
November	4,257	1,977	1,238	739	2,280	321
December	4,261	1,981	1,241	740	2,280	321

TABLE 4. Normally gainfully occupied population probably most affected by decrease in employment, May 31, 1931-May 31, 1933[1]

(000's omitted)

Month	Probable Increase in Rural "No Pay" Workers Displacing Farm Labour (1)	Increase in Non-Rural Normally Gainfully Occupied: 18-24 Years (2)	Increase in Non-Rural Normally Gainfully Occupied: 65 Years and over (3)	All Persons 17 Years and under Normally Gainfully Occupied (rural) (4)	Total of Cols. 1, 2 and 3 (5)	Probable Gradual Elimination of Normally Gainfully Occupied 17 Years and under (6)	Total Probably Thus Eliminated from Wage-Earners (Col. 5 + Col. 6) (7)
May, 1931	-	-	-	106	-	-	-
June	3	1	-	106	4	5	9
July	6	1	-	106	7	9	16
August	10	2	-	106	12	14	26
September	13	2	-	106	15	18	33
October	17	3	-	106	20	23	43
November	20	3	-	106	23	27	50
December	24	4	1	106	29	32	61
January, 1932	27	4	1	106	32	36	68
February	31	5	1	106	37	41	78
March	34	5	1	106	40	45	85
April	38	6	1	106	45	50	95
May	42	6	1	106	49	55	104
June	45	7	1	106	53	59	112
July	48	7	2	106	57	64	121
August	51	8	2	106	61	68	129
September	54	9	2	106	65	73	138
October	57	9	3	105	69	77	146
November	60	10	3	105	73	81	154
December	63	11	3	105	77	85	162
January, 1933	67	11	3	105	81	89	170
February	70	12	4	105	86	93	179
March	73	13	4	105	90	97	187
April	76	13	4	105	93	101	194
May	79	14	4	105	97	105	202

[1]The figures of this table have not been used in the construction of the estimate. They are used solely as checks. The question was whether the decrease in the number of wage-earners shown in Table 1 could be explained by very probable events, *viz.*, the increase in "no pay" farm workers displacing farm labour and the elimination from the ranks of wage-earners in urban centres of the following persons who would normally be gainfully occupied; (1) all new persons at ages 18-24 and 65 and over; (2) all new persons 17 and under which is equivalent to all persons at that age. In Table 1 the number of wage-earners are seen to have decreased from May, 1931 to the low point in March, 1933 by 243,000.

In this table the persons mentioned were sufficient to eliminate 200,000 of these, leaving about 43,000 due to such causes as back-to-the-country and back-to-independent-worker movements. This is certainly not excessive.

TABLE 5. Number of males and single females 16-70 years of age (a) coming into and (b) going out of the population, Canada, 1921-1931

(a) INCOMERS

Item	Males and Single Females 16-70 Years of Age: Total	Net Increase from Lower Ages	Immigrant Arrivals	Returning Canadians	Total Increase	Number over Age 16 at School
At Census, 1921	3,686,400	37,540	31,896	-	69,436	174,000
Expected, January 1, 1922	3,755,836	72,258	44,366	-	116,624	174,000
" " 1923	3,872,460	66,097	36,512	-	102,609	175,700
" " 1924	3,975,069	78,394	78,404	22,446	179,244	179,500
" " 1925	4,154,313	71,266	53,491	29,345	154,102	184,900
" " 1926	4,308,415	69,875	85,670	34,741	190,286	198,200
" " 1927	4,497,701	76,147	100,097	27,130	203,374	213,874
" " 1928	4,702,075	80,282	105,073	22,007	207,362	229,547
" " 1929	4,909,437	80,902	103,945	19,250	204,097	242,698
" " 1930	5,113,534	91,860	66,028	18,987	176,875	249,321
" " 1931	5,290,409	38,275	7,775	6,221	52,271	-
" June 1, 1931	5,342,680	-	-	-	1,656,280	-
Actual number Census, 1931	4,543,107	-	-	-	856,707	-
Emigration and deaths of arrivals[1]	799,573	-	-	-	799,573	-
Deaths of arrivals[1]	20,043	-	-	-	20,043	-
Net emigration	779,530	-	-	-	779,530	-
Gross emigration	987,905	-	-	-	987,905	-
Number who went out and came in again	208,375	-	-	-	208,375	-

[1]Deaths of the remainder have been allowed for already.

TABLE 5. Number of males and single females 16-70 years of age (a) coming into and (b) going out of the population, Canada, 1921-1931—Con.

(b) OUTGOERS

Year	Males and Single Females 16-70 Years of Age			Increase at School	Incomers	Net Increase
	Immigrants	Canadian Citizens	Total			
1921	27,963	37,525	65,488	–	69,436	3,948
1922	38,512	51,603	90,115	1,700	116,624	24,809
1923	75,456	100,076	175,532	3,800	102,609	−77,123
1924	70,862	95,030	165,892	3,430	179,244	7,952
1925	44,931	60,453	105,384	3,300	154,102	45,418
1926	59,671	54,346	60,313	15,614	190,286	114,359
1927	13,356	48,718	62,074	15,733	203,374	125,567
1928	21,001	43,342	64,343	13,151	207,362	129,868
1929	28,897	40,302	69,199	6,623	204,097	128,275
1930	68,852	26,697	95,549	–	176,875	74,703
To June, 1931	28,689	5,579	34,268	–	52,271	11,380
Total	424,486	563,671	987,905			

TABLE 6. Population 10 years of age and over, by age group[1] and sex, Canada, 1931, and estimated, 1932-1941

(000's omitted)

Age Group	Population										
	1931	Estimated									
		1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
MALES											
10 years and over[2]	**4,256**	**4,333**	**4,406**	**4,475**	**4,546**	**4,615**	**4,677**	**4,744**	**4,802**	**4,854**	**4,892**
10-13	438	450	456	459	456	452	448	446	441	428	406
14	105	103	107	109	116	115	113	113	113	111	110
15	103	105	103	107	109	116	114	113	112	113	111
16-17	215	212	208	207	209	215	224	230	227	225	224
18-19	207	212	214	210	206	206	208	214	223	228	226
20-24	464	474	488	500	511	518	521	517	516	517	529
25-34	778	797	818	834	852	860	882	900	921	943	960
35-44	707	710	707	700	711	712	715	720	732	742	748
45-54	589	598	612	629	637	646	650	658	661	666	664
55-64	356	369	381	399	413	434	452	471	487	500	520
65-69	120	124	126	130	131	136	139	145	146	156	158
70 and over	174	179	186	191	195	205	211	217	223	225	236
FEMALES											
10 years and over[2]	**3,910**	**3,987**	**4,067**	**4,140**	**4,213**	**4,283**	**4,351**	**4,421**	**4,486**	**4,543**	**4,589**
10-13	428	441	450	452	448	443	438	436	432	422	403
14	103	100	104	108	114	113	113	110	110	108	107
15	102	102	100	104	108	114	112	113	110	110	108
16-17	211	208	204	202	203	211	221	226	225	222	220
18-19	202	208	210	207	203	201	202	210	220	225	224
20-24	447	459	475	488	501	507	512	507	506	507	519
25-34	717	734	755	773	796	809	837	862	889	914	931
35-44	628	636	640	640	653	655	658	661	670	680	688
45-54	485	495	509	524	533	544	554	566	575	585	591
55-64	306	315	324	338	348	365	378	394	407	418	435
65-69	110	114	114	118	116	122	122	127	128	136	137
70 and over	171	175	182	186	190	199	204	209	214	216	226

[1]Corresponding to the age groups compiled by occupations.
[2]Persons of unstated age are omitted.

TABLE 7. Number gainfully occupied 10 years of age and over, by age group and sex, 1931, and estimated by 1931 percentage of population gainfully occupied, Canada, 1932-1941

(000's omitted)

Age Group	Gainfully Occupied											
	Actual P.C. 1931	1931 Census	Estimated									
			1932	1933	1934	1935	1936	1937	1938	1939	1940	1941
MALES												
10 years and over[2]	76·69	3,261[1]	3,327	3,384	3,439	3,500	3,557	3,614	3,674	3,731	3,790	3,841
10-13	1·11	5	5	5	5	5	5	5	5	5	5	5
14	11·18	12	12	12	12	13	13	13	13	13	12	12
15	26·56	27	28	27	28	29	31	30	30	30	30	29
16-17	55·12	119	117	115	114	115	119	123	127	125	124	123
18-19	80·33	166	170	172	169	165	165	167	172	179	183	182
20-24	92·64	429	439	452	463	473	480	483	479	478	479	490
25-34	97·73	759	779	799	815	833	840	862	880	900	921	938
35-44	97·82	690	695	692	685	696	697	699	704	716	726	732
45-54	96·61	568	578	591	608	615	624	628	636	639	643	641
55-64	90·77	323	335	346	362	375	394	410	428	442	454	472
65-69	75·48	91	94	95	98	99	103	105	109	110	118	119
70 and over	42·00	73	75	78	80	82	86	89	91	94	95	99
FEMALES												
10 years and over[2]	17·04	666[1]	681	696	708	721	731	744	757	771	784	793
10-13	0·13	1	1	1	1	1	1	1	1	1	1	1
14	1·92	2	2	2	2	2	2	2	2	2	2	2
15	6·00	6	6	6	6	6	7	7	7	7	7	6
16-17	20·72	44	43	42	42	42	42	44	46	47	46	46
18-19	40·39	81	84	85	84	82	81	82	85	89	91	90
20-24	42·36	189	194	201	207	212	215	217	215	214	215	220
25-34	21·73	156	159	164	168	173	176	182	187	193	199	202
35-44	12·98	81	83	83	83	85	85	85	86	87	88	89
45-54	11·54	56	57	59	60	62	63	64	65	66	68	68
55-64	10·69	33	34	35	36	37	39	40	42	44	45	47
65-69	8·61	10	10	10	10	10	11	11	11	11	12	12
70 and over	4·59	8	8	8	9	9	9	9	10	10	10	10

[1]Calculation to the nearest thousand causes a slight difference between the age groups and the total in 1931.
[2]Persons of unstated age are omitted.

TABLE 8. Rural population 1931, and estimated rural population, by age group and sex, Canada, 1932-1935

(000's omitted)

Age Group	Rural Population				
	1931 Census	Estimated			
		1932	1933	1934	1935
MALES					
10 years and over[1]	2,024	2,064	2,101	2,137	2,176
10-13	224	230	232	234	234
14	53	53	56	56	59
15	53	53	53	55	56
16-17	109	108	106	106	108
18-19	106	108	109	107	105
20-24	228	237	246	254	260
25-34	352	363	376	387	401
35-44	309	310	308	306	312
45-54	264	268	273	279	281
55-64	173	178	182	189	194
65-69	62	63	64	66	66
70 and over	91	93	96	98	100

[1]Persons of unstated age are omitted.

TABLE 8. Rural population 1931, and estimated rural population, by age group and sex, Canada, 1932-1935—Con.

(000's omitted)

Age Group	Rural Population				
	1931 Census	Estimated			
		1932	1933	1934	1935
FEMALES					
10 years and over[1]	**1,639**	**1,682**	**1,724**	**1,764**	**1,806**
10-13	215	222	226	228	228
14	50	50	53	54	57
15	49	50	50	53	54
16-17	96	98	99	100	103
18-19	84	91	95	98	98
20-24	173	181	191	202	215
25-34	278	284	291	298	306
35-44	246	249	251	251	256
45-54	195	199	204	209	212
55-64	129	133	136	141	145
65-69	47	49	49	50	50
70 and over	75	76	79	80	82

TABLE 9. Estimated rural population normally gainfully occupied, by age group and sex, Canada, 1931-1935

(000's omitted)

Age Group	Rural Gainfully Occupied					
	Actual P.C. 1931	Estimated No.				
		1931	1932	1933	1934	1935
BOTH SEXES[2]						
10 years and over[1]		**1,787**	**1,829**	**1,866**	**1,903**	**1,950**
10-17		106	106	105	107	110
18-19		119	124	125	125	125
20-24		284	295	309	322	332
25-44		738	752	765	776	796
45-54		278	282	286	293	296
55-64		171	175	180	186	191
65 and over		91	95	96	99	100
MALES						
10 years and over[1]		**1,520**	**1,553**	**1,581**	**1,613**	**1,648**
10-13	1·11	2	3	3	3	3
14	11·18	6	6	6	6	7
15	26·56	14	14	14	15	15
16-17	55·12	60	59	58	58	60
18-19	80·33	85	87	87	86	85
20-24	92·64	211	219	228	236	241
25-34	97·73	344	355	367	379	392
35-44	97·82	302	303	302	299	305
45-54	96·61	255	259	263	269	272
55-64	90·77	157	161	165	171	176
65-69	75·48	46	48	48	50	50
70 and over	42·00	38	39	40	41	42
FEMALES						
10 years and over[1]		**267**	**276**	**285**	**295**	**303**
10-13	0·13	–	–	–	–	–
14	1·92	1	1	1	1	1
15	6·00	3	3	3	3	3
16-17	20·72	20	20	20	21	21
18-19	40·39	34	37	38	39	40
20-24	42·36	73	76	81	86	91
25-34	21·73	60	62	63	65	66
35-44	12·98	32	32	33	33	33
45-54	11·54	23	23	23	24	24
55-64	10·69	14	14	15	15	15
65-69	8·61	4	4	4	4	4
70 and over	4·59	3	4	4	4	4

[1]Persons of unstated age are omitted. Totals are addition of age groups, not calculated separately.
[2]Addition of males and females, not calculated separately.

TABLE 10. Estimated rural population normally gainfully occupied in agriculture, by age group and sex, Canada, 1931-1935

(000's omitted)

Age Group	Occupied in Agriculture					
	Actual P.C. 1931	Estimated No.				
		1931	1932	1933	1934	1935
MALES						
10 years and over[1]		**1,107**	**1,131**	**1,152**	**1,174**	**1,196**
10–17	22·41	99	99	100	101	102
18–19	68·33	72	74	74	73	72
20–24	65·02	148	154	160	165	169
25–34	60·73	214	220	228	235	243
35–44	63·25	195	196	195	194	197
45–54	67·17	177	180	183	187	189
55–64	70·05	121	125	128	132	136
65–69	66·33	41	42	42	44	44
70 and over	44·05	40	41	42	43	44
FEMALES						
10 years and over[1]		**24**	**24**	**25**	**25**	**26**
10–17	0·30	1	1	1	1	1
18–19	1·07	1	1	1	1	1
20–24	0·74	1	1	1	1	2
25–34	0·55	2	2	2	2	2
35–44	1·26	3	3	3	3	3
45–54	2·87	6	6	6	6	6
55–64	4·46	6	6	6	6	6
65–69	4·66	2	2	2	2	2
70 and over	3·25	2	2	3	3	3

[1]Persons of unstated age are omitted. Totals are addition of age groups, not calculated separately.

TABLE 11. Estimated rural "no pay" workers, by age group, Canada, 1931-1935

(000's omitted)

Age Group	Rural "No Pay" Workers					
	Actual P.C. of Rural Gainfully Occupied 1931	Estimated No.				
		1931	1932	1933	1934	1935
10 years and over[1]		**295**	**301**	**307**	**311**	**318**
10–17	76·88	82	82	82	82	84
18–19	42·52	51	53	53	53	53
20–24	28·41	81	84	88	91	94
25–44	9·49	70	71	73	74	76
45–54	1·66	5	5	5	5	5
55–64	1·72	3	3	3	3	3
65 and over	3·46	3	3	3	3	3

[1]Persons of unstated age are omitted. Totals are addition of age groups, not calculated separately.

TABLE 12. Labour union data, by months, June 30, 1920-December 31, 1935

Month	No.			Unemployed Reporting Members		P.C. Reporting of Registered Members
	Registered Members	Reporting				
		Unions	Members	No.	P.C.	
	(1)	(2)	(3)	(4)	(5)	(6)
June, 1920	373,842	1,565	194,023	4,812	2·5	51·9
July	368,799	1,464	185,527	4,894	2·6	50·3
August	363,756	1,464	187,432	5,925	3·2	51·5
September	358,692	1,468	189,253	6,154	3·3	52·8
October	353,649	1,509	215,212	12,898	6·0	60·9
November	348,606	1,498	216,285	21,659	10·0	62·0
December	343,562	1,573	208,320	27,953	13·4	60·6
January, 1921	338,519	1,538	197,928	25,871	13·1	58·5
February	333,476	1,513	198,276	31,958	16·1	59·5
March	328,432	1,563	206,901	34,106	16·5	63·0
April	323,389	1,661	204,357	33,254	16·3	63·2
May	318,346	1,672	201,496	31,153	15·5	63·3
June	313,320	1,511	181,552	23,866	13·2	57·9
July	310,362	1,542	182,624	16,610	9·1	58·8
August	307,204	1,617	188,963	16,450	8·7	61·5
September	304,146	1,615	183,373	15,530	8·5	60·3
October	301,087	1,552	174,336	12,940	7·4	57·9
November	298,028	1,506	164,107	18,151	11·1	55·1
December	294,960	1,520	161,085	24,311	15·1	54·6
January, 1922	291,902	1,525	159,280	22,059	13·9	54·6
February	288,864	1,528	163,033	17,209	10·6	56·4
March	285,805	1,480	157,639	15,173	9·6	55·2
April	282,747	1,412	141,505	14,708	10·4	50·0
May	279,689	1,423	150,505	13,138	8·7	53·8
June	276,621	1,437	151,564	8,101	5·3	54·8
July	276,743	1,541	162,632	6,699	4·1	58·8
August	276,866	1,474	148,408	5,399	3·6	53·6
September	276,989	1,477	161,182	4,568	2·8	58·2
October	277,113	1,468	153,642	5,998	3·9	55·4
November	277,236	1,427	147,243	9,052	6·2	53·1
December	277,360	1,469	155,006	9,982	6·4	55·9
January, 1923	277,483	1,372	140,585	10,925	7·8	50·7
February	277,607	1,435	149,969	9,664	6·4	54·0
March	277,730	1,404	149,000	10,185	6·8	53·6
April	277,854	1,368	149,536	6,902	4·6	53·8
May	277,977	1,426	156,939	7,087	4·5	56·5
June	278,092	1,449	155,056	5,299	3·4	55·8
July	276,638	1,481	154,522	4,445	2·9	55·9
August	275,184	1,440	152,505	3,308	2·2	55·4
September	273,730	1,475	151,461	3,018	2·0	55·3
October	272,276	1,461	156,849	7,508	4·8	57·6
November	270,822	1,456	153,366	9,535	6·2	56·6
December	269,368	1,532	162,313	11,767	7·2	60·3
January, 1924	267,914	1,522	156,272	11,768	7·5	58·3
February	266,460	1,492	155,546	12,112	7·8	58·4
March	264,906	1,459	150,129	10,051	6·7	56·7
April	263,452	1,452	154,160	7,882	5·1	58·5
May	261,998	1,455	158,023	11,571	7·3	60·3
June	260,643	1,501	158,325	9,250	5·8	60·7
July	261,511	1,483	155,429	8,327	5·4	59·4
August	262,379	1,496	155,117	10,160	6·5	59·1
September	263,248	1,527	154,181	9,156	5·9	58·6
October	264,116	1,487	149,292	10,162	6·8	56·5
November	264,984	1,501	154,375	14,038	9·7	58·3
December	265,853	1,529	158,367	18,373	11·6	59·6
January, 1925	266,721	1,606	160,365	16,425	10·2	60·1
February	267,589	1,642	164,367	15,619	9·5	61·4
March	268,458	1,550	154,558	13,159	8·5	57·6
April	269,326	1,500	154,738	13,436	8·7	57·5
May	270,194	1,483	151,284	10,568	7·0	56·0
June	271,064	1,543	157,268	9,578	6·1	58·0
July	271,359	1,531	156,133	8,054	5·2	57·5
August	271,654	1,507	153,550	6,689	4·4	56·5
September	271,949	1,517	148,161	8,374	5·7	54·5
October	272,244	1,503	146,559	7,486	5·1	53·8
November	272,539	1,532	147,853	8,445	5·7	54·3
December	272,834	1,556	148,922	11,716	7·9	54·6
January, 1926	273,129	1,547	146,999	11,972	8·1	53·8
February	273,424	1,573	148,068	12,012	8·1	54·2
March	273,719	1,547	152,234	11,069	7·3	55·6
April	274,014	1,512	151,972	11,157	7·3	55·5
May	274,319	1,558	150,765	7,442	4·9	55·0
June	274,604	1,502	145,732	5,965	4·1	53·1
July	275,910	1,487	140,256	3,288	2·3	50·8
August	277,217	1,504	139,345	3,551	2·5	50·3
September	278,523	1,540	146,202	4,837	3·3	52·5
October	279,830	1,541	151,130	3,929	2·6	54·0
November	281,137	1,501	149,627	7,039	4·7	53·2
December	282,443	1,560	157,701	9,349	5·9	55·8

TABLE 12. Labour union data, by months, June 30, 1920-December 31, 1935—Con.

Month	No.			Unemployed Reporting Members		P.C. Reporting of Registered Members
	Registered Members	Reporting				
		Unions	Members	No.	P.C.	
	(1)	(2)	(3)	(4)	(5)	(6)
January, 1927	283,749	1,541	151,496	9,748	6·4	53·4
February	285,056	1,571	162,042	10,596	6·5	56·8
March	286,362	1,509	156,664	8,975	5·7	54·7
April	287,669	1,549	164,948	9,833	6·0	57·3
May	288,975	1,576	163,754	8,475	5·2	56·7
June	290,282	1,561	167,711	5,410	3·2	57·8
July	291,142	1,569	167,648	5,466	3·3	57·6
August	292,002	1,602	170,024	6,210	3·7	58·2
September	292,862	1,601	171,435	5,366	3·1	58·5
October	293,722	1,641	172,737	6,743	3·9	58·8
November	294,582	1,591	170,918	8,941	5·2	58·0
December	295,442	1,696	180,204	11,822	6·6	61·0
January, 1928	296,302	1,668	176,421	12,082	6·8	59·5
February	297,162	1,677	178,892	12,534	7·0	60·2
March	298,022	1,705	183,846	11,965	6·5	61·7
April	298,882	1,642	185,318	9,573	5·2	62·0
May	299,742	1,697	182,383	6,657	3·7	60·8
June	300,602	1,608	178,578	5,800	3·2	59·4
July	302,174	1,600	180,111	4,539	2·5	59·6
August	303,747	1,604	181,022	4,274	2·4	59·6
September	305,320	1,626	181,615	4,068	2·2	59·5
October	306,893	1,652	184,580	5,705	3·1	60·1
November	308,466	1,672	186,528	7,742	4·2	60·5
December	310,039	1,695	190,839	12,553	6·6	61·6
January, 1929	311,611	1,697	188,152	11,878	6·3	60·4
February	313,184	1,673	188,888	12,834	6·8	60·3
March	314,757	1,727	194,890	11,662	6·0	61·9
April	316,330	1,661	188,874	10,382	5·5	59·7
May	317,903	1,642	193,787	7,830	4·0	61·0
June	319,476	1,688	198,849	5,723	2·9	62·2
July	319,724	1,690	200,115	6,025	3·0	62·6
August	320,072	1,709	204,547	7,078	3·5	63·9
September	320,320	1,762	206,617	7,654	3·7	64·5
October	320,568	1,750	212,328	12,716	6·0	66·2
November	320,816	1,761	212,973	19,832	9·3	66·4
December	321,064	1,790	213,065	24,201	11·4	66·4
January, 1930	321,312	1,772	211,811	22,795	10·8	65·9
February	321,539	1,760	209,327	24,175	11·5	65·1
March	321,766	1,765	211,864	22,912	10·8	65·8
April	321,993	1,719	206,326	18,581	9·0	64·1
May	322,220	1,679	198,595	20,424	10·3	61·6
June	322,449	1,688	201,672	21,292	10·6	62·5
July	321,457	1,676	200,122	18,473	9·2	62·3
August	320,465	1,630	196,048	18,160	9·3	61·2
September	319,473	1,737	205,910	19,422	9·4	64·5
October	318,481	1,780	207,433	22,390	10·8	65·1
November	317,489	1,798	205,854	28,337	13·8	64·8
December	316,497	1,904	219,641	37,437	17·0	69·4
January, 1931	315,505	1,866	210,402	33,700	16·0	66·7
February	314,513	1,832	202,669	31,602	15·6	64·4
March	313,521	1,825	208,387	32,208	15·5	66·5
April	312,529	1,807	206,563	30,786	14·9	66·1
May	311,537	1,808	198,059	32,163	16·2	63·6
June	310,544	1,849	200,505	32,667	16·3	64·6
July	308,297	1,862	199,923	32,396	16·2	64·8
August	306,050	1,833	197,863	31,247	15·8	64·7
September	303,082	1,841	193,849	35,048	18·1	64·0
October	301,555	1,864	192,603	35,325	18·3	63·9
November	299,308	1,819	189,031	35,206	18·6	63·2
December	297,060	1,874	188,553	39,713	21·1	63·5
January, 1932	294,812	1,849	187,891	41,330	22·0	63·7
February	292,565	1,819	183,159	37,754	20·6	62·6
March	290,318	1,828	181,396	36,961	20·4	62·5
April	288,071	1,806	178,076	40,936	23·0	61·8
May	285,824	1,800	175,411	38,692	22·1	61·4
June	283,576	1,791	175,006	38,372	21·9	61·7
July	283,796	1,806	171,831	37,508	21·8	60·5
August	284,016	1,762	163,530	34,949	21·4	57·6
September	284,236	1,732	162,186	33,146	20·4	57·1
October	284,456	1,765	162,682	35,788	22·0	57·2
November	284,676	1,797	161,058	36,783	22·8	56·6
December	284,896	1,764	155,298	39,607	25·5	54·5
January, 1933	285,116	1,808	156,746	39,909	25·5	55·0
February	285,337	1,762	150,168	36,494	24·3	52·6
March	285,558	1,736	151,307	38,002	25·1	53·0
April	285,779	1,716	153,623	37,659	24·5	53·8
May	286,000	1,704	148,016	35,201	23·8	51·8
June	286,220	1,692	150,040	32,756	21·8	52·4
July	285,850	1,714	151,363	32,131	21·2	53·0
August	285,480	1,705	151,233	30,096	19·9	53·0
September	285,110	1,762	149,310	29,492	19·8	52·4
October	284,740	1,734	148,703	29,417	19·8	52·2
November	284,370	1,722	146,946	29,908	20·4	51·7
December	284,000	1,726	146,770	30,799	21·0	51·7

TABLE 12. Labour union data, by months, June 30, 1920-December 31, 1935—Con.

Month	No.			Unemployed Reporting Members		P.C. Reporting of Registered Members
	Registered Members	Reporting				
		Unions	Members	No.	P.C.	
	(1)	(2)	(3)	(4)	(5)	(6)
January, 1934	283,629	1,728	149,630	31,695	21·2	52·8
February	283,258	1,734	148,048	29,568	20·0	52·3
March	282,887	1,666	145,476	28,436	19·5	51·4
April	282,516	1,693	150,638	28,725	19·1	53·3
May	282,145	1,705	156,963	28,994	18·5	55·6
June	281,774	1,702	159,722	28,774	18·0	56·7
July	282,754	1,701	156,357	27,945	17·9	55·3
August	282,568	1,700	158,970	26,191	16·5	56·3
September	282,382	1,700	159,675	26,204	16·4	56·5
October	282,196	1,765	162,066	26,291	16·2	57·4
November	282,010	1,735	159,169	27,904	17·5	56·4
December	281,824	1,767	161,618	29,112	18·0	57·3
January, 1935	281,638	1,783	161,713	29,284	18·1	57·4
February	281,452	1,721	160,929	29,227	18·2	57·2
March	281,266	1,735	160,062	26,724	16·7	56·9
April	281,080	1,735	162,410	27,562	17·0	57·8
May	280,894	1,755	164,320	26,078	15·9	58·5
June	280,704	1,684	161,789	24,991	15·4	57·6
July	284,185	1,723	164,357	24,736	15·1	57·8
August	287,666	1,727	166,636	23,640	14·2	57·9
September	291,147	1,763	166,764	21,759	13·0	57·3
October	294,628	1,777	169,839	22,583	13·3	57·6
November	298,109	1,761	169,584	22,575	13·3	56·9
December	301,590	1,807	170,503	24,868	14·6	56·5

TABLE 13. Index of membership employed and reporting in labour unions and percentage of membership reporting, percentage employed, corrections and final corrected percentage employed, June 30, 1920-December 31, 1935

Month	Index of Membership (base 1926)		P.C. of Membership Reporting	P.C. Employed	Correction for Size of Sample	Further Correction for Decrease in Membership	Final Corrected P.C. Employed
	Employed	Reporting					
June, 1920	134·5	130·8	51·9	97·5	0·0		97·5
July	128·4	125·1	50·3	97·4	−1·1		96·3
August	129·0	126·4	51·5	96·8	−0·9		95·9
September	130·1	127·6	52·8	96·7	0·3		97·0
October	143·8	145·1	60·9	94·0	5·3		99·3
November	138·3	145·8	62·0	90·0	5·9		95·9
December	128·2	140·4	60·6	86·6	5·0		91·6
January, 1921	122·3	133·4	58·5	86·9	3·5		90·4
February	118·2	133·7	59·5	83·9	4·1		88·0
March	122·8	139·5	63·0	83·5	6·2		89·7
April	121·6	137·8	63·2	83·7	6·2		89·9
May	121·1	135·8	63·3	84·5	6·2		90·7
June	112·1	122·4	57·9	86·8	2·7		89·5
July	118·0	123·1	58·8	90·9	3·2		94·1
August	122·6	127·4	61·5	91·3	4·8		96·1
September	119·3	123·6	60·3	91·5	4·0		95·5
October	114·7	117·5	57·9	92·6	2·4		95·0
November	103·7	110·6	55·1	88·9	0·5		89·4
December	97·2	108·6	54·6	84·9	0·1		85·0
January, 1922	97·5	107·4	54·6	86·1	0·0		86·1
February	103·6	109·9	56·4	89·4	1·1		90·5
March	101·2	106·3	55·2	90·4	0·0		90·4
April	90·1	95·4	50·0	89·6	−0·2		89·4
May	97·6	101·5	53·8	91·3	−0·1		91·2
June	102·0	102·2	54·8	94·7	0·0		94·7
July	110·8	109·6	58·8	95·9	0·1		96·0
August	101·6	100·0	53·6	96·4	−0·1		96·3
September	111·3	108·7	58·2	97·2	0·1		97·3
October	104·9	103·6	55·4	96·1	0·0		96·1
November	98·2	99·3	53·1	93·8	−0·1		93·7
December	103·1	104·5	55·9	93·6	0·0		93·6
January, 1923	92·1	94·8	50·7	92·2	−0·2		92·0
February	99·7	101·1	54·0	93·6	−0·1		93·5
March	98·7	100·4	53·6	93·2	−0·1		93·1
April	101·4	100·8	53·8	95·4	−0·1		95·3
May	106·5	105·8	56·5	95·5	0·0		95·5
June	106·4	104·5	55·8	96·6	0·0		96·6
July	106·7	104·2	55·9	97·1	0·0		97·1
August	106·0	102·8	55·4	97·8	0·0		97·8
September	105·5	102·1	55·3	98·0	0·0		98·0
October	106·1	105·7	57·6	95·2	0·0		95·2
November	102·2	103·4	56·6	93·8	0·0		93·8
December	107·0	109·4	60·3	92·8	0·1		92·9

TABLE 13. Index of membership employed and reporting in labour unions and percentage of membership reporting, percentage employed, corrections and final corrected percentage employed, June 30, 1920-December 31, 1935—Con.

Month	Index of Membership (base 1926)		P.C. of Membership Reporting	P.C. Employed	Correction for Size of Sample	Further Correction for Decrease in Membership	Final Corrected P.C. Employed
	Employed	Reporting					
January, 1924	102·7	105·4	58·3	92·5	0·1		92·6
February	101·9	104·9	58·4	92·2	0·1		92·3
March	99·5	101·2	56·7	93·3	0·0		93·3
April	104·0	103·9	58·5	94·9	0·1		95·0
May	104·1	106·5	60·3	92·7	0·1		92·8
June	105·9	106·7	60·7	94·2	0·1		94·3
July	104·5	104·8	59·4	94·6	0·1		94·7
August	103·0	104·6	59·1	93·5	0·1		93·6
September	103·1	103·9	58·6	94·1	0·1		94·2
October	98·9	100·6	56·5	93·2	0·0		93·2
November	99·7	104·1	58·3	90·3	0·1		90·4
December	99·5	106·8	59·6	88·4	0·1		88·5
January, 1925	102·3	108·1	60·1	89·8	0·1		89·9
February	105·7	110·8	61·4	90·5	0·2		90·7
March	100·5	104·2	57·6	91·5	0·0		91·5
April	100·4	104·3	57·5	91·3	0·0		91·3
May	100·0	102·0	56·0	93·0	0·0		93·0
June	105·0	106·0	58·0	93·9	0·0		93·9
July	105·2	105·3	57·5	94·8	0·0		94·8
August	104·4	103·5	56·5	95·6	0·0		95·6
September	99·3	99·9	54·5	94·3	−0·1		94·2
October	98·8	98·8	53·8	94·9	−0·1		94·8
November	99·1	99·7	54·3	94·3	−0·1		94·2
December	97·5	100·4	54·6	92·1	−0·1		92·0
January, 1926	96·0	99·1	53·8	91·9	−0·1		91·8
February	96·7	99·8	54·2	91·9	−0·1		91·8
March	100·3	102·6	55·6	92·7	0·0		92·7
April	100·1	102·5	55·5	92·7	0·0		92·7
May	101·9	101·6	55·0	95·1	0·0		95·1
June	99·3	98·2	53·1	95·9	−0·1		95·8
July	97·3	94·6	50·8	97·7	−0·2		97·5
August	96·5	93·9	50·3	97·5	−0·2		97·3
September	100·5	98·6	52·5	96·7	0·9		97·6
October	104·6	101·9	54·0	97·4	1·5		98·9
November	101·3	100·9	53·2	95·3	1·0		96·3
December	105·4	106·3	55·8	94·1	2·2		96·3
January, 1927	100·7	102·1	53·4	93·6	0·8		94·4
February	107·6	109·2	56·8	93·5	2·4		95·9
March	105·0	105·6	54·7	94·3	1·2		95·5
April	110·2	111·2	57·3	94·0	2·4		96·4
May	110·4	110·4	56·7	94·8	1·9		96·7
June	115·3	113·1	57·8	96·8	2·3		99·1
July	115·3	113·0	57·6	96·7	2·1		98·8
August	116·4	114·6	58·2	96·3	2·2		98·5
September	118·0	115·6	58·5	96·9	2·3		99·2
October	118·0	116·4	58·8	96·1	2·3		98·4
November	115·1	115·2	58·0	94·8	1·7		96·5
December	119·7	121·5	61·0	93·4	3·0		96·4
January, 1928	116·8	118·9	59·5	93·2	2·2		95·4
February	118·2	120·6	60·2	93·0	2·4		95·4
March	122·2	123·9	61·7	93·5	3·0		96·5
April	124·9	124·9	62·0	94·8	3·0		97·8
May	124·9	123·0	60·8	96·3	2·3		98·6
June	122·8	120·4	59·4	96·8	1·4		98·2
July	124·8	121·4	59·6	97·5	1·4		98·9
August	125·6	122·0	59·6	97·6	1·3		98·9
September	126·2	122·4	59·5	97·8	1·1		98·9
October	127·1	124·4	60·1	96·9	1·2		98·1
November	127·1	125·7	60·5	95·8	1·3		97·1
December	126·7	128·7	61·6	93·4	1·7		95·1
January, 1929	125·3	126·8	60·4	93·7	1·0		94·7
February	125·1	127·3	60·3	93·2	0·8		94·0
March	130·2	131·4	61·9	94·0	1·4		95·4
April	126·8	127·3	59·7	94·5	0·2		94·7
May	132·2	130·6	61·0	96·0	0·7		96·7
June	137·2	134·1	62·2	97·1	1·2		98·3
July	137·9	134·9	62·6	97·0	1·2		98·2
August	140·3	137·9	63·9	96·5	1·7		98·2
September	141·4	139·3	64·5	96·3	1·9		98·2
October	141·9	143·1	66·2	94·0	2·6		96·6
November	137·3	143·6	66·4	90·7	2·5		93·2
December	134·2	143·6	66·4	88·6	2·4		91·0

TABLE 13. Index of membership employed and reporting in labour unions and percentage of membership reporting, percentage employed, corrections and final corrected percentage employed, June 30, 1920-December 31, 1935—Con.

Month	Index of Membership (base 1926)		P.C. of Membership Reporting	P.C. Employed	Correction for Size of Sample	Further Correction for Decrease in Membership	Final Corrected P.C. Employed
	Employed	Reporting					
January, 1930	134·3	142·8	65·9	89·2	−0·4		88·8
February	131·6	141·1	65·1	88·5	−1·0		87·5
March	134·3	142·8	65·8	89·2	−0·5		88·7
April	133·4	139·1	64·1	91·0	−1·7		89·3
May	126·6	133·9	61·6	89·7	−3·6		86·1
June	128·2	136·0	62·5	89·4	−2·9		86·5
July	129·1	134·9	62·3	90·8	−3·1		87·7
August	126·4	132·2	61·2	90·7	−3·9		86·8
September	132·5	138·8	64·5	90·6	−1·6		89·0
October	131·5	139·8	65·1	89·2	−1·1		88·1
November	126·2	138·8	64·8	86·2	−1·1		85·1
December	129·5	148·1	69·4	83·0	0·9		83·9
January, 1931	125·6	141·8	66·7	84·0	−0·6		83·4
February	121·6	136·6	64·4	84·4	−1·1		83·3
March	125·2	140·5	66·5	84·5	−0·4		84·1
April	124·9	139·3	66·1	85·1	−0·4		84·7
May	117·9	133·5	63·6	83·8	−0·9		82·9
June	119·3	135·2	64·6	83·7	−0·5	0·0	83·2
July	119·1	134·8	64·8	83·8	−0·3	−0·2	83·3
August	118·4	133·4	64·7	84·2	−0·2	−0·5	83·5
September	112·9	130·7	64·0	81·9	−0·3	−0·8	80·8
October	111·8	129·8	63·9	81·7	−0·2	−0·9	80·6
November	109·3	127·4	63·2	81·4	−0·2	−1·2	80·0
December	105·8	127·1	63·5	78·9	0·0	−1·4	77·5
January, 1932	104·2	126·7	63·7	78·0	0·2	−1·6	76·6
February	103·3	123·5	62·6	79·4	0·0	−1·8	77·6
March	102·6	122·3	62·5	79·6	0·1	−2·1	77·6
April	97·5	120·0	61·8	77·0	0·1	−2·2	74·9
May	97·2	118·3	61·4	77·9	0·1	−2·6	75·4
June	97·1	118·0	61·7	78·1	0·3	−2·7	75·7
July	95·5	115·8	60·5	78·2	0·1	−2·7	75·6
August	91·4	110·2	57·6	78·6	−0·5	−2·6	75·5
September	91·7	109·3	57·1	79·6	−0·5	−2·4	76·7
October	90·2	109·7	57·2	78·0	−0·4	−2·3	75·3
November	88·3	108·6	56·6	77·2	−0·4	−2·2	74·6
December	82·2	104·7	54·5	74·5	−0·8	−2·0	71·7
January, 1933	83·0	105·7	55·0	74·5	−0·6	−1·8	72·1
February	80·8	101·2	52·6	75·7	−1·1	−1·7	72·9
March	80·5	102·0	53·0	74·9	0·0	−1·6	73·3
April	82·4	103·6	53·8	75·5	0·2	−1·5	74·2
May	80·2	99·8	51·8	76·2	−0·3	−1·4	74·5
June	83·4	101·1	52·4	78·2	−0·2	−1·3	76·7
July	84·7	102·0	53·0	78·8	−0·1	−1·3	77·4
August	86·1	102·0	53·0	80·1	−0·2	−2·8	77·1
September	85·2	100·7	52·4	80·2	−0·3	−1·2	78·7
October	84·8	100·2	52·2	80·2	−0·4	−1·2	78·6
November	83·2	99·1	51·7	79·6	−0·5	−1·1	78·0
December	82·4	98·9	51·7	79·0	−0·6	−1·1	77·3
January, 1934	83·8	100·9	52·8	78·8	−0·4	−1·1	77·3
February	84·2	99·8	52·3	80·0	−0·5	−1·1	78·4
March	83·2	98·1	51·4	80·5	−0·7	−1·0	78·8
April	86·6	101·6	53·3	80·9	−0·4	−0·1	80·4
May	90·9	105·8	55·6	81·5	0·0	−0·2	81·3
June	93·1	107·7	56·7	82·0	0·2	−0·2	82·0
July	91·3	105·4	55·3	82·1	−0·1	−0·2	81·8
August	94·4	107·2	56·3	83·5	0·0	−0·2	83·3
September	94·9	107·6	56·5	83·6	0·0	−0·3	83·3
October	96·5	109·3	57·4	83·8	0·2	−0·4	83·6
November	93·3	107·3	56·4	82·5	−0·1	−0·5	81·9
December	94·2	109·0	57·3	82·0	0·1	−0·6	81·5
January, 1935	94·1	109·0	57·4	81·9	0·0	−0·6	81·3
February	93·6	108·5	57·2	81·8	0·0	−0·6	81·2
March	94·8	107·9	56·9	83·3	−0·1	−0·7	82·5
April	95·8	109·5	57·8	83·0	0·0	−0·8	82·2
May	98·2	110·8	58·5	84·1	0·1	−0·9	83·3
June	97·2	109·1	57·6	84·6	−0·1	−1·0	83·5
July	99·2	110·8	57·8	84·9	−0·1	−0·7	84·1
August	101·6	112·3	57·9	85·8	−0·1	−0·5	85·2
September	103·1	112·4	57·3	87·0	−0·3	−0·2	86·5
October	104·7	114·5	57·6	86·7	−0·3	0·0	86·4
November	104·5	114·3	56·9	86·7	−0·4	0·2	86·5
December	103·5	114·9	56·5	85·4	−0·6	0·5	85·3

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935

No.	Month	All Industries				Manufacturing	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	June, 1920	1,565	194,023	4,812	2·5	392	51,259
2	July	1,464	185,527	4,894	2·6	369	50,373
3	August	1,464	187,432	5,925	3·2	378	53,730
4	September	1,468	189,253	6,154	3·3	362	51,525
5	October	1,509	215,212	12,898	6·0	384	56,034
6	November	1,498	216,285	21,659	10·0	386	55,273
7	December	1,573	208,320	27,953	13·4	378	49,655
8	January, 1921	1,538	197,928	25,871	13·1	357	50,076
9	February	1,513	198,276	31,958	16·1	349	49,647
10	March	1,563	206,901	34,106	16·5	374	51,997
11	April	1,661	204,357	33,254	16·3	397	51,351
12	May	1,672	201,496	31,153	15·5	407	51,529
13	June	1,511	181,552	23,866	13·2	357	42,698
14	July	1,542	182,624	16,610	9·1	356	44,683
15	August	1,617	188,963	16,450	8·7	366	46,413
16	September	1,615	183,373	15,530	8·5	365	44,874
17	October	1,552	174,336	12,940	7·4	355	42,015
18	November	1,506	164,107	18,151	11·1	322	38,214
19	December	1,520	161,085	24,311	15·1	324	38,165
20	January, 1922	1,525	159,280	22,059	13·9	428	47,537
21	February	1,528	163,033	17,209	10·6	418	45,100
22	March	1,480	157,639	15,173	9·6	401	45,517
23	April	1,412	141,505	14,708	10·4	393	38,791
24	May	1,423	150,505	13,138	8·7	385	44,219
25	June	1,437	151,564	8,101	5·3	409	47,249
26	July	1,541	162,632	6,699	4·1	442	52,656
27	August	1,474	148,408	5,399	3·6	408	45,029
28	September	1,477	161,182	4,568	2·8	428	54,696
29	October	1,468	153,642	5,998	3·9	425	51,611
30	November	1,427	147,243	9,052	6·2	396	49,138
31	December	1,469	155,006	9,982	6·4	405	48,652
32	January, 1923	1,372	140,585	10,925	7·8	372	44,141
33	February	1,435	149,969	9,664	6·4	399	46,578
34	March	1,404	149,000	10,185	6·8	390	44,507
35	April	1,368	149,536	6,902	4·6	365	43,803
36	May	1,426	156,939	7,087	4·5	386	46,861
37	June	1,449	155,056	5,299	3·4	399	48,969
38	July	1,481	154,522	4,445	2·9	415	48,947
39	August	1,440	152,505	3,308	2·2	396	45,982
40	September	1,475	151,461	3,018	2·0	407	45,754
41	October	1,461	156,849	7,508	4·8	405	47,065
42	November	1,456	153,366	9,535	6·2	407	46,965
43	December	1,532	162,313	11,767	7·2	429	49,241
44	January, 1924	1,522	156,272	11,768	7·5	425	47,298
45	February	1,492	155,546	12,112	7·8	413	46,584
46	March	1,459	150,129	10,051	6·7	409	46,772
47	April	1,452	154,160	7,882	5·1	404	47,215
48	May	1,455	158,023	11,571	7·3	417	51,089
49	June	1,501	158,325	9,250	5·8	414	49,041
50	July	1,483	155,429	8,327	5·4	407	46,755
51	August	1,496	155,117	10,160	6·5	411	45,267
52	September	1,527	154,181	9,156	5·9	431	45,363
53	October	1,487	149,292	10,162	6·8	413	44,035
54	November	1,501	154,375	14,938	9·7	421	45,400
55	December	1,529	158,367	18,373	11·6	415	44,949
56	January, 1925	1,606	160,365	16,425	10·2	453	46,503
57	February	1,642	164,367	15,619	9·5	459	47,716
58	March	1,550	154,558	13,159	8·5	425	42,246
59	April	1,500	154,738	13,436	8·7	417	43,883
60	May	1,483	151,284	10,568	7·0	411	44,018
61	June	1,543	157,268	9,578	6·1	426	45,047
62	July	1,531	156,133	8,054	5·2	415	45,303
63	August	1,507	153,550	6,689	4·4	404	43,840
64	September	1,517	148,161	8,374	5·7	398	42,886
65	October	1,503	146,559	7,486	5·1	407	43,272
66	November	1,532	147,853	8,445	5·7	416	43,145
67	December	1,556	148,922	11,716	7·9	409	43,539

NOTE.—0·0 indicates less than 0·1 p.c. unemployment.

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935

Manufacturing		Mining and Quarrying				Building and Construction				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
1,113	2·2	41	10,916	42	0·4	275	31,959	1,369	4·3	1
1,440	2·9	34	10,081	95	0·9	264	32,749	1,307	4·0	2
2,766	5·2	37	10,497	25	0·2	253	28,724	858	3·0	3
4,532	8·8	34	9,628	6	0·1	252	29,277	596	2·0	4
6,669	11·9	35	11,184	12	0·1	261	34,143	1,262	3·7	5
8,602	15·6	35	11,164	65	0·6	261	30,318	3,772	12·4	6
10,622	21·4	36	10,984	137	1·3	286	32,575	8,624	26·5	7
7,346	14·7	38	12,597	192	1·5	280	30,440	9,366	30·8	8
5,527	11·1	35	10,105	910	9·0	274	29,265	9,182	31·4	9
7,486	14·4	36	11,453	1,381	12·1	274	31,866	8,180	25·7	10
10,924	21·3	36	11,134	2,436	21·9	289	29,447	5,899	20·0	11
12,303	23·9	41	11,144	1,465	13·2	289	28,789	4,554	15·8	12
9,302	19·8	39	11,354	1,911	16·8	237	26,006	3,495	13·4	13
4,857	10·9	37	11,703	1,342	11·5	245	23,284	4,353	18·7	14
6,016	13·0	35	10,607	853	8·0	266	29,465	5,349	18·2	15
6,203	13·8	41	13,183	1,217	9·2	266	26,196	3,069	11·7	16
5,369	12·8	37	11,512	419	3·6	250	23,425	2,968	12·7	17
8,363	21·9	27	9,661	661	6·8	241	21,970	3,903	17·8	18
10,128	26·5	32	9,568	254	2·7	244	22,782	5,898	25·9	19
7,517	15·8	31	8,940	996	11·1	225	19,300	6,322	32·8	20
3,396	7·5	33	10,095	840	7·9	218	22,303	6,503	29·2	21
3,701	8·1	25	7,534	436	5·8	212	18,903	4,422	23·4	22
4,173	10·8	25	7,713	1,821	23·6	195	16,561	2,569	15·5	23
6,652	15·0	22	7,458	817	11·0	195	17,369	1,449	8·3	24
3,087	6·5	23	7,943	741	9·3	184	15,399	797	5·2	25
3,250	6·2	28	9,168	100	1·1	202	18,657	754	4·0	26
2,611	5·8	32	9,438	435	4·6	190	15,090	567	3·8	27
2,408	4·5	31	11,024	71	0·6	186	16,822	450	2·7	28
2,846	5·5	28	8,708	58	0·7	181	15,930	958	6·0	29
5,218	10·6	25	9,239	160	1·7	179	13,392	1,390	10·4	30
4,131	8·5	27	11,809	173	1·5	189	14,243	2,643	18·6	31
2,822	6·4	26	9,097	496	5·5	190	13,341	3,277	24·6	32
2,850	6·1	28	9,537	297	3·1	184	13,882	3,342	24·1	33
2,530	5·7	29	11,223	625	5·6	170	12,608	2,596	20·6	34
1,601	3·7	29	11,844	1,013	8·6	173	14,932	1,157	7·7	35
4,298	9·2	34	11,774	632	5·4	181	18,320	782	4·3	36
2,661	5·4	30	9,986	751	7·5	186	15,048	459	3·1	37
2,117	4·3	29	8,967	674	7·5	182	15,628	623	4·0	38
1,316	2·9	30	11,196	268	2·4	174	16,199	895	5·5	39
1,332	2·9	34	12,052	122	1·0	177	15,130	651	4·3	40
4,526	9·6	32	11,543	462	4·0	173	18,273	1,182	6·5	41
4,901	10·4	27	10,564	511	4·8	167	14,759	1,924	13·0	42
3,835	7·8	31	11,940	964	8·1	176	18,335	3,985	21·7	43
3,153	6·7	31	10,372	911	8·8	179	17,938	4,719	26·3	44
3,265	7·0	28	10,147	634	6·2	182	18,304	5,262	28·7	45
2,054	4·4	29	9,677	382	3·9	167	16,152	4,264	26·4	46
2,136	4·5	29	9,175	123	1·3	172	17,392	3,315	19·1	47
6,610	12·9	31	10,767	142	1·3	172	17,967	2,776	15·5	48
5,068	10·3	37	11,254	743	6·6	178	16,447	1,736	10·6	49
3,536	7·6	31	9,230	153	1·7	168	18,385	2,231	12·1	50
4,573	10·1	33	9,825	871	8·9	168	17,711	2,083	11·8	51
4,141	9·1	29	9,065	656	7·2	169	17,589	2,087	11·9	52
4,831	11·0	27	7,740	1,277	16·5	173	16,669	2,177	13·1	53
7,929	17·5	29	9,604	1,609	16·8	173	17,924	2,541	14·2	54
9,376	20·9	32	11,845	490	4·1	180	18,086	4,508	24·9	55
6,644	14·3	36	10,864	1,089	10·0	175	17,703	4,868	27·5	56
4,605	9·7	36	12,274	1,296	10·6	185	18,402	4,801	26·1	57
4,302	10·2	35	11,492	1,070	9·3	167	17,386	3,911	22·5	58
5,395	12·3	32	10,648	1,488	14·0	165	16,875	3,101	18·4	59
5,307	12·1	31	10,484	1,445	13·8	161	16,475	1,161	7·0	60
4,509	10·0	33	11,705	1,276	10·9	159	16,597	1,402	8·4	61
3,833	8·5	30	10,789	1,014	9·4	170	17,206	1,267	7·4	62
3,509	8·0	28	9,415	542	5·8	163	17,449	1,070	6·1	63
4,732	11·0	28	7,633	488	6·4	161	15,852	1,664	10·5	64
3,901	9·0	26	7,650	408	5·3	156	11,621	1,319	11·4	65
3,978	9·2	27	8,211	376	4·6	170	13,677	1,701	12·4	66
5,647	13·0	28	8,632	187	2·2	169	13,065	2,743	21·0	67

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Transportation				Communication	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	June, 1920	630	78,835	1,966	2·5	10	7,628
2	July	583	72,462	1,842	2·5	11	7,894
3	August	596	73,637	2,054	2·8	11	7,776
4	September	606	77,928	772	1·0	11	8,351
5	October	608	77,638	711	0·9	12	9,138
6	November	595	81,177	2,128	2·6	12	8,532
7	December	625	81,181	6,570	8·1	27	8,195
8	January, 1921	613	75,680	6,499	8·6	24	5,916
9	February	594	70,963	7,310	10·3	37	7,342
10	March	616	70,762	8,358	11·8	42	8,682
11	April	615	69,739	8,107	11·6	47	8,185
12	May	618	70,393	7,056	10·0	65	9,016
13	June	580	66,787	4,752	7·1	72	8,972
14	July	627	70,550	3,166	4·5	41	8,321
15	August	653	71,554	2,402	3·4	59	8,710
16	September	647	71,018	3,584	5·1	64	8,405
17	October	628	67,140	2,027	3·0	52	8,571
18	November	572	53,361	1,594	3·0	118	19,322
19	December	645	62,318	4,715	7·6	59	8,764
20	January, 1922	564	58,203	4,601	7·9	56	8,245
21	February	577	59,695	4,092	6·9	65	8,525
22	March	561	59,515	4,310	7·2	64	8,102
23	April	515	50,071	3,228	6·5	66	8,380
24	May	543	55,903	3,004	5·4	62	8,294
25	June	554	52,751	2,241	4·3	63	8,531
26	July	574	53,920	1,570	2·9	64	8,397
27	August	558	51,841	1,096	2·1	64	8,412
28	September	546	51,730	740	1·4	64	8,575
29	October	550	51,385	954	1·9	67	8,691
30	November	545	48,885	868	1·8	64	8,301
31	December	572	54,233	1,327	2·4	64	8,270
32	January, 1923	516	48,924	2,428	5·0	62	8,040
33	February	541	54,606	2,650	4·9	65	8,353
34	March	546	54,879	2,489	4·5	64	8,195
35	April	531	53,034	2,269	4·3	66	8,297
36	May	553	53,777	1,095	2·0	63	8,161
37	June	558	54,724	1,139	2·1	65	8,280
38	July	562	55,128	839	1·5	65	8,301
39	August	560	53,603	566	1·1	62	8,185
40	September	574	54,283	561	1·0	64	8,307
41	October	558	53,516	939	1·8	64	8,178
42	November	566	55,103	1,813	3·3	65	8,231
43	December	599	56,973	2,286	4·0	64	8,205
44	January, 1924	592	56,754	2,454	4·3	66	8,611
45	February	568	54,123	1,873	3·5	67	8,640
46	March	558	53,240	2,921	5·5	66	8,302
47	April	561	54,113	1,957	3·6	65	8,276
48	May	549	53,617	1,664	3·1	65	8,482
49	June	589	55,566	1,431	2·6	66	8,850
50	July	585	54,589	2,120	3·9	67	8,888
51	August	584	55,814	2,122	3·8	69	9,291
52	September	598	55,698	1,767	3·2	67	9,169
53	October	591	55,418	1,621	2·9	69	9,177
54	November	587	54,914	2,220	4·0	66	9,141
55	December	615	57,767	3,185	5·5	66	9,207
56	January, 1925	641	58,643	2,995	5·1	67	9,395
57	February	659	60,118	3,564	5·9	64	8,829
58	March	626	57,168	3,106	5·4	66	9,001
59	April	591	56,104	2,641	4·7	68	9,337
60	May	583	54,923	2,116	3·9	68	8,782
61	June	618	56,865	1,845	3·2	70	9,003
62	July	615	56,854	1,489	2·6	68	8,627
63	August	609	57,286	1,303	2·3	67	8,616
64	September	621	56,720	1,036	1·8	66	8,466
65	October	621	58,008	1,401	2·4	65	8,413
66	November	624	56,989	1,783	3·1	67	8,766
67	December	654	58,384	2,425	4·2	66	8,699

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Communication		Lumbering and Logging				Retail Trade				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
7	0·1	–	–	–	–	6	623	4	0·6	1
6	0·1	–	–	–	–	7	1,194	3	0·3	2
10	0·1	–	–	–	–	5	950	1	0·1	3
12	0·1	–	–	–	–	4	894	–	–	4
14	0·2	4	14,375	3,650	25·4	3	403	2	0·5	5
14	0·2	5	14,790	6,300	42·6	6	1,055	–	–	6
205	2·5	4	3,944	500	12·7	4	491	2	0·4	7
9	0·2	3	2,043	200	9·8	3	768	1	0·1	8
238	3·2	3	9,514	6,245	65·6	4	481	2	0·4	9
253	2·9	7	10,155	6,169	60·8	4	457	–	–	10
462	5·6	3	8,615	4,016	46·6	4	529	–	–	11
435	4·8	3	9,093	3,840	42·2	5	970	–	–	12
31	0·4	2	6,562	3,500	53·3	4	530	8	1·5	13
12	0·1	4	5,229	1,865	35·7	8	1,203	9	0·8	14
19	0·2	2	2,278	515	22·6	8	1,152	8	0·7	15
13	0·2	2	2,278	520	22·8	11	1,721	8	0·5	16
31	0·4	1	2,500	800	32·0	9	1,970	1	0·1	17
902	4·7	3	2,776	515	18·6	12	1,314	10	0·8	18
86	1·0	2	2,254	1,015	45·0	6	455	–	–	19
18	0·2	1	260	17	6·5	7	743	–	–	20
56	0·7	1	260	24	9·2	6	565	1	0·2	21
39	0·5	2	712	50	7·0	6	555	1	0·2	22
39	0·5	3	2,677	1,035	38·7	6	670	7	1·0	23
38	0·5	1	440	12	2·7	7	780	–	–	24
37	0·4	3	2,685	25	0·9	7	768	4	0·5	25
37	0·4	2	670	18	2·7	10	1,073	–	–	26
38	0·5	–	–	–	–	9	855	13	1·5	27
37	0·4	–	–	–	–	9	864	2	0·2	28
37	0·4	–	–	–	–	8	734	3	0·4	29
38	0·5	2	680	21	3·1	6	601	1	0·2	30
41	0·5	2	700	30	4·3	8	965	29	3·0	31
50	0·6	1	520	20	3·8	7	747	25	3·3	32
45	0·5	1	550	25	4·5	5	565	11	1·9	33
41	0·5	–	–	–	–	7	764	11	1·4	34
38	0·5	1	560	35	6·3	6	698	10	1·4	35
32	0·4	1	580	30	5·2	7	740	6	0·8	36
32	0·4	1	591	29	4·9	7	727	5	0·7	37
32	0·4	–	–	–	–	6	668	3	0·4	38
32	0·4	1	250	8	3·2	7	651	5	0·8	39
32	0·4	1	230	–	–	6	612	5	0·8	40
36	0·4	1	240	–	–	6	604	3	0·5	41
47	0·6	–	–	–	–	6	492	3	0·6	42
45	0·5	1	210	–	–	6	515	8	1·6	43
21	0·2	–	–	–	–	6	524	5	1·0	44
5	0·1	1	210	–	–	6	520	17	3·3	45
8	0·1	1	230	–	–	6	530	25	4·7	46
4	0·0	1	230	–	–	6	564	9	1·6	47
4	0·0	1	200	–	–	6	546	5	0·9	48
1	0·0	1	225	–	–	6	554	12	2·2	49
11	0·1	1	240	15	6·3	6	546	2	0·4	50
11	0·1	2	475	200	42·1	6	548	9	1·6	51
5	0·1	2	470	163	34·7	6	546	6	1·1	52
11	0·1	2	516	–	–	7	660	3	0·5	53
38	0·4	2	523	250	47·8	7	633	6	0·9	54
102	1·1	2	503	290	57·7	7	636	13	2·0	55
259	2·8	1	180	–	–	7	665	4	0·6	56
214	2·4	2	562	300	53·4	10	817	2	0·2	57
117	1·3	2	567	237	41·8	7	664	6	0·9	58
148	1·6	2	486	306	63·0	7	680	3	0·4	59
187	2·1	2	577	100	17·3	5	529	10	1·9	60
5	0·1	2	400	100	25·0	6	572	11	1·9	61
2	0·0	2	508	200	39·4	7	775	9	1·2	62
2	0·0	2	408	–	–	7	779	15	1·9	63
6	0·1	2	440	200	45·5	7	790	4	0·5	64
1	0·0	1	200	–	–	6	707	–	–	65
22	0·3	2	500	200	40·0	5	289	–	–	66
19	0·2	1	250	200	80·0	6	538	–	–	67

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Public Employment				Fishing	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	June, 1920	75	5,957	–	–	6	2,087
2	July	72	5,952	2	0·0	6	2,102
3	August	67	4,203	5	0·1	6	2,016
4	September	73	5,766	1	0·0	5	1,996
5	October	75	6,687	1	0·0	5	2,141
6	November	72	6,927	213	3·1	5	2,231
7	December	78	7,119	90	1·3	4	1,847
8	January, 1921	76	5,917	297	5·0	4	1,886
9	February	78	6,417	230	3·6	3	1,745
10	March	74	6,991	354	5·1	4	1,903
11	April	113	10,343	392	3·8	3	1,771
12	May	108	10,080	512	5·1	4	1,891
13	June	105	9,397	–	–	3	1,782
14	July	103	7,749	71	0·9	3	2,078
15	August	105	9,068	282	3·1	4	2,371
16	September	105	7,737	82	1·1	4	2,361
17	October	102	8,357	308	3·7	3	2,200
18	November	104	9,973	511	5·1	3	2,190
19	December	106	9,155	209	2·3	3	2,116
20	January, 1922	109	9,245	553	6·0	3	2,102
21	February	112	9,224	505	5·5	3	2,101
22	March	116	10,388	580	5·6	3	2,087
23	April	116	10,272	312	3·0	3	1,989
24	May	114	9,614	34	0·4	3	2,036
25	June	110	9,999	256	2·6	4	2,486
26	July	116	10,571	206	2·0	4	2,498
27	August	112	10,623	50	0·5	4	2,572
28	September	114	10,270	175	1·7	4	2,678
29	October	114	10,063	224	2·2	2	1,852
30	November	113	10,313	140	1·4	4	2,469
31	December	108	10,188	273	2·7	3	1,702
32	January, 1923	106	9,275	238	2·6	4	2,229
33	February	115	10,646	124	1·2	3	877
34	March	111	10,616	392	3·7	3	2,239
35	April	108	10,276	147	1·4	4	2,272
36	May	111	10,444	37	0·4	3	2,239
37	June	112	10,281	12	0·1	3	2,287
38	July	125	11,021	44	0·4	3	1,435
39	August	118	10,648	110	1·0	3	1,735
40	September	123	10,809	214	2·0	1	85
41	October	134	11,498	140	1·2	3	1,835
42	November	130	11,259	124	1·1	4	1,935
43	December	130	10,976	139	1·3	2	1,550
44	January, 1924	129	10,036	81	0·8	2	477
45	February	132	11,236	189	1·7	3	1,578
46	March	130	9,576	143	1·5	3	1,678
47	April	129	11,796	137	1·2	3	1,678
48	May	123	10,527	103	1·0	2	850
49	June	124	11,628	9	0·1	2	850
50	July	131	12,024	2	0·0	2	675
51	August	131	11,238	5	0·0	3	878
52	September	130	11,060	49	0·4	3	878
53	October	122	10,674	52	0·5	3	828
54	November	123	11,166	106	0·9	2	678
55	December	117	10,606	107	1·0	2	678
56	January, 1925	129	11,364	132	1·2	3	898
57	February	128	10,393	131	1·3	3	775
58	March	130	11,182	69	0·6	3	725
59	April	126	10,892	9	0·1	3	1,628
60	May	123	10,600	9	0·1	3	725
61	June	125	11,181	200	1·8	3	1,330
62	July	124	10,375	16	0·2	3	1,330
63	August	128	10,559	63	0·6	3	725
64	September	132	10,317	3	0·0	2	175
65	October	127	11,133	60	0·5	3	745
66	November	125	11,059	99	0·9	3	725
67	December	130	11,121	193	1·7	1	550

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Fishing		Miscellaneous								No.
		Total				Hotels and Restaurants				
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
5	0·2	134	12,073	311	2·6	10	1,407	35	2·5	1
–	–	122	10,097	205	2·0	8	1,301	71	5·5	2
4	0·2	116	13,321	212	1·6	8	1,434	65	4·5	3
20	1·0	125	11,306	227	2·0	6	1,142	47	4·1	4
30	1·4	128	12,276	561	4·6	8	1,259	82	6·5	5
145	6·5	126	12,975	434	3·3	10	1,717	153	8·9	6
205	11·1	131	12,329	998	8·1	8	868	56	6·5	7
1,330	70·5	140	12,605	631	5·0	11	1,652	195	11·8	8
1,205	69·1	136	11,797	1,109	9·4	10	1,619	163	10·1	9
611	32·1	132	12,635	1,314	10·4	9	1,663	193	11·6	10
465	26·3	154	13,243	553	4·2	10	1,568	121	7·7	11
470	24·9	127	8,591	518	6·0	10	1,687	170	10·1	12
450	25·3	112	7,464	417	5·6	5	1,019	74	7·3	13
373	18·0	118	7,824	562	7·2	10	1,403	138	9·8	14
343	14·5	119	7,345	663	9·0	9	1,008	137	13·6	15
476	20·2	110	5,600	358	6·4	7	777	84	10·8	16
564	25·6	115	6,646	453	6·8	7	814	154	18·9	17
1,350	61·6	104	5,326	342	6·4	7	492	52	10·6	18
1,494	70·6	99	5,508	512	9·3	7	431	105	24·4	19
1,536	73·1	101	4,705	499	10·6	5	461	75	16·3	20
1,333	63·5	94	4,565	459	10·1	7	622	99	15·9	21
1,215	58·2	90	4,326	419	9·7	6	560	103	18·4	22
1,110	55·8	90	4,381	414	9·5	6	528	95	18·0	23
768	37·7	91	4,392	364	8·3	8	681	74	10·9	24
663	26·7	80	3,753	250	6·7	5	360	38	10·6	25
436	17·5	99	5,022	328	6·5	8	756	43	5·7	26
316	12·3	97	4,548	273	6·0	8	672	52	7·7	27
432	16·1	95	4,523	193	4·3	9	791	61	7·7	28
698	37·7	93	4,668	220	4·7	7	709	76	10·7	29
958	38·8	93	4,225	258	6·1	8	681	112	16·4	30
1,103	64·8	91	4,244	232	5·5	7	684	62	9·1	31
1,237	55·5	88	4,271	332	7·8	8	644	120	18·6	32
12	1·4	94	4,375	308	7·0	7	585	86	14·7	33
1,211	54·1	84	3,969	290	7·3	6	470	63	13·4	34
460	20·2	85	3,820	172	4·5	3	274	20	7·3	35
–	–	87	4,043	175	4·3	5	373	35	9·4	36
–	–	88	4,163	211	5·1	5	421	50	11·9	37
–	–	94	4,427	113	2·6	5	564	30	5·3	38
–	–	89	4,056	108	2·7	4	348	26	7·5	39
–	–	88	4,199	101	2·4	5	422	27	6·4	40
75	4·1	85	4,097	145	3·5	6	472	43	9·1	41
60	3·1	84	4,058	152	3·7	6	485	47	9·7	42
300	19·4	94	4,368	205	4·7	6	468	37	7·9	43
200	41·9	92	4,262	224	5·3	6	463	36	7·8	44
600	38·0	92	4,204	267	6·4	8	533	43	8·1	45
–	–	90	3,972	254	6·4	7	536	35	6·5	46
–	–	82	3,721	201	5·4	6	453	21	4·6	47
–	–	89	3,978	267	6·7	6	469	32	6·8	48
–	–	84	3,910	250	6·4	4	405	15	3·7	49
–	–	85	4,097	257	6·3	4	362	25	6·9	50
–	–	89	4,070	286	7·0	4	365	25	6·8	51
–	–	92	4,343	282	6·5	5	473	57	12·1	52
–	–	80	3,575	190	5·3	3	136	–	–	53
–	–	91	4,392	339	7·7	5	486	25	5·1	54
–	–	93	4,090	302	7·4	4	344	20	5·8	55
100	11·1	94	4,150	334	8·0	5	403	45	11·2	56
50	6·5	96	4,481	656	14·6	4	491	80	16·3	57
60	8·3	89	4,127	281	6·8	5	554	50	9·0	58
50	3·1	89	4,205	295	7·0	6	622	83	13·3	59
–	–	96	4,171	233	5·6	6	623	75	12·0	60
–	–	101	4,568	230	5·0	7	772	43	5·6	61
–	–	97	4,366	224	5·1	5	638	20	3·1	62
–	–	96	4,473	185	4·1	6	746	33	4·4	63
–	–	100	4,882	241	4·9	7	808	34	4·2	64
100	13·4	91	4,810	296	6·2	7	961	95	9·9	65
–	–	93	4,492	286	6·4	7	822	45	5·5	66
–	–	92	4,144	302	7·3	5	311	5	1·6	67

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Miscellaneous					
		Barbers				Musicians and Theatre Employees	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	June, 1920	30	1,407	6	0·4	40	4,775
2	July	31	1,396	2	0·1	37	3,488
3	August	31	1,374	2	0·2	34	2,888
4	September	32	1,665	14	0·8	40	4,606
5	October	33	1,840	32	1·7	36	3,749
6	November	27	1,333	36	2·7	39	5,785
7	December	33	1,575	48	3·1	39	4,532
8	January, 1921	34	1,578	63	4·0	46	5,681
9	February	34	1,590	42	2·6	45	4,494
10	March	32	1,530	38	2·5	42	4,759
11	April	32	1,567	44	2·8	48	5,939
12	May	34	1,623	48	3·0	24[1]	801
13	June	33	1,586	29	1·8	22	730
14	July	33	1,612	41	2·5	23	728
15	August	35	1,688	125	7·4	21	706
16	September	35	1,640	90	5·5	19	645
17	October	35	1,641	87	5·3	21	712
18	November	32	1,519	86	5·7	21	702
19	December	28	1,412	90	6·4	20	668
20	January, 1922	35	1,580	116	7·3	23	735
21	February	31	1,440	105	7·3	26	796
22	March	27	1,227	55	4·5	22	729
23	April	30	1,422	88	6·2	23	730
24	May	25	1,157	24	2·1	23	732
25	June	24	1,090	5	0·5	22	671
26	July	32	1,470	85	5·8	24	836
27	August	30	1,266	19	1·5	23	698
28	September	30	1,268	24	1·9	24	699
29	October	29	1,204	31	2·6	22	693
30	November	30	1,352	29	2·1	21	612
31	December	27	1,114	21	1·9	23	692
32	January, 1923	28	1,230	52	4·2	19	610
33	February	31	1,290	49	3·8	24	682
34	March	27	1,274	48	3·8	22	668
35	April	29	1,362	48	3·5	22	638
36	May	29	1,318	21	1·6	24	699
37	June	30	1,337	11	0·8	22	638
38	July	31	1,355	7	0·5	25	658
39	August	31	1,293	5	0·4	24	632
40	September	31	1,368	17	1·2	25	668
41	October	29	1,185	20	1·7	24	654
42	November	27	1,194	23	1·9	23	621
43	December	33	1,294	19	1·5	25	679
44	January, 1924	30	1,207	29	2·4	26	680
45	February	30	1,264	50	4·0	23	566
46	March	31	1,186	27	2·3	22	573
47	April	30	1,119	20	1·8	22	596
48	May	31	1,121	7	0·6	23	616
49	June	29	1,117	2	0·2	24	639
50	July	31	1,236	6	0·5	20	518
51	August	30	1,224	10	0·8	23	591
52	September	31	1,224	32	2·6	22	575
53	October	29	1,144	29	2·5	20	526
54	November	32	1,267	35	2·8	23	587
55	December	32	1,215	27	2·2	23	591
56	January, 1925	32	1,230	35	2·8	27	679
57	February	33	1,264	31	2·5	28	706
58	March	31	1,170	25	2·1	23	548
59	April	31	1,057	11	1·0	22	559
60	May	29	933	4	0·4	25	600
61	June	28	1,052	6	0·6	24	605
62	July	28	971	3	0·3	24	584
63	August	28	996	5	0·5	23	563
64	September	30	1,209	19	1·6	20	515
65	October	30	1,200	30	2·5	19	489
66	November	27	927	9	1·0	23	557
67	December	29	1,169	17	1·5	21	505

[1] Theatre employees only from this point on.

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Miscellaneous										
Musicians and Theatre Employees		Stationary Engineers and Firemen				Others				
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		No.
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
140	2·9	28	2,039	115	5·6	26	2,445	15	0·6	1
116	3·3	24	1,305	15	1·2	22	2,607	1	0·0	2
94	3·3	23	1,689	23	1·4	20	5,936	28	0·5	3
72	1·6	25	1,502	29	1·9	22	2,391	65	2·7	4
92	2·5	26	1,575	84	5·3	25	3,853	271	7·0	5
104	1·8	28	1,464	54	3·7	22	2,676	87	3·3	6
144	3·2	29	1,456	67	4·6	22	3,898	683	17·5	7
116	2·0	26	1,432	92	6·4	23	2,262	165	7·3	8
74	1·7	26	1,323	48	3·6	21	2,771	782	28·2	9
140	2·9	30	1,684	92	5·5	19	2,999	851	28·4	10
129	2·2	44	2,360	139	5·9	20	1,809	120	6·6	11
113	14·1	41	2,110	150	7·1	18	2,370	37	1·6	12
124	17·0	37	1,783	111	6·2	15	2,346	79	3·4	13
164	22·5	36	1,681	127	7·6	16	2,400	92	3·8	14
69	9·8	34	1,675	100	6·0	20	2,268	232	10·2	15
50	7·8	34	1,677	105	6·3	15	861	29	3·4	16
57	8·0	33	1,575	85	5·4	19	1,934	70	3·7	17
60	8·6	31	1,553	107	6·9	13	1,060	37	3·5	18
53	7·9	31	1,563	189	12·1	13	1,434	75	5·2	19
54	7·3	33	1,593	239	15·0	5	336	15	4·5	20
87	10·9	25	1,399	141	10·1	5	308	27	8·8	21
77	10·6	29	1,553	155	10·0	6	257	29	11·3	22
64	8·8	27	1,486	160	10·8	4	215	7	3·3	23
138	18·9	29	1,558	111	7·1	6	264	17	6·4	24
149	22·2	23	1,448	29	2·0	6	184	29	15·8	25
160	19·1	29	1,619	40	2·5	6	341	–	–	26
114	16·3	29	1,636	88	5·4	7	276	–	–	27
70	10·0	28	1,579	38	2·4	4	186	–	–	28
56	8·1	29	1,718	49	2·9	6	344	8	2·3	29
45	7·4	26	1,296	70	5·4	8	284	2	0·7	30
52	7·5	27	1,538	95	6·2	7	216	2	0·9	31
46	7·5	27	1,526	114	7·5	6	261	–	–	32
56	8·2	26	1,561	109	7·0	6	257	8	3·1	33
76	11·4	24	1,380	91	6·6	5	177	12	6·8	34
65	10·2	26	1,346	39	2·9	5	200	–	–	35
84	12·0	22	1,348	35	2·6	7	305	–	–	36
99	15·5	25	1,593	50	3·1	6	174	1	0·6	37
57	8·7	25	1,528	19	1·2	8	322	–	–	38
51	8·1	25	1,604	26	1·6	5	179	–	–	39
32	4·8	22	1,567	25	1·6	5	174	–	–	40
35	5·4	21	1,611	47	2·9	5	175	–	–	41
34	5·5	22	1,517	46	3·0	6	241	2	0·8	42
36	5·3	23	1,644	100	6·1	7	283	13	4·6	43
28	4·1	25	1,732	129	7·4	5	180	2	1·1	44
32	5·7	25	1,652	127	7·7	6	189	15	7·9	45
61	10·6	25	1,498	130	8·7	5	179	1	0·6	46
34	5·7	19	1,374	121	8·8	5	179	5	2·8	47
104	16·9	22	1,566	116	7·4	7	206	8	3·9	48
121	18·9	22	1,456	112	7·2	5	203	–	–	49
69	13·3	24	1,729	152	8·8	6	252	5	2·0	50
83	14·0	25	1,611	168	10·4	7	279	–	–	51
37	6·4	27	1,768	156	8·8	7	303	–	–	52
30	5·7	23	1,570	129	8·2	5	199	2	1·0	53
55	9·4	25	1,835	221	12·0	6	217	3	1·4	54
46	7·8	28	1,723	204	11·8	6	217	5	2·3	55
63	9·3	26	1,675	189	11·3	4	163	2	1·2	56
68	9·6	26	1,795	476	26·5	5	225	1	0·4	57
38	6·9	25	1,628	167	10·3	5	227	1	0·4	58
51	9·1	25	1,689	150	8·9	5	278	–	–	59
71	11·8	26	1,600	83	5·2	10	415	–	–	60
80	13·2	31	1,700	95	5·6	11	439	6	1·4	61
82	14·0	33	1,867	111	5·9	7	306	8	2·6	62
49	8·7	31	1,809	86	4·8	8	359	12	3·3	63
47	9·1	34	1,891	86	4·5	9	459	55	12·0	64
43	8·8	29	1,873	128	6·8	6	287	–	–	65
56	10·1	28	1,843	176	9·5	8	343	–	–	66
60	11·9	30	1,870	220	11·8	7	289	–	–	67

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Total				Manufacturing	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1926	1,547	146,999	11,972	8·1	409	40,932
2	February	1,573	148,068	12,012	8·1	412	40,432
3	March	1,547	152,234	11,069	7·3	413	39,636
4	April	1,512	151,972	11,157	7·3	390	41,977
5	May	1,558	150,765	7,442	4·9	420	40,955
6	June	1,502	145,732	5,965	4·1	405	42,927
7	July	1,487	140,256	3,288	2·3	396	35,728
8	August	1,504	139,345	3,551	2·5	395	33,869
9	September	1,540	146,202	4,837	3·3	397	37,112
10	October	1,541	151,130	3,929	2·6	422	40,144
11	November	1,501	149,627	7,039	4·7	405	41,357
12	December	1,560	157,701	9,349	5·9	422	42,844
13	January, 1927	1,541	151,496	9,748	6·4	410	41,744
14	February	1,571	162,042	10,596	6·5	432	42,898
15	March	1,509	156,664	8,975	5·7	414	43,509
16	April	1,549	164,948	9,833	6·0	430	45,540
17	May	1,576	163,754	8,475	5·2	428	46,442
18	June	1,561	167,711	5,410	3·2	422	47,443
19	July	1,569	167,648	5,466	3·3	425	48,136
20	August	1,602	170,024	6,210	3·7	433	49,032
21	September	1,601	171,435	5,366	3·1	432	49,473
22	October	1,641	172,737	6,743	3·9	439	47,189
23	November	1,591	170,918	8,941	5·2	417	47,772
24	December	1,696	180,204	11,822	6·6	464	51,051
25	January, 1928	1,668	176,421	12,082	6·8	446	50,553
26	February	1,677	178,892	12,534	7·0	447	50,066
27	March	1,705	183,846	11,965	6·5	445	50,086
28	April	1,642	185,318	9,573	5·2	439	52,167
29	May	1,697	182,383	6,657	3·7	463	51,268
30	June	1,608	178,578	5,800	3·2	444	50,274
31	July	1,600	180,111	4,539	2·5	452	51,372
32	August	1,604	181,022	4,274	2·4	447	50,826
33	September	1,626	181,615	4,068	2·2	459	51,918
34	October	1,652	184,580	5,705	3·1	465	53,009
35	November	1,672	186,528	7,742	4·2	459	53,181
36	December	1,695	190,839	12,553	6·6	468	54,361
37	January, 1929	1,697	188,152	11,878	6·3	474	52,832
38	February	1,673	188,888	12,834	6·8	467	54,140
39	March	1,727	194,890	11,662	6·0	479	55,602
40	April	1,661	188,874	10,382	5·5	468	55,943
41	May	1,642	193,787	7,830	4·0	475	56,947
42	June	1,688	198,849	5,723	2·9	469	56,387
43	July	1,690	200,115	6,025	3·0	472	58,159
44	August	1,709	204,547	7,078	3·5	479	59,557
45	September	1,762	206,617	7,654	3·7	495	59,213
46	October	1,750	212,328	12,716	6·0	489	59,780
47	November	1,761	212,973	19,832	9·3	497	59,977
48	December	1,790	213,065	24,201	11·4	502	60,353
49	January, 1930	1,772	211,811	22,795	10·8	499	59,676
50	February	1,760	209,327	24,175	11·5	502	60,438
51	March	1,765	211,864	22,912	10·8	497	59,470
52	April	1,719	206,326	18,581	9·0	486	58,724
53	May	1,679	198,595	20,424	10·3	475	57,016
54	June	1,688	201,672	21,292	10·6	466	58,359
55	July	1,676	200,122	18,473	9·2	469	58,870
56	August	1,630	196,048	18,160	9·3	452	58,309
57	September	1,737	205,910	19,422	9·4	501	60,254
58	October	1,780	207,433	22,390	10·8	501	62,741
59	November	1,798	205,854	28,337	13·8	496	59,132
60	December	1,904	219,641	37,437	17·0	515	63,618
61	January, 1931	1,866	210,402	33,700	16·0	499	57,341
62	February	1,832	202,669	31,602	15·6	481	56,875
63	March	1,825	208,387	32,208	15·5	490	59,238
64	April	1,807	206,563	30,786	14·9	593	57,725
65	May	1,808	198,059	32,163	16·2	488	57,745
66	June	1,849	200,505	32,667	16·3	499	56,588
67	July	1,862	199,923	32,396	16·2	496	57,699
68	August	1,833	197,863	31,247	15·8	493	57,238
69	September	1,841	193,849	35,048	18·1	494	56,439
70	October	1,864	192,603	35,325	18·3	505	55,863
71	November	1,819	189,031	35,206	18·6	487	54,324
72	December	1,874	188,553	39,713	21·1	504	52,928

TABLE 14. Labour union figures on number of unions and members reporting and numb and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Manufacturing		Mining and Quarrying				Building and Construction				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
3,253	7·9	26	10,097	1,391	13·8	168	12,963	3,453	26·6	1
2,090	5·2	30	9,354	2,040	21·8	176	12,247	3,263	26·6	2
2,073	5·2	31	9,319	1,644	17·6	178	14,250	2,978	20·9	3
4,096	9·8	32	10,553	1,809	17·1	172	13,772	1,724	12·5	4
3,918	9·6	31	9,407	951	10·1	170	12,339	911	7·4	5
3,555	8·3	32	9,901	629	6·4	161	11,694	512	4·4	6
1,160	3·2	27	9,469	577	6·1	160	12,875	463	3·6	7
1,223	3·6	29	11,278	467	4·1	166	13,344	628	4·7	8
2,531	6·8	29	10,291	73	0·7	175	14,602	806	5·5	9
1,501	3·7	30	11,056	38	0·3	166	14,390	1,123	7·8	10
2,604	6·3	26	9,284	1,005	10·8	165	15,360	1,951	12·7	11
3,128	7·3	31	13,016	669	5·1	174	16,197	3,133	19·3	12
3,238	7·8	28	10,980	140	1·3	178	17,092	3,861	22·6	13
2,935	6·8	34	15,310	491	3·2	180	17,364	4,223	24·3	14
2,250	5·2	26	11,949	1,471	12·3	168	16,823	3,148	18·7	15
4,489	9·9	34	15,684	1,251	8·0	166	17,796	2,111	11·9	16
4,121	8·9	28	12,293	1,064	8·7	175	17,972	1,679	9·3	17
1,819	3·8	33	12,958	507	3·9	170	18,421	1,481	8·0	18
2,303	4·8	32	13,602	58	0·4	173	18,764	1,289	6·9	19
2,874	5·9	34	14,690	428	2·9	174	18,183	1,551	8·5	20
2,003	4·0	37	15,247	110	0·7	173	17,768	1,478	8·3	21
2,339	5·0	40	16,713	462	2·8	181	18,552	1,847	10·0	22
3,429	7·2	38	15,629	447	2·9	190	19,142	2,555	13·3	23
4,764	9·3	40	17,091	478	2·8	184	19,241	3,670	19·1	24
4,170	8·2	43	16,586	476	2·9	191	19,209	4,463	23·2	25
3,647	7·3	41	16,843	1,061	6·3	195	19,221	4,462	23·2	26
3,039	6·1	42	17,162	1,789	10·4	201	21,281	4,067	19·1	27
2,357	4·5	41	17,368	1,849	10·6	187	21,010	2,864	13·6	28
2,248	4·4	40	15,789	1,188	7·5	199	21,180	1,746	8·2	29
3,238	6·4	38	15,528	401	2·6	205	23,558	911	3·9	30
1,966	3·8	43	17,566	819	4·7	188	23,175	765	3·3	31
1,765	3·5	41	17,436	280	1·6	191	23,841	842	3·5	32
1,439	2·8	43	17,262	627	3·6	206	24,484	719	2·9	33
2,381	4·5	45	18,153	219	1·2	196	23,938	1,212	5·1	34
2,961	5·6	47	18,750	128	0·7	210	25,437	2,368	9·3	35
4,506	8·3	48	20,093	904	4·5	216	26,544	4,127	15·5	36
2,942	5·6	45	17,759	261	1·5	215	26,427	5,034	19·0	37
3,514	6·5	48	19,332	1,059	5·5	207	23,871	4,731	19·8	38
2,172	3·9	46	17,853	1,169	6·5	223	26,837	4,797	17·9	39
3,915	7·0	40	15,991	1,339	8·4	208	25,951	2,928	11·3	40
2,735	4·8	42	16,015	921	5·8	205	30,680	2,504	8·2	41
1,309	2·3	49	18,531	847	4·6	208	30,032	2,259	7·5	42
2,080	3·6	45	17,553	312	1·8	208	29,341	2,055	7·0	43
2,326	3·9	47	16,890	845	5·0	208	30,451	2,201	7·2	44
2,083	3·5	43	15,802	428	2·7	205	30,581	2,623	8·6	45
4,691	7·8	47	19,712	507	2·6	217	32,426	3,368	10·4	46
7,666	12·8	49	18,888	737	3·9	223	32,462	5,279	16·3	47
8,274	13·7	47	17,925	895	5·0	221	31,228	7,996	25·6	48
5,239	8·8	48	18,927	1,254	6·6	222	31,654	9,690	30·6	49
5,120	8·5	47	18,629	1,564	8·4	218	30,523	10,390	34·0	50
4,375	7·4	46	18,809	2,216	11·8	223	31,176	9,496	30·5	51
3,887	6·6	47	17,707	1,950	11·0	211	29,171	6,769	23·2	52
7,077	12·4	44	17,305	1,596	9·2	210	28,927	6,741	23·3	53
7,135	12·2	46	16,579	1,142	6·9	217	30,373	7,960	26·2	54
4,276	7·3	43	15,764	1,372	8·7	214	29,636	8,380	28·3	55
4,648	8·0	42	15,852	1,035	6·5	206	27,945	8,052	28·8	56
5,257	8·7	46	17,914	942	5·3	220	29,068	8,114	27·9	57
6,731	10·7	44	17,030	326	1·9	237	29,204	9,203	31·5	58
8,774	14·8	52	18,449	407	2·2	239	30,199	11,397	37·7	59
11,266	17·7	54	20,894	1,591	7·6	260	31,877	14,173	44·5	60
6,864	12·0	56	21,244	1,769	8·3	256	30,994	14,331	46·2	61
6,024	10·6	49	18,454	1,148	6·2	263	31,274	14,743	47·1	62
5,466	9·2	52	20,137	2,498	12·4	250	30,583	13,963	45·7	63
6,396	11·1	50	19,704	2,552	13·0	253	31,558	12,787	40·5	64
10,350	17·9	45	16,639	2,134	12·8	253	29,899	11,266	37·7	65
10,392	18·4	48	18,124	2,377	13·1	256	29,024	11,199	38·6	66
9,263	16·1	50	18,950	3,309	17·5	267	28,540	11,386	39·9	67
8,041	14·0	49	19,443	3,397	17·5	264	27,002	11,207	41·5	68
11,295	20·0	53	18,884	1,174	6·2	255	25,597	12,165	47·5	69
11,718	21·0	51	18,245	1,124	6·2	262	25,931	12,898	49·7	70
10,599	19·5	51	18,770	1,785	9·5	249	25,181	13,073	51·9	71
12,592	23·8	53	19,275	1,926	10·0	261	25,188	14,623	58·1	72

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Transportation				Communication	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1926	638	56,340	2,999	5·3	66	8,854
2	February	637	56,388	2,833	5·0	65	8,590
3	March	628	56,982	2,575	4·5	66	8,748
4	April	607	56,234	1,995	3·5	66	8,896
5	May	618	56,346	1,171	2·1	68	8,966
6	June	602	54,527	1,101	2·0	67	8,840
7	July	602	55,914	826	1·5	67	8,955
8	August	608	54,516	997	1·8	66	8,809
9	September	630	55,863	976	1·7	66	8,831
10	October	634	57,066	903	1·6	43	10,254
11	November	621	55,722	830	1·5	42	9,142
12	December	639	56,199	1,711	3·0	49	10,499
13	January, 1927	642	56,351	1,969	3·5	46	7,073
14	February	636	57,222	2,313	4·0	48	9,728
15	March	615	56,889	1,640	2·9	45	7,953
16	April	627	56,564	1,604	2·8	55	10,541
17	May	629	56,216	1,160	2·1	55	10,547
18	June	638	58,931	1,268	2·2	45	10,286
19	July	636	57,345	1,580	2·8	47	9,267
20	August	651	57,801	1,084	1·9	52	10,360
21	September	655	59,355	1,485	2·5	54	10,417
22	October	668	59,163	1,764	3·0	54	11,383
23	November	646	58,628	1,962	3·3	53	10,475
24	December	700	62,277	2,231	3·6	52	10,350
25	January, 1928	662	59,599	2,279	3·8	54	10,620
26	February	678	61,335	2,489	4·1	53	10,654
27	March	701	63,681	2,537	4·0	54	10,544
28	April	668	63,105	2,021	3·2	46	10,654
29	May	667	61,508	1,082	1·8	52	10,593
30	June	679	62,834	886	1·4	53	10,662
31	July	684	62,421	715	1·1	53	10,658
32	August	684	63,130	1,070	1·7	53	10,732
33	September	676	62,566	1,029	1·6	54	10,761
34	October	718	65,353	1,479	2·3	47	9,779
35	November	720	64,540	1,682	2·6	49	10,286
36	December	720	65,301	2,459	3·8	50	10,451
37	January, 1929	725	65,943	3,078	4·7	50	10,490
38	February	714	65,809	2,970	4·5	50	10,515
39	March	734	67,939	2,953	4·3	49	10,475
40	April	707	64,688	1,697	2·6	50	10,517
41	May	683	63,989	1,340	2·1	51	10,707
42	June	721	67,822	1,047	1·5	52	10,789
43	July	717	68,394	1,297	1·9	49	10,624
44	August	723	70,574	1,341	1·9	50	10,717
45	September	759	73,701	2,100	2·8	52	10,832
46	October	752	73,074	3,729	5·1	44	10,919
47	November	753	73,726	5,134	7·0	43	10,959
48	December	777	74,282	6,151	8·3	42	11,066
49	January, 1930	758	72,586	5,323	7·3	43	11,482
50	February	753	71,620	5,798	8·1	44	11,389
51	March	753	72,902	5,453	7·5	43	11,079
52	April	738	72,160	4,941	6·8	42	10,899
53	May	718	69,053	4,218	6·1	40	9,132
54	June	728	69,975	4,177	6·0	40	9,250
55	July	714	68,745	3,393	4·9	42	9,642
56	August	705	68,255	3,386	5·0	42	9,235
57	September	738	72,102	3,920	5·4	41	8,950
58	October	753	71,742	4,650	6·5	40	8,006
59	November	756	70,305	5,738	8·2	42	9,212
60	December	809	74,473	7,908	10·6	42	9,407
61	January, 1931	794	72,864	7,984	11·0	42	8,896
62	February	788	70,304	7,312	10·4	40	8,738
63	March	782	71,854	7,843	10·9	39	8,678
64	April	759	71,603	6,992	9·8	39	8,735
65	May	763	67,895	6,229	9·2	40	8,766
66	June	786	70,795	6,760	9·5	44	8,879
67	July	784	69,472	6,171	8·9	40	8,468
68	August	779	68,655	6,493	9·5	42	8,523
69	September	787	67,637	8,115	12·0	42	8,384
70	October	782	66,506	7,228	10·9	42	8,606
71	November	779	65,515	7,242	11·1	41	8,505
72	December	796	65,188	8,022	12·3	42	8,455

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Communication		Lumbering and Logging				Retail Trade				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
170	1·9	2	530	–	–	5	285	1	0·4	1
111	1·3	3	4,173	1,100	26·4	6	508	20	3·9	2
111	1·3	2	6,700	1,300	19·4	6	1,030	2	0·2	3
57	0·6	3	3,528	1,050	29·8	6	850	2	0·2	4
12	0·1	3	4,390	210	4·8	7	1,065	4	0·4	5
6	0·1	2	465	–	–	5	809	2	0·2	6
7	0·1	1	220	–	–	4	783	–	–	7
10	0·1	2	370	–	–	5	795	2	0·3	8
9	0·1	2	495	175	35·4	7	1,194	1	0·1	9
11	0·1	1	208	5	2·4	4	205	–	–	10
8	0·1	1	173	–	–	6	843	–	–	11
116	1·1	2	358	50	14·0	5	799	–	–	12
23	0·3	1	185	3	1·6	5	800	–	–	13
69	0·7	2	392	–	–	6	823	1	0·1	14
69	0·9	1	175	–	–	6	750	1	0·1	15
10	0·1	1	194	–	–	5	556	1	0·2	16
9	0·1	2	410	–	–	5	543	–	–	17
12	0·1	2	360	–	–	4	498	1	0·2	18
8	0·1	1	192	–	–	5	553	1	0·2	19
3	0·0	2	387	–	–	6	821	2	0·2	20
7	0·1	2	415	–	–	5	590	1	0·2	21
17	0·1	2	783	–	–	6	752	2	0·3	22
8	0·1	2	793	–	–	5	461	1	0·2	23
11	0·1	2	794	–	–	7	943	6	0·6	24
10	0·1	2	794	–	–	5	713	9	1·3	25
57	0·5	2	810	–	–	6	1,012	12	1·2	26
41	0·4	2	810	25	3·1	6	1,000	7	0·7	27
60	0·6	2	810	25	3·1	6	970	12	1·2	28
6	0·1	5	896	85	9·5	6	940	7	0·7	29
6	0·1	4	836	139	16·6	6	993	4	0·4	30
6	0·1	4	818	8	1·0	5	748	8	1·1	31
6	0·1	3	797	100	12·5	5	734	6	0·8	32
6	0·1	2	794	50	6·3	7	988	4	0·4	33
3	0·0	2	794	100	12·6	6	742	5	0·7	34
18	0·2	2	794	–	–	6	735	5	0·7	35
7	0·1	1	175	–	–	6	742	3	0·4	36
53	0·5	1	731	–	–	7	759	6	0·8	37
17	0·2	2	906	50	5·5	8	1,038	91	8·8	38
70	0·7	2	906	25	2·8	8	1,697	94	5·5	39
15	0·1	3	952	174	18·3	8	1,363	12	0·9	40
10	0·1	2	866	–	–	8	1,548	10	0·6	41
4	0·0	2	881	–	–	7	1,455	7	0·5	42
5	0·0	3	921	10	1·1	8	1,426	4	0·3	43
7	0·1	4	991	68	6·9	7	1,413	1	0·1	44
6	0·1	5	1,004	47	4·7	8	1,293	32	2·5	45
37	0·3	4	1,189	22	1·9	8	1,453	2	0·1	46
81	0·7	4	1,200	75	6·3	7	1,490	152	10·2	47
78	0·7	6	1,249	34	2·7	6	1,170	1	0·1	48
204	1·8	4	1,130	138	12·2	5	882	–	–	49
363	3·2	5	1,243	161	13·0	5	1,163	–	–	50
291	2·6	5	1,185	212	17·9	6	1,264	–	–	51
352	3·2	5	1,214	144	11·9	5	1,229	–	–	52
131	1·4	4	920	117	12·7	5	1,280	–	–	53
180	1·9	4	885	20	2·3	5	1,303	–	–	54
105	1·1	5	845	188	22·2	7	1,341	–	–	55
77	0·8	4	938	176	18·8	6	1,252	–	–	56
99	1·1	4	1,381	237	17·2	7	1,305	–	–	57
364	4·5	3	788	68	8·6	5	1,290	1	0·1	58
581	6·3	4	934	189	20·2	6	1,309	4	0·3	59
630	6·7	5	1,344	554	41·2	6	1,263	2	0·2	60
646	7·3	4	1,184	362	30·6	5	1,238	42	3·4	61
616	7·0	5	896	290	32·4	7	999	15	1·5	62
590	6·8	4	1,207	410	34·0	6	820	15	1·8	63
605	6·9	5	1,259	469	37·3	5	775	16	2·1	64
623	7·1	7	910	289	31·8	5	1,257	61	4·9	65
588	6·6	4	878	245	27·9	4	1,155	5	0·4	66
783	9·2	4	850	287	33·8	5	1,312	26	2·0	67
540	6·3	4	764	289	37·8	5	1,296	32	2·5	68
754	9·0	5	895	220	24·6	5	1,250	45	3·6	69
447	5·2	5	824	281	34·1	5	1,246	35	2·8	70
636	7·5	3	704	212	30·1	4	1,205	6	0·5	71
819	9·7	4	752	155	20·6	4	1,054	3	0·3	72

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Public Employment				Fishing	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1926	129	11,249	127	1·1	3	779
2	February	139	11,229	151	1·3	2	275
3	March	125	10,212	126	1·2	3	804
4	April	136	10,745	92	0·9	3	775
5	May	133	11,623	20	0·2	3	775
6	June	127	11,458	1	0·0	3	795
7	July	133	11,429	14	0·1	1	230
8	August	131	10,775	13	0·1	2	770
9	September	135	11,983	6	0·1	3	775
10	October	133	11,693	24	0·2	3	775
11	November	134	11,508	189	1·6	3	775
12	December	132	11,682	140	1·2	3	775
13	January, 1927	131	11,303	143	1·3	2	770
14	February	134	12,293	188	1·5	2	725
15	March	131	12,116	82	0·7	2	745
16	April	127	12,275	81	0·7	3	750
17	May	142	12,807	19	0·1	3	1,345
18	June	137	12,524	66	0·5	3	1,355
19	July	130	12,926	1	0·0	5	2,132
20	August	137	12,353	3	0·0	3	1,355
21	September	136	12,592	9	0·1	2	755
22	October	137	12,470	2	0·0	4	860
23	November	134	12,744	87	0·7	2	755
24	December	134	12,773	129	1·0	2	750
25	January, 1928	141	12,505	154	1·2	2	755
26	February	139	12,855	121	0·9	3	1,014
27	March	143	13,180	102	0·8	3	1,019
28	April	140	13,145	84	0·6	3	1,019
29	May	145	13,097	11	0·1	4	1,319
30	June	62	6,583	–	–	4	1,619
31	July	57	6,009	3	0·0	4	1,679
32	August	64	6,454	11	0·2	3	1,415
33	September	65	6,296	26	0·4	3	1,055
34	October	65	6,888	14	0·2	2	755
35	November	65	6,596	100	1·5	2	755
36	December	65	6,680	107	1·6	2	755
37	January, 1929	68	6,802	102	1·5	2	755
38	February	66	7,040	55	0·8	2	755
39	March	64	6,872	70	1·0	3	844
40	April	63	6,984	58	0·8	3	844
41	May	67	7,090	47	0·7	3	848
42	June	63	6,637	36	0·5	3	784
43	July	61	6,835	35	0·5	3	770
44	August	69	7,220	–	–	3	765
45	September	72	7,271	62	0·9	4	820
46	October	65	7,141	76	1·1	3	763
47	November	65	7,114	162	2·3	3	763
48	December	68	7,495	151	2·0	4	812
49	January, 1930	67	7,861	193	2·5	4	815
50	February	64	6,694	107	1·6	4	841
51	March	67	8,132	158	1·9	4	835
52	April	67	7,655	39	0·5	3	783
53	May	65	8,117	58	0·7	2	775
54	June	60	7,747	29	0·4	3	783
55	July	63	7,894	44	0·6	3	763
56	August	55	7,075	38	0·5	4	1,263
57	September	61	7,079	52	0·7	4	1,363
58	October	66	7,794	18	0·2	4	1,313
59	November	71	8,233	105	1·3	3	1,325
60	December	72	8,283	80	1·0	5	1,370
61	January, 1931	72	7,660	159	2·1	4	1,362
62	February	69	6,982	131	1·9	3	1,305
63	March	65	7,029	104	1·5	4	1,362
64	April	67	7,234	7	0·1	4	1,382
65	May	73	7,451	158	2·1	3	1,305
66	June	72	7,664	31	0·4	3	1,305
67	July	72	7,396	22	0·3	3	1,305
68	August	70	7,612	11	0·1	3	1,305
69	September	71	7,661	22	0·3	3	1,255
70	October	74	7,840	176	2·2	4	1,280
71	November	69	7,524	106	1·4	3	1,332
72	December	73	8,594	200	2·3	4	1,137

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Fishing		Miscellaneous								
		Total				Hotels and Restaurants				
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		No.
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
201	25·8	101	4,970	377	7·6	8	1,005	105	10·4	1
12	4·4	103	4,872	392	8·0	7	790	97	12·3	2
10	1·3	95	4,553	250	5·5	6	717	52	7·3	3
15	1·9	97	4,642	287	6·2	6	752	75	10·0	4
10	1·3	105	4,899	235	4·8	6	770	46	6·0	5
11	1·4	98	4,316	148	3·4	5	530	6	1·1	6
30	13·0	96	4,653	211	4·5	6	812	42	5·2	7
20	2·6	100	4,819	191	4·0	6	835	65	7·8	8
20	2·6	96	5,056	240	4·7	7	1,054	99	9·4	9
40	5·2	105	5,339	284	5·3	7	1,080	113	10·5	10
100	12·9	98	5,463	352	6·4	7	1,131	124	11·0	11
100	12·9	103	5,332	302	5·7	7	1,105	84	7·6	12
30	3·9	98	5,198	341	6·6	7	1,106	96	8·7	13
30	4·1	97	5,287	346	6·5	6	945	108	11·4	14
–	–	100	5,664	314	5·5	7	1,155	91	7·9	15
10	1·3	101	5,048	276	5·5	7	980	85	8·7	16
80	5·9	109	5,179	343	6·6	8	1,173	62	5·3	17
10	0·7	107	4,935	246	5·0	7	1,087	35	3·2	18
20	0·9	109	4,731	206	4·4	5	716	16	2·2	19
20	1·5	110	5,042	245	4·9	8	916	75	8·2	20
20	2·6	105	4,823	253	5·2	7	1,112	85	7·6	21
30	3·5	110	4,872	280	5·7	6	874	100	11·4	22
150	19·9	104	4,519	302	6·7	6	815	101	12·4	23
200	26·7	111	4,934	333	6·7	8	988	90	9·1	24
20	2·6	112	5,087	501	9·8	8	959	93	9·7	25
279	27·5	113	5,082	406	8·0	8	963	105	10·9	26
–	–	108	5,083	358	7·0	7	947	84	8·9	27
–	–	110	5,072	301	5·9	7	948	81	8·5	28
15	1·1	116	5,793	269	4·6	8	946	69	7·3	29
–	–	113	5,691	215	3·8	9	990	59	6·0	30
–	–	110	5,665	249	4·4	9	969	56	5·8	31
10	0·7	113	5,657	184	3·3	9	988	26	2·6	32
8	0·8	111	5,491	160	2·9	9	975	38	3·9	33
30	4·0	106	5,169	262	5·1	7	764	75	9·8	34
150	19·9	112	5,454	330	6·1	7	964	85	8·8	35
150	19·9	119	5,737	290	5·1	6	932	47	5·0	36
50	6·6	110	5,654	352	6·2	6	925	55	5·9	37
–	–	109	5,472	347	6·3	6	941	69	7·3	38
10	1·2	119	5,865	302	5·1	6	939	46	4·9	39
22	2·6	111	5,641	222	3·9	6	927	44	4·7	40
31	3·7	106	5,097	232	4·6	7	945	95	10·1	41
20	2·6	114	5,531	194	3·5	6	873	45	5·2	42
10	1·3	124	6,092	217	3·6	6	903	30	3·3	43
12	1·6	119	5,969	277	4·6	6	884	48	5·4	44
10	1·2	119	6,100	263	4·3	6	921	45	4·9	45
22	2·9	121	5,871	262	4·5	5	662	22	3·3	46
150	19·7	117	6,394	396	6·2	7	1,085	76	7·0	47
200	24·6	117	7,485	421	5·6	7	1,126	51	4·5	48
150	18·4	122	6,798	604	8·9	7	1,154	102	8·8	49
20	2·4	118	6,787	652	9·6	7	1,153	91	7·9	50
15	1·8	121	6,962	696	10·0	7	1,174	89	7·6	51
10	1·3	115	6,784	489	7·2	7	1,158	90	7·8	52
10	1·3	116	6,070	476	7·8	6	896	68	7·6	53
10	1·3	119	6,418	639	10·0	8	1,083	180	16·6	54
–	–	116	6,622	715	10·8	8	1,151	171	14·9	55
15	1·2	114	5,924	733	12·4	4	543	90	16·6	56
20	1·5	115	6,494	781	12·0	7	1,034	102	9·9	57
30	2·3	127	7,525	999	13·3	8	1,511	285	18·9	58
180	13·6	129	6,756	962	14·2	7	984	130	13·2	59
158	11·5	136	7,112	1,075	15·1	9	1,348	144	10·7	60
150	11·0	134	7,619	1,393	18·3	11	1,940	449	23·1	61
250	19·2	127	6,842	1,073	15·7	7	1,198	252	21·0	62
55	4·0	133	7,434	1,264	17·0	10	1,673	262	15·7	63
33	2·4	132	6,588	929	14·1	6	1,027	99	9·6	64
15	1·1	131	6,192	1,038	16·8	4	680	117	17·2	65
20	1·5	133	6,093	1,050	17·2	6	791	211	26·7	66
20	1·5	141	5,931	1,129	19·0	5	662	167	25·2	67
100	7·7	124	6,025	1,137	18·9	3	550	110	20·0	68
75	6·0	126	5,847	1,133	20·2	4	625	114	18·2	69
200	15·6	134	6,262	1,218	19·5	8	888	168	18·9	70
400	30·0	133	5,971	1,147	19·2	6	713	130	18·2	71
230	20·2	133	5,982	1,143	19·1	7	761	143	18·8	72

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Miscellaneous					
		Barbers				Musicians and Theatre Employees	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1926	29	1,159	25	2·2	23	562
2	February	33	1,269	18	1·4	23	517
3	March	29	1,146	17	1·5	23	565
4	April	30	1,145	6	0·5	22	530
5	May	34	1,336	15	1·1	25	602
6	June	29	1,113	1	0·1	27	676
7	July	30	1,273	1	0·1	24	573
8	August	31	1,298	–	–	24	561
9	September	30	1,309	6	0·5	25	587
10	October	32	1,357	5	0·4	28	656
11	November	29	1,258	12	1·0	26	620
12	December	31	1,286	9	0·7	26	635
13	January, 1927	31	1,336	30	2·2	25	587
14	February	30	1,269	21	1·7	25	593
15	March	31	1,359	12	0·9	27	676
16	April	30	1,292	8	0·6	27	695
17	May	34	1,428	9	0·6	27	664
18	June	34	1,416	24	1·7	26	643
19	July	34	1,456	6	0·4	29	714
20	August	32	1,537	2	0·1	27	637
21	September	32	1,311	17	1·3	27	675
22	October	33	1,417	21	1·5	28	754
23	November	31	1,228	27	2·2	29	885
24	December	31	1,242	14	1·1	30	858
25	January, 1928	31	1,314	116	8·8	30	902
26	February	32	1,282	41	3·2	27	708
27	March	29	1,160	26	2·2	31	939
28	April	29	1,113	15	1·3	31	886
29	May	35	1,552	6	0·4	29	837
30	June	33	1,440	5	0·3	30	862
31	July	32	1,435	2	0·1	28	843
32	August	32	1,407	6	0·4	31	847
33	September	33	1,404	14	1·0	29	822
34	October	32	1,477	32	2·2	28	744
35	November	33	1,270	35	2·8	31	881
36	December	34	1,339	27	2·0	32	899
37	January, 1929	32	1,488	38	2·6	27	709
38	February	34	1,516	33	2·2	27	705
39	March	34	1,561	31	2·0	27	718
40	April	34	1,553	21	1·4	27	687
41	May	31	1,367	17	1·2	28	759
42	June	34	1,513	4	0·3	31	793
43	July	34	1,496	2	0·1	30	801
44	August	30	1,369	4	0·3	31	810
45	September	35	1,456	21	1·4	32	883
46	October	35	1,520	21	1·4	31	848
47	November	33	1,583	19	1·2	31	811
48	December	35	1,566	15	1·0	30	825
49	January, 1930	36	1,577	41	2·6	32	919
50	February	32	1,410	18	1·3	32	1,010
51	March	31	1,365	26	1·9	34	1,059
52	April	29	1,338	23	1·7	31	947
53	May	32	1,325	21	1·6	31	864
54	June	32	1,280	19	1·5	31	948
55	July	31	1,303	16	1·2	30	928
56	August	33	1,316	20	1·5	29	781
57	September	32	1,432	27	1·9	28	801
58	October	33	1,478	31	2·1	30	922
59	November	32	1,380	46	3·3	27	810
60	December	34	1,472	37	2·5	32	804
61	January, 1931	31	1,379	44	3·2	32	788
62	February	32	1,345	36	2·7	32	876
63	March	31	1,326	32	2·4	34	927
64	April	35	1,475	33	2·2	32	833
65	May	32	1,237	24	1·9	33	939
66	June	29	1,168	26	2·2	32	891
67	July	42	1,264	41	3·2	31	854
68	August	30	1,152	32	2·8	29	741
69	September	28	1,075	32	3·0	30	783
70	October	30	1,096	39	3·6	33	791
71	November	31	1,181	40	3·4	32	860
72	December	32	1,293	40	3·1	30	732

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Miscellaneous										
Musicians and Theatre Employees		Stationary Engineers and Firemen				Others				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
50	8·9	33	1,946	197	10·1	8	298	–	–	1
47	9·1	33	2,001	229	11·4	7	291	1	0·3	2
58	10·3	27	1,758	123	7·0	10	367	–	–	3
60	11·3	30	1,837	135	7·3	9	378	11	2·9	4
64	10·6	32	1,883	104	5·5	8	308	6	1·9	5
81	12·0	25	1,552	56	3·6	12	445	4	0·9	6
111	19·4	29	1,695	54	3·2	7	300	3	1·0	7
65	11·6	30	1,753	56	3·2	9	372	5	1·3	8
47	8·0	26	1,741	84	4·8	8	365	4	1·1	9
46	7·0	27	1,750	114	6·5	11	496	6	1·2	10
50	8·1	28	2,082	162	7·8	8	372	4	1·1	11
49	7·7	32	1,960	160	8·2	7	346	–	–	12
52	8·9	26	1,776	158	8·9	9	393	5	1·3	13
65	11·0	30	2,185	147	6·7	6	295	5	1·7	14
73	10·8	28	2,173	129	5·9	7	301	9	3·0	15
73	10·5	32	1,853	105	5·7	5	228	5	2·2	16
90	13·6	34	1,626	177	10·9	6	288	5	1·7	17
73	11·4	35	1,559	111	7·1	5	230	3	1·3	18
96	13·4	35	1,550	84	5·4	6	295	4	1·4	19
73	11·5	36	1,583	88	5·6	7	369	7	1·9	20
60	8·9	33	1,439	85	5·9	6	286	6	2·1	21
54	7·2	36	1,457	99	6·8	7	370	6	1·6	22
51	5·8	34	1,424	120	8·4	4	167	3	1·8	23
60	7·0	37	1,563	156	10·0	5	283	13	4·6	24
101	11·2	37	1,567	175	11·2	6	345	16	4·6	25
42	5·9	41	1,857	202	10·9	5	272	16	5·9	26
43	4·6	36	1,764	192	10·9	5	273	13	4·8	27
48	5·4	38	1,867	143	7·7	5	258	14	5·4	28
61	7·3	38	2,152	129	6·0	6	306	4	1·3	29
74	8·6	36	2,130	69	3·2	5	269	8	3·0	30
107	12·7	36	2,148	71	3·3	5	270	13	4·8	31
88	10·4	36	2,152	60	2·8	5	263	4	1·5	32
53	6·4	35	2,023	50	2·5	5	267	5	1·9	33
36	4·8	34	1,947	114	5·9	5	237	5	2·1	34
86	9·8	36	2,030	120	5·9	5	309	4	1·3	35
94	10·5	37	2,136	113	5·3	10	431	9	2·1	36
68	9·6	36	2,134	178	8·3	9	398	13	3·3	37
58	8·2	33	1,933	168	8·7	9	377	19	5·0	38
62	8·6	42	2,197	139	6·3	10	450	24	5·3	39
48	7·0	36	2,065	91	4·4	8	409	18	4·4	40
45	5·9	33	1,672	53	3·2	7	354	22	6·2	41
99	12·5	37	1,992	30	1·5	6	360	16	4·4	42
82	10·2	45	2,441	91	3·7	9	451	12	2·7	43
64	7·9	45	2,579	156	6·0	7	327	5	1·5	44
66	7·5	38	2,394	126	5·3	8	446	5	1·1	45
60	7·1	41	2,400	154	6·4	9	441	5	1·1	46
69	8·5	38	2,525	222	8·8	8	390	10	2·6	47
74	9·0	39	3,674	274	7·5	6	294	7	2·4	48
79	8·6	40	2,829	376	13·3	7	319	6	1·9	49
150	14·9	40	2,889	387	13·4	7	325	6	1·8	50
123	11·6	41	2,742	319	11·6	8	622	139	22·3	51
86	9·1	38	2,579	244	9·5	10	762	46	6·0	52
129	14·9	38	2,372	218	9·2	9	613	40	6·5	53
116	12·2	39	2,504	261	10·4	9	603	63	10·4	54
119	12·8	40	2,786	334	12·0	7	454	75	16·5	55
103	13·2	40	2,770	414	14·9	8	514	106	20·6	56
129	16·1	39	2,664	395	14·8	9	563	128	22·7	57
109	11·8	45	3,013	457	15·2	11	601	117	19·5	58
82	10·1	54	3,035	615	20·3	9	547	89	16·3	59
112	13·9	51	2,930	663	22·6	10	558	119	21·3	60
105	13·3	50	2,928	661	22·6	10	584	134	22·9	61
114	13·0	47	2,959	586	19·8	9	464	85	18·3	62
148	16·0	49	3,055	742	24·3	9	453	80	17·7	63
130	15·6	50	2,818	588	20·9	9	435	79	18·2	64
143	15·2	53	2,894	675	23·3	9	442	79	17·9	65
182	20·4	56	2,807	586	20·9	10	436	45	10·3	66
184	21·5	53	2,703	674	24·9	10	448	63	14·1	67
157	21·2	52	3,078	771	25·0	10	504	67	13·3	68
146	18·6	54	2,859	833	29·1	10	505	58	11·5	69
91	11·5	55	3,131	876	28·0	8	356	44	12·4	70
127	14·8	55	2,814	810	28·8	9	403	40	9·9	71
104	14·2	54	2,711	804	29·7	10	485	52	10·7	72

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Total				Manufacturing	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1932	1,849	187,891	41,330	22·0	492	51,874
2	February	1,819	183,159	37,754	20·6	486	51,475
3	March	1,828	181,396	36,961	20·4	485	50,949
4	April	1,806	178,076	40,936	23·0	479	48,999
5	May	1,800	175,411	38,692	22·1	476	47,602
6	June	1,791	175,006	38,372	21·9	470	47,883
7	July	1,806	171,831	37,508	21·8	481	47,269
8	August	1,762	163,530	34,949	21·4	455	43,486
9	September	1,732	162,186	33,146	20·4	456	43,337
10	October	1,765	162,682	35,788	22·0	475	45,056
11	November	1,797	161,058	36,783	22·8	475	43,347
12	December	1,764	155,298	39,607	25·5	467	42,017
13	January, 1933	1,808	156,746	39,909	25·5	485	44,447
14	February	1,762	150,168	36,494	24·3	460	40,899
15	March	1,736	151,307	38,002	25·1	464	42,941
16	April	1,716	153,623	37,659	24·5	457	43,508
17	May	1,704	148,016	35,201	23·8	457	42,258
18	June	1,692	150,040	32,756	21·8	453	43,145
19	July	1,714	151,363	32,131	21·2	453	43,804
20	August	1,705	151,233	30,096	19·9	451	43,599
21	September	1,762	149,310	29,492	19·8	475	42,229
22	October	1,734	148,703	29,417	19·8	458	42,117
23	November	1,722	146,946	29,908	20·4	454	41,461
24	December	1,726	146,770	30,799	21·0	461	41,905
25	January, 1934	1,728	149,630	31,695	21·2	468	42,455
26	February	1,734	148,048	29,568	20·0	462	41,625
27	March	1,666	145,476	28,436	19·5	449	42,282
28	April	1,693	150,638	28,725	19·1	466	46,088
29	May	1,705	156,963	28,994	18·5	469	48,165
30	June	1,702	159,722	28,774	18·0	459	50,363
31	July	1,701	156,357	27,945	17·9	468	46,984
32	August	1,700	158,970	26,191	16·5	463	49,193
33	September	1,700	159,675	26,204	16·4	462	50,185
34	October	1,765	162,066	26,291	16·2	481	51,844
35	November	1,735	159,169	27,904	17·5	474	50,301
36	December	1,767	161,618	29,112	18·0	481	49,416
37	January, 1935	1,783	161,713	29,284	18·1	482	50,523
38	February	1,721	160,929	29,227	18·2	466	52,921
39	March	1,735	160,062	26,724	16·7	468	51,656
40	April	1,735	162,410	27,562	17·0	472	52,690
41	May	1,755	164,320	26,078	15·9	478	52,644
42	June	1,684	161,789	24,991	15·4	465	51,497
43	July	1,723	164,357	24,736	15·1	465	52,003
44	August	1,727	166,636	23,640	14·2	469	53,672
45	September	1,763	166,764	21,759	13·0	491	52,790
46	October	1,777	169,839	22,583	13·3	481	53,596
47	November	1,761	169,584	22,575	13·3	483	54,217
48	December	1,807	170,503	24,868	14·6	491	52,757

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Manufacturing		Mining and Quarrying				Building and Construction				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
11,118	21·4	53	19,635	2,416	12·3	260	25,906	16,530	63·8	1
8,965	17·4	55	19,612	1,363	6·9	258	25,095	16,398	65·3	2
9,366	18·4	52	18,272	1,813	9·9	248	24,565	15,292	62·3	3
12,517	25·5	50	17,115	2,304	13·5	249	24,239	15,205	62·7	4
11,509	24·2	48	16,943	2,423	14·3	248	23,604	13,504	57·2	5
11,585	24·2	47	16,864	2,084	12·4	243	23,448	14,264	60·8	6
11,383	24·1	47	16,087	2,020	12·6	245	22,334	13,095	58·6	7
9,774	22·5	45	14,711	1,735	11·8	236	21,160	12,940	61·2	8
9,217	21·3	45	15,126	1,859	12·3	229	20,269	12,459	61·5	9
10,928	24·3	46	14,362	1,916	13·3	227	20,329	12,122	59·6	10
11,263	26·0	47	13,698	955	7·0	241	20,812	13,218	63·5	11
12,145	28·9	46	13,245	1,103	8·3	241	20,406	14,131	69·2	12
13,153	29·6	47	13,094	1,131	8·6	245	19,758	13,711	69·4	13
10,459	25·6	43	12,462	852	6·8	230	18,943	13,574	71·7	14
12,107	28·2	45	12,114	2,114	17·5	219	18,368	13,048	71·0	15
12,335	28·3	53	13,915	2,382	17·1	220	18,533	12,367	66·7	16
12,046	28·5	50	13,003	2,795	21·5	210	16,965	11,135	65·6	17
10,553	24·5	48	13,136	1,917	14·6	218	18,315	11,452	62·5	18
9,770	22·3	50	13,489	1,936	14·3	203	18,211	11,280	61·9	19
8,767	20·1	53	15,410	2,015	13·1	208	17,035	10,838	63·6	20
8,991	21·3	53	15,385	1,501	9·8	212	15,099	9,930	65·8	21
8,793	20·9	51	14,340	1,155	8·1	210	15,894	10,401	65·4	22
8,505	20·5	51	14,234	1,811	12·7	205	15,061	10,178	67·6	23
9,815	23·4	50	13,648	923	6·8	206	15,139	10,455	69·1	24
9,301	21·9	52	14,740	1,146	7·8	204	16,455	11,386	69·2	25
8,209	19·7	51	14,458	1,184	8·2	217	16,208	11,208	69·2	26
7,035	16·6	47	12,570	1,808	14·4	199	15,555	10,822	69·6	27
7,544	16·4	49	14,008	2,700	19·3	207	17,076	10,470	61·3	28
7,505	15·6	55	16,818	3,557	21·1	204	17,029	10,847	63·7	29
8,644	17·2	54	17,572	3,677	20·9	200	16,745	9,682	57·8	30
8,516	18·1	54	17,547	3,512	20·0	191	17,064	9,723	57·0	31
6,669	13·6	51	17,245	2,426	14·1	202	16,769	9,610	57·3	32
8,019	16·0	52	17,913	2,100	11·7	195	17,227	9,283	53·9	33
8,656	16·7	55	17,796	1,088	6·1	208	16,482	9,087	55·1	34
9,067	18·0	54	17,743	1,095	6·2	201	15,904	9,793	61·6	35
8,809	17·8	53	18,026	854	4·7	207	17,212	10,084	58·6	36
8,637	17·1	56	17,956	1,312	7·3	211	17,247	10,621	61·6	37
8,454	16·0	50	16,267	1,577	9·7	196	16,951	11,043	65·1	38
6,824	13·2	51	16,643	1,885	11·3	208	17,569	10,409	59·2	39
7,097	13·5	53	17,395	2,532	14·6	197	17,271	10,552	61·1	40
8,363	15·9	54	16,724	2,621	15·7	204	18,295	8,319	45·5	41
8,186	15·9	52	17,236	3,141	18·2	182	17,264	7,674	44·5	42
8,088	15·6	54	17,715	3,264	18·4	184	17,162	7,946	46·3	43
7,531	14·0	52	17,574	2,517	14·3	182	17,043	7,515	44·1	44
6,705	12·7	50	16,393	1,562	9·5	191	18,160	7,542	41·5	45
7,630	14·2	52	16,305	829	5·1	188	19,013	8,134	42·8	46
7,397	13·6	53	16,284	929	5·7	197	19,498	8,285	42·5	47
7,981	15·1	55	17,152	1,104	6·4	198	19,696	8,891	45·1	48

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Transportation				Communication	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1932	787	64,764	8,537	13·2	42	8,446
2	February	767	62,916	8,520	13·5	42	8,053
3	March	795	63,201	7,801	12·3	41	8,076
4	April	776	63,249	8,339	13·2	43	8,061
5	May	782	63,031	7,871	12·5	41	8,059
6	June	781	62,785	7,386	11·8	41	8,065
7	July	783	62,265	8,096	13·0	42	8,070
8	August	783	61,418	7,584	12·3	41	7,754
9	September	757	61,028	6,884	11·3	40	7,730
10	October	772	60,362	7,797	12·9	42	7,790
11	November	794	60,455	8,142	13·5	42	7,913
12	December	772	57,405	8,914	15·5	42	7,758
13	January, 1933	781	57,251	8,904	15·6	44	8,022
14	February	785	56,340	8,656	15·4	44	7,609
15	March	762	55,874	7,851	14·1	44	7,576
16	April	746	56,081	7,895	14·1	43	7,522
17	May	749	55,266	6,762	12·2	43	7,515
18	June	737	54,332	6,502	12·0	39	7,273
19	July	756	54,817	6,844	12·5	44	7,466
20	August	748	54,961	6,279	11·4	41	7,207
21	September	774	56,496	6,794	12·0	43	7,153
22	October	772	55,838	7,026	12·6	41	7,110
23	November	768	55,759	7,364	13·2	44	7,316
24	December	775	55,938	7,469	13·4	43	7,320
49	January, 1934	764	55,298	7,646	13·8	41	7,173
50	February	763	54,619	6,814	12·5	42	7,015
51	March	735	53,851	6,797	12·6	42	6,961
52	April	737	53,485	6,103	11·4	42	7,043
53	May	746	53,743	5,347	9·9	41	7,098
54	June	748	53,216	4,941	9·3	42	7,081
55	July	747	52,858	4,316	8·2	42	7,071
56	August	739	53,520	4,949	9·2	42	6,939
57	September	753	52,328	4,234	8·1	43	6,871
58	October	778	54,079	4,909	9·1	40	6,959
59	November	772	53,607	5,564	10·4	38	6,948
60	December	782	54,112	6,140	11·3	37	6,913
61	January, 1935	793	53,888	5,739	10·6	39	6,984
62	February	776	52,802	5,219	9·9	37	6,889
63	March	768	53,150	5,540	10·4	38	6,836
64	April	772	53,973	5,329	9·9	38	7,021
65	May	768	54,812	4,906	9·0	38	7,040
66	June	746	54,002	4,163	7·7	36	6,936
67	July	768	55,055	3,674	6·7	38	7,030
68	August	774	55,360	3,831	6·9	39	7,116
69	September	778	56,331	3,641	6·5	40	6,810
70	October	803	57,689	4,176	7·2	41	6,993
71	November	775	56,129	4,191	7·5	37	7,024
72	December	811	57,740	5,013	8·7	38	7,115

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Communication		Lumbering and Logging				Retail Trade				No.
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
951	11·3	4	775	186	24·0	4	1,212	54	4·5	1
664	8·2	4	745	158	21·2	3	1,139	8	0·7	2
882	10·9	4	805	165	20·5	4	1,176	40	3·4	3
748	9·3	4	717	187	26·1	4	1,154	33	2·9	4
1,270	15·8	4	724	193	26·7	4	1,169	27	2·3	5
874	10·8	5	1,334	649	48·7	5	1,193	27	2·3	6
707	8·8	5	1,349	567	42·0	4	1,105	10	0·9	7
843	10·9	4	1,304	592	45·4	4	1,162	8	0·7	8
705	9·1	4	1,299	549	42·3	6	1,101	21	1·9	9
1,087	14·0	4	1,299	472	36·3	6	1,106	22	2·0	10
1,060	13·4	5	1,362	633	46·5	6	1,169	68	5·8	11
1,162	15·0	4	1,300	675	51·9	5	1,079	8	0·7	12
1,253	15·6	3	611	140	22·9	5	1,080	59	5·5	13
1,177	15·5	4	660	207	31·4	6	1,096	22	2·0	14
1,123	14·8	4	665	238	35·8	5	1,063	8	0·8	15
1,106	14·7	4	662	227	34·3	6	1,078	22	2·0	16
994	13·2	4	677	213	31·5	5	1,043	6	0·6	17
735	10·1	5	696	168	24·1	6	1,073	15	1·4	18
781	10·5	5	683	154	22·5	5	1,055	31	2·9	19
781	10·8	4	663	136	20·5	5	1,069	12	1·1	20
821	11·5	4	605	102	16·9	4	1,026	6	0·6	21
881	12·4	5	671	163	24·3	4	1,007	5	0·5	22
848	11·6	6	719	146	20·3	3	1,008	–	–	23
941	12·9	3	546	104	19·0	3	1,006	–	–	24
974	13·6	4	661	144	21·8	3	1,006	–	–	49
906	12·9	5	697	138	19·8	4	1,700	86	5·1	50
932	13·4	5	1,292	117	9·1	4	1,713	117	6·8	51
942	13·4	3	635	190	29·9	4	1,729	117	6·8	52
848	11·9	4	1,388	85	6·1	6	1,835	122	6·6	53
869	12·3	3	1,373	41	3·0	5	1,871	116	6·2	54
803	11·4	3	1,431	35	2·4	5	1,849	116	6·3	55
788	11·4	3	1,451	537	37·0	6	1,848	151	8·2	56
818	11·9	3	1,457	652	44·7	5	1,788	213	11·9	57
821	11·8	5	1,250	570	45·6	5	1,813	199	11·0	58
819	11·8	3	1,503	583	38·8	5	1,769	105	5·9	59
798	11·5	4	1,450	733	50·6	6	2,409	189	7·8	60
868	12·4	3	1,384	659	47·6	5	1,737	76	4·4	61
796	11·6	3	1,383	640	46·3	5	1,717	65	3·8	62
810	11·8	3	601	35	5·8	5	1,703	125	7·3	63
835	11·9	2	601	49	8·2	5	1,781	205	11·5	64
767	10·9	3	632	58	9·2	5	1,825	243	13·3	65
782	11·3	3	625	32	5·1	5	1,786	184	10·3	66
731	10·4	4	626	46	7·3	5	1,751	159	9·1	67
714	10·0	4	627	45	7·2	5	1,858	229	12·3	68
753	11·1	4	619	43	6·9	4	1,878	195	10·4	69
738	10·6	4	618	61	9·9	5	1,801	92	5·1	70
741	10·5	4	622	75	12·1	5	1,766	32	1·8	71
748	10·5	4	517	78	15·1	5	1,723	63	3·7	72

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Public Employment				Fishing	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1932	72	8,410	174	2·1	2	1,062
2	February	71	7,873	497	6·3	1	505
3	March	72	8,604	474	5·5	1	505
4	April	74	8,667	484	5·6	1	505
5	May	71	8,417	796	9·5	1	505
6	June	72	7,799	396	5·1	2	655
7	July	71	7,788	365	4·7	2	705
8	August	68	7,300	386	5·3	2	705
9	September	71	7,292	519	7·1	2	705
10	October	73	7,316	388	5·3	2	705
11	November	73	7,749	436	5·6	2	705
12	December	73	7,358	464	6·3	2	705
13	January, 1933	78	7,562	679	9·0	2	730
14	February	75	7,449	557	7·5	3	755
15	March	77	7,671	564	7·4	2	730
16	April	73	7,325	443	6·0	2	750
17	May	69	6,385	329	5·2	2	705
18	June	72	6,701	423	6·3	3	1,205
19	July	73	6,739	420	6·2	2	705
20	August	73	6,505	313	4·8	2	705
21	September	69	6,454	333	5·2	2	705
22	October	74	6,917	112	1·6	2	705
23	November	75	6,766	216	3·2	2	685
24	December	74	6,898	193	2·8	2	680
25	January, 1934	75	7,050	149	2·1	2	705
26	February	77	7,202	300	4·2	2	705
27	March	71	6,898	188	2·7	2	745
28	April	73	6,807	114	1·7	1	225
29	May	70	6,954	128	1·8	1	230
30	June	74	7,422	225	3·0	1	235
31	July	76	7,658	272	3·6	1	210
32	August	79	7,968	270	3·4	1	225
33	September	77	8,055	256	3·2	1	225
34	October	76	7,845	185	2·4	3	297
35	November	74	7,433	86	1·2	2	270
36	December	78	7,481	288	3·8	3	694
37	January, 1935	77	7,530	124	1·6	3	722
38	February	73	7,457	157	2·1	3	758
39	March	74	7,550	150	2·0	4	567
40	April	72	7,364	125	1·7	2	485
41	May	75	7,600	148	1·9	3	558
42	June	77	7,759	218	2·8	3	569
43	July	76	7,916	244	3·1	3	585
44	August	80	8,226	247	3·0	3	562
45	September	77	8,104	233	2·9	4	599
46	October	76	8,208	219	2·7	2	525
47	November	74	8,045	159	2·0	4	611
48	December	75	8,223	264	3·2	4	569

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

Fishing		Miscellaneous								No.
		Total				Hotels and Restaurants				
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
230	21·7	133	5,807	1,134	19·5	7	722	132	18·3	1
-	-	132	5,746	1,181	20·6	7	750	165	22·0	2
-	-	126	5,243	1,128	21·5	7	795	155	19·5	3
-	-	126	5,370	1,119	20·8	7	692	147	21·2	4
-	-	125	5,357	1,099	20·5	7	781	134	17·2	5
50	7·6	125	4,980	1,057	21·2	6	528	93	17·6	6
75	10·6	126	4,859	1,190	24·5	6	522	117	22·4	7
40	5·7	124	4,530	1,047	23·1	5	460	101	22·0	8
75	10·6	122	4,299	858	20·0	8	630	147	23·3	9
150	21·3	118	4,357	906	20·8	5	459	116	25·3	10
190	27·0	112	3,848	818	21·3	5	468	117	25·0	11
200	28·4	112	4,025	805	20·0	5	455	66	14·5	12
100	13·7	118	4,191	779	18·6	5	548	115	21·0	13
100	13·2	112	3,955	890	22·5	4	418	141	33·7	14
50	6·8	114	4,305	899	20·9	4	486	150	30·9	15
15	2·0	112	4,159	867	20·8	6	551	158	28·7	16
15	2·1	115	4,199	906	21·6	7	596	189	31·7	17
15	1·2	111	4,164	976	23·4	6	580	192	33·1	18
10	1·4	123	4,394	905	20·6	7	608	177	29·1	19
150	21·3	120	4,079	805	19·7	7	562	122	21·7	20
175	24·8	126	4,158	839	20·2	5	535	117	21·9	21
175	24·8	117	4,104	706	17·2	5	549	101	18·4	22
180	26·3	114	3,937	660	16·8	5	492	101	20·5	23
170	25·0	109	3,690	729	19·8	6	576	112	19·4	24
190	27·0	115	4,087	759	18·6	7	655	158	24·1	25
15	2·1	111	3,819	708	18·5	6	599	148	24·7	26
10	1·3	112	3,609	610	16·9	6	546	105	19·2	27
5	2·2	111	3,542	540	15·2	5	462	74	16·0	28
10	4·3	109	3,703	545	14·7	5	475	54	11·4	29
5	2·2	116	3,849	574	14·9	6	590	75	12·7	30
4	1·9	114	3,685	648	17·6	5	508	97	19·1	31
150	66·7	114	3,812	641	16·8	5	503	36	7·2	32
100	44·4	109	3,626	529	14·6	6	537	42	7·8	33
215	72·4	114	3,701	561	15·2	6	510	111	21·8	34
225	83·3	112	3,691	567	15·4	3	400	84	21·0	35
616	88·8	116	3,905	601	15·4	5	442	80	18·1	36
663	91·8	114	3,742	585	15·6	5	473	87	18·4	37
671	88·5	112	3,784	605	16·0	5	478	96	20·1	38
364	64·2	116	3,787	582	15·4	5	481	86	17·9	39
230	47·4	122	3,829	608	15·9	5	476	88	18·5	40
19	3·4	127	4,190	634	15·1	5	455	84	18·5	41
7	1·2	115	4,115	604	14·7	3	384	75	19·5	42
5	0·9	126	4,514	579	12·8	2	296	50	16·9	43
-	-	119	4,598	1,011	22·0	2	300	72	24·0	44
100	16·7	124	5,080	985	19·4	4	467	92	19·7	45
150	28·6	125	5,091	554	10·9	6	588	138	23·5	46
193	31·6	129	5,388	573	10·6	7	716	156	21·8	47
204	35·9	126	5,011	522	10·4	5	485	91	18·8	48

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1920-December 31, 1935—Con.

No.	Month	Miscellaneous					
		Barbers				Musicians and Theatre Employees	
		No. Reporting		Unemployed		No. Reporting	
		Unions	Members	No.	P.C.	Unions	Members
1	January, 1932	30	1,156	52	4·5	35	852
2	February	29	1,116	60	5·4	31	822
3	March	29	1,066	39	3·7	32	813
4	April	26	966	32	3·3	32	862
5	May	26	971	31	3·2	32	793
6	June	29	1,100	41	3·7	31	757
7	July	26	927	31	3·3	36	870
8	August	24	833	32	3·8	34	813
9	September	27	860	15	1·7	29	724
10	October	27	1,035	24	2·3	33	876
11	November	24	769	19	2·5	32	772
12	December	26	797	19	2·4	32	828
13	January, 1933	25	775	21	2·7	34	869
14	February	23	763	13	1·7	33	850
15	March	25	813	29	3·6	34	951
16	April	22	796	21	2·6	33	778
17	May	23	757	25	3·3	30	700
18	June	23	691	30	4·3	33	806
19	July	23	685	11	1·6	36	866
20	August	23	719	17	2·4	36	835
21	September	23	715	25	3·5	41	947
22	October	22	654	15	2·3	37	940
23	November	23	690	16	2·3	36	880
24	December	21	631	11	1·7	34	777
25	January, 1934	21	652	17	2·6	34	853
26	February	24	712	34	4·8	35	799
27	March	23	646	20	3·1	36	771
28	April	23	666	17	2·6	35	751
29	May	23	713	19	2·7	33	720
30	June	21	618	16	2·6	35	748
31	July	21	600	13	2·2	36	803
32	August	21	614	18	2·9	37	824
33	September	21	591	16	2·7	34	727
34	October	19	594	19	3·2	34	707
35	November	21	605	17	2·8	36	833
36	December	18	529	6	1·1	35	926
37	January, 1935	21	535	37	6·9	34	926
38	February	21	619	28	4·5	36	901
39	March	20	563	27	4·8	35	881
40	April	21	598	21	3·5	36	803
41	May	20	580	16	2·8	36	916
42	June	23	875	26	3·0	33	855
43	July	24	976	36	3·7	38	924
44	August	24	1,302	537	41·2	35	785
45	September	23	1,192	506	42·4	36	796
46	October	24	1,223	52	4·3	35	868
47	November	26	1,312	33	2·5	37	911
48	December	23	1,241	32	2·6	37	931

TABLE 14. Labour union figures on number of unions and members reporting and number and percentage unemployed, by industries and months, Canada, June 30, 1929-December 31, 1935—Con.

Miscellaneous										
Musicians and Theatre Employees		Stationary Engineers and Firemen				Others				
Unemployed		No. Reporting		Unemployed		No. Reporting		Unemployed		No.
No.	P.C.	Unions	Members	No.	P.C.	Unions	Members	No.	P.C.	
123	14·4	52	2,639	765	29·0	9	438	62	14·2	1
141	17·2	55	2,591	782	30·2	10	467	33	7·1	2
142	17·5	48	2,084	751	36·0	10	485	41	8·5	3
138	16·0	50	2,348	754	32·1	11	502	48	9·6	4
164	20·7	51	2,344	734	31·3	9	468	36	7·7	5
185	24·4	48	2,128	708	33·3	11	467	30	6·4	6
185	21·3	47	2,056	822	40·0	11	484	35	7·2	7
194	23·9	49	1,925	686	35·6	12	499	34	6·8	8
143	19·8	47	1,605	509	31·7	11	480	44	9·2	9
158	18·0	45	1,635	582	35·6	8	352	26	7·4	10
162	21·0	42	1,456	503	34·5	9	383	17	4·4	11
164	19·8	40	1,554	496	31·9	9	391	60	15·3	12
179	20·6	43	1,572	436	27·7	11	427	28	6·6	13
194	22·8	43	1,516	516	34·0	9	408	26	6·4	14
235	24·7	34	1,577	428	27·1	12	478	57	11·9	15
191	24·6	42	1,675	471	28·1	9	359	26	7·2	16
175	25·0	45	1,703	471	27·7	10	443	46	10·4	17
195	24·2	41	1,710	525	30·7	8	377	34	9·0	18
244	28·2	44	1,747	436	25·0	13	488	37	7·6	19
233	27·9	42	1,493	390	26·1	12	470	43	9·1	20
237	25·0	45	1,488	408	27·4	12	473	52	11·0	21
197	21·0	37	1,484	351	23·7	16	477	42	8·8	22
167	19·0	39	1,476	354	24·0	11	399	22	5·5	23
184	23·7	38	1,345	411	30·6	10	361	11	3·0	24
157	18·4	42	1,523	396	26·0	11	404	31	7·7	25
167	20·9	37	1,393	347	24·9	9	335	12	3·6	26
162	21·0	38	1,275	315	24·7	9	371	8	2·2	27
129	17·2	38	1,308	299	22·9	10	355	21	5·9	28
137	19·0	37	1,383	316	22·8	11	412	19	4·6	29
135	18·0	41	1,451	326	22·5	13	442	22	5·0	30
204	25·4	41	1,413	318	22·5	11	361	16	4·4	31
199	24·2	40	1,448	366	25·3	11	423	22	5·2	32
125	17·2	36	1,352	325	24·0	12	419	21	5·0	33
114	16·1	42	1,447	300	20·7	13	443	17	3·8	34
194	23·3	42	1,470	270	18·4	10	383	2	0·5	35
170	18·4	46	1,582	318	20·1	12	426	27	6·3	36
157	17·0	45	1,477	293	19·8	9	331	11	3·3	37
185	20·5	40	1,447	286	19·8	10	339	10	2·9	38
159	18·0	45	1,490	290	19·5	11	372	20	5·4	39
171	21·3	48	1,572	317	20·2	12	380	11	2·9	40
190	20·7	51	1,661	327	19·7	15	578	17	2·9	41
202	23·6	42	1,521	289	19·0	14	480	12	2·5	42
236	25·5	46	1,581	256	16·2	16	737	1	0·1	43
157	20·0	42	1,497	232	15·5	16	714	13	1·8	44
136	17·1	43	1,554	223	14·4	18	1,071	28	2·6	45
133	15·3	45	1,555	222	14·3	15	857	9	1·1	46
128	14·1	42	1,531	241	15·7	17	918	15	1·6	47
153	16·4	44	1,524	224	14·7	17	830	22	2·7	48

TABLE 15. Data on labour unions in the manufacturing, transportation and building and construction industries compared with the Bureau's index of number employed in these three industries and with the index of final estimated percentage employed for all industries, by months, June 30, 1920-December 31, 1935

Month	Manufacturing, Transportation and Building and Construction							All Industries
	No. Reporting		Unemployed		P.C. Employed	Index of P.C. Employed (base 1926)	Bureau's Index of No. Employed	Index Estimated P.C. Employed (base 1926)
	Unions	Members	No.	P.C.				
June, 1920	1,297	162,053	4,448	2·74	97·26	102·8	–	102·3
July	1,216	155,584	4,589	2·95	97·05	102·6	–	101·0
August	1,227	156,091	5,678	3·64	96·36	101·9	–	100·6
September	1,220	158,730	5,900	3·72	96·28	101·8	–	101·8
October	1,253	167,815	8,642	5·15	94·85	100·3	–	104·2
November	1,242	166,768	14,502	8·70	91·30	96·5	–	100·6
December	1,289	163,411	25,816	15·80	84·20	89·0	84·2	96·1
January, 1921	1,250	156,196	23,211	14·86	85·14	90·0	88·2	94·9
February	1,217	149,875	22,019	14·69	85·31	90·2	86·3	92·3
March	1,264	154,625	24,024	15·54	84·46	89·3	83·0	94·1
April	1,301	150,537	24,930	16·56	83·44	88·2	82·9	94·3
May	1,314	150,711	23,913	15·87	84·13	88·9	85·8	95·2
June	1,174	135,491	17,549	12·95	87·05	92·0	87·1	93·9
July	1,228	138,517	12,376	8·93	91·07	96·3	88·8	98·7
August	1,285	147,432	13,767	9·34	90·66	95·8	87·9	100·8
September	1,278	142,088	12,856	9·05	90·95	96·1	89·7	100·2
October	1,233	132,580	10,364	7·82	92·18	97·4	89·9	99·7
November	1,135	113,545	13,860	12·21	87·79	92·8	85·7	93·8
December	1,213	123,265	20,741	16·83	83·17	87·9	74·9	89·2
January, 1922	1,217	125,040	18,440	14·75	85·25	90·1	76·7	90·3
February	1,213	127,098	13,991	11·01	88·99	94·1	81·0	95·0
March	1,174	123,935	12,433	10·03	89·97	95·1	80·8	94·9
April	1,103	105,423	9,970	9·46	90·54	95·7	83·2	93·8
May	1,123	117,491	11,105	9·45	90·55	95·7	90·5	95·7
June	1,147	115,399	6,125	5·31	94·69	100·1	92·9	99·4
July	1,218	125,233	5,574	4·45	95·55	101·0	95·5	100·7
August	1,156	111,960	4,274	3·82	96·18	101·7	95·7	101·0
September	1,160	123,248	3,658	2·97	97·03	102·6	96·3	102·1
October	1,156	118,926	4,758	4·00	96·00	101·5	96·2	100·8
November	1,120	111,415	7,476	6·71	93·29	98·6	94·1	98·3
December	1,166	117,128	8,101	6·92	93·08	98·4	83·2	98·2
January, 1923	1,078	106,406	8,527	8·01	91·99	97·2	87·2	96·5
February	1,124	115,066	8,842	7·68	92·32	97·6	88·6	98·1
March	1,106	111,994	7,615	6·80	93·20	98·5	87·4	97·7
April	1,069	111,769	5,027	4·50	95·50	101·0	92·6	100·0
May	1,120	118,958	6,175	5·19	94·81	100·2	99·0	100·2
June	1,143	118,741	4,259	3·59	96·41	101·9	101·9	101·4
July	1,159	119,703	3,579	2·99	97·01	102·6	103·2	101·9
August	1,130	115,784	2,777	2·40	97·60	103·2	102·6	102·6
September	1,158	115,167	2,544	2·21	97·79	103·4	101·4	102·8
October	1,136	118,854	6,647	5·59	94·41	99·8	100·0	99·9
November	1,140	116,827	8,638	7·39	92·61	97·9	94·5	98·4
December	1,204	124,549	10,106	8·11	91·89	97·1	85·4	97·5
January, 1924	1,196	121,990	10,326	8·46	91·54	96·8	88·1	97·2
February	1,163	119,011	10,400	8·74	91·26	96·5	88·7	96·9
March	1,134	116,164	9,239	7·95	92·05	97·3	89·1	97·9
April	1,137	118,720	7,408	6·24	93·76	99·1	91·7	99·7
May	1,138	122,673	11,050	9·01	90·99	96·2	95·9	97·4
June	1,181	121,054	8,235	6·80	93·20	98·5	97·5	99·0
July	1,160	119,729	7,887	6·59	93·41	98·7	96·4	99·4
August	1,163	118,792	8,778	7·39	92·61	97·9	94·0	98·2
September	1,198	118,650	7,995	6·74	93·26	98·6	94·5	98·8
October	1,177	116,122	8,629	7·43	92·57	97·9	92·2	97·8
November	1,181	118,238	12,690	10·73	89·27	94·4	88·3	94·9
December	1,210	120,802	17,069	14·13	85·87	90·8	80·1	92·9
January, 1925	1,269	122,849	14,507	11·81	88·19	93·2	83·3	94·3
February	1,303	126,236	12,970	10·27	89·73	94·9	85·0	95·2
March	1,218	116,800	11,319	9·69	90·31	95·5	87·0	96·0
April	1,173	116,862	11,137	9·53	90·47	95·6	91·3	95·8
May	1,155	115,416	8,584	7·44	92·56	97·8	95·7	97·6
June	1,203	118,509	7,756	6·54	93·46	98·8	99·0	98·5
July	1,200	119,363	6,589	5·52	94·48	99·9	98·3	99·5
August	1,176	118,575	5,832	4·96	95·04	100·5	98·7	100·3
September	1,180	115,458	7,432	6·44	93·56	98·9	100·1	98·8
October	1,184	112,901	6,621	5·86	94·14	99·5	97·3	99·5
November	1,210	113,811	7,462	6·56	93·44	98·8	94·1	98·8
December	1,232	114,988	10,815	9·41	90·59	95·8	87·5	96·5

TABLE 15. Data on labour unions in the manufacturing, transportation and building and construction industries compared with the Bureau's index of number employed in these three industries and with the index of final estimated percentage employed for all industries, by months, June 30, 1920-December 31, 1935—Con.

Month	Manufacturing, Transportation and Building and Construction							All Industries
	No. Reporting		Unemployed		P.C. Employed	Index of P.C. Employed (base 1926)	Bureau's Index of No. Employed	Index Estimated P.C. Employed (base 1926)
	Unions	Members	No.	P.C.				
January, 1926....	1,215	110,235	9,705	8·80	91·20	96·4	88·9	96·3
February.....	1,225	109,067	8,186	7·51	92·49	97·8	90·7	96·3
March.....	1,219	110,868	7,626	6·88	93·12	98·4	92·5	97·3
April.....	1,169	111,983	7,815	6·98	93·02	98·3	96·0	97·3
May.....	1,208	109,640	6,000	5·47	94·53	99·9	103·3	99·8
June.....	1,168	109,148	5,168	4·73	95·27	100·7	106·9	100·5
July.....	1,158	104,517	2,449	2·34	97·66	103·2	107·9	102·3
August.....	1,169	101,729	2,848	2·80	97·20	102·8	108·5	102·2
September.....	1,202	107,577	4,313	4·01	95·99	101·5	108·0	102·4
October.....	1,222	111,600	3,527	3·16	96·84	102·4	104·2	103·8
November.....	1,191	112,439	5,385	4·79	95·21	100·6	100·1	101·0
December.....	1,235	115,240	7,972	6·92	93·08	98·4	92·5	101·0
January, 1927....	1,230	115,187	9,068	7·87	92·13	97·4	93·7	99·1
February.....	1,248	117,484	9,471	8·06	91·94	97·2	95·4	100·6
March.....	1,197	117,221	7,038	6·00	94·00	99·4	96·8	100·2
April.....	1,223	119,900	8,204	6·84	93·16	98·5	102·3	101·2
May.....	1,232	120,630	6,960	5·77	94·23	99·6	108·4	101·5
June.....	1,230	124,795	4,568	3·66	96·34	101·8	111·8	104·0
July.....	1,234	124,245	5,172	4·16	95·84	101·3	112·5	103·7
August.....	1,258	125,016	5,509	4·41	95·59	101·0	112·5	103·4
September.....	1,260	126,596	4,966	3·92	96·08	101·6	110·9	104·1
October.....	1,288	124,904	5,950	4·76	95·24	100·7	107·6	103·3
November.....	1,253	125,542	7,946	6·33	93·67	99·0	104·2	101·3
December.....	1,348	132,569	10,665	8·04	91·96	97·2	95·7	101·2
January, 1928....	1,299	129,361	10,912	8·44	91·56	96·8	98·2	100·1
February.....	1,320	130,622	10,598	8·11	91·89	97·1	99·4	100·1
March.....	1,347	135,048	9,643	7·14	92·86	98·2	101·6	101·3
April.....	1,294	136,282	7,242	5·31	94·69	100·1	107·0	102·6
May.....	1,329	133,956	5,076	3·79	96·21	101·7	115·1	103·5
June.....	1,328	136,666	5,035	3·68	96·32	101·8	119·8	103·0
July.....	1,324	136,968	3,446	2·52	97·48	103·0	123·8	103·8
August.....	1,322	137,797	3,677	2·67	97·33	102·9	123·0	103·8
September.....	1,341	138,968	3,187	2·29	97·71	103·3	121·1	103·8
October.....	1,379	142,300	5,072	3·56	96·44	101·9	119·6	102·9
November.....	1,389	143,158	7,011	4·90	95·10	100·5	113·2	101·9
December.....	1,404	146,206	11,092	7·59	92·41	97·7	104·1	99·8
January, 1929....	1,414	145,202	11,054	7·61	92·39	97·7	104·9	99·4
February.....	1,388	143,820	11,215	7·80	92·20	97·5	108·3	98·6
March.....	1,436	150,378	9,922	6·60	93·40	98·7	109·8	100·1
April.....	1,383	146,582	8,540	5·83	94·17	99·5	116·8	99·4
May.....	1,363	151,616	6,579	4·34	95·66	101·1	123·2	101·5
June.....	1,398	154,241	4,615	2·99	97·01	102·6	125·9	103·1
July.....	1,397	155,894	5,432	3·48	96·52	102·0	129·9	103·0
August.....	1,410	160,582	5,868	3·65	96·35	101·9	127·9	103·0
September.....	1,459	163,495	6,806	4·16	95·84	101·3	125·1	103·0
October.....	1,458	165,280	11,788	7·13	92·87	98·2	121·7	101·4
November.....	1,473	166,165	18,079	10·88	89·12	94·2	112·9	97·8
December.....	1,500	165,863	22,421	13·52	86·48	91·4	103·8	95·5
January, 1930....	1,479	163,916	20,252	12·36	87·64	92·6	105·2	93·2
February.....	1,473	162,581	21,308	13·11	86·89	91·9	104·9	91·8
March.....	1,473	163,548	19,324	11·82	88·18	93·2	105·9	93·1
April.....	1,435	160,055	15,597	9·74	90·26	95·4	111·0	93·7
May.....	1,403	154,996	18,036	11·64	88·36	93·4	115·9	90·3
June.....	1,411	158,707	19,272	12·14	87·86	92·9	119·0	90·8
July.....	1,397	157,251	16,049	10·21	89·79	94·9	119·8	92·0
August.....	1,363	154,509	16,086	10·41	89·59	94·7	117·1	91·1
September.....	1,459	161,424	17,291	10·71	89·29	94·4	115·9	93·4
October.....	1,491	163,687	20,584	12·58	87·42	92·4	111·0	92·4
November.....	1,491	159,636	25,909	16·23	83·77	88·6	104·8	89·3
December.....	1,584	169,968	33,347	19·62	80·38	85·0	96·7	88·0
January, 1931....	1,549	161,199	29,179	18·10	81·90	86·6	97·0	87·5
February.....	1,532	158,453	28,079	17·72	82·28	87·0	97·4	87·4
March.....	1,522	161,675	27,272	16·87	83·13	87·9	98·3	88·2
April.....	1,605	160,886	26,175	16·27	83·73	88·5	101·0	88·9
May.....	1,504	155,539	27,845	17·90	82·10	86·8	102·8	87·1
June.....	1,541	156,407	28,351	18·13	81·87	86·5	103·5	87·1
July.....	1,547	155,711	26,820	17·22	82·78	87·5	105·8	87·6
August.....	1,536	152,895	25,741	16·84	83·16	87·9	108·0	88·5
September.....	1,536	149,673	31,575	21·10	78·90	83·4	103·7	87·1
October.....	1,549	148,300	31,844	21·47	78·53	83·0	101·9	85·7
November.....	1,515	145,020	30,914	21·32	78·68	83·2	96·4	84·1
December.....	1,561	143,304	35,237	24·59	75·41	79·7	87·5	80·5

TABLE 15. Data on labour unions in the manufacturing, transportation and building and construction industries compared with the Bureau's index of number employed in these three industries and with the index of final estimated percentage employed for all industries, by months, June 30, 1920-December 31, 1935—Con.

Month	Manufacturing, Transportation and Building and Construction							All Industries
	No. Reporting		Unemployed		P.C. Employed	Index of P.C. Employed (base 1926)	Bureau's Index of No. Employed	Index Estimated P.C. Employed (base 1926)
	Unions	Members	No.	P.C.				
January, 1932	1,539	142,544	36,185	25·39	74·61	78·9	86·2	79·4
February	1,511	139,486	33,883	24·29	75·71	80·0	85·6	79·2
March	1,528	138,715	32,459	23·40	76·60	81·0	85·3	78·7
April	1,504	136,487	36,061	26·42	73·58	77·8	85·2	78·0
May	1,506	134,237	32,884	24·50	75·50	79·8	87·0	78·6
June	1,494	134,116	33,235	24·78	75·22	79·5	86·7	78·6
July	1,509	131,868	32,574	24·70	75·30	79·6	84·2	77·5
August	1,474	126,064	30,298	24·03	75·97	80·3	83·9	77·4
September	1,442	124,634	28,560	22·92	77·08	81·5	84·6	77·9
October	1,474	125,747	30,847	24·53	75·47	79·8	81·5	76·8
November	1,510	124,614	32,623	26·18	73·82	78·0	78·9	76·0
December	1,480	119,828	35,190	29·37	70·63	74·7	72·6	73·6
January, 1933	1,511	121,456	35,768	29·45	70·55	74·6	72·0	73·0
February	1,475	116,182	32,689	28·14	71·86	76·0	72·5	73·1
March	1,445	117,183	33,006	28·17	71·83	75·9	72·4	73·0
April	1,423	118,212	32,597	27·58	72·42	76·6	74·6	73·8
May	1,416	114,489	29,943	26·15	73·85	78·1	77·9	75·1
June	1,408	115,792	28,507	24·62	75·38	79·7	81·8	77·2
July	1,412	116,832	27,894	23·88	76·12	80·5	85·1	78·6
August	1,407	115,595	25,884	22·39	77·61	82·0	86·4	79·1
September	1,461	113,824	25,715	22·59	77·41	81·8	87·7	80·3
October	1,440	113,849	26,220	23·03	76·97	81·4	87·0	80·7
November	1,427	112,281	26,047	23·20	76·80	81·2	85·3	80·7
December	1,442	112,982	27,739	24·55	75·45	79·8	80·7	79·0
January, 1934	1,436	114,208	28,333	24·81	75·19	79·5	85·1	80·2
February	1,442	112,452	26,231	23·33	76·67	81·0	87·4	81·2
March	1,383	111,688	24,654	22·07	77·93	82·4	87·4	80·5
April	1,410	116,649	24,117	20·67	79·33	83·9	89·2	81·2
May	1,419	118,937	23,699	19·93	80·07	84·6	94·9	83·5
June	1,407	120,324	23,267	19·34	80·66	85·3	99·5	85·8
July	1,406	116,906	22,555	19·29	80·71	85·3	98·1	85·2
August	1,404	119,482	21,228	17·77	82·23	86·9	96·4	84·9
September	1,410	119,740	21,536	17·99	82·01	86·7	96·5	85·4
October	1,467	122,405	22,652	18·51	81·49	86·1	94·3	85·6
November	1,447	119,812	24,424	20·39	79·61	84·2	90·9	84·5
December	1,470	120,740	25,033	20·73	79·27	83·8	85·7	82·1
January, 1935	1,486	121,658	24,997	20·55	79·45	84·0	87·4	82·0
February	1,438	122,674	24,716	20·15	79·85	84·4	90·3	82·8
March	1,444	122,375	22,773	18·61	81·39	86·0	88·9	81·6
April	1,441	123,934	22,978	18·54	81·46	86·1	91·4	82·4
May	1,450	125,751	21,588	17·17	82·83	87·6	94·0	83·7
June	1,393	122,763	20,023	16·31	83·69	88·5	96·4	84·7
July	1,417	124,220	19,708	15·87	84·13	88·9	98·3	85·5
August	1,425	126,075	18,877	14·97	85·03	89·9	100·0	86·5
September	1,460	127,281	17,888	14·05	85·95	90·9	102·8	88·5
October	1,472	130,298	19,940	15·30	84·70	89·5	103·0	89·3
November	1,455	129,844	19,873	15·31	84·69	89·5	97·7	87·7
December	1,500	130,193	21,885	16·81	83·19	87·9	90·2	84·6

TABLE 16. Population, male wage-earners, number and percentage not at work June 1, 1931 and number of industrial establishments according to Bradstreet's in 138 urban centres having 161-300 male wage-earners, June 1, 1931

City, Town or Village	Population	Male Wage-Earners 20 Years and over	Not at Work June 1		No. Industrial Establish-ments
			No.	P.C.	
Souris, P.E.I.	1,063	184	24	13·04	34
Antigonish, N.S.	1,764	273	24	8·79	75
Bridgetown, N.S.	1,126	171	6	3·51	63
Canso, N.S.	1,575	240	55	22·92	44
Digby, N.S.	1,412	275	5	1·82	79
Joggins, N.S.	1,000	231	124	53·68	18
Mahone Bay, N.S.	1,065	216	74	34·26	61
Oxford, N.S.	1,133	216	60	27·78	49
Port Hawkesbury, N.S.	1,011	189	63	33·33	29
Grand Falls, N.B.	1,556	222	42	18·92	77
St. Andrews, N.B.	1,207	270	7	2·59	43
St. George, N.B.	1,087	215	27	12·56	32
Shediac, N.B.	1,883	278	43	15·47	40
Acton Vale, Que.	1,753	284	18	6·34	50
Arthabaska, Que.	1,608	172	9	5·23	33
Baie-de-Shawinigan, Que.	1,316	264	70	26·52	7
Baie-St-Paul, Que.	2,916	259	46	17·76	58
Bedford, Que.	1,570	270	17	6·30	53
Beebe Plain, Que.	1,053	244	34	13·93	32
Beloeil, Que.	1,434	241	34	14·11	38
Cap Chat, Que.	1,139	173	67	38·73	37
Causapscal, Que.	1,390	261	33	12·64	51
Chambly-Bassin, Que.	1,287	205	20	9·76	33
Charlesbourg, Que.	1,869	240	16	6·67	27
Chateauguay, Que.	1,067	223	27	12·11	19
Danville, Que.	1,354	252	50	19·84	50
Deschaillons, Que.	1,650	230	24	10·43	43
Disraeli, Que.	1,437	204	63	30·88	51
Dorion (Vaudreuil Station), Que.	1,155	251	15	5·98	28
Fort Coulonge, Que.	1,130	251	77	30·68	32
L'Abord-à-Plouffe, Que.	1,227	259	12	4·63	18
La Providence, Que.	1,241	242	8	3·31	14
L'Assomption, Que.	1,576	215	30	13·95	44
Laurentides, Que.	1,284	181	30	16·57	44
Laval-des-Rapides, Que.	2,716	263	55	20·91	8
L'Enfant-Jésus, Que.	1,066	161	60	37·27	33
Marieville, Que.	1,986	282	48	17·02	58
Montreal S., Que.	1,164	270	24	8·89	17
Pierreville, Que.	1,352	207	39	18·84	41
Pont-Rouge, Que.	1,353	193	7	3·63	36
Rawdon, Que.	1,066	204	53	25·98	41
St-Alexis-de-la-Grand-Baie, Que.	1,790	282	146	51·77	41
St-Benoît-Joseph-Labre, Que.	1,648	232	109	46·98	18
St-Casimir, Que.	1,316	162	63	38·89	69
St-Eustache, Que.	1,187	210	15	7·14	51
St-Félicien, Que.	1,599	196	56	28·57	70
St-Gabriel-de-Brandon, Que.	1,530	228	51	22·37	58
St-Georges E., Que.	1,543	164	24	14·63	89
St-Jacques, Que.	1,529	194	43	22·16	45
St-Jérôme, Que.	1,235	171	69	40·35	60
St-Joseph (Beauce), Que.	1,625	183	34	18·58	54
St-Joseph-de-la-Rivière-Bleue, Que.	1,111	191	22	11·52	44
Ste-Marie, Que.	1,598	198	30	15·15	81
St-Pacôme, Que.	1,235	178	26	14·61	39
St-Raymond, Que.	1,772	286	36	12·59	65
St-Rémi, Que.	1,201	161	13	8·07	40
Ste-Rose, Que.	1,661	276	40	14·49	41
Scotstown, Que.	1,189	246	43	17·48	24
Thurso, Que.	1,292	259	27	10·42	30
Trois-Pistoles, Que.	1,837	187	61	32·62	86
Val-Brillant, Que.	1,032	166	103	62·05	39
Alliston, Ont.	1,355	194	12	6·19	69
Beamsville, Ont.	1,203	229	48	20·96	45
Cache Bay, Ont.	1,151	266	47	17·67	8
Caledonia, Ont.	1,396	282	45	15·96	64
Clinton, Ont.	1,789	287	46	16·03	87
Delhi, Ont.	1,121	199	38	19·10	58
Deseronto, Ont.	1,476	268	90	33·58	50
Dresden, Ont.	1,529	266	68	25·56	72
Elora, Ont.	1,195	272	55	20·22	44
Englehart, Ont.	1,210	275	16	5·82	41
Exeter, Ont.	1,666	268	23	8·58	75
Forest, Ont.	1,480	238	7	2·94	76
Harriston, Ont.	1,296	236	19	8·05	62
Havelock, Ont.	1,173	252	66	26·19	36
Kemptville, Ont.	1,286	230	48	20·87	66
Lakefield, Ont.	1,332	277	62	22·38	42
Little Current, Ont.	1,101	246	70	28·46	31
Madoc, Ont.	1,059	181	31	17·13	56
Mattawa, Ont.	1,631	290	122	42·07	46
Mitchell, Ont.	1,588	232	45	19·40	63
Morrisburg, Ont.	1,420	268	44	16·42	79
Mount Forest, Ont.	1,801	276	27	9·78	94

TABLE 16. Population, male wage-earners, number and percentage not at work June 1, 1931 and number of industrial establishments according to Bradstreet's in 138 urban centres having 161-300 male wage-earners, June 1, 1931—Con.

City, Town or Village	Population	Male Wage-Earners 20 Years and over	Not at Work June 1		No. Industrial Establishments
			No.	P.C.	
New Hamburg, Ont.	1,436	262	56	21·37	51
Niagara, Ont.	1,228	235	44	18·72	45
Norwich, Ont.	1,158	182	23	12·64	53
Port Elgin, Ont.	1,305	263	22	8·37	57
Portsmouth, Ont.	2,741	240	41	17·08	13
Richmond Hill, Ont.	1,295	245	31	12·65	51
Seaforth, Ont.	1,686	258	31	12·02	87
Southampton, Ont.	1,489	293	51	17·41	54
Tavistock, Ont.	1,029	180	20	11·11	49
Tweed, Ont.	1,271	211	41	19·43	55
Uxbridge, Ont.	1,325	170	38	22·35	62
Vankleek Hill, Ont.	1,380	192	26	13·54	49
Victoria Harbour, Ont.	1,128	263	36	13·69	17
Waterford, Ont.	1,213	197	22	11·17	47
Winchester, Ont.	1,027	179	13	7·26	51
Beauséjour, Man.	1,139	193	83	43·01	37
Carman, Man.	1,418	220	48	21·82	57
Killarney, Man.	1,003	165	32	19·39	44
Morden, Man.	1,416	232	12	5·17	57
Stonewall, Man.	1,031	173	56	32·37	34
Virden, Man.	1,590	288	75	26·04	58
Assiniboia, Sask.	1,454	271	57	21·03	69
Battleford, Sask.	1,096	191	70	36·65	30
Canora, Sask.	1,179	175	59	33·71	45
Gravelbourg, Sask.	1,137	172	42	24·42	59
Indian Head, Sask.	1,438	238	74	31·09	59
Kindersley, Sask.	1,037	214	26	12·15	42
Lloydminster, Sask.	1,516	196	46	23·47	80
Maple Creek, Sask.	1,154	199	53	26·63	45
Moosomin, Sask.	1,119	180	25	13·89	35
Radville, Sask.	1,005	205	46	22·44	35
Rosthern, Sask.	1,412	242	79	32·64	44
Sutherland, Sask.	1,148	285	24	8·42	13
Tisdale, Sask.	1,069	188	18	9·57	51
Watrous, Sask.	1,303	293	85	29·01	53
Wilkie, Sask.	1,222	270	57	21·11	50
Wynyard, Sask.	1,042	177	36	20·34	34
Beverley, Alta.	1,111	254	105	41·34	5
Cardston, Alta.	1,672	230	57	24·78	55
Claresholm, Alta.	1,156	173	33	19·08	55
High River, Alta.	1,459	297	106	35·69	60
Innisfail, Alta.	1,024	169	54	31·95	52
Lacombe, Alta.	1,259	264	64	24·24	51
Macleod, Alta.	1,447	280	54	19·29	60
Olds, Alta.	1,056	193	52	26·94	53
Pincher Creek, Alta.	1,024	169	32	18·93	47
Raymond, Alta.	1,849	249	86	34·54	36
Stettler, Alta.	1,219	271	69	25·46	66
Taber, Alta.	1,279	231	89	38·53	47
Vegreville, Alta.	1,659	292	88	30·14	70
Vermilion, Alta.	1,270	260	61	23·46	53
Wainwright, Alta.	1,147	252	59	23·41	43
Courteney, B.C.	1,219	208	25	12·02	82
Grand Forks, B.C.	1,298	284	65	22·89	49
Mission, B.C.	1,314	283	81	28·62	81
Total	188,330	31,679	6,358	20·07	6,685

TABLE 17. Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
All occupations	3,261,371	387,886	549,721	301,504	2,022,260	665,859	18,906	54,781	44,335	547,837
Agriculture	1,107,766	289,880	336,230	281,188	200,468	24,079	14,499	4,697	3,214	1,669
Agricultural machine owners	462	149	313	-	-	-	-	-	-	-
Apiarists	615	96	519	-	-	21	4	17	-	-
Farmers and stock raisers	614,299	286,285	328,014	-	-	18,869	14,370	4,499	-	-
Gardeners, florists, and nurserymen	10,714	3,349	7,365	-	-	298	125	173	-	-
Foremen and overseers	3,022	-	-	154	2,868	29	-	-	2	27
Farm labourers	478,632	-	-	281,032	197,600	4,854	-	-	3,212	1,642
Fishing, Hunting, and Trapping	47,408	1,985	32,635	2,409	10,379	497	16	429	10	42
Fishermen	33,620	1,591	21,395	1,815	8,819	136	14	79	4	39
Hunters, trappers, and guides	13,788	394	11,240	594	1,560	361	2	350	6	3
Logging	43,995	1,636	589	290	41,480	-	-	-	-	-
Owners and managers	2,463	1,636	584	-	243	-	-	-	-	-
Foremen and overseers	912	-	-	-	912	-	-	-	-	-
Foresters and timber cruisers	3,182	-	-	-	3,182	-	-	-	-	-
Lumbermen	37,438	-	5	290	37,143	-	-	-	-	-
Mining, Quarrying, Oil and Salt Wells	58,585	515	2,705	42	55,323	6	3	-	-	3
Coal Mining	*27,740*	*124*	*51*	*26*	*27,539*	*1*	-	-	-	*1*
Owners and managers	365	124	-	-	241	1	-	-	-	1
Foremen and overseers	950	-	-	-	950	-	-	-	-	-
Haulage workers—drivers, cagers, etc	1,445	-	-	-	1,445	-	-	-	-	-
Miners	17,515	-	46	-	17,469	-	-	-	-	-
Labourers	6,089	-	-	26	6,063	-	-	-	-	-
Other Mining, etc.	*30,845*	*391*	*2,654*	*16*	*27,784*	*5*	*3*	-	-	*2*
Owners and managers	884	391	-	-	493	5	3	-	-	2
Foremen and overseers	1,051	-	-	-	1,051	-	-	-	-	-
Haulage workers—drivers, cagers, etc	377	-	-	-	377	-	-	-	-	-
Millmen	784	-	-	-	784	-	-	-	-	-
Miners	12,883	-	597	-	12,286	-	-	-	-	-
Oil drillers	551	-	33	-	518	-	-	-	-	-
Quarriers and rock drillers	1,815	-	317	2	1,496	-	-	-	-	-
Labourers—mines and quarries	8,766	-	-	12	8,754	-	-	-	-	-
Manufacturing	358,024	18,997	27,809	2,086	309,132	84,657	319	8,078	892	75,368
Vegetable Products	*29,629*	*3,112*	*1,600*	*322*	*24,595*	*6,681*	*58*	*49*	*21*	*6,553*
Vegetable Foods	19,509	2,820	1,392	312	14,985	2,663	56	49	20	2,538
Owners and managers	3,965	2,820	-	1	1,144	72	56	-	-	16
Foremen and overseers	888	-	-	1	887	224	-	-	-	224
Bakers	9,394	-	988	149	8,257	318	-	46	15	257
Bakers' apprentices	1,145	-	-	89	1,056	31	-	-	4	27
Canners—fruit and vegetable	172	-	1	-	171	211	-	-	-	211
Confectionery and biscuit makers	1,698	-	48	4	1,646	1,448	-	3	1	1,444
Millers	1,628	-	348	64	1,216	-	-	-	-	-
Operatives—sugar refining	154	-	-	-	154	15	-	-	-	15
Drinks and Beverages	2,068	134	4	2	1,928	206	-	-	-	206
Owners and managers	466	134	-	-	332	1	-	-	-	1
Foremen and overseers	235	-	-	-	235	8	-	-	-	8
Bottlers and cellarmen	806	-	-	2	804	165	-	-	-	165
Malsters, brewers, and stillmen	330	-	-	-	330	-	-	-	-	-
Tobacco Products	1,594	88	6	-	1,500	2,032	1	-	1	2,030
Owners and managers	199	88	-	-	111	2	1	-	-	1
Foremen and overseers	198	-	-	-	198	72	-	-	-	72
Cigarette makers	27	-	-	-	27	72	-	-	-	72
Cigar makers	756	-	6	-	750	816	-	-	-	816
Rubber Products	6,458	70	198	8	6,182	1,780	1	-	-	1,779
Owners and managers	357	70	-	-	287	1	1	-	-	-
Foremen and overseers	579	-	-	-	579	94	-	-	-	94
Compounders, moulders, and spreaders	201	-	-	-	201	-	-	-	-	-
Rubber shoe makers	1,191	-	-	-	1,191	587	-	-	-	587
Tire builders and tube makers	1,013	-	-	-	1,013	109	-	-	-	109
Vulcanizers	879	-	195	5	679	-	-	-	-	-
Animal Products	*42,675*	*2,367*	*6,512*	*549*	*33,247*	*7,847*	*22*	*72*	*24*	*7,729*
Animal Foods	18,193	1,206	438	375	16,174	1,649	6	1	4	1,638
Owners and managers	2,060	1,206	-	-	854	9	6	-	-	3
Foremen and overseers	600	-	-	-	600	15	-	-	-	15
Butchers and slaughterers	9,485	-	34	163	9,288	3	-	-	-	3
Butter and cheese makers	3,341	-	378	197	2,766	30	-	1	2	27

NOTE.—Most of the group and sub-group totals include persons in occupations too small to be separately classified.

TABLE 17. Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931—Con.

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
Manufacturing—Con.										
Animal Products—Con.										
Animal Foods—Con.										
Fish canners and curers	1,050	–	15	2	1,033	1,268	–	–	2	1,266
Meat canners, curers, and packers	504	–	7	–	497	256	–	–	–	256
Operatives—milk factories, dairies	827	–	2	6	819	25	–	–	–	25
Furs and Fur Goods	2,683	202	161	19	2,301	1,276	8	60	1	1,207
Owners and managers	247	202	–	–	45	10	8	–	–	2
Foremen and overseers	30	–	–	–	30	15	–	–	–	15
Furriers—fur cutters, dressers, sewers	2,406	–	161	19	2,226	1,251	–	60	1	1,190
Leather and Leather Products	21,799	959	5,913	155	14,772	4,922	8	11	19	4,884
Owners and managers	1,314	959	–	–	355	9	8	–	–	1
Foremen and overseers	561	–	–	–	561	144	–	–	–	144
Boot and shoe repairers	6,939	–	5,104	36	1,799	23	–	6	17	–
Boot and shoe makers' apprentices	493	–	–	91	402	2	–	–	2	–
Curriers, leather dressers, finishers	563	–	–	1	562	108	–	–	–	108
Cutters	2,176	–	–	–	2,176	81	–	–	–	81
Glove makers	316	–	2	1	313	539	–	1	–	538
Harness and saddlery makers	1,459	–	740	17	702	1	–	–	–	1
Machine operators—boots and shoes	5,822	–	–	1	5,821	3,288	–	–	–	3,288
Tanners	751	–	55	8	688	1	–	1	–	–
Trunk, belt, and bag makers	375	–	3	–	372	56	–	–	–	56
Textile Products	*37,167*	*2,475*	*3,283*	*124*	*31,287*	*58,043*	*158*	*7,751*	*805*	*49,329*
Textiles	13,862	421	29	12	13,400	14,214	6	13	17	14,178
Owners and managers	1,135	421	–	–	714	19	6	–	–	13
Foremen and overseers	1,214	–	–	–	1,214	305	–	–	–	305
Bleachers and dyers	1,054	–	–	–	1,054	69	–	–	–	69
Breakers, pickers, and wool sorters	183	–	–	–	183	81	–	–	–	81
Carders and drawing frame tenders	804	–	15	9	780	465	–	1	1	463
Finishers and calenderers	749	–	–	–	749	578	–	–	–	578
Inspectors, lookers, and menders	256	–	–	–	256	1,485	–	–	–	1,485
Loom fixers and card grinders	423	–	–	–	423	–	–	–	–	–
Spinners	1,854	–	2	1	1,851	2,586	–	3	8	2,575
Spoolers, warpers, and beamers	456	–	–	–	456	2,152	–	–	–	2,152
Textile printers	201	–	–	–	201	34	–	–	–	34
Weavers	3,861	–	12	–	3,849	3,281	–	9	8	3,264
Textile Goods and Wearing Apparel	23,305	2,052	3,254	112	17,887	43,829	152	7,738	788	35,151
Owners and managers	2,633	2,052	–	–	581	179	152	–	–	27
Foremen and overseers	461	–	–	–	461	741	–	–	–	741
Cutters	2,543	–	–	–	2,543	493	–	–	–	493
Dressmakers	–	–	–	–	–	10,040	–	6,044	144	3,852
Dressmakers' apprentices	–	–	–	–	–	371	–	–	82	289
Hat and cap makers	969	–	7	4	958	743	–	2	1	740
Knitters	1,748	–	8	–	1,740	2,268	–	29	10	2,229
Milliners	35	–	2	–	33	2,575	–	582	4	1,989
Milliners' apprentices	–	–	–	–	–	188	–	–	25	163
Sewers, sewing machinists—shop, factory	3,097	–	–	–	3,097	19,779	–	–	3	19,776
Sewers, seamstresses—not in factory	204	–	17	17	170	3,547	–	858	503	2,186
Tailors and tailoresses	10,123	–	3,160	23	6,940	1,569	–	163	9	1,397
Tailors' apprentices	414	–	–	65	349	94	–	–	6	88
Tent, sail, awning makers	181	–	24	–	157	37	–	–	–	37
Wood Products, Pulp, Paper, and Paper Products; Printing and Publishing	*65,234*	*5,204*	*2,840*	*223*	*56,967*	*6,673*	*43*	*187*	*39*	*6,404*
Wood Products	31,767	3,411	2,185	170	26,001	794	14	185	9	586
Owners and managers	4,493	3,411	–	–	1,082	16	14	–	–	2
Foremen and overseers	1,641	–	–	–	1,641	12	–	–	–	12
Box, basket, and packing case makers	1,178	–	276	17	885	354	–	181	9	164
Cabinet and furniture makers	3,490	–	384	3	3,103	–	–	–	–	–
Cabinet and furniture makers' apprentices	248	–	–	10	238	–	–	–	–	–
Canoe and boat builders and repairers	514	–	210	9	295	–	–	–	–	–
Carriage and wagon builders, repairers	1,111	–	330	31	750	–	–	–	–	–
Coopers	1,323	–	112	19	1,192	–	–	–	–	–
Finishers and polishers	2,220	–	42	–	2,178	44	–	–	–	44
Inspectors, graders, and scalers	2,282	–	–	–	2,282	–	–	–	–	–
Sawyers	4,124	–	193	49	3,882	–	–	–	–	–

TABLE 17. Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931—Con.

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
Manufacturing—Con.										
Wood Products, Pulp, Paper, and Paper Products; Printing and Publishing—Con.										
Wood Products—Con.										
Upholsterers	2,992	–	360	1	2,631	151	–	2	–	149
Upholsterers' apprentices	218	–	–	6	212	8	–	–	–	8
Wood carvers and picture frame makers	467	–	74	–	393	6	–	2	–	4
Wood turners, planers—wood machinists	2,665	–	43	4	2,618	98	–	–	–	98
Pulp, Paper, and Paper Products	10,663	239	–	2	10,422	2,490	–	–	–	2,490
Owners and managers	1,146	239	–	–	907	5	–	–	–	5
Foremen and overseers	1,477	–	–	–	1,477	84	–	–	–	84
Machine operatives, n.e.s.	2,297	–	–	–	2,297	62	–	–	–	62
Paper box, bag, and envelope makers	961	–	–	2	959	1,850	–	–	–	1,850
Paper makers	2,949	–	–	–	2,949	–	–	–	–	–
Printing, Publishing, Bookbinding	22,804	1,554	655	51	20,544	3,389	29	2	30	3,328
Owners and managers	2,568	1,554	–	–	1,014	68	29	–	–	39
Foremen and overseers	313	–	–	–	313	105	–	–	–	105
Bookbinders	822	–	31	1	790	1,137	–	1	13	1,123
Compositors; printers, n.s.	10,869	–	544	6	10,319	386	–	1	5	380
Electrotypers and stereotypers	332	–	–	–	332	–	–	–	–	–
Lithographers	780	–	15	–	765	1	–	–	–	1
Machine tenders, n.e.s.	1,151	–	–	5	1,146	631	–	–	9	622
Pressmen and plate printers	1,588	–	–	–	1,588	–	–	–	–	–
Printers' and bookbinders' apprentices	2,787	–	–	36	2,751	191	–	–	2	189
Process engravers	976	–	63	1	912	2	–	–	–	2
Proof readers	200	–	–	–	200	164	–	–	–	164
Metal Products	*165,150*	*3,932*	*12,697*	*841*	*147,680*	*3,661*	*11*	*1*	*2*	*3,647*
Metal Products, n.e.s.	155,495	3,576	11,707	789	139,423	1,565	9	–	–	1,556
Owners and managers	6,579	3,576	–	–	3,003	28	9	–	–	19
Foremen and overseers	5,457	–	–	–	5,457	118	–	–	–	118
Blacksmiths, hammermen, and forgemen	15,902	–	6,398	154	9,350	–	–	–	–	–
Blacksmiths' apprentices	486	–	–	233	253	–	–	–	–	–
Boilermakers, platers, and riveters	4,696	–	7	–	4,689	–	–	–	–	–
Boilermakers' apprentices	141	–	–	–	141	–	–	–	–	–
Car builders and repairers	4,320	–	–	–	4,320	–	–	–	–	–
Coppersmiths	188	–	9	–	179	–	–	–	–	–
Electric and oxy-acetylene welders	2,481	–	98	1	2,382	–	–	–	–	–
Filers and grinders	2,162	–	99	3	2,060	–	–	–	–	–
Fitters, assemblers, and erectors	3,801	–	113	1	3,687	109	–	–	–	109
Furnacemen	1,574	–	–	–	1,574	–	–	–	–	–
Japanners, enamellers, lacquerers	400	–	–	–	400	63	–	–	–	63
Machine tenders, n.e.s.	4,122	–	–	1	4,121	616	–	–	–	616
Machinists	30,739	–	475	3	30,261	–	–	–	–	–
Machinists' apprentices	1,737	–	–	31	1,706	–	–	–	–	–
Mechanics, n.e.s.	43,775	–	4,371	262	39,142	–	–	–	–	–
Millwrights	3,360	–	3	–	3,357	–	–	–	–	–
Moulders, coremakers, and casters	7,876	–	3	5	7,868	68	–	–	–	68
Moulders' apprentices	279	–	–	3	276	–	–	–	–	–
Patternmakers	1,342	–	10	1	1,331	–	–	–	–	–
Polishers and buffers	1,969	–	–	–	1,969	64	–	–	–	64
Press workers and stampers	886	–	–	–	886	149	–	–	–	149
Rolling mill men, n.e.s.	468	–	–	–	468	–	–	–	–	–
Tool makers, die cutters and sinkers	2,851	–	16	–	2,835	–	–	–	–	–
Wire drawers, makers, and weavers	843	–	7	–	836	77	–	–	–	77
Precious Metals and Electroplate	4,310	137	781	49	3,343	214	–	1	2	211
Owners and managers	210	137	–	–	73	3	–	–	–	3
Foremen and overseers	99	–	–	–	99	12	–	–	–	12
Goldsmiths and silversmiths	268	–	8	–	260	16	–	–	–	16
Jewellers, watchmakers, repairers	2,665	–	752	3	1,910	113	–	1	1	111
Jewellers' and watchmakers' apprentices	342	–	–	44	298	3	–	–	1	2
Platers	600	–	21	2	577	5	–	–	–	5
Electrical Apparatus	5,345	219	209	3	4,914	1,882	2	–	–	1,880
Owners and managers	763	219	–	–	544	5	2	–	–	3

n.e.s.=not elsewhere specified.
n.s.=not specified.

TABLE 17. Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931—Con.

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
Manufacturing—Con.										
Metal Products—Con.										
Electrical Apparatus—Con.										
Foremen and overseers	523	–	–	–	523	47	–	–	–	47
Armature winders and coil insulators	354	–	1	–	353	230	–	–	–	230
Battery makers and repairers	563	–	75	2	486	8	–	–	–	8
Electric lamp makers	35	–	–	–	35	128	–	–	–	128
Inspectors and testers	756	–	–	–	756	192	–	–	–	192
Instrument and appliance assemblers	1,674	–	132	–	1,542	498	–	–	–	498
Non-Metallic Mineral Products	*9,266*	*998*	*272*	*23*	*7,973*	*320*	*9*	–	–	*311*
Owners and managers	1,905	998	–	–	907	22	9	–	–	13
Foremen and overseers	1,065	–	–	–	1,065	31	–	–	–	31
Aerated water makers	73	–	17	3	53	2	–	–	–	2
Brick and tile moulders and makers	653	–	15	2	636	–	–	–	–	–
Furnacemen and kilnmen—burners	389	–	4	–	385	–	–	–	–	–
Glass blowers	194	–	–	–	194	7	–	–	–	7
Lime, plaster, and cement makers	183	–	19	–	164	–	–	–	–	–
Moulders and pressers—glass	201	–	–	–	201	15	–	–	–	15
Potters,—glazers and decorators	205	–	7	1	197	18	–	–	–	18
Stone cutters, dressers, and carvers	2,895	–	198	11	2,686	–	–	–	–	–
Chemical and Allied Products	*4,822*	*409*	*25*	–	*3,888*	*453*	*8*	*3*	*1*	*441*
Owners and managers	1,147	409	–	–	738	18	8	–	–	10
Foremen and overseers	547	–	–	–	547	57	–	–	–	57
Distillers and stillmen	291	–	–	–	291	–	–	–	–	–
Paint and varnish makers	431	–	–	–	431	14	–	–	–	14
Processmen and furnacemen	858	–	–	–	858	2	–	–	–	2
Miscellaneous Products	*4,581*	*502*	*580*	*4*	*3,495*	*979*	*10*	*15*	–	*954*
Owners and managers	983	502	–	–	481	14	10	–	–	4
Foremen and overseers	311	–	–	–	311	77	–	–	–	77
Brush and broom makers	493	–	14	–	479	104	–	–	–	104
Button makers	100	–	–	1	99	61	–	–	–	61
Mattress makers	328	–	7	–	321	81	–	1	–	80
Musical instrument makers	994	–	376	–	618	27	–	1	–	26
Scientific instrument and professional equipment makers and repairers	166	–	19	–	147	55	–	–	–	55
Electric Light and Power (including Stationary Enginemen)	**32,453**	**16**	–	**27**	**32,410**	**3**	–	–	–	**3**
Owners and managers	652	16	–	–	636	3	–	–	–	3
Foremen and overseers	487	–	–	–	487	–	–	–	–	–
Boiler firemen	6,817	–	–	14	6,803	–	–	–	–	–
Dynamo, motor, and switch board operators	1,953	–	–	–	1,953	–	–	–	–	–
Hoistmen, cranemen, and derrickmen	3,586	–	–	–	3,586	–	–	–	–	–
Oilers of machinery	1,428	–	–	–	1,428	–	–	–	–	–
Pumpmen	992	–	–	–	992	–	–	–	–	–
Stationary enginemen, n.e.s.	16,538	–	–	13	16,525	–	–	–	–	–
Building and Construction	**202,970**	**11,596**	**26,757**	**803**	**163,814**	**96**	**6**	–	–	**90**
Owners, managers, builders, and contractors	13,012	11,596	–	–	1,416	9	6	–	–	3
Foremen and overseers	5,381	–	–	1	5,380	–	–	–	–	–
Brick and stone masons	10,823	–	1,164	8	9,651	–	–	–	–	–
Brick and stone masons' apprentices	426	–	–	46	380	–	–	–	–	–
Carpenters	79,764	–	11,273	67	68,424	–	–	–	–	–
Carpenters' apprentices	1,500	–	–	219	1,281	–	–	–	–	–
Cement finishers	854	–	58	1	795	–	–	–	–	–
Electricians and wiremen	20,231	–	1,702	5	18,524	–	–	–	–	–
Electricians', wiremen's apprentices	1,322	–	–	58	1,264	–	–	–	–	–
Painters, decorators, and glaziers	33,687	–	7,863	27	25,797	–	–	–	–	–
Painters' apprentices	1,140	–	–	143	997	–	–	–	–	–
Plasterers and lathers	5,953	–	985	4	4,964	–	–	–	–	–
Plasterers' and lathers' apprentices	269	–	–	29	240	–	–	–	–	–
Plumbers, steam fitters, and gas fitters	15,593	–	2,340	20	13,233	–	–	–	–	–
Plumbers' apprentices	1,878	–	–	99	1,779	–	–	–	–	–
Roofers (not metal) and slaters	794	–	147	4	643	–	–	–	–	–

TABLE 17. Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931—Con.

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
Building and Construction—Con.										
Sheet metal workers and tinsmiths	6,738	-	1,144	9	5,585	87	-	-	-	87
Sheet metal workers' apprentices	628	-	-	60	568	-	-	-	-	-
Structural iron workers and steel erectors	2,005	-	4	-	2,001	-	-	-	-	-
Transportation and Communication	248,598	5,402	14,371	1,063	227,762	17,235	42	6	25	17,162
Railway Transportation	*83,748*	*3*	-	-	*83,745*	*16*	-	-	-	*16*
Railway officers—steam railway	1,760	-	-	-	1,760	-	-	-	-	-
Managers and officials—electric railway	200	3	-	-	197	-	-	-	-	-
Foremen, inspectors — steam railway	5,174	-	-	-	5,174	-	-	-	-	-
Foremen, inspectors—electric railway	648	-	-	-	648	-	-	-	-	-
Agents—ticket and station	5,323	-	-	-	5,323	16	-	-	-	16
Baggagemen and expressmen	1,921	-	-	-	1,921	-	-	-	-	-
Brakemen	8,495	-	-	-	8,495	-	-	-	-	-
Conductors—street car	3,840	-	-	-	3,840	-	-	-	-	-
Dispatchers	555	-	-	-	555	-	-	-	-	-
Gate tenders	279	-	-	-	279	-	-	-	-	-
Locomotive engineers	7,920	-	-	-	7,920	-	-	-	-	-
Locomotive firemen	5,948	-	-	-	5,948	-	-	-	-	-
Motormen	4,833	-	-	-	4,833	-	-	-	-	-
Porters—railway	1,654	-	-	-	1,654	-	-	-	-	-
Railway conductors—steam railway	4,673	-	-	-	4,673	-	-	-	-	-
Section foremen, sectionmen; trackmen	23,587	-	-	-	23,587	-	-	-	-	-
Switchmen, signalmen, and flagmen	4,349	-	-	-	4,349	-	-	-	-	-
Yardmen, n.e.s.	2,148	-	-	-	2,148	-	-	-	-	-
Water Transportation	*29,438*	*355*	*377*	*81*	*28,620*	*216*	*6*	-	-	*210*
Managers and officials	770	348	-	-	422	6	6	-	-	-
Foremen and overseers	502	-	-	-	502	-	-	-	-	-
Captains, mates, and pilots	3,760	7	180	-	3,573	-	-	-	-	-
Engineering officers	3,262	-	-	-	3,262	-	-	-	-	-
Firemen and trimmers—on ships	1,907	-	-	-	1,907	-	-	-	-	-
Lockkeepers, canalmen, and boatmen	1,332	-	197	4	1,131	-	-	-	-	-
Longshoremen and stevedores	4,816	-	-	-	4,816	-	-	-	-	-
Pursers and stewards	979	-	-	-	979	198	-	-	-	198
Seamen, sailors, and deckhands	11,410	-	-	75	11,335	-	-	-	-	-
Road Transportation	*96,199*	*4,989*	*13,916*	*885*	*76,409*	*50*	*36*	*6*	-	*8*
Owners and managers—bus and taxicab line	731	564	49	-	118	8	8	-	-	-
Owners and managers—cartage and transfer	2,870	2,169	412	-	289	23	22	-	-	1
Owners and managers—garage	4,114	2,256	1,400	-	458	6	6	-	-	-
Foremen—bus and taxicab line	39	-	-	-	39	-	-	-	-	-
Foremen—cartage and transfer	337	-	-	-	337	-	-	-	-	-
Foremen and overseers—garage	232	-	-	-	232	-	-	-	-	-
Chauffeurs and bus drivers	15,388	-	3,018	129	12,241	12	-	6	-	6
Deliverymen and drivers, n.s.	6,244	-	77	130	6,037	-	-	-	-	-
Teamsters, draymen, carriage drivers	22,286	-	4,097	313	17,876	-	-	-	-	-
Truck drivers	43,698	-	4,863	313	38,522	-	-	-	-	-
Other Transportation and Communication	*39,218*	*55*	*78*	*97*	*38,988*	*16,953*	-	-	*25*	*16,928*
Managers—telegraphs and telephones	839	6	-	-	833	66	-	-	-	66
Owners and managers—other transportation	2,709	49	-	-	2,660	931	-	-	-	931
Foremen—telegraphs and telephones	1,144	-	-	-	1,144	414	-	-	-	414
Foremen—other transportation	111	-	-	-	111	-	-	-	-	-
Aviators	335	-	31	-	304	-	-	-	-	-
Linemen and cablemen	6,784	-	-	-	6,784	-	-	-	-	-
Messengers	12,880	-	-	89	12,791	360	-	-	5	355
Postmen and mail carriers	6,700	-	43	-	6,657	51	-	-	-	51
Radio station operators	506	-	-	-	506	-	-	-	-	-
Telegraph operators	6,035	-	-	-	6,035	749	-	-	-	749
Telephone operators	960	-	-	-	960	14,373	-	-	20	14,353

TABLE 17.—Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931—Con.

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
Warehousing and Storage	**26,992**	**70**	**5**	**5**	**26,912**	**8,200**	**–**	**–**	**1**	**8,199**
Owners and managers	957	70	–	–	887	–	–	–	–	–
Foremen and overseers	388	–	–	–	388	–	–	–	–	–
Packers, wrappers, and labellers	4,291	–	–	3	4,288	7,653	–	–	–	7,653
Shippers	15,045	–	–	2	15,043	477	–	–	–	477
Warehousemen and storekeepers	5,308	–	3	–	5,305	29	–	–	1	28
Weighmen	1,003	–	2	–	1,001	41	–	–	–	41
Trade	**259,799**	**39,482**	**54,564**	**3,454**	**162,299**	**54,113**	**2,054**	**4,175**	**2,166**	**45,718**
Owners, managers, and dealers —retail stores	94,162	35,349	45,035	–	13,778	6,709	2,018	4,041	–	650
Owners, managers, and dealers —wholesale, import, and export houses; commercial agencies	13,336	3,558	3,944	–	5,834	104	27	25	–	52
Floorwalkers and foremen	1,545	–	–	–	1,545	293	–	–	–	293
Advertising agents	1,997	10	261	–	1,726	132	–	9	–	123
Auctioneers and appraisers	668	38	320	–	310	2	–	1	–	1
Brokers and agents, n.e.s.	6,073	331	1,219	–	4,523	186	2	21	–	163
Collectors	1,996	20	123	1	1,852	56	2	7	–	47
Commercial travellers	16,495	–	–	–	16,495	71	–	–	–	71
Credit men	712	5	16	–	691	15	2	–	–	13
Decorators, drapers, window dressers	733	3	33	–	697	169	3	22	–	144
Hawkers and pedlars	4,470	156	3,410	46	858	57	–	49	3	5
Inspectors, gaugers, and samplers	2,636	–	–	–	2,636	385	–	–	–	385
Newsboys	597	3	136	2	456	5	–	–	–	5
Purchasing agents and buyers	6,298	–	–	–	6,298	260	–	–	1	259
Sales agents, canvassers, demonstrators	6,441	–	–	4	6,437	545	–	–	1	544
Salesmen and saleswomen	100,537	–	–	3,388	97,149	44,990	–	–	2,159	42,831
Finance, Insurance	**36,252**	**2,050**	**7,191**	**1**	**27,010**	**571**	**4**	**120**	**–**	**447**
Officials—finance	5,512	211	–	–	5,301	12	–	–	–	12
Insurance officials	3,045	73	–	–	2,972	26	–	–	–	26
Insurance agents	17,049	501	2,710	–	13,838	350	–	25	–	325
Pawnbrokers and money lenders	60	4	31	–	25	–	–	–	–	–
Real estate agents and dealers	5,518	507	3,146	1	1,864	146	4	93	–	49
Stock and bond brokers	4,873	739	1,228	–	2,906	36	–	1	–	35
Service	**287,625**	**16,230**	**46,811**	**6,637**	**217,947**	**347,471**	**1,958**	**37,052**	**37,384**	**271,077**
Public Administration and Defence	*31,231*	*5*	*40*	–	*31,186*	*193*	–	–	–	*193*
Public service officials	9,970	–	–	–	9,970	100	–	–	–	100
Firemen—fire department	4,610	–	–	–	4,610	–	–	–	–	–
Officers—army, navy, and air force	683	–	–	–	683	–	–	–	–	–
Other ranks—army, navy, and air force	3,538	–	–	–	3,538	–	–	–	–	–
Police and detectives	10,900	5	40	–	10,855	78	–	–	–	78
Professional Service	*120,775*	*2,781*	*27,232*	*5,254*	*85,508*	*117,790*	*125*	*13,386*	*28,419*	*80,860*
Accountants and auditors	17,052	273	1,329	2	15,448	571	2	14	–	555
Agricultural professionals	848	3	19	1	825	51	–	–	1	50
Architects	1,296	128	563	–	605	2	–	1	–	1
Artists, art teachers, sculptors, painters	1,909	34	703	–	1,172	709	5	294	43	367
Authors, editors, and journalists	2,880	50	320	–	2,510	464	2	105	–	357
Chemists, assayers, metallurgists	3,200	18	101	–	3,081	118	–	1	43	74
Civil engineers and surveyors	7,524	163	808	–	6,553	–	–	–	–	–
Clergymen and priests	12,662	–	–	1,165	11,497	16	–	–	–	16
Dentists	4,007	233	3,555	–	219	32	–	24	1	7
Designers and draughtsmen	4,596	16	67	3	4,510	105	–	6	–	99
Electrical engineers	3,937	25	170	–	3,742	–	–	–	–	–
Health professionals, n.e.s.	492	20	304	2	166	928	1	151	47	729
Justices and magistrates	539	–	–	–	539	5	–	–	–	5
Lawyers and notaries	8,004	1,011	5,908	–	1,085	54	4	33	–	17
Librarians	203	–	2	4	197	806	–	–	12	794
Mechanical engineers	2,859	36	138	–	2,685	–	–	–	–	–
Mining engineers	1,498	36	236	–	1,226	–	–	–	–	–
Mission workers	353	–	–	90	263	223	–	–	27	196
Musicians and music teachers	4,145	50	1,692	9	2,394	4,641	15	3,144	207	1,275
Nuns and brothers, n.e.s.	1,133	–	–	1,133	–	8,260	–	–	8,260	–
Nurses—graduate	–	–	–	–	–	20,462	35	8,795	1,865	9,767
Nurses—in training	–	–	–	–	–	11,436	–	–	3,315	8,121
Officials—industrial associations	274	–	–	–	274	4	–	–	–	4
Opticians	853	74	408	–	371	16	–	6	2	8

TABLE 17.—Gainfully occupied, classified according to occupation, industrial status and sex, Canada, 1931—Con.

Occupation	Males					Females				
	Total	Employer	Own Account	No Pay	Wage-Earner	Total	Employer	Own Account	No Pay	Wage-Earner
Service—Con.										
Professional Service—Con.										
Osteopaths and chiropractors	452	11	429	-	12	90	3	83	-	4
Photographers	2,240	199	903	14	1,124	508	12	56	18	422
Physicians and surgeons	9,817	270	8,181	-	1,366	203	5	137	1	60
Professors and college principals	2,941	-	-	898	2,043	259	-	-	34	225
Religious workers, n.e.s	1,321	-	32	68	1,221	1,018	-	14	273	731
Social welfare workers, n.e.s	381	-	-	3	378	792	-	-	114	678
Teachers—dancing and physical instruction	704	10	109	-	585	241	3	97	1	140
Teachers—school	18,274	71	295	1,817	16,091	64,709	38	411	9,012	55,248
Veterinary surgeons	1,046	28	736	-	282	-	-	-	-	-
Recreational Service	*7,452*	*793*	*1,268*	*26*	*5,365*	*626*	*26*	*98*	*2*	*500*
Owners and managers—theatres and theatre agencies	1,016	328	19	-	669	20	12	-	-	8
Owners and managers—other entertainment	2,061	460	952	-	649	48	14	16	-	18
Actors and actresses	223	-	33	-	190	208	-	47	-	161
Showmen and sportsmen	929	5	191	1	732	19	-	7	1	11
Stage hands, projectionists	1,358	-	4	2	1,352	5	-	-	-	5
Ushers	521	-	-	1	520	215	-	-	-	215
Personal Service	*114,544*	*11,136*	*15,155*	*1,263*	*86,990*	*219,850*	*1,761*	*22,486*	*13,636*	*181,967*
Hotel managers and keepers	5,399	4,209	58	-	1,132	711	581	16	7	107
Lodging and boarding house keepers	1,742	238	1,504	-	-	18,707	387	18,320	-	-
Restaurant, café, and tavern keepers	9,765	4,513	4,352	-	900	1,318	504	619	1	194
Barbers, hairdressers, manicurists	15,906	1,620	7,962	19	6,305	6,369	262	2,959	15	3,133
Barbers' and hairdressers' apprentices	462	-	-	132	330	374	-	-	115	259
Bell-boys and porters—not railway	3,652	-	-	32	3,620	89	-	-	62	27
Bootblacks	948	46	265	12	625	-	-	-	-	-
Charworkers and cleaners	613	10	66	2	535	3,755	-	48	5	3,702
Cooks	17,832	-	-	161	17,671	7,818	-	-	947	6,871
Domestic servants, n.e.s	8,511	-	-	484	8,027	134,043	-	-	7,344	126,699
Elevator tenders	2,901	-	-	1	2,900	459	-	-	5	454
Housekeepers, matrons, and stewards	1,031	-	-	51	980	25,787	1	-	4,250	21,536
Janitors and sextons	14,691	-	-	61	14,630	949	-	-	36	913
Nurses—practical; orderlies	2,004	-	6	42	1,956	4,698	-	494	486	3,718
Undertakers	1,612	410	576	22	604	17	11	5	-	1
Waiters and waitresses	11,203	-	-	203	11,000	12,797	-	-	236	12,561
Watchmen and caretakers, n.e.s	13,411	-	-	29	13,382	101	-	-	2	99
Window cleaners	713	32	226	6	449	-	-	-	-	-
Laundering; Cleaning, Dyeing, and Pressing	*13,623*	*1,515*	*3,116*	*94*	*8,898*	*9,012*	*46*	*1,082*	*327*	*7,557*
Owners and managers	1,841	1,515	7	-	319	59	46	-	-	13
Foremen and overseers	161	-	-	-	161	118	-	-	-	118
Cleaners and dyers	1,532	-	479	7	1,046	333	-	21	3	309
Ironers and pressers	3,366	-	122	11	3,233	2,048	-	4	8	2,036
Washing and drying machine operators	429	-	-	1	428	431	-	-	3	428
Clerical	**124,139**	**-**	**23**	**367**	**123,749**	**116,927**	**5**	**224**	**565**	**116,133**
Bookkeepers and cashiers	29,553	-	4	67	29,482	21,419	-	-	218	21,201
Office appliance operators	239	-	4	-	235	1,503	-	1	-	1,502
Stenographers and typists	3,531	-	15	9	3,507	64,993	5	223	110	64,655
Other clerical (office clerks)	90,816	-	-	291	90,525	29,012	-	-	237	28,775
Other	**425,408**	**-**	**-**	**3,124**	**422,284**	**11,707**	**-**	**-**	**75**	**11,632**
Labourers and unskilled workers (not agricultural, mining, or logging)	425,408	-	-	3,124	422,284	11,707	-	-	75	11,632
Unspecified	**1,357**	**27**	**31**	**8**	**1,291**	**297**	**-**	**-**	**3**	**294**
Owners and managers	103	27	-	-	76	1	-	-	-	1
Foremen and overseers	93	-	-	-	93	13	-	-	-	13

TABLE 18. Occupations arranged in ascending order of percentage of male wage-earners not at work June 1, 1931, showing percentage of males losing any time and weeks lost per male losing time, percentage of occupation female and juvenile, percentage of females not at work June 1 and weeks lost per juvenile, Canada, year ended June 1, 1931

Occupation	P.C. of Male Wage-Earners		Weeks Lost per Male Wage-Earner Losing Time	P.C. of Occupation Female	P.C. of Females Not at Work June 1	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
	Not at Work June 1	Losing Time					
Foremen—bus and taxicab line	–	13·	7·40	–	–	3·	14·00
Justices and magistrates	0·4	0·7	30·25	0·9	–	–	–
Managers and officials—electric railway	0·5	0·5	18·00	–	–	–	–
Managers—telegraphs and telephones	0·5	1·8	12·73	7·3	–	–	–
Managers—Electric Light and Power	0·6	1·4	19·33	0·5	–	–	–
Managers—other transportation	0·64	1·8	20·60	25·93	1·1	0·4	–
Clergymen and priests	0·77	1·21	23·57	0·13	–	–	–
Professors and college principals	0·78	1·47	20·13	9·92	3·1	–	–
Managers—Chemical and Allied Products (Mfg.)	0·8	3·1	23·39	1·3	–	–	–
Physicians and surgeons	0·81	2·34	13·97	4·21	–	–	–
Managers—Electrical Apparatus (Mfg.)	0·9	2·6	15·21	0·5	–	–	–
Foremen—other transportation	0·9	9·9	9·18	–	–	–	–
Managers—Laundering; Cleaning, Dyeing, and Pressing	0·9	5·6	21·39	3·9	8·	–	–
Managers—Precious Metals and Electroplate (Mfg.)	1·	1·	13·00	4·	–	–	–
Railway officers—steam railway	1·08	3·75	13·55	–	–	–	–
Insurance officials	1·14	2·32	21·87	0·87	–	–	–
Foremen and overseers—Laundering; Cleaning, Dyeing, and Pressing	1·2	8·1	12·85	42·3	2·5	0·6	–
Officials—finance	1·25	2·28	19·85	0·23	–	–	–
Other ranks—army, navy, and air force	1·27	3·73	18·39	–	–	11·16	2·10
Foremen and overseers—Printing, Publishing, Bookbinding	1·3	8·6	8·93	25·1	2·9	–	–
Religious workers	1·31	3·19	20·74	37·45	3·0	3·19	0·05
Managers—Pulp, Paper, and Paper Products (Mfg.)	1·4	3·1	20·04	0·5	–	–	–
Managers and officials—Water Transportation	1·4	6·4	20·44	–	–	–	–
Veterinary surgeons	1·4	2·8	23·38	–	–	–	–
Officials—industrial associations—Professional Service	1·5	2·6	20·43	1·4	–	–	–
Postmen and mail carriers	1·68	6·52	14·60	0·76	4·	2·40	2·46
Managers—Miscellaneous Products (Mfg.)	1·7	3·5	19·88	0·8	–	–	–
Foremen—telegraphs and telephones	1·75	8·92	11·47	26·57	3·4	0·17	–
Lawyers and notaries	1·75	3·59	27·95	1·54	–	–	–
Dispatchers—railway transportation	1·8	7·0	14·33	–	–	–	–
Managers—Furs and Fur Goods (Mfg.)	2·	4·	26·50	4·	–	–	–
Managers—Non-Metallic Mineral Products (Mfg.)	2·0	5·0	19·38	1·4	–	–	–
Managers—Vegetable Foods (Mfg.)	2·01	3·76	18·19	1·38	13·	0·09	–
Managers—Printing, Publishing, Bookbinding	2·07	3·35	25·82	3·70	–	–	–
Public service officials—Public Administration and Defence	2·08	5·46	19·63	0·99	1·0	–	–
Managers—Rubber Products (Mfg.)	2·1	5·2	20·47	–	–	–	–
Managers—Textile Goods and Wearing Apparel (Mfg.)	2·1	6·2	18·31	4·4	7·	–	–
Foremen and overseers—Agriculture	2·13	8·86	17·74	0·93	–	0·63	0·11
Firemen—Public Administration	2·19	5·97	17·17	–	–	0·13	–
Foremen and overseers—garage	2·2	13·8	6·13	–	–	–	–
Officers—army, navy, and air force	2·2	2·9	22·00	–	–	0·7	2·80
Managers—Metal Products (Mfg.)	2·2	4·66	19·37	0·63	5·	–	–
Managers—Leather Products (Mfg.)	2·3	3·9	20·57	0·3	–	–	–
Foremen, inspectors—electric railway	2·3	12·0	9·50	–	–	–	–
Managers—Warehousing and Storage	2·5	5·3	16·49	–	–	–	–
Managers—wholesale, import and export houses; commercial agencies	2·52	5·01	19·37	0·88	–	–	–
Credit men—Trade	2·6	6·7	19·22	1·9	–	0·1	–
Managers—Tobacco Products (Mfg.)	2·7	2·7	52·00	0·9	–	–	–
Other—Personal Service	2·73	12·65	16·35	46·55	6·02	3·45	4·28
Police and detectives—Public Administration and Defence	2·79	7·67	19·24	0·71	8·	0·17	5·22
Managers—Unspecified	3·	3·	11·50	1·	–	–	–
Managers—Animal Foods (Mfg.)	3·0	5·4	24·09	0·4	–	–	–
Foremen and overseers—Precious Metals and Electroplate (Mfg.)	3·0	9·	17·44	10·8	8·	–	–
Managers—Textile Products (Mfg.)	3·1	7·1	22·86	1·8	–	–	–
Foremen and overseers—Electrical Apparatus (Mfg.)	3·1	15·9	11·51	8·2	9·	0·4	–
Managers—retail stores	3·19	7·61	19·22	4·51	2·8	0·45	6·84
Social welfare workers	3·2	10·3	24·49	64·20	2·9	0·5	20·00
Owners and managers—Drinks and Beverages (Mfg.)	3·3	4·2	23·71	0·3	–	–	–
Foremen and overseers—Electric Light and Power	3·3	15·8	11·08	–	–	–	–
Managers—garage	3·3	8·7	18·03	–	–	–	–
Managers—cartage and transfer	3·5	5·9	16·18	0·3	–	–	–
Teachers—school	3·51	6·41	23·92	77·44	3·99	3·11	2·33
Agricultural professionals	3·6	10·2	22·36	5·7	12·	–	–
Librarians	3·6	5·1	20·50	80·1	1·9	–	–
Foremen, inspectors—steam railway	3·88	16·85	13·17	–	–	–	–
Foremen and overseers—Warehousing and Storage	3·9	15·2	13·90	–	–	–	–
Floorwalkers and foremen—Trade	3·95	15·28	13·84	15·94	5·1	0·45	3·57
Managers—Wood Products (Mfg.)	3·97	8·32	19·02	0·18	–	–	–

[1] Not agricultural, mining or logging.

NOTE: Where the base of the percentage is less than 100, the percentage is given to the nearest whole number; between 100 and 1,000, to one place of decimals, and 1,000 and over, to two places of decimals.

TABLE 18. Occupations arranged in ascending order of percentage of male wage-earners not at work June 1, 1931, showing percentage of males losing any time and weeks lost per male losing time, percentage of occupation female and juvenile, percentage of females not at work June 1 and weeks lost per juvenile, Canada, year ended June 1, 1931—Con.

Occupation	P.C. of Male Wage-Earners		Weeks Lost per Male Wage-Earner Losing Time	P.C. of Occupation Female	P.C. of Females Not at Work June 1	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
	Not at Work June 1	Losing Time					
Foremen and overseers—Non-Metallic Mineral Products (Mfg.)	4·04	22·82	14·14	2·83	19·	0·09	1·78
Mission workers	4·2	4·9	32·31	42·7	8·2	1·5	–
Agents—ticket and station—Railway Transportation	4·21	7·80	19·47	0·30	–	0·45	22·83
Other—Public Administration and Defence	4·25	19·87	17·83	0·97	–	0·72	15·36
Foremen and overseers—Vegetable Foods (Mfg.)	4·5	16·3	14·65	2·02	8·5	0·1	–
Motormen—Railway Transportation	4·57	22·33	12·74	–	–	0·02	–
Other—Water Transportation	4·6	16·2	22·15	1·7	–	4·2	7·59
Foremen and overseers—Chemical and Allied Products (Mfg.)	4·8	20·7	13·54	9·4	2·	–	–
Auctioneers and appraisers—Trade	4·8	11·3	20·23	0·3	–	0·3	–
Foremen and overseers—Textiles (Mfg.)	4·86	26·28	12·61	20·08	3·9	0·08	–
Opticians	4·9	12·4	21·04	2·1	–	–	–
Insurance agents	4·91	12·76	22·69	2·29	4·3	0·61	4·90
Brokers and agents, n.e.s.—Trade	5·09	9·97	21·15	3·48	0·6	0·24	10·27
Foremen and overseers—Miscellaneous Products (Mfg.)	5·1	20·3	16·16	19·8	4·	0·3	–
Managers—bus and taxicab line	5·1	9·3	29·27	–	–	–	–
Authors	5·18	9·92	24·00	12·45	4·8	2·51	2·27
Foremen and overseers—Animal Foods (Mfg.)	5·2	20·7	20·83	2·4	7·	–	–
Railway conductors—steam railway	5·46	19·88	13·81	–	–	–	–
Other—Professional Service	5·58	13·60	20·17	23·01	4·3	15·97	5·34
Janitors and sextons	5·58	16·56	20·91	5·87	2·0	0·69	8·99
Foremen—cartage and transfer	5·6	20·5	14·71	–	–	–	–
Dynamo, motor, and switch board operators—Electric Light and Power	5·68	20·02	14·95	–	–	1·59	6·13
Conductors—street car	5·68	24·64	13·99	–	–	0·05	45·00
Managers—Other Mining	5·7	11·8	24·90	0·4	–	–	–
Foremen and overseers—Leather and Leather Products (Mfg.)	5·7	20·7	16·79	20·4	12·5	0·4	11·00
Restaurant keepers	5·78	13·8	22·27	17·73	3·6	0·2	–
Distillers and stillmen—Chemical and Allied Products (Mfg.)	5·8	32·0	10·05	–	–	–	–
Button makers—Miscellaneous Products (Mfg.)	6·	62·	16·41	38·1	16·	27·	13·63
Health professionals	6·0	15·1	26·60	81·5	14·5	0·6	–
Hotel managers and keepers	6·27	10·78	27·25	8·64	4·7	0·18	–
Managers—theatres and theatre agencies	6·3	11·7	25·13	1·2	–	0·4	1·67
Foresters and timber cruisers	6·32	39·91	20·19	–	–	2·36	11·25
Foremen and overseers—Rubber Products (Mfg.)	6·4	33·9	13·14	14·0	10·	0·5	16·00
Gate tenders—Railway Transportation	6·4	21·9	15·87	–	–	–	–
Dentists	6·4	11·9	21·31	3·1	–	–	–
Housekeepers, matrons, and stewards	6·5	16·2	22·35	95·65	5·27	0·4	–
Managers—Coal Mining	6·6	12·0	23·90	0·4	–	–	–
Foremen and overseers—Drinks and Beverages (Mfg.)	6·8	19·6	15·87	3·3	13·	–	–
Other—Tobacco Products (Mfg.)	6·8	59·9	14·70	72·08	11·51	21·5	11·03
Undertakers	6·8	14·9	22·76	0·2	–	5·0	6·43
Chemists, assayers, metallurgists	6·82	14·38	20·29	2·35	9·	–	–
Butter and cheese makers (Mfg.)	6·98	24·55	19·96	0·97	–	8·60	5·05
Foremen and overseers—Furs and Fur Goods (Mfg.)	7·	20·	17·50	33·	7·	–	–
Lockkeepers, canalmen and boatmen	7·07	38·55	19·42	–	–	1·95	9·27
Foremen and overseers—Tobacco Products (Mfg.)	7·1	22·2	11·50	26·7	6·	0·5	–
Charworkers and cleaners	7·1	25·6	18·91	87·37	13·37	6·4	5·59
Foremen and overseers—Wood Products (Mfg.)	7·13	28·52	15·50	0·73	–	–	–
Advertising agents—Trade	7·18	16·63	22·28	6·65	9·8	0·64	–
Managers—Building and Construction	7·20	15·25	23·69	0·21	–	–	–
Sales agents, canvassers, demonstrators	7·25	15·16	23·74	7·79	11·9	2·05	6·42
Operatives—milk factories, dairies (Mfg.)	7·3	22·0	17·95	3·0	16·	7·2	6·73
Accountants and auditors	7·41	11·93	27·12	3·47	5·6	–	–
Purchasing agents and buyers	7·49	12·05	19·76	3·95	5·0	0·11	0·43
Commercial travellers	7·51	15·80	22·38	0·43	14·	0·24	6·00
Foremen and overseers—Textile Goods and Wearing Apparel (Mfg.)	7·6	23·0	14·84	61·65	8·2	1·3	2·50
Electrical engineers	7·64	14·32	20·75	–	–	–	–
Other—Road Transportation	7·7	35·8	20·24	0·4	–	2·7	12·86
Loom fixers and card grinders—Textiles (Mfg.)	7·8	52·2	15·76	–	–	4·7	11·60
Baggagemen and expressmen—Railway Transportation	7·91	19·36	15·93	–	–	0·73	13·07
Other—Trade	7·99	20·02	18·01	11·52	26·5	18·84	3·66
Aerated water makers—Non-Metallic Mineral Products (Mfg.)	8·	32·	17·94	4·	–	11·	6·67
Pawnbrokers	8·	16·	31·00	–	–	–	–
Osteopaths and chiropractors	8·	17·	32·50	25·	25·	–	–
Foremen and overseers—Unspecified	8·	25·	18·65	12·3	8·	–	–
Foremen and overseers—Metal Products (Mfg.)	8·06	30·49	17·08	2·12	8·5	0·18	12·50
Locomotive engineers	8·06	24·96	16·48	–	–	–	–
Other clerical	8·08	17·49	21·49	24·12	5·27	15·64	4·49
Nurses—practical	8·18	21·57	21·83	65·53	18·34	4·35	8·75
Haulage workers—drivers, cagers, etc.—Other Mining	8·2	48·5	12·89	–	–	3·2	16·58
Scientific instrument and professional equipment makers and repairers—Miscellaneous Products (Mfg.)	8·2	28·6	18·29	27·2	11·	3·4	4·80

TABLE 18. Occupations arranged in ascending order of percentage of male wage-earners not at work June 1, 1931, showing percentage of males losing any time and weeks lost per male losing time, percentage of occupation female and juvenile, percentage of females not at work June 1 and weeks lost per juvenile, Canada, year ended June 1, 1931—Con.

Occupation	P.C. of Male Wage-Earners		Weeks Lost per Male Wage-Earner Losing Time	P.C. of Occupation Female	P.C. of Females Not at Work June 1	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
	Not at Work June 1	Losing Time					
Decorators, drapers, window dressers—Trade	8·2	24·7	18·60	17·1	10·4	8·5	4·07
Teachers—dancing and physical instruction	8·2	24·3	25·16	19·31	8·6	3·8	14·32
Collectors—Trade	8·37	22·89	20·20	2·47	2·	4·86	5·17
Watchmen and caretakers, n.e.s.	8·39	27·40	21·56	0·73	3·	1·13	16·32
Telephone operators	8·5	18·2	20·73	93·73	6·06	11·4	4·44
Inspectors and testers—Electrical Apparatus (Mfg.)	8·6	29·9	16·93	20·3	10·9	3·7	12·96
Pumpmen—Electric Light and Power	8·6	28·6	16·66	–	–	0·9	15·78
Managers—Other Entertainment	8·6	21·3	22·46	2·7	6·	0·5	15·33
Other—Chemical and Allied Products (Mfg.)	8·60	39·10	15·31	25·92	8·4	9·58	6·24
Other—Animal Foods (Mfg.)	8·8	33·1	23·01	11·9	16·	11·7	10·59
Electric lamp makers—Electrical Apparatus (Mfg.)	8·	49·	17·35	78·5	7·8	11·	9·25
Textile printers—Textiles (Mfg.)	9·0	23·4	18·28	14·5	15·	12·9	4·50
Electrotypers and stereotypers—Printing, Publishing, Bookbinding	9·0	25·9	13·63	–	–	0·3	–
Architects	9·1	17·7	20·98	0·2	–	–	–
Section foremen, sectionmen; trackmen—Railway Transportation	9·17	37·76	22·00	–	–	2·30	17·77
Inspectors, gaugers, and samplers—Trade	9·18	24·81	18·42	12·74	17·1	5·12	8·78
Newsboys	9·2	19·1	28·70	1·1	–	68·2	4·69
Compounders, moulders, and spreaders—Rubber Products (Mfg.)	9·5	62·2	16·44	–	–	1·0	23·00
Proof readers—Printing, Publishing, Bookbinding	9·5	20·5	17·93	45·1	1·8	2·0	–
Bell boys and porters—not railway	9·59	28·51	21·75	0·74	4·0	15·83	7·82
Other—Finance and Insurance	9·6	16·30	23·24	–	–	–	–
Malsters, brewers, and stillmen—Drinks and Beverages (Mfg.)	9·7	31·2	21·50	–	–	0·9	–
Millmen—Other Mining	9·8	43·1	13·16	–	–	7·7	13·10
Foremen and overseers—Water Transportation	9·8	35·9	18·53	–	–	–	–
Real estate agents	9·98	17·97	31·61	2·56	8·0	0·38	–
Foremen and overseers—Other Mining	9·99	29·12	15·65	–	–	0·10	10·00
Delivery men and drivers, n.s.—Road Transportation	9·99	30·63	21·01	–	–	26·85	9·19
Other—Vegetable Foods (Mfg.)	10·1	37·2	17·12	43·1	15·1	14·5	11·59
Weighmen—Warehousing and Storage	10·19	30·27	17·21	3·93	20·	1·60	7·62
Car builders and repairers—Metal Products (Mfg.)	10·39	37·41	14·40	–	–	0·65	10·29
Printers' and bookbinders' apprentices—Printing, Publishing, Bookbinding	10·40	26·17	20·37	6·43	15·3	70·74	4·96
Furnacemen and kilnmen—burners—Non-Metallic Mineral Products (Mfg.)	10·6	56·9	16·50	–	–	0·5	14·50
Elevator tenders	10·62	29·24	20·79	13·54	6·2	10·31	10·07
Bookkeepers, cashiers	10·65	19·13	23·73	41·83	6·89	6·00	5·33
Meat canners, curers, and packers (Mfg.)	10·7	38·8	18·13	34·0	11·7	8·9	15·50
Lithographers—Printing, Publishing, Bookbinding	10·8	32·5	16·98	0·1	–	0·3	3·00
Stock and bond brokers	10·81	16·69	29·78	1·19	6·	0·55	7·13
Other—Printing, Publishing, Bookbinding	10·9	33·8	19·71	62·94	13·9	19·6	7·04
Inspectors, lookers, and menders—Textiles (Mfg.)	10·9	42·2	17·34	85·30	8·75	14·5	5·62
Radio station operators—Other Transportation and Communication	10·9	25·5	22·02	–	–	4·9	3·40
Civil engineers and surveyors	10·94	20·04	22·78	–	–	–	–
Domestic servants	11·03	30·31	24·44	94·04	7·07	20·12	8·79
Warehousemen—Warehousing and Storage	11·08	29·80	18·76	0·53	7·	3·81	7·43
Other—Laundering	11·18	19·48	29·47	55·63	9·59	3·88	6·25
Salesmen and saleswomen	11·30	24·54	23·07	30·60	10·41	13·29	7·02
Shippers—Warehousing and Storage	11·31	31·77	19·09	3·07	9·0	9·57	8·52
Moulders and pressers—glass—Non-Metallic Mineral Products (Mfg.)	11·4	65·7	19·01	6·9	20·	10·0	23·30
Foremen and overseers—Building and Construction	11·45	39·76	18·53	–	–	0·11	5·00
Photographers	11·48	23·22	22·68	27·30	12·6	15·04	4·31
Office appliance operators	11·49	20·9	21·49	86·47	9·45	27·7	5·11
Compositors, printers, n.s.—Printing, Publishing, Bookbinding	11·50	29·17	19·61	3·55	10·3	1·43	6·14
Other—Railway Transportation and Communication	11·6	29·5	21·05	–	–	5·9	8·54
Foremen and overseers—Pulp, Paper, and Paper Products (Mfg.)	11·65	36·49	14·41	5·38	8·	0·07	8·00
Messengers—Other Transportation and Communication	11·65	28·20	24·72	2·70	12·1	78·92	7·65
Bottlers and cellarmen—Drinks and Beverages (Mfg.)	11·8	44·9	22·03	17·0	30·9	15·9	13·01
Paint and varnish makers—Chemical and Allied Products (Mfg.)	11·8	36·7	19·09	3·1	21·	7·4	11·56
Designers and draughtsmen	11·82	24·15	20·41	2·15	11·	8·51	7·46
Bleachers and dyers—Textiles (Mfg.)	11·95	45·45	17·64	6·14	12·	10·91	8·72
Stenographers and typists	11·95	22·04	25·09	94·85	9·78	24·41	6·60
Stage hands, projectionists	11·98	26·63	21·27	0·37	–	6·21	6·79
Mechanical engineers	11·99	24·95	22·66	–	–	–	–
Mining engineers	12·07	20·55	26·75	–	–	–	–
Carders and drawing frame tenders—Textiles (Mfg.)	12·2	64·5	18·24	37·25	9·7	16·4	13·45
Finishers and calenderers—Textiles (Mfg.)	12·3	56·1	18·07	43·56	9·3	13·4	10·86
Bootblacks	12·3	41·8	26·26	–	–	36·5	13·92
Mattress makers—Miscellaneous Products (Mfg.)	12·8	50·5	19·65	20·0	8·	13·4	11·91
Pressmen and plate printers—Printing, Publishing, Bookbinding	12·91	34·07	18·63	–	–	1·07	10·71

TABLE 18. Occupations arranged in ascending order of percentage of male wage-earners not at work June 1, 1931, showing percentage of males losing any time and weeks lost per male losing time, percentage of occupation female and juvenile, percentage of females not at work June 1 and weeks lost per juvenile, Canada, year ended June 1, 1931—Con.

Occupation	P.C. of Male Wage-Earners		Weeks Lost per Male Wage-Earner Losing Time	P.C. of Occupation Female	P.C. of Females Not at Work June 1	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
	Not at Work June 1	Losing Time					
Millers	12·99	27·55	19·63	–	–	2·55	6·71
Washing and drying machine operators—Laundering; Cleaning, Dyeing, and Pressing	13·1	30·1	23·96	50·0	9·1	6·8	7·24
Tanners—Leather and Leather Products (Mfg.)	13·2	46·2	18·93	–	–	4·8	14·09
Porters—Railway Transportation	13·30	30·05	20·07	–	–	2·36	10·08
Foremen and overseers—Coal Mining	13·4	34·3	15·63	–	–	–	–
Brush and broom makers—Miscellaneous Products (Mfg.)	13·4	45·1	20·20	17·8	6·7	11·9	9·67
Bakers' apprentices	13·45	33·81	23·14	2·49	11·	88·07	7·55
Managers—Logging	13·6	20·6	20·30	–	–	–	–
Barbers, hairdressers, manicurists	13·62	29·45	23·44	33·20	11·24	1·60	5·77
Boot and shoe makers' apprentices—Leather and Leather Products (Mfg.)	13·7	43·3	24·16	–	–	86·6	9·97
Jewellers' and watchmakers' apprentices—Precious Metals and Electroplate (Mfg.)	13·8	29·5	20·25	0·7	–	72·1	6·07
Other—Other Transportation and Communication	13·8	29·6	24·30	4·2	–	48·3	9·08
Other—Leather and Leather Products (Mfg.)	13·81	53·77	18·68	39·51	17·8	16·55	12·49
Processmen and furnacemen—Chemical and Allied Products (Mfg.)	14·0	41·6	15·99	0·2	–	1·0	14·22
Ushers—Recreational Service	14·0	33·7	24·98	29·3	16·7	42·9	8·87
Other—Textile Goods and Wearing Apparel (Mfg.)	14·2	39·3	21·15	57·14	14·07	11·1	9·85
Oilers of machinery—Electric Light and Power	14·22	51·61	17·40	–	–	6·86	12·28
Bookbinders—Printing, Publishing, Bookbinding	14·30	35·7	19·78	58·70	13·62	1·0	10·00
Other—Miscellaneous Products (Mfg.)	14·34	38·40	21·65	34·49	12·8	20·79	8·27
Artists, art teachers, sculptors, painters	14·42	30·63	22·46	23·85	19·6	4·61	6·67
Other—Textiles (Mfg.)	14·49	52·28	19·00	65·42	8·86	25·57	11·58
Knitters—Textile Goods and Wearing Apparel (Mfg.)	14·54	53·68	18·37	56·16	8·48	23·91	10·41
Telegraph operators	14·58	24·31	23·49	11·04	9·7	2·90	10·61
Spoolers, warpers, and beamers—Textiles (Mfg.)	14·7	61·8	17·32	82·52	11·38	36·0	11·20
Weavers—Textiles (Mfg.)	14·73	54·53	19·32	45·89	10·08	17·23	10·83
Barbers' and hairdressers' apprentices	14·8	32·7	28·13	44·0	14·3	82·7	9·27
Paper box, bag, and envelope makers—Pulp, Paper, and Paper Products (Mfg.)	14·81	45·3	18·24	65·86	11·03	20·0	10·41
Window cleaners	14·9	37·0	22·02	–	–	4·9	10·86
Machinists' apprentices—Metal Products (Mfg.)	15·01	48·01	19·93	–	–	61·84	9·69
Linemen, cablemen—Other Transportation and Communication	15·08	37·47	18·16	–	–	3·07	12·71
Waiters	15·10	34·25	22·94	53·31	13·64	6·73	9·61
Lime, plaster, and cement makers—Non-Metallic Mineral Products (Mfg.)	15·2	56·7	21·44	–	–	3·0	9·80
Yardmen, n.e.s.—Railway Transportation	15·22	37·20	16·72	–	–	2·61	16·95
Other—Pulp, Paper, and Paper Products (Mfg.)	15·28	54·17	15·86	21·06	18·0	12·06	11·10
Truck drivers	15·52	43·07	21·36	–	–	6·98	14·35
Farm labourers	15·58	33·54	24·79	0·82	11·57	19·15	6·50
Chauffeurs and bus drivers	15·65	35·51	23·14	0·05	17·	4·11	15·11
Butchers and slaughterers—Animal Foods (Mfg.)	15·73	35·67	22·10	0·03	–	9·10	6·75
Spinners—Textiles (Mfg.)	15·78	62·83	19·54	58·18	11·03	28·80	11·61
Process engravers—Printing, Publishing, Bookbinding	15·8	32·3	16·15	0·2	–	13·2	4·94
Cleaners and dyers—Laundering; Cleaning, Dyeing, and Pressing	15·87	37·86	22·39	22·80	11·3	13·10	7·88
Tent, sail, awning makers—Textile Goods and Wearing Apparel (Mfg.)	15·9	52·2	23·11	19·1	19·	5·1	14·50
Switchmen, signalmen, flagmen—Railway Transportation	16·12	37·92	21·06	–	–	1·03	15·67
Bakers (Mfg.)	16·13	35·40	22·30	3·02	8·2	5·37	7·89
Teamsters, draymen, carriage drivers	16·14	44·50	21·04	–	–	8·16	11·83
Other—Rubber Products (Mfg.)	16·26	66·62	16·87	30·70	14·0	10·98	14·63
Confectionery and biscuit makers (Mfg.)	16·40	48·06	19·02	46·73	16·00	18·53	12·30
Showmen and sportsmen—Recreational Service	16·5	30·5	24·34	1·5	9·	10·8	6·73
Seamen, sailors, and deckhands	16·66	32·98	24·75	–	–	13·09	11·05
Machine tenders, n.e.s.—Printing, Publishing, Bookbinding	16·67	40·05	20·12	35·18	11·3	44·50	8·01
Packers, wrappers, labellers—Warehousing and Storage	16·70	50·75	19·35	64·09	13·20	20·69	11·79
Potters—glazers and decorators—Non-Metallic Mineral Products (Mfg.)	16·8	58·9	17·29	8·4	28·	9·1	11·67
Machine operatives, n.e.s.—Pulp, Paper, and Paper Products (Mfg.)	17·15	56·60	16·29	2·63	11·	6·09	10·80
Boiler firemen—Electric Light and Power	17·30	45·70	19·56	–	–	2·37	13·67
Vulcanizers—Rubber Products (Mfg.)	17·4	44·6	23·40	–	–	10·5	11·32
Blacksmiths' apprentices—Metal Products (Mfg.)	17·4	38·7	25·17	–	–	62·5	8·97
Captains, mates, and pilots—Water Transportation	17·49	42·49	22·21	–	–	1·29	13·67
Box, basket, and packing case makers—Wood Products (Mfg.)	17·5	56·8	20·38	15·63	22·0	21·5	12·39
Hawkers and pedlars	17·5	41·4	25·71	0·6	–	14·1	14·97
Other—Drinks and Beverages (Mfg.)	17·6	46·7	19·78	12·4	13·	7·5	9·53
Tire builders and tube makers—Rubber Products (Mfg.)	17·67	67·92	17·85	9·71	9·2	3·55	13·97
Wood carvers and picture frame makers—Wood Products (Mfg.)	17·8	48·1	19·56	1·0	25·	10·7	5·64
Aviators	17·8	25·7	28·78	–	–	3·0	17·56

TABLE 18. Occupations arranged in ascending order of percentage of male wage-earners not at work June 1, 1931, showing percentage of males losing any time and weeks lost per male losing time, percentage of occupation female and juvenile, percentage of females not at work June 1 and weeks lost per juvenile, Canada, year ended June 1, 1931—Con.

Occupation	P.C. of Male Wage-Earners		Weeks Lost per Male Wage-Earner Losing Time	P.C. of Occupation Female	P.C. of Females Not at Work June 1	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
	Not at Work June 1	Losing Time					
Jewellers, watchmakers, repairers—Precious Metals and Electroplate (Mfg.)	17·91	36·39	23·24	5·49	11·7	1·41	12·19
Curriers, leather dressers, finishers—Leather and Leather Products (Mfg.)	18·0	55·3	18·55	16·1	18·5	11·4	6·75
Electricians and wiremen—Building and Construction	18·07	40·59	20·32	–	–	1·65	12·40
Furnacemen—Metal Products (Mfg.)	18·17	55·08	19·88	–	–	2·73	18·35
Operatives—sugar refinery (Mfg.)	18·2	53·2	17·28	8·9	20·0	6·5	9·60
Glove makers—Leather and Leather Products (Mfg.)	18·2	50·8	20·23	63·2	10·0	15·3	12·35
Japanners, enamellers, lacquerers—Metal Products (Mfg.)	18·3	64·8	17·99	13·6	13·	9·5	10·68
Foremen and overseers—Logging	18·6	48·4	18·05	–	–	0·1	–
Stationary enginemen, n.e.s.—Electric Light and Power	18·80	41·60	21·95	–	–	0·77	12·67
Coopers—Wood Products (Mfg.)	18·88	50·00	20·66	–	–	4·36	10·87
Cabinet and furniture makers' apprentices—Wood Products (Mfg.)	18·9	47·5	20·04	–	–	85·3	9·25
Mechanics, n.e.s.—Metal Products (Mfg.)	18·92	45·87	22·19	–	–	7·07	12·78
Other—Precious Metals and Electroplate (Mfg.)	19·0	50·0	20·98	33·0	23·	10·3	8·08
Other—Recreational Service	19·07	44·37	26·58	6·14	5·	38·23	15·67
Boilermakers' apprentices—Metal Products (Mfg.)	19·1	52·5	21·28	–	–	61·7	14·30
Patternmakers—Metal Products (Mfg.)	19·38	54·70	19·03	–	–	6·76	6·71
Wood turners, planers—wood machinists—Wood Products (Mfg.)	19·40	59·32	19·05	3·61	12·	11·38	12·02
Electricians' and wiremen's apprentices—Building and Construction	19·46	46·36	22·89	–	–	67·25	10·28
Armature winders and coil insulators—Electrical Apparatus (Mfg.)	19·5	64·3	18·35	39·5	18·3	6·8	15·25
Machinists—Metal Products (Mfg.)	19·50	53·77	20·75	–	–	0·95	12·83
Other—Non-Metallic Mineral Products (Mfg.)	19·60	50·98	21·01	13·16	13·3	10·91	13·43
Boot and shoe repairers—Leather and Leather Products (Mfg.)	19·68	43·08	26·50	–	–	1·95	9·34
Electric and oxy-acetylene welders—Metal Products (Mfg.)	19·90	58·52	20·72	–	–	5·33	15·90
Machine operators—boots and shoes (Mfg.)	19·91	59·99	20·00	36·10	13·99	16·44	10·98
Carpenters' apprentices—Building and Construction	19·91	52·93	24·19	–	–	72·29	12·80
Battery makers and repairers—Electrical Apparatus (Mfg.)	20·0	43·6	21·32	1·6	–	10·7	16·08
Tailors' apprentices—Textile Goods and Wearing Apparel (Mfg.)	20·1	46·4	23·52	20·1	18·	84·0	10·99
Instrument and appliance assemblers—Electrical Apparatus (Mfg.)	20·17	47·28	20·67	24·41	14·5	15·89	14·70
Brick and tile moulders and makers—Non-Metallic Mineral Products (Mfg.)	20·3	71·9	21·83	–	–	7·5	18·94
Painters' apprentices—Building and Construction	20·5	54·1	26·19	–	–	83·2	13·79
Sheet metal workers' apprentices—Building and Construction	20·6	50·5	23·70	–	–	75·0	12·38
Other—Other Mining	20·64	47·11	22·05	–	–	3·8	17·19
Hoistmen, craneman, derrickmen—Electric Light and Power	20·64	59·68	20·31	–	–	1·42	17·45
Stone cutters, dressers and carvers—Non-Metallic Mineral Products (Mfg.)	20·70	59·90	19·63	–	–	6·11	9·42
Sawyers—Wood Products (Mfg.)	20·74	65·61	20·64	–	–	5·13	14·10
Breakers, pickers, and wool sorters—Textiles (Mfg.)	20·8	69·4	17·92	30·7	9·	15·3	15·96
Engineering officers—Water Transportation	21·09	49·60	22·54	–	–	0·67	19·00
Canners—fruit and vegetable (Mfg.)	21·1	44·4	21·14	55·24	25·6	12·3	17·10
Paper makers—Pulp, Paper, and Paper Products (Mfg.)	21·23	60·83	16·96	–	–	2·24	13·70
Tool makers, die cutters and sinkers—Metal Products (Mfg.)	21·34	61·23	22·14	–	–	1·20	15·76
Plumbers' apprentices—Building and Construction	21·36	47·22	23·11	–	–	66·61	10·28
Millwrights—Metals Products (Mfg.)	21·42	55·29	21·34	–	–	0·18	17·00
Canoe and boat builders and repairers—Wood Products (Mfg.)	21·7	54·9	22·52	–	–	12·2	13·86
Platers—Precious Metals and Electroplate (Mfg.)	21·7	57·2	20·64	0·9	–	11·3	15·12
Cigarette makers—Tobacco Products (Mfg.)	22·	63·	16·41	73·	10·	7·	23·50
Cutters—Textile Goods and Wearing Apparel (Mfg.)	22·06	56·47	20·54	16·24	11·6	14·31	10·68
Other—Unspecified	22·19	43·94	26·59	19·97	17·5	23·17	10·68
Other—Electrical Apparatus (Mfg.)	22·2	52·0	21·23	53·42	11·9	17·5	14·14
Other—Wood Products (Mfg.)	22·26	61·51	20·71	3·85	12·4	10·39	12·21
Cutters—Leather and Leather Products (Mfg.)	22·47	60·34	20·45	3·59	20·	12·91	11·55
Finishers and polishers—Wood Products (Mfg.)	22·50	59·55	20·44	1·98	18·	6·38	10·93
Pressworkers and stampers—Metal Products (Mfg.)	22·80	69·5	21·90	14·40	18·8	8·5	17·47
Coppersmiths—Metal Products (Mfg.)	22·9	50·3	18·53	–	–	3·9	16·43
Cabinet and furniture makers—Wood Products (Mfg.)	22·91	56·88	20·52	–	–	2·13	9·58
Pursers and stewards—Water Transportation	23·08	49·7	22·77	16·82	7·6	8·8	16·19
Fish canners and curers—Animal Foods (Mfg.)	23·62	56·82	26·69	55·07	36·81	16·65	12·10
Inspectors, graders, and scalers—Wood Products (Mfg.)	23·66	58·11	20·51	–	–	1·31	19·63
Wire drawers, makers, and weavers—Metal Products (Mfg.)	23·8	65·1	20·00	8·4	14·	9·6	15·13
Machine tenders, n.e.s.—Metal Products (Mfg.)	23·97	70·25	23·04	13·00	12·5	11·40	16·60
Brakemen—Railway Transportation	24·28	48·55	22·02	–	–	0·14	16·83

TABLE 18. Occupations arranged in ascending order of percentage of male wage-earners not at work June 1, 1931, showing percentage of males losing any time and weeks lost per male losing time, percentage of occupation female and juvenile, percentage of females not at work June 1 and weeks lost per juvenile, Canada, year ended June 1, 1931

Occupation	P.C. of Male Wage-Earners		Weeks Lost per Male Wage-Earner Losing Time	P.C. of Occupation Female	P.C. of Females Not at Work June 1	P.C. of Male Wage-Earners Juvenile	Weeks Lost per Juvenile
	Not at Work June 1	Losing Time					
Labourers—Mines and Quarries	24·29	64·19	22·27	–	–	7·35	17·78
Other—Building and Construction	24·4	59·0	22·67	–	–	5·4	12·27
Boilermakers, platers, and riveters—Metal Products (Mfg.)	24·50	58·95	21·63	–	–	0·21	21·20
Blacksmiths, hammermen, and forgemen—Metal Products (Mfg.)	24·58	55·48	22·70	–	–	0·33	9·84
Sheet metal workers and tinsmiths—Building and Construction	24·58	60·79	21·78	1·54	25·	1·36	13·22
Quarriers and rock drillers—Other Mining	24·67	65·98	21·15	–	–	3·54	17·58
Cigar makers—Tobacco Products (Mfg.)	24·9	73·7	22·86	52·11	11·0	7·9	12·29
Furriers—fur cutters, dressers, sewers—Furs and Fur Goods (Mfg.)	24·93	60·20	21·75	34·84	24·20	14·38	13·76
Cooks	25·09	45·11	26·14	28·00	8·05	2·16	12·38
Glass blowers—Non-Metallic Mineral Products (Mfg.)	25·8	70·6	26·10	3·5	43·	4·6	18·11
Plasterers' and lathers' apprentices—Building and Construction	25·8	60·0	24·24	–	–	71·7	15·71
Sewers, seamstresses—not in factory (Mfg.)	26·5	55·3	23·39	92·78	12·40	21·8	10·19
Goldsmiths and silversmiths—Precious Metals and Electroplate (Mfg.)	26·5	55·4	20·99	5·8	19·	8·5	10·86
Trunk, belt, and bag makers—Leather and Leather Products (Mfg.)	26·6	67·7	20·99	13·1	14·	9·4	18·89
Plumbers, steamfitters, and gas fitters—Building and Construction	26·69	58·30	22·15	–	–	0·9	13·41
Filers and grinders—Metal Products (Mfg.)	26·75	70·97	23·32	–	–	2·96	17·21
Moulders' apprentices—Metal Products (Mfg.)	26·8	60·9	21·63	–	–	72·8	12·95
Firemen and trimmers—on ships	27·22	62·87	23·09	–	–	8·50	14·09
Musicians and music teachers	27·32	41·19	28·80	34·75	8·86	4·64	14·30
Fitters, assemblers, and erectors—Metal Products (Mfg.)	27·45	68·70	23·37	2·87	13·8	6·48	12·78
Miners—Other Mining	27·50	53·16	24·68	–	–	1·99	17·98
Other—Metal Products (Mfg.)	27·58	64·99	23·30	3·82	11·0	11·57	12·54
Rolling mill men, n.e.s.—Metal Products (Mfg.)	27·6	70·7	22·73	–	–	1·7	30·14
Upholsterers' apprentices—Wood Products (Mfg.)	27·8	56·6	23·75	3·6	–	75·9	14·81
Locomotive firemen—Railway Transportation	27·86	50·42	23·02	–	–	0·22	15·46
Fishermen	28·20	47·81	23·80	0·44	31·	11·27	10·58
Brick and stone masons' apprentices—Building and Construction	28·4	65·3	26·54	–	–	66·6	16·62
Painters, decorators, and glaziers—Building and Construction	28·44	68·78	24·44	–	–	1·64	18·88
Hunters and trappers	28·72	46·47	24·59	0·19	67·	6·79	11·38
Polishers and buffers—Metal Products (Mfg.)	28·75	73·90	23·21	3·15	14·	5·59	16·05
Rubber shoe makers—Rubber Products (Mfg.)	28·80	77·08	18·96	33·01	17·2	11·00	16·86
Other—Coal Mining	29·18	79·94	22·12	–	–	7·29	21·14
Harness and saddlery makers—Leather Products (Mfg.)	29·9	52·4	26·97	0·1·	–	2·1	5·47
Ironers and pressers—Laundering; Cleaning, Dyeing, and Pressing	30·37	63·32	22·99	38·64	11·30	11·01	12·52
Carriage and wagon builders and repairers—Wood Products (Mfg.)	30·8	61·7	25·54	–	–	3·9	9·38
Tailors and tailoresses	30·84	59·35	24·03	16·76	21·83	0·58	9·20
Upholsterers—Wood Products (Mfg.)	31·28	66·36	24·29	5·36	33·6	2·74	15·61
Hat and cap makers	31·5	62·3	21·80	43·58	24·9	11·5	14·51
Moulders, coremakers, and casters—Metal Products (Mfg.)	31·98	72·89	24·67	0·86	31·	0·23	15·22
Roofers (not metal) and slaters—Building and Construction	32·5	74·2	25·80	–	–	3·6	17·96
Carpenters—Building and Construction	32·61	69·40	24·55	–	–	0·58	14·52
Sewers, sewing machinists—shop factory—Textile Goods and Wearing Apparel (Mfg.)	32·94	68·23	22·52	86·46	15·90	17·92	14·20
Milliners	33·	67·	20·91	98·37	19·71	–	–
Oil drillers—Other Mining	34·4	54·4	25·06	–	–	1·5	8·00
Musical instrument makers	36·4	58·9	28·94	4·0	31·	3·1	8·63
Actors and actresses	36·8	49·5	28·41	45·9	37·9	4·7	19·56
Structural iron workers and steel erectors—Building and Construction	37·08	75·66	24·39	–	–	1·75	12·54
Longshoremen and stevedores—Water Transportation	37·65	78·88	24·74	–	–	1·64	24·68
Cement finishers—Building and Construction	38·0	81·1	25·65	–	–	0·5	12·00
Labourers and unskilled workers[1]	38·28	69·20	27·43	2·68	15·65	10·56	20·82
Haulage workers, drivers, cagers—Coal Mining	39·65	88·86	24·13	–	–	21·80	23·53
Brick and stone masons—Building and Construction	41·92	80·10	27·70	–	–	0·63	16·02
Labourers—Coal Mining	41·93	86·69	25·59	–	–	13·77	23·92
Lumbermen	43·52	76·64	24·95	–	–	9·41	17·83
Plasterers and lathers—Building and Construction	48·29	83·16	27·75	–	–	1·33	21·03
Miners—Coal Mining	52·07	88·77	25·63	–	–	2·94	23·45
Dressmakers	–	–	–	100·00	12·02	–	–
Dressmakers' apprentices	–	–	–	100·00	10·7	–	–
Milliners' apprentices	–	–	–	100·00	21·5	–	–
Nurses—graduate	–	–	–	100·00	10·46	–	–
Nurses—in training	–	–	–	100·00	2·08	–	–

TABLE 19. Comparison of growth or decline in employment between 1931 and 1936 with unemployment recorded, for selected industries, Prairie Provinces, 1931 and 1936

No.	Industry[1]	Total Wage-Earners		
		No.		P.C. Change
		June 1, 1931	June 1, 1936	
1	**Industries showing increase in employment**	**231,355**	**260,867**	**12·76**
2	Gold mining and milling	247	1,393	463·97
3	Transportation, n.e.s.	209	362	73·21
4	Copper mining and milling	1,093	1,474	34·86
5	Air transportation	182	256	40·66
6	Slaughtering and meat packing (Mfg.)	2,774	3,959	42·72
7	Forestry and logging	1,451	2,158	48·73
8	Police service (Federal and Provincial)	892	1,205	35·09
9	Butter and cheese factories, retail dairies	2,821	3,795	34·53
10	Mattresses (Mfg.)	202	259	28·22
11	Taxicabs, livery, and bus service	732	939	28·28
12	Private domestic service	29,852	38,537	29·09
13	Dyeing, cleaning, and pressing	671	777	15·80
14	Art and music (including commercial art)	476	630	32·35
15	Coal mining	9,688	9,464	−2·31
16	Boxes, baskets, and barrels (Mfg.)	323	383	18·58
17	Lodging and boarding houses	1,953	2,474	26·68
18	Fur goods (Mfg. and Retail Trade)	542	595	9·78
19	Agriculture	83,860	92,816	10·68
20	Clothing manufacturing and custom tailoring	2,421	2,680	10·70
21	Theatres and theatre agencies	977	1,113	13·92
22	Saw and planing mills	2,671	2,830	5·95
23	Federal and Provincial government, n.e.s.	6,951	8,058	15·93
24	Municipal government, n.e.s.	5,797	6,719	15·90
25	Books and stationery (Retail and Wholesale Trade)	792	903	14·02
26	Cartage, trucking, and haulage service	3,022	3,457	14·39
27	Drugs (Retail and Wholesale Trade)	1,533	1,673	9·13
28	Tobacco (Retail and Wholesale Trade)	448	504	12·50
29	Storage	5,939	6,394	7·66
30	Aerated and mineral waters (Mfg.)	189	208	10·05
31	Postal service	4,185	4,639	10·85
32	Billiard halls and sporting clubs	1,396	1,587	13·68
33	Potteries, earthenware, and china (Mfg.)	136	132	−2·94
34	Oil and gas wells, processing, retail dealing	3,557	3,479	−2·19
35	Boots and shoes (Retail Trade)	353	368	4·25
36	Hosiery and knitted goods (Mfg.)	166	155	−6·63
37	Hardware (Retail and Wholesale Trade)	4,171	4,233	1·49
38	Literature, journalism, and library service	165	177	7·27
39	General and departmental stores	14,648	15,552	6·17
40	Barber and hairdressing shops	1,823	1,976	8·39
41	Scientific and professional equipment (Mfg.)	164	163	−0·61
42	Candy and confectionery (Retail Trade)	1,005	1,023	1·79
43	Groceries (Retail and Wholesale Trade)	5,685	5,709	0·42
44	Meat, poultry, and fish (Retail Trade)	1,822	1,819	−0·16
45	Education	22,571	23,017	1·98
46	Fire department	800	823	2·88
47	**Industries showing decrease in employment**	**171,994**	**141,743**	**−17·59**
48	Other and unspecified mining	250	201	−19·60
49	Automobile manufacturing, dealing, repairing, garages	9,885	9,342	−5·49
50	Water service	497	478	−3·82
51	Coal and wood (Retail Trade)	1,025	1,241	21·07
52	Police (Municipal)	985	982	−0·30
53	Flour and grain milling	1,845	1,706	−7·53
54	Liquors, beverages (not aerated waters) (Mfg.)	1,118	1,067	−4·56
55	Optical goods (Retail Trade)	108	101	−6·48
56	Social welfare and charity organizations	1,007	990	−1·69
57	Bakeries	2,207	2,150	−2·58
58	Electric railways	2,258	2,142	−5·14
59	Furniture and house furnishings (Retail Trade)	768	707	−7·94
60	National defence	1,020	977	−4·22
61	Clothing and dry goods (Retail and Wholesale Trade)	3,130	2,800	−10·54
62	Steam railways	47,377	42,101	−11·14
63	Furniture (including upholstering) (Mfg.)	526	446	−15·21
64	Accountancy and actuarial practice	505	471	−6·73
65	Boot and shoe repairing	307	315	2·61
66	Iron foundries	1,039	879	−15·40
67	Hotels, restaurants, and taverns	14,497	12,942	−10·73
68	Wood products, n.e.s. (Mfg.)	235	225	−4·26
69	Printing, publishing, and bookbinding	4,963	4,398	−11·38
70	Paper products—boxes, bags, stationery (Mfg.)	549	467	−14·94
71	Photographers' shops	285	246	−13·68
72	Advertising agencies	350	311	−11·14
73	Business service, n.e.s.	362	326	−9·94
74	Brass and copper products (Mfg.)	155	134	−13·55
75	Blacksmithing	755	608	−19·47
76	Liquors and beverages (Retail Trade)	582	516	−11·34
77	Personal service, n.e.s.	842	732	−13·06

n.e.s.—not elsewhere specified.

[1]The industries listed are those with 100 or more wage-earners at work on June 1, 1931, in the three Prairie Provinces combined.

[2]Due mainly to differences in classification at the two censuses, the 1931 and 1936 figures shown for these industries are not comparable.

TABLE 19. Comparison of growth or decline in employment between 1931 and 1936 with unemployment recorded, for selected industries, Prairie Provinces, 1931 and 1936

Wage-Earners at Work on Census Date			P.C. of Total Wage-Earners Reporting No Job		Average No. of Weeks Lost by All Wage-Earners		No.
No.		P.C. Change					
June 1, 1931	June 1, 1936		June 1, 1931	June 1, 1936	1931	1936	
192,064	222,941	16·08	14·16	11·13	8·29	14·33	1
175	1,091	523·43	25·10	15·08	17·55	15·92	2
185	316	70·81	10·53	8·29	7·00	11·31	3
908	1,411	55·40	14·27	2·92	11·21	7·20	4
156	228	46·15	13·19	6·64	6·36	8·42	5
2,419	3,454	42·79	11·36	9·14	7·08	9·57	6
849	1,170	37·81	38·94	39·90	16·78	25·97	7
865	1,157	33·76	2·58	2·74	1·58	1·82	8
2,621	3,448	31·55	5·67	6·90	4·69	9·57	9
167	217	29·94	12·87	11·20	9·68	10·72	10
582	754	29·55	18·99	16·08	10·44	14·66	11
27,035	34,934	29·22	8·52	7·24	6·59	16·71	12
572	707	23·60	11·62	7·59	8·74	12·62	13
367	453	23·43	20·80	23·65	11·06	20·81	14
4,330	5,329	23·07	18·09	16·90	21·00	22·76	15
256	313	22·27	16·10	13·32	14·16	15·64	16
1,778	2,173	22·22	7·89	10·27	5·19	8·25	17
427	507	18·74	17·34	9·58	11·79	14·73	18
66,383	78,111	17·67	20·06	13·96	10·18	19·04	19
1,884	2,164	14·86	17·51	9·59	12·75	15·06	20
823	945	14·82	13·20	12·67	7·16	10·10	21
2,063	2,331	12·99	19·36	13·36	13·24	18·94	22
6,596	7,429	12·63	4·03	5·49	2·92	5·31	23
4,728	5,320	12·52	16·51	17·03	9·81	13·58	24
710	795	11·97	9·34	9·08	4·71	7·97	25
2,214	2,475	11·79	24·35	24·73	11·95	19·52	26
1,337	1,486	11·14	11·15	8·13	5·23	9·01	27
410	454	10·73	7·59	7·14	3·91	5·67	28
5,369	5,924	10·34	7·34	5·27	3·39	4·27	29
171	187	9·36	9·52	8·65	8·38	14·34	30
4,092	4,443	8·58	1·48	2·13	1·07	2·58	31
1,168	1,265	8·30	14·83	14·11	11·59	19·41	32
108	116	7·41	14·71	6·82	8·34	16·60	33
2,823	3,024	7·12	17·77	9·97	8·40	12·54	34
288	308	6·94	16·71	14·13	8·75	12·91	35
119	127	6·72	21·08	12·90	15·05	14·62	36
3,532	3,748	6·12	13·19	9·05	5·89	8·46	37
157	166	5·73	3·03	3·95	2·24	7·30	38
12,552	13,213	5·27	11·97	10·64	6·54	10·59	39
1,492	1,566	4·96	16·40	17·16	9·01	15·93	40
144	150	4·17	10·98	4·91	6·12	6·21	41
855	874	2·22	13·03	11·53	8·74	13·08	42
4,800	4,873	1·52	14·16	11·89	6·80	11·07	43
1,456	1,471	1·03	18·77	15·72	9·90	12·40	44
21,312	21,525	1·00	4·32	4·64	2·65	4·47	45
786	789	0·38	1·00	1·09	0·98	1·19	46
137,741	114,220	−17·08	17·00	15·30	10·14	14·47	47
110	109	−0·91	50·80	32·34	22·64	23·36	48
7,646	7,493	−2·00	20·54	17·01	10·93	16·06	49
409	400	−2·20	14·29	12·76	8·96	10·11	50
750	731	−2·53	23·51	33·60	10·70	20·08	51
946	921	−2·64	3·55	3·36	1·85	3·49	52
1,506	1,463	−2·86	10·51	9·50	7·59	10·21	53
968	927	−4·24	9·21	9·56	8·42	10·38	54
101	96	−4·95	5·56	2·97	3·61	4·64	55
962	911	−5·30	3·48	4·04	3·84	6·46	56
1,856	1,743	−6·09	13·41	15·26	7·53	10·93	57
2,023	1,898	−6·18	7·22	6·63	5·69	6·18	58
657	616	−6·24	12·50	9·34	6·68	8·63	59
988	926	−6·28	2·84	3·89	1·74	5·03	60
2,528	2,356	−6·80	16·71	12·68	8·15	12·46	61
39,816	36,733	−7·75	11·20	7·30	8·09	12·51	62
341	313	−8·21	31·37	21·52	16·73	18·73	63
427	387	−9·37	14·46	14·86	5·87	10·50	64
233	210	−9·87	23·13	31·11	11·53	19·93	65
724	650	−10·22	25·02	20·71	14·70	17·74	66
12,191	10,874	−10·80	14·09	13·24	9·08	13·28	67
212	189	−10·85	9·36	10·67	15·14	19·11	68
4,387	3,811	−13·13	9·03	9·78	5·21	9·81	69
449	387	−13·81	14·57	11·35	9·89	12·24	70
224	193	−13·84	19·30	17·48	9·41	14·40	71
304	261	−14·14	11·14	13·50	5·46	13·04	72
301	257	−14·62	14·36	18·71	7·34	13·21	73
127	108	−14·96	12·90	14·93	8·80	15·50	74
489	412	−15·75	32·05	27·80	15·81	21·68	75
556	467	−16·01	4·30	7·17	1·58	4·76	76
728	609	−16·35	12·00	13·66	8·68	15·07	77

TABLE 19. Comparison of growth or decline in employment between 1931 and 1936 with unemployment recorded, for selected industries, Prairie Provinces, 1931 and 1936—Con.

No.	Industry[1]	Total Wage-Earners		
		No.		P.C. Change
		June 1, 1931	June 1, 1936	
	Industries showing decrease in employment—Con.			
1	Electric light and power production and distribution	2,635	2,167	−17·76
2	Telephone systems	4,045	3,407	−15·77
3	Building and structures	17,484	14,295	−18·24
4	Insurance and real estate	6,592	5,608	−14·93
5	Law	1,523	1,259	−17·33
6	Investment and loan	2,096	1,656	−20·99
7	Fruits and vegetables (Retail Trade)	225	176	−21·78
8	Fishing	696	614	−11·78
9	Religion	3,495	2,808	−19·66
10	Glass and its products (Mfg.)	338	274	−18·93
11	Iron products, n.e.s. (including smelting and refining)	1,686	1,260	−25·27
12	Associations—industrial and trade	269	213	−20·82
13	Laundries; laundering	1,785	1,450	−18·77
14	Textile products, n.e.s. (Mfg.)	150	120	−20·00
15	Banking	5,878	4,475	−23·87
16	Jewelry (Retail Trade) and watch repairing	556	419	−24·64
17	Biscuits and confectionery (Mfg.)	774	608	−21·45
18	Pulp and paper	433	326	−24·71
19	Lime, plaster, cement, artificial stone (Mfg.)	441	307	−30·39
20	Chemical products, n.e.s. (Mfg.)	368	272	−26·09
21	Water transportation	772	529	−31·48
22	Non-metallic mineral products, n.e.s. (Mfg.)	195	119	−38·97
23	Musical instruments (Retail Trade)	504	325	−35·52
24	Electrical apparatus manufacturing, retail dealing, and repair	1,456	993	−31·80
25	Sheet metal products (Mfg.)	356	229	−35·67
26	Boilers, engines, and machinery (Mfg.)	1,450	836	−42·34
27	Vegetable food products, n.e.s. (Mfg.)	259	159	−38·61
28	Bricks and tile (Mfg.)	441	276	−37·41
29	Quarries, gravel pits; salt wells	733	419	−42·84
30	Monumental stone and marble (Mfg.)	280	185	−33·93
31	Applied science	422	231	−45·26
32	Construction, n.e.s.	14,225	5,727	−59·74
33	**Industries not classified**[2]	**53,371**	**40,788**	-
34	Agricultural implements and machinery (Mfg.)	1,871	703	-
35	Brooms, brushes, and mops (Mfg.)	124	63	-
36	Custom and repair, n.e.s.	307	666	-
37	Flowers and seeds—florists (Retail Trade)	211	187	-
38	Harness and saddlery (Mfg.)	188	139	-
39	Health	8,221	9,985	-
40	Hunting and trapping	285	47	-
41	Lithographing and engraving	206	117	-
42	Lumber (Wholesale Trade)	504	392	-
43	Medicinal preparations (Mfg.)	254	45	-
44	Miscellaneous products, n.e.s. (Mfg.)	492	261	-
45	Paints, pigments, and varnishes (Mfg.)	236	197	-
46	Retail dealing, n.e.s.	3,361	6,370	-
47	Rubber products (Mfg.)	214	56	-
48	Soaps and toilet preparations (Mfg.)	187	164	-
49	Unspecified industries	27,978	10,079	-
50	Wholesale dealing, n.e.s.	8,732	11,317	-
51	Industries with 100 or more wage-earners at work on June 1, 1931	456,720	443,398	-
52	Industries with less than 100 wage-earners at work on June 1, 1931	2,008	2,089	-
53	All industries	458,728	445,487	−2·89

TABLE 19. Comparison of growth or decline in employment between 1931 and 1936 with unemployment recorded, for selected industries, Prairie Provinces, 1931 and 1936—Con.

Wage-Earners at Work on Census Date			P.C. of Total Wage-Earners Reporting No Job		Average No. of Weeks Lost by All Wage-Earners		No.
No.		P.C. Change					
June 1, 1931	June 1, 1936		June 1, 1931	June 1, 1936	1931	1936	
2,273	1,897	−16·54	11·35	8·91	6·32	7·01	1
3,651	3,043	−16·65	7·96	6·90	4·16	7·56	2
8,880	7,363	−17·08	46·49	44·26	23·06	34·02	3
6,035	4,990	−17·32	7·48	8·83	3·72	6·60	4
1,268	1,046	−17·51	14·90	13·98	6·53	11·75	5
1,819	1,481	−18·58	12·12	8·64	5·17	7·04	6
190	154	−18·95	13·78	10·23	9·01	16·06	7
436	350	−19·72	32·61	35·50	10·49	25·15	8
3,459	2,721	−21·34	0·69	1·64	0·65	3·00	9
269	211	−21·56	17·16	10·58	11·37	15·34	10
1,181	912	−22·78	23·43	20·48	13·93	18·54	11
258	198	−23·26	2·97	5·63	3·08	3·99	12
1,503	1,146	−23·76	13·73	18·62	8·07	13·72	13
136	102	−25·00	6·00	10·83	7·65	11·51	14
5,609	4,185	−25·39	3·67	4·40	1·50	3·07	15
471	350	−25·69	13·31	11·93	5·86	10·15	16
641	471	−26·52	13·18	16·12	9·57	15·12	17
390	276	−29·23	8·78	11·04	10·32	11·23	18
371	261	−29·65	11·11	12·38	15·36	15·25	19
327	229	−29·97	8·70	9·56	7·16	12·98	20
624	435	−30·29	17·88	15·88	12·33	21·64	21
158	104	−34·18	14·87	7·56	12·56	15·82	22
425	275	−35·29	13·49	13·23	6·07	11·53	23
1,197	767	−35·92	15·11	18·93	8·38	14·33	24
267	165	−38·20	21·07	19·65	13·40	20·51	25
1,070	657	−38·60	22·07	16·39	10·28	16·53	26
227	139	−38·77	10·81	6·92	8·11	11·57	27
285	170	−40·35	30·39	29·35	16·93	29·76	28
555	313	−43·60	22·10	21·48	14·71	26·33	29
227	116	−48·90	17·14	32·97	12·93	30·03	30
316	140	−55·70	22·27	32·90	10·30	21·90	31
10,264	3,102	−69·78	26·34	41·31	18·90	31·82	32
32,005	**30,019**	–	–	–	–	–	33
1,478	569	–	–	–	–	–	34
112	46	–	–	–	–	–	35
219	445	–	–	–	–	–	36
191	153	–	–	–	–	–	37
122	90	–	–	–	–	–	38
7,783	8,832	–	–	–	–	–	39
216	16	–	–	–	–	–	40
181	111	–	–	–	–	–	41
449	298	–	–	–	–	–	42
241	38	–	–	–	–	–	43
430	207	–	–	–	–	–	44
206	179	–	–	–	–	–	45
2,876	5,612	–	–	–	–	–	46
190	48	–	–	–	–	–	47
176	143	–	–	–	–	–	48
9,416	3,174	–	–	–	–	–	49
7,719	10,058	–	–	–	–	–	50
361,810	367,180	–	–	–	–	–	51
1,569	1,697	–	–	–	–	–	52
363,379	368,877	1·51	18·06	13·57	9·95	14·50	53

TABLE 20. Percentages of total wage-earners employed less than 12 weeks during the census year ended June 1, for selected industries in the Prairie Provinces, 1936

Industry[1]	P.C. of Total Wage-Earners Employed		
	Less than 12 Weeks	No Weeks	1-11 Weeks
Unspecified	45·80	25·22	20·58
Building and structures	41·55	21·30	20·25
Construction, n.e.s.	37·00	22·57	14·43
Monumental stone and marble (Mfg.)	33·33	16·37	16·96
Bricks and tile (Mfg.)	30·62	19·77	10·85
Boot and shoe repairing	28·11	16·01	12·10
Applied science	25·70	15·89	9·81
Other and unspecified mining	25·15	14·72	10·43
Blacksmithing	23·39	10·87	12·52
Forestry and logging	22·90	12·30	10·60
Art and music (including commercial art)	22·04	10·58	11·46
Furniture (including upholstering) (Mfg.)	21·82	12·95	8·87
Sheet metal products (Mfg.)	21·33	12·00	9·33
Coal and wood (Retail Trade)	21·30	13·84	7·46
Quarries, gravel pits; salt wells	21·22	7·58	13·64
Cartage, trucking, and haulage service	20·77	11·24	9·53
Iron foundries	20·64	13·88	6·76
Miscellaneous products, n.e.s. (Mfg.)	20·43	8·26	12·17
Iron products, n.e.s.	20·29	13·22	7·07
Barber and hairdressing shops	19·88	9·39	10·49
Tanning (Mfg.)	19·80	11·88	7·92
Business service, n.e.s.	19·75	10·36	9·39
Harness and saddlery (Mfg.)	19·70	15·15	4·55
Custom and repair, n.e.s.	19·19	9·14	10·05
Fruits and vegetables (Retail Trade)	18·52	5·56	12·96
Boilers, engines, and machinery (Mfg.)	18·23	10·40	7·83
Laundries; laundering	18·22	12·94	5·28
Lumber (Wholesale Trade)	18·13	13·33	4·80
Brass and copper products (Mfg.)	17·60	10·40	7·20
Photographers' shops	17·45	10·64	6·81
Water transportation	17·15	8·24	8·91
Automobile manufacturing, dealing, repairing, garages	16·83	8·63	8·20
Billiard halls and sporting clubs	16·77	6·30	10·47
Electrical apparatus manufacturing, retail dealing, and repair	16·63	8·69	7·94
Boxes, baskets, and barrels (Mfg.)	16·57	9·04	7·53
Biscuits and confectionery (Mfg.)	15·98	10·48	5·50
Soaps and toilet preparations (Mfg.)	15·58	7·79	7·79
Potteries, earthenware, and china (Mfg.)	15·50	4·65	10·85
Agriculture	15·12	2·29	12·83
Boots and shoes (Retail Trade)	14·93	7·89	7·04
Municipal government, n.e.s.	14·83	9·03	5·80
Private domestic service	14·77	1·62	13·15
Candy and confectionery (Retail Trade)	14·61	5·99	8·62
Bakeries	14·48	8·54	5·94
Saw and planing mills	14·39	5·10	9·29
Taxicabs, livery, and bus service	14·32	7·54	6·78
Wood products, n.e.s. (Mfg.)	14·29	6·67	7·62
Hotels, restaurants, and taverns	14·25	7·64	6·61
Aerated and mineral waters (Mfg.)	14·21	6·32	7·89
Meat, poultry, and fish (Retail Trade)	14·13	7·59	6·54
Lime, plaster, cement, artificial stone (Mfg.)	14·03	5·54	8·49
Clothing and dry goods (Retail and Wholesale Trade)	13·80	7·11	6·69
Gold mining and milling	13·78	5·88	7·90
Law	13·59	7·56	6·03
Non-metallic mineral products, n.e.s. (Mfg.)	13·46	0·96	12·50
Personal service, n.e.s.	13·25	5·17	8·08
Flowers and seeds—florists (Retail Trade)	13·14	5·71	7·43
Groceries (Retail and Wholesale Trade)	13·09	6·27	6·82
Musical instruments (Retail Trade)	13·04	9·36	3·68
Jewelry (Retail Trade) and watch repairing	12·78	7·37	5·41
Paper products—boxes, bags, stationery (Mfg.)	12·66	7·86	4·80
Agricultural implements and machinery (Mfg.)	12·63	7·52	5·11
Accountancy and actuarial practice	12·53	8·64	3·89
Leather goods (Wholesale Trade)	12·50	7·89	4·61
Dyeing, cleaning, and pressing	12·46	3·46	9·00
Water service	12·21	7·69	4·52
Fishing	12·16	4·05	8·11
General and departmental stores	12·10	4·83	7·27
Hosiery and knitted goods (Mfg.)	11·92	8·61	3·31
Coal mining	11·79	8·00	3·79
Theatres and theatre agencies	11·61	7·23	4·38
Glass and its products (Mfg.)	11·53	5·58	5·95
Oil and gas wells, processing, retail dealing	11·28	4·40	6·88
Advertising agencies	11·22	5·44	5·78
Clothing manufacturing and custom tailoring	10·63	4·70	5·93
Vegetable food products, n.e.s. (Mfg.)	10·52	2·63	7·89
Printing, publishing, and bookbinding	10·28	5·79	4·49
Liquors and beverages (not aerated waters) (Mfg.)	10·22	5·01	5·21
Slaughtering and meat packing (Mfg.)	10·20	5·03	5·17
Leather gloves (Mfg.)	10·20	2·72	7·48
Transportation, n.e.s.	10·18	3·20	6·98

n.e.s.—not elsewhere specified.
[1]Industries with 100 or more wage-earners.

TABLE 20. Percentages of total wage-earners employed less than 12 weeks during the census year ended June 1, for selected industries in the Prairie Provinces, 1936—Con.

Industry[1]	P.C. of Total Wage-Earners Employed		
	Less than 12 Weeks	No Weeks	1-11 Weeks
Furniture and house furnishings (Retail Trade)	10·00	5·08	4·92
Lodging and boarding houses	10·00	6·29	3·71
Chemical products, n.e.s. (Mfg.)	9·75	4·24	5·51
Pulp and paper	9·74	6·74	3·00
Drugs (Retail and Wholesale Trade)	9·42	4·09	5·33
Wholesale dealing, n.e.s.	9·37	4·84	4·53
Steam railways	9·36	4·46	4·90
Hardware (Retail and Wholesale Trade)	9·31	5·00	4·31
Retail dealing, n.e.s.	9·09	4·85	4·24
Butter and cheese factories, retail dairies	9·05	3·62	5·43
Paints, pigments, and varnishes (Mfg.)	8·99	3·70	5·29
Fur goods (Mfg. and Retail Trade)	8·84	5·03	3·81
Books and stationery (Retail and Wholesale Trade)	8·81	4·75	4·06
Mattresses (Mfg.)	8·80	6·40	2·40
Flour and grain milling	8·78	5·75	3·03
Investment and loan	8·73	5·92	2·81
Electric light and power production and distribution	8·53	5·62	2·91
Health	8·49	2·32	6·17
Insurance and real estate	8·32	5·33	2·99
Air transportation	8·20	2·05	6·15
Textile products, n.e.s. (Mfg.)	7·76	5·17	2·59
Grain brokers, dealers	7·68	5·25	2·43
Telephone systems	7·59	3·39	4·20
Scientific and professional equipment (Mfg.)	6·83	4·35	2·48
Undertaking establishments	6·78	5·08	1·70
Tobacco (Retail and Wholesale Trade)	6·65	4·16	2·49
Electric railways	6·57	4·90	1·67
Liquors and beverages (Retail Trade)	6·34	4·50	1·84
Social welfare and charity organizations	6·12	2·67	3·45
Lithographing and engraving	5·17	1·72	3·45
Federal and Provincial government, n.e.s.	5·07	2·21	2·86
Associations—industrial and trade	5·02	2·79	2·23
Education	4·86	2·68	2·18
Copper mining and milling	4·69	1·63	3·06
National defence	4·43	1·37	3·06
Storage	4·37	1·99	2·38
Banking	4·35	2·86	1·49
Literature, journalism, and library service	4·15	1·78	2·37
Police (Municipal)	3·79	1·79	2·00
Sugar refining; syrups	3·41	1·14	2·27
Postal service	2·52	1·25	1·27
Religion	2·13	0·77	1·36
Police service (Federal and Provincial)	2·10	1·51	0·59
Optical goods (Retail Trade)	2·00	1·00	1·00
Fire department	1·35	0·74	0·61
Industries with 100 or more wage-earners	13·63	5·39	8·24
Industries with less than 100 wage-earners	16·84	9·51	7·33
All industries	13·65	5·41	8·24

TABLE 21. Distribution of occupations of male wage-earners with regard to the three criteria of unemployment, Canada, 1931

Variable x	(1) No. of Occupations Having x P.C. Unemployment on June 1, 1931	(2) No. of Occupations Having x P.C. Losing Time Year Ended June 1, 1931	(3) No. of Occupations in which x Weeks were Lost on the Average by Those Losing Time	(4) Total Male Wage-Earners in Occupations with x P.C. Unemployment on June 1, 1931
0	2	-	-	-
1	22	6	-	38,433
2	20	5	-	36,543
3	16	10	-	38,021
4	12	8	-	33,772
5	14	9	-	35,428
6	17	6	1	32,374
7	18	4	1	44,000
8	21	5	-	147,397
9	13	6	2	32,549
10	14	5	2	23,219
11	18	2	2	180,839
12	16	8	3	42,751
13	9	3	9	8,380
14	14	5	12	16,807
15	13	6	8	37,453
16	13	8	19	295,977
17	10	6	19	31,303
18	13	3	27	27,117
19	11	4	31	64,742
20	11	8	43	46,395
21	13	9	46	28,280
22	8	6	38	10,034
23	5	5	38	7,325
24	7	3	26	26,413
25	7	8	16	41,767
26	2	6	11	434
27	9	2	12	24,359
28	8	2	5	60,782
29	4	8	6	6,091
30	2	10	2	3,935
31	3	4	1	10,321
32	2	4	2	8,826
33	4	4	1	72,197
34	1	8	-	518
35	-	1	-	-
36	1	7	-	618
37	2	6	-	2,191
38	3	4	-	427,895
39	-	5	-	-
40	1	3	-	1,445
41	-	3	-	-
42	2	5	-	15,714
43	-	4	-	-
44	1	4	-	37,143
45	-	7	-	-
46	-	6	-	-
47	-	4	-	-
48	1	6	-	4,964
49	-	3	-	-
50	-	7	-	-
51	-	5	-	-
52	1	6	1	17,469
53	-	4	-	-
54	-	6	-	-
55	-	9	-	-
56	-	2	-	-
57	-	8	-	-
58	-	2	-	-
59	-	7	-	-
60 and over	-	64	-	-
Total	384	384	384	2,022,221

APPENDICES

APPENDIX 1

UNEMPLOYMENT DATA IN RELATION TO THE LAWS OF PROBABILITY—DURATION AND FREQUENCY OF UNEMPLOYMENT

(1) Let p = the probability that a person is employed on a sample week and q the probability that he is unemployed, with N the number of workers in a group. Then Np is the number of persons employed on that week and Nq the number unemployed. If q remains constant throughout the year, $52q$ is the average number of weeks unemployed by N in a year.

Since $52Nq$ is the total number of weeks lost in the year, the average number of weeks lost by those losing time is $\frac{52Nq}{B}$ where B is the number of persons who lose any time during the year and A the number who lose no time.

Now in the sample week the sizes of A and B are not apparent; but let us suppose them as known.

The probability of unemployment in the sample week of those who lose time during the year is

$$q \Big/ \frac{B}{A + B} = \frac{Nq}{B}$$

(2) In this case since p and q represent a sample day, q is supposed to be constant throughout the period under consideration. But while the size of q is constant, its personnel is not necessarily so. The latter vary, *i.e.*, persons that are unemployed at one observation are employed at another. This is true unless we add to the above probabilities a probability that because it is B that is idle on the sample day it is B that will be idle on another day—or that the liability of i as an individual is greater that that of another individual because he happened to be idle on the sample day. There is no mathematical necessity for this; i's liability to unemployment on another day is mathematically governed only by the size of q.

(3) Now we have another hypothesis, *viz.*, that the interchange between the A's and B's does not occur at infinitesimal intervals, but rather at finite intervals of 1 week so that the maximum number of interchanges is 52 in one year.

If the individuals of A and B are freely interchangeable, then it is clear that having only 52 interchanges under observation might well govern the relative sizes of A and B at the end of a year. Since q is constant, the size of B at any observation must be constant but some individuals of B may be more liable than others to remain in B. The smallest possible number of observations for all the A's is when one individual is just as liable to unemployment as another, *i.e.*, the smallest possible number of weeks to procure a complete transfer of A's to B's is $\frac{N}{Nq} = \frac{1}{q}$ which would be the case if all of the groups took turns at being unemployed. Suppose $q = 0{\cdot}5$ then all the A's will be converted to B's in 2 weeks. Every individual in N will suffer alike 26 weeks unemployment during the year.

Suppose $q = 0{\cdot}0192$ (*i.e.*, 1·92 p.c. unemployed), then it takes 52 weeks for the complete turnover. At the end of the year under observation there is still no necessity for A to be left.

After q falls below $0{\cdot}0192$ there is an increasing mathematical necessity for A to be left over at the end of the year, but this implies no necessity that an individual in A is permanently immune from becoming a B—he is merely relatively immune. Notice that throughout the different sizes of q thus far, one individual's chances are as good as another's. In the last-mentioned example ($q = 0{\cdot}0192$) every individual loses just 1 week.

Now as q becomes continuously smaller (after the $0{\cdot}0192$ mark is passed), A at the end of the year becomes larger and larger. Taking the case of $q = 0{\cdot}01$ (*i.e.*, 1 p.c. unemployed), $\frac{1}{q} = 100$ weeks. In 52 weeks, or the whole year, only 52 p.c. of the workers can possibly have

become exposed, so that A = 48, B = 52 at the end of the year and instead of every individual in N losing 0·52 weeks, 52 p.c. lose 1 week each and 48 p.c. lose no time. However, if the period of observation had been 100 weeks instead of 52 everybody in N would lose 1 week in the whole period—and everybody alike.

This is to be noticed: at the end of 52 weeks the A's left over would have lost no weeks, but the B's would share alike—there is no mathematical necessity for one B to lose more than another.

(4) Let us now take the other extreme where there is no interchange. In this case the individuals of B remain constant and, q being constant, the number of weeks necessary to effect a complete interchange is infinite. In this case $\frac{A}{B} = \frac{p}{q}$ and B in a year loses $52q$ weeks, while A loses none.

Reasonably, the truth lies somewhere between the extremes, the A being neither completely free on the one hand nor rigidly fixed on the other. In this case the number of weeks required to expose every individual to some unemployment, *i.e.*, to eliminate A, varies according to the degree of rigidity as well as according to $\frac{1}{q}$.

Two things have been ascertained from the census data (i) $\frac{B}{A+B}\left(\text{or } \frac{B}{N}\right)$ from group to group correlates with q as $\frac{A}{A+B}$ correlates with p and (ii) when for a single group the duration is examined, *i.e.*, the percentage of the total losing no time, 1 week, 2 weeks, etc., in 52 weeks, it is found that these percentages vary according to the size of q and also of $\frac{B}{N}$. If these are very small the largest percentage is that losing 1 week, decreasing therefrom. As the q or $\frac{B}{N}$ increases, the size of the modal percentage slides up. It would seem that when $\frac{B}{N} = 1$, the percentage losing x weeks would be at a maximum when $x = 52\,q$. This, of course, has to be established. The desideratum is to ascertain a rationale for these two observations. So far, we have ascertained what can *not* be the explanation.

The only reasonable explanation of a correlation between q and $\frac{B}{N}$ is that $\frac{A}{N}$ is a function of p and a reasonable one to test is that $\frac{A}{N} = p^x$ where x is the number of interchanges between A and B during the period under observation.

Now our observations are in week intervals over a period of 52 weeks. It does not follow that when $x = 1$ this 1 is at 1 week-interval; the interchanges may have some other significance. In 1931 for all wage-earners in Canada $p = 0{\cdot}8165$ and $\frac{A}{N} = 0{\cdot}6002$. It is obvious that $(.8165)^{52}$ is not 0·6002 or anything near it. However p^x may still equal $\frac{A}{N}$ given a reasonable value for x.

$$\begin{aligned} x \log 0{\cdot}8165 &= \log. 0{\cdot}6002 \\ -0{\cdot}08804\, x &= -0{\cdot}22170 \\ x &= 2{\cdot}5 \end{aligned}$$

This would mean 2·5 complete interchanges in the year.

Now if this rate of interchange (2·5 times per annum) is comparable to (i) what happens from group to group of occupation, etc., or (ii) what happens over time (*i.e.*, among the in-

dividuals in a single group) as given in the percentage losing no time, 1 week, 2 weeks, etc., then we have arrived at a point where we can formulate a law governing the interaction of the employed and unemployed, *i.e.*, of pN and qN.

First of all let us see what happens from group to group.

(a) If $p^x = \frac{A}{N}$, then if we take different groups of our census the data, log of p should correlate with the log of $\frac{A}{N}$ with at least as high a coefficient as when p is correlated with $\frac{A}{N}$.

To make this test we took the 118 occupations shown in Chapter IV (omitting 2 which were obviously out of the field) and found a coefficient of ·973 between the two logs. When the two were correlated arithmetically the coefficient was ·966.

This establishes the theorem for the group test. A scatter diagram of the results is shown in Statement A below.

A.—CORRELATION OF PERCENTAGE OF MALE WAGE-EARNERS LOSING TIME WITH PERCENTAGE OF YEAR LOST BY MALE WAGE-EARNERS, CANADA, YEAR ENDED JUNE 1, 1931

Log of P.C. Losing No Time[1]	P.C. Losing Time	Log of P.C. of Year Worked[2] and P.C. of Year Lost by Male Wage-Earners														Total
		1·98	1·96	1·94	1·92	1·90	1·88	1·86	1·84	1·82	1·80	1·78	1·76	1·74	1·72	
		0-4·50	4·51-8·80	8·81-12·90	12·91-16·82	16·83-20·57	20·58-24·14	24·15-27·56	27·57-30·82	30·83-33·93	33·94-36·90	36·91-39·74	39·75-42·46	42·47-45·05	45·06-47·52	
1·95	0-10·87	13	1													14
1·90	10·88-20·57	1	16													17
1·85	20·58-29·21		1	10	3											14
1·80	29·22-36·90			6	13	1										20
1·75	36·91-43·77			1	1	3		1								6
1·70	43·78-49·88				3	7	5									15
1·65	49·89-55·33					1	1									2
1·60	55·34-60·19						2	5								7
1·55	60·20-64·52							5	1	1						7
1·50	64·53-68·38							1			1					2
1·45	68·39-71·82															
1·40	71·83-74·88									2		2				4
1·35	74·89-77·61										1	2		1		4
1·30	77·62-80·05											2				2
1·25	80·06-82·22														1	1
1·20	82·23-84·15															
1·15	84·16-85·87														1	1
Total	.....	14	18	17	20	12	8	12	1	3	2	6	-	1	2	116

[1] For determination of ends of intervals of percentage losing time.
[2] For determination of ends of intervals of percentage of year lost.

$c_x = 0·61$
$c_y = 1·20$
$\sigma_x = 3·03$
$\sigma_y = 3·66$
xy corrected $= 10·79$

$$r_{xy} = \frac{10·79}{3·03 \times 3·66} = ·97$$

$mx = 4·61$ in 0·02 intervals of log of percentage of year worked.
$my = 5·20$ in 0·05 intervals of log of percentage losing no time.

In 0·01 intervals, $mx = 9·22$; $\sigma x = 6·06$
$my = 26·00$; $\sigma y = 18·30$

$$y - my = r\frac{\sigma y}{\sigma x}(x - mx)$$

$$y = 2·93\,x - 1·01$$

We see then that $\frac{A}{N} = p^i$ plus a very small error, where i is no longer a variable but a constant. Is there any way of giving a meaning to this constant?

If we assume that what thus happens from group to group is what happens over time (proportions losing 1 week, 2 weeks, etc.) we should be able to determine these proportions from the expansion of $(p + q)$. In the correlation with the 116 occupations the value of i was 2·9 or very near the 2·5 already mentioned in the all-Canada group. We should take 2·9 as more correct than 2·5. The proportions losing different periods of time, then, should be determined from the expansion of $(p + q)^{2·9}$.

The index 2·9 being fractional, it would serve no purpose to expand it but at any rate $p^{2·9}$ and $q^{2·9}$ (when we know p and q) should give results comparable to (a) the proportion losing no time, (b) the proportion losing the whole year. We have already seen that it gives the proportion losing no time. The value of $q^{2·9}$ comes within reasonable distance of giving the proportion losing 52 weeks, so near indeed that if we merely re-state the idea of "working no time" to "not working one *day* in the year" we may say that we have a sufficiently accurate calculation. Presumably a large number of persons who worked a day here and a day there reported themselves as losing 52 weeks so that this number as given in the census may safely be regarded as above the true figure. If this argument be allowed, $q^{2·9}$ gives the correct proportion for those working no time. If p^i and q^i are given thus correctly, the totality of those losing time must be correct and the expansion of $(p + q)^{2·9}$ meets this test successfully.

To use it for practical purposes it is necessary to fit a truncated normal to the weeks duration. This has already been done in Chapters I and V. The fit is such that it would seem that the law is satisfactorily established. If so, then a feature of tremendous importance is disclosed, *viz.*, a reasonable inference that we are able to determine what happens over time from what happens from group to group at the same time; in other words, *in employment data we can determine a time series from a space series.* This establishes a permanent value in census data. They are true not only of the moment at which they occur but also over a period of time that is no longer than would admit of the same variation of q as was found in different homogeneous groups shown at the census date. If i is found constant for 116 groups, reasonably it should be constant for a period of time in which the variability of q was, say, three times the standard deviation of q, *viz.*, 11·0 p.c. of the year. If the changes occur not at infinitesimal periods but at finite and fairly long periods such as, say, seasons, its truth should cover a good many years.

We now come back to the significance of i being a constant. It is impossible to demonstrate the precise meaning of i being just 2·9 but we can offer explanations which are reasonable.

Of course it must be remembered that i is a constant only within the limits of the correlation 0·97. High as this is, there is still a certain error involved, *viz.*, $(\sqrt{1 - 0·97^2})\ \sigma_{\frac{p}{n}}$. This means that if $\frac{A}{N}$ is calculated from the regression equation for each of the 116 occupation groups it will differ from the actual $\frac{A}{N}$ by a certain amount. If we take $\frac{A}{N} = p^i$ for every actual group, i will differ from 2·9 by certain amounts depending upon this error. The error itself is not necessarily an error in theory but an individuality in the occupation groups. They have different degrees of *rigidity, i.e.*, the transfer from A's to B's depends not only upon the size of q but slightly upon the individuality of the group. We define the individuality (independence of q) of the occupation groups as "independence of A" or the "rigidity" of the proportion losing no time. Because of the high correlation this rigidity is not great and we can speak quite safely of 2·9 as a constant representative number of interchanges, or as a constant value of i.

Another matter that may not be quite so sound is that we are taking this 2·9 as being confined to the period of 52 weeks. This is not theoretically sound, but from the closeness to which the proportion "working no time" can be calculated it would seem that there is no serious error in so confining it within the period of 52 weeks.

If we take the expansion of $(p + q)^{2·9}$ as representative of the manner in which the interchanges take place we notice that two of the combinations in this expansion are $p^{2·9}$ as those losing no time and $q^{2·9}$ as those working no time. If we had an integral index like 3 instead of 2·9 we would have two additional combinations; in the actual index we have slightly less than 2 more but more than 1. Within the year, then, there are approximately 2 breaks of some kind at which persons who had previously lost no time are thrown out of work. This could happen in

two ways, *viz.*, through a sudden increase in unemployment and through a change in staff. The sudden increase in unemployment is undoubtedly the winter season. The year concerned is for June 1, 1930 up to June 1, 1931, so that all seasons were covered in a certain order. Probably the index of employment as reported by firms to the Dominion Bureau of Statistics will illustrate this better than any other set of figures. The index is based on the year 1920.

June, 1930.....	116·5	October.....	116·2	February.....	100·7
July.....	118·9	November.....	112·9	March.....	100·2
August.....	118·8	December.....	108·5	April.....	99·7
September.....	116·6	January, 1931.	101·7	May.....	102·2

It will be noticed that up to about September there was an up trend which would probably prevent any one at work in June from being thrown out of work. The heavy slump from then on is both seasonal and secular.

If we take the first difference from August on we have the following:—

		1st difference (downward)
September, October	1	2·2
		0·4
November, December, January	2	3·3
		4·4
		6·8
February, March, April, May	3	1·0
		0·5
		0·5
		−2·5

There were thus three sharply defined phases under which the A's were becoming B's, *viz.*, (1) up till October, (2) November to January and (3) February to May. We take it that the person who ordinarily loses no time is less affected by a steady downward trend than the person who ordinarily loses some time. The point, however, is that there were almost three p's during the year that would affect the interchange so that $p^{2\cdot9}$ is really $p_1p_2p_3$, the first, (p_1) being the June to October, the second (p_2) November to January and the third (p_3) from February on. The influence of p_3 was somewhat reduced by the falling trend. This would be especially true if there was a tendency to group distinction in unemployment. In a falling trend we have a gradually diminishing p but this diminution is merely causing the B's to lose more and more time instead of transferring A's to B's. We have already established that there is such group distinction. Furthermore, the different degrees of rigidity of the industries, as shown in Statement CXXIII, shows that the A's of some industries are less sensitive to a change in p than others. If all industries were sensitive to infinitesimal changes in p then our i would be infinite instead of 2·9.

If the above explanation is true it should be reflected in the data on duration of unemployment by week intervals. As a matter of fact it is. When a truncated normal is fitted to the duration in a group of industries where seasonality is particularly heavy, it is found to understate the middle duration and over-state the lower and higher. This is exactly what was to be expected.

Within the limits of the error allowed by a correlation of 0·97 the i does vary from 2·9, being below this in the more rigid and above in the less rigid. In the 116 occupation groups it goes as high as 4·3 and as low as 1·8 (see Statement CXXII). This is quite intelligible on the basis of the explanation given.

An alternative explanation can be arrived at by doing what logically should be done in any case, *i.e.*, to consider the manner in which the 2·9 was derived from the occupation groups and then examine the sense in which it should be derived as applying to the monthly data for 1931. It will be remembered that when the 116 occupation groups were taken the correlation between

p and $\frac{A}{N}$ was nearly perfect, so that the 2·9 meant that, taken logarithmically, the standard deviation of $\frac{A}{N}$ was 2·9 times the standard deviation of p, *i.e.*, the variability of the one was 2·9 times that of the other. This is the same as saying $\frac{A}{N} = \frac{2 \cdot 9}{p}$. Now let us apply the same reasoning to the monthly data. The monthly index of employment from the reports of firms is not the same as an index of the percentage employed of wage-earners, but it should be proportional. Thus if the year 1930-31 was 109·1 (geometric) and that of June was 116·5, considering the employment of the year as p, that of June 1930 should be somewhere near $\frac{116 \cdot 5}{109 \cdot 1} p$ or $1 \cdot 068\, p$.

It is reasonable to lay down as a working hypothesis that a change in $\frac{A}{N}$ is caused by a change in p. This means in the concrete that if the percentage employed remained constant through the year, $\frac{A}{N} = p$, *i.e.*, the persons losing no time throughout the year would tend to be the same persons as were working in the first week or first month of the year. "Tend to be" because if this were strictly true of all persons, then those who were unemployed in that first month would be unemployed throughout and this is not wholly true in the case of any group. What we mean is merely that of the two classes A and B, at the beginning A would have a greater *tendency* to remain an A and B to remain a B throughout. Their comparative chances would probably be $\frac{p}{q}$ for A to remain an A and $\frac{q}{p}$ for B to be re-employed. As a matter of fact this is demonstrated in Chapter IV where it is shown that the time lost by those losing time shows a correlation with $\frac{B}{N}$.

Now when the p is changing throughout the year, the number of wage-earners remaining constant, it follows that new persons are thrown out of employment, *i.e.*, new A's are becoming B's. Once they are B's they do not regain their A status by re-employment. This refers to the case where p decreases. Something similar happens when p increases and the number of wage-earners also increases, because in this case new wage-earners are taken on and they are apt to have been unemployed (*i.e.*, B's) when taken on. Consequently the number of A's in whatever way it is considered is apt to change with a *change* in p. From group to group the one is extremely sensitive to the other as is shown by the high correlation of 0·97.

By the index i we can watch whether there is a growing tendency for the industries to become more rigid or individualistic. The smaller the range of p compared with the standard deviation of p the more rigid the industry. The only way in which the range could be narrower within the same time limits in one industry than another—*i.e.*, the manner in which p could vary the same in two industries but the p^i differed within the same period of time—is by a control of p in such a way that it is kept down to trend. The standard deviation would be increased by violent departures from trend. The only conceivable way in which they could be accomplished is by throwing out of the industry any person for whom there was no immediate use.

It would seem that this explanation of the 2·9 amounts to the same thing in the long run as that of connecting it with the seasonal variations. We can see this from a concrete example. Let us suppose that employment is dropping and that 2,000 men are employed at the beginning of the year in a firm which, before the end of the year, has dropped 1,200 men. Whether from the point of view of the firm, *i.e.*, the percentage of the possible working time which was actually worked, or from the point of view of the original 2,000 men, *i.e.*, the percentage of their possible working time actually worked, the possible number of working months was 24,000. Now let us suppose two such firms (1) where the 1,200 men were dropped 100 a month. The actual time worked in their case was 17,400 months so that the (average) p was 0·725. The standard deviation of the p was about 0·173. The differential drop in the percentage was 1·00 to 0·45 = 0·55 and this is about three times 0·173.

The second firm instead of dropping off 100 a month, dropped all the 1,200 at once and yet the 17,400 months were worked as before, *i.e.*, the p remains the same. In this case all would get work for the first six and a half months and only 800 the last five and a half months. The p (average) is still 0·725 but the differential is now 800, the standard deviation of p is 0·292 and the drop is 0·60 or 2·1 times 0·292. The i with 12 drops is greater than that with 1 drop by almost 1 or it is almost one and one half times as large.

Let us consider the difference in behaviour between the two firms. The first dropped gradually, *i.e.*, they were hanging on to *all* their men as long as possible; the second hung on to *some* of their men the whole year. Suppose the men in these two firms were reporting to the census at the end of year. The chances are that far more of the men of the first firm would consider themselves as still belonging to that firm than of the second. Consequently the second would appear to have a higher p than the first whereas in reality it was the same. We can easily imagine that some at least of the men of the second firm were re-employed in another firm. In this case the latter firm would appear at the end of the year as having a lower p than it really had. Suppose on the other hand the firm dropping the 1,200 men at the middle of the year had dropped them in the first month, and remained steady for the rest of the year. If those dropped had been re-employed by other firms before the end of the year they would give their last firms as their employers, consequently the original firm would appear to have had little or no employment and nearly all their men would be A's, *i.e.*, losing no time. The few who failed to procure re-employment would be idle the whole year, so that a small number of B's losing the whole year would be shown. Consequently the more B's, the more unemployment.

APPENDIX 2

CONSTANTS, COEFFICIENTS, ETC., OBTAINED FROM CORRELATING THREE MEASURES OF UNEMPLOYMENT WITH SEVEN SETS OF DATA

Three measures of unemployment and seven sets of data, all in index form, were correlated using the following regression equations:—

$$X_1 = A + BX_2 + CX_3 + DX_4 + EX_5 + GX_7 + HX_8 + KX_9,$$
$$X_{10} = A + BX_2 + CX_3 + DX_4 + EX_5 + GX_7 + HX_8 + KX_9,$$
$$X_6 = A + BX_2 + CX_3 + DX_4 + EX_5 + GX_7 + HX_8 + KX_9,$$

where the three measures of unemployment are:—

X_1 = unemployment June 1;
X_{10} = yearly unemployment;
X_6 = incompactness, *i.e.*, percentage of wage-earners who lost any time,

and the seven sets of data are:—

X_2 = age liability to unemployment;
X_3 = seasonality;
X_4 = locality;
X_5 = female content;
X_7 = juvenile content;
X_8 = average earnings;
X_9 = degree of eradication of independent worker.

In addition to this, each of the three measures of unemployment was correlated with the seven sets of data individually and, also, the three measures of unemployment were themselves correlated in pairs. The results are shown below.

A.—CONSTANTS, COEFFICIENTS AND RELATED DATA OBTAINED BY MULTIPLE CORRELATION OF THREE MEASURES OF UNEMPLOYMENT AND SEVEN SETS OF DATA

Item	X_1 Unemployment June 1	X_{10} Yearly Unemployment	X_6 Incompactness
A	−220	−155	−77
B	1·6282	1·6835	1·2816
C	··9045	·1245	− ·0517
D	1·2079	1·2380	·7040
E	− ·1243	− ·1320	− ·1321
G	− ·1173	− ·1018	− ·0552
H	− 1·0302	− ·9611	− ·8062
K	·3968	·4065	·5292
R (multiple correlation coefficient)	·69	·68	·64
S (standard error)	37·7	33·6	32·8
σ (standard deviation)	52·1	45·7	42·7

B.—SIMPLE CORRELATION COEFFICIENTS BETWEEN INDIVIDUAL ITEMS OF DATA AND MEASURES OF UNEMPLOYMENT, WITH STANDARD DEVIATIONS OF THE DATA

Item of Data	Correlation with Measures of Unemployment			Standard Deviations of Data
	X_1	X_{10}	X_6	
X_2	·28	·35	·53	9·7
X_3	·34	negligible	negligible	23·0
X_4	negligible	negligible	negligible	9·2
X_5	−·26	−·28	−·32	110·0
X_7	negligible	negligible	negligible	69·1
X_8	−·30	−·36	−·27	29·2
X_9	negligible	negligible	negligible	37·0

C.—SIMPLE CORRELATION COEFFICIENTS BETWEEN MEASURES OF UNEMPLOYMENT

Measures of Unemployment	Simple Correlation Coefficient
X_1 and X_6	·84
X_1 and X_{10}	·92
X_6 and X_{10}	·93

APPENDIX 3

CALCULATION OF THE INDEX OF FLUCTUATION OF INDUSTRY (MAINLY SEASONALITY) AND DETERMINATION OF ITS EFFECT ON THE CORRELATION BETWEEN UNEMPLOYMENT AND THE DEGREE OF ORGANIZATION OF INDUSTRY

A.—INDEX OF EMPLOYMENT FOR THIRTY SELECTED INDUSTRIES AND FOR ALL INDUSTRIES[1] AS REPORTED TO THE DOMINION BUREAU OF STATISTICS BY EMPLOYERS IN INDUSTRIES OTHER THAN AGRICULTURE, 1929, 1930 AND 1931, SHOWING THE MEAN OF EACH YEAR, THE COEFFICIENT AND THE INDEX OF FLUCTUATION OF INDUSTRY FOR EACH INDUSTRY AND FOR ALL INDUSTRIES[1]

No.	Area	Industry	Crude Index of Employment in 1929												1930					
			Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June
1	Maritime Provinces	Logging	182	185	171	78	69	82	85	68	53	77	179	226	223	215	133	35	41	109
2		Mining	108	110	107	107	108	107	113	113	112	112	112	111	110	111	110	109	108	111
3		Trade	121	110	109	114	113	114	119	116	118	125	123	133	130	114	115	115	117	118
4	Quebec	Lumber Products (Mfg.)	79	84	88	87	102	116	127	133	125	123	113	99	81	85	84	84	90	110
5		Pulp and Paper (Mfg.)	103	108	105	106	108	110	112	114	112	112	111	110	105	102	105	103	104	106
6		Textile Products (Mfg)	106	110	111	112	109	107	104	105	103	105	105	105	98	102	106	109	106	104
7		Iron and Steel (Mfg.)	110	117	122	123	127	124	122	123	119	119	118	112	108	116	117	118	116	117
8		Logging	182	202	168	57	73	113	91	79	84	116	207	250	229	262	221	104	64	120
9		Mining	124	127	131	132	139	144	152	151	155	158	159	159	147	143	145	150	140	140
10		Communications	114	116	119	118	123	125	124	124	124	122	119	118	121	115	111	110	117	116
11		Transportation	94	92	85	85	96	116	119	117	114	111	113	109	84	81	82	83	91	104
12		Construction	67	64	63	57	77	105	131	140	147	135	134	105	83	75	67	69	90	112
13		Trade	125	126	119	128	130	133	134	133	133	134	136	138	134	125	125	125	128	137
14	Ontario	Lumber Products (Mfg.)	89	96	97	98	115	126	128	126	123	120	109	95	84	93	91	94	100	111
15		Pulp and Paper (Mfg.)	110	113	111	111	112	114	115	117	115	116	117	116	114	114	111	109	112	110
16		Textile Products (Mfg)	99	106	109	110	113	111	108	106	107	111	111	108	100	107	108	108	105	102
17		Iron and Steel (Mfg.)	117	134	141	144	149	142	133	130	125	123	118	112	109	117	118	122	121	117
18		Logging	204	219	206	73	57	62	50	44	68	137	209	268	272	262	212	75	45	59
19		Mining	126	125	119	126	136	138	141	148	149	149	152	150	141	141	144	142	149	151
20		Communications	112	110	112	115	118	121	125	128	132	131	129	131	132	125	127	124	118	120
21		Transportation	102	102	100	102	111	115	119	120	120	116	113	109	102	98	98	98	108	109
22		Construction	106	95	96	104	138	158	178	193	181	175	163	140	114	111	106	108	134	158
23		Trade	134	119	118	122	124	128	130	126	129	130	133	137	139	125	126	126	131	131
24	Prairie Provinces	Mining	133	134	129	108	103	103	105	112	119	131	132	132	128	131	114	96	92	92
25		Transportation	112	106	104	106	112	122	125	125	127	128	126	115	111	108	101	101	104	109
26		Construction	95	87	88	101	134	188	199	232	220	174	157	108	77	73	72	72	100	125
27		Trade	127	118	117	122	124	123	124	125	127	124	128	134	133	127	120	121	121	122
28	British Columbia	Logging	104	87	108	108	110	118	112	116	119	120	109	100	76	80	98	94	98	98
29		Construction	89	70	73	89	115	146	161	167	150	134	119	104	82	85	90	108	133	147
30		Trade	122	121	121	120	118	119	121	121	122	123	123	126	117	118	118	117	118	116
31	All Canada	All industries[1]	109	111	111	110	116	122	125	128	127	126	125	119	111	112	110	108	111	117

Formula to obtain coefficient of fluctuation:

$$\sqrt{\frac{\frac{(\sigma_{x_{29}})^2}{(\bar{x}_{29})} + \frac{(\sigma_{x_{30}})^2}{(\bar{x}_{30})} + \frac{(\sigma_{x_{31}})^2}{(\bar{x}_{31})}}{3}}$$

To obtain index, divide coefficient of individual industry by base, *i.e.*, similar coefficient for all industries except agriculture in all Canada.

[1]Except agriculture.

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Crude Index of Employment in																		Mean Index of Employment in			Coefficient of Fluctuation of Industry	Index of Fluctuation of Industry X_{12}	No.
1930						1931																	
July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1929	1930	1931			
125	43	41	37	18	145	164	122	113	31	50	58	12	15	22	28	181	208	121	97	84	·682	1,663	1
112	111	114	112	111	111	108	107	105	105	106	107	108	107	106	107	105	103	110	111	106	·014	34	2
123	121	120	123	124	130	129	119	117	119	117	124	124	117	115	115	115	118	118	121	119	·045	110	3
110	110	106	99	92	82	74	78	79	81	90	96	98	91	88	88	78	72	106	94	84	·134	327	4
106	106	105	102	98	95	90	88	89	87	89	92	90	88	84	87	87	84	109	103	88	·028	68	5
102	98	100	101	104	100	98	103	106	106	104	103	99	92	96	99	96	96	107	102	100	·035	85	6
115	109	103	103	101	97	95	100	103	104	103	97	94	89	88	69	68	79	120	110	91	·088	215	7
106	87	85	114	149	149	148	138	106	43	89	73	51	35	39	71	93	106	135	140	83	·454	1,107	8
140	141	137	136	134	129	117	104	105	109	110	101	96	105	112	111	110	109	144	140	108	·062	151	9
115	116	113	112	113	110	103	102	101	102	102	100	99	99	99	98	97	96	121	114	100	·026	63	10
109	108	110	108	105	103	83	85	85	86	91	98	99	99	99	97	97	99	104	97	94	·104	254	11
137	135	134	128	121	97	89	85	86	86	96	112	118	129	180	132	100	80	102	104	108	·279	680	12
139	134	134	135	139	145	147	133	132	135	130	133	133	130	130	132	133	137	131	134	134	·040	98	13
109	109	101	100	93	81	72	78	79	79	85	90	89	87	84	78	74	69	110	97	82	·102	249	14
109	111	108	109	107	103	99	98	95	99	100	97	98	99	97	100	95	97	114	110	98	·023	56	15
98	96	96	100	102	100	92	99	102	105	104	101	97	95	93	95	95	94	108	102	98	·038	93	16
108	102	96	95	93	91	83	88	92	98	97	90	81	75	74	72	68	71	131	107	80	·108	263	17
57	46	34	55	90	107	109	108	77	33	33	37	28	21	22	26	43	53	133	110	49	·662	1,615	18
142	143	144	142	141	132	130	132	134	136	136	138	140	139	138	132	130	129	138	143	134	·053	129	19
117	116	115	113	111	107	103	102	101	101	102	101	101	100	100	99	97	96	122	119	100	·051	124	20
111	113	112	111	106	103	93	90	90	91	95	102	100	99	98	95	94	91	111	106	95	·054	132	21
169	175	172	171	157	137	115	123	119	115	120	130	137	137	132	134	137	146	144	143	129	·182	444	22
132	129	128	129	130	140	139	126	125	127	131	131	131	126	126	126	129	134	128	131	129	·036	88	23
92	100	102	120	143	137	132	124	115	103	95	94	87	86	91	111	114	117	120	112	106	·137	334	24
110	110	116	119	115	108	106	99	96	97	97	100	99	98	98	101	104	100	117	109	100	·054	132	25
144	173	187	183	168	143	90	79	76	75	90	108	141	253	258	261	254	129	149	126	151	·408	995	26
123	121	125	122	124	124	122	116	113	112	114	112	111	110	110	107	110	110	124	124	112	·031	76	27
82	63	55	57	56	59	47	46	50	51	59	59	50	40	39	41	31	34	109	76	45	·176	429	28
161	175	162	156	132	125	129	127	129	116	131	144	142	137	130	152	205	153	118	130	141	·227	554	29
120	118	121	126	125	127	116	115	114	116	112	114	114	114	115	117	116	114	121	120	115	·020	49	30
119	119	117	116	113	109	102	101	100	100	102	104	104	105	107	106	103	99	119	114	103	·041=100	Mean=354	31

B.—DATA RELEVANT TO THE COMPUTATION OF THE INDICES OF YEARLY UNEMPLOYMENT (X_{10}), FEMALE CONTENT (X_5) AND AVERAGE EARNINGS PER WEEK WORKED (X_8), AND SHOWING ALSO THE INDEX OF AGE LIABILITY TO UNEMPLOYMENT (X_2), FOR THIRTY SELECTED INDUSTRIES, CANADA, YEAR ENDED JUNE 1, 1931

Area	Industry	Male Wage-Earners	Weeks Lost by Male Wage-Earners during Year Ended June 1, 1931			Female Wage-Earners			Index[3] of Age Liability to Unemployment (X_2)	Total Weeks Worked by Male Wage-Earners	Earnings of Male Wage-Earners		
			Total	Average	Index[1] (X_{10})	No.	P.C. of Total in Industry	Index[2] (X_5)			Total ($100)	Average per Week Worked	Index[4] (X_8)
											$	$	
Maritime Provinces	Logging	5,402	75,476	13·97	128	34	0·63	3	98	197,890	19,799	10·01	41
	Mining	17,906	346,972	19·38	177	42	0·23	1	100	573,937	120,420	20·98	86
	Trade	13,516	54,969	4·07	37	6,139	31·23	136	100	632,134	137,902	21·82	90
Quebec	Lumber Products (Mfg.)	15,219	167,414	11·00	100	419	2·68	12	98	606,775	104,046	17·15	71
	Pulp and Paper (Mfg.)	17,006	162,365	9·55	87	1,646	8·83	38	102	709,366	183,038	25·80	106
	Textile Products (Mfg.)	23,284	211,270	9·07	83	24,770	51·55	224	100	967,827	203,291	21·00	86
	Iron and Steel (Mfg.)	30,735	305,911	9·95	91	1,475	4·58	20	102	1,262,323	330,376	26·17	108
	Logging	15,911	221,766	13·94	127	20	0·13	1	97	585,969	70,665	12·06	50
	Mining	7,922	102,589	12·95	118	39	0·49	2	102	302,974	64,840	21·40	88
	Communications	4,606	19,335	4·20	38	4,079	46·97	204	95	216,044	69,531	32·18	132
	Transportation	59,777	444,717	7·44	68	2,195	3·54	15	102	2,534,770	645,174	25·45	105
	Construction	73,001	1,200,059	16·44	150	392	0·53	2	100	2,521,865	524,510	20·80	86
	Trade	53,761	295,283	5·49	50	17,012	24·04	104	99	2,408,406	546,903	22·71	93
Ontario	Lumber Products (Mfg.)	25,386	294,417	11·60	106	1,103	4·16	18	98	1,005.308	195,998	19·50	80
	Pulp and Paper (Mfg.)	12,346	117,379	9·51	87	2,451	16·56	72	101	517,327	148,479	28·70	118
	Textile Products (Mfg.)	21,087	233,601	11·08	101	21,011	49·91	217	100	842,311	202,544	24·05	99
	Iron and Steel (Mfg.)	76,858	1,148,125	14·94	136	4,218	5·20	23	101	2,796,975	741,114	26·50	109
	Logging	9,715	174,353	17·95	164	46	0·47	2	99	320,993	45.532	14·18	58
	Mining	18,021	169,214	9·39	86	120	0·66	3	105	754.325	202,630	26·86	111
	Communications	7,085	3,219	4·53	41	6,812	49·02	213	90	330,407	102,573	31·04	128
	Transportation	80,960	626,055	7·73	71	2,314	2·78	12	105	3,424,983	916,779	26·77	110
	Construction	74,198	1,423,604	19·19	175	660	0·88	4	99	2,362,033	531,924	22·52	93
	Trade	78,225	454,378	5·81	53	32,016	29·04	126	99	3,497,511	900,023	25·73	106
Prairie Provinces	Mining	13,430	252,895	18·83	172	70	0·52	2	100	433,487	119,479	27·56	113
	Transportation	53,082	449,065	8·46	77	1,251	2·30	10	110	2,271,921	614,250	27·04	111
	Construction	31,411	669,252	21·31	195	315	0·99	4	99	934,038	187,305	20·03	82
	Trade	40,542	247,885	6·11	56	14,340	26·12	113	100	1,800,054	488,387	27·13	112
British Columbia	Logging	14,700	346,221	23·55	215	126	0·85	4	99	394,256	79,044	20·05	83
	Construction	20,678	436,594	21·11	193	124	0·60	3	98	620,504	147,312	23·74	98
	Trade	18,563	122,832	6·62	60	6,741	26·64	116	100	799,659	199,745	24·98	103
Mean					108			57	100				95

Base: All industries except agriculture.
[1] 10·95 weeks=100.
[2] 23·02 p.c. females=100.
[3] For method of computation, see Chap. III, p. 133.
[4] $24.29=100.

Yearly unemployment (X_{10}) was correlated with female content (X_5), age liability to unemployment (X_2), average earnings per week worked (X_8) and seasonality (X_{12}) using the following regression equation:—

$$X_{10} = A + BX_5 + CX_2 + DX_8 + EX_{12},$$

where by calculation it was found that B = − ·4362, C = − 3·7970, D = − ·1095, E = ·0183.

The coefficient of correlation obtained was:—

$$R = \frac{BX_{10}X_5 + CX_{10}X_2 + DX_{10}X_8 + EX_{10}X_{12}}{(X_{10})^2}$$

$$= \frac{1{,}041 + 21 + 52 + 209}{2{,}610} = \frac{1{,}323}{2{,}610} = ·5069$$

R = ·712

From the above we see that the predicted weights of the individual factors in making up the multiple correlation expressed as percentages of the whole correlation are:—

	P.C.
Female content	78·7
Age liability to unemployment	1·6
Average earnings per week worked	3·9
Seasonality	15·8

In order to see if the inclusion of an index of seasonality has raised the correlation between the yearly unemployment and the first three of the above indices which, it will be recalled, were the main constituents expressing what has been defined as the organization of the industry, we drop X_{12} and find by calculation that B = − ·4657, C = 4·3753, D = − ·3483.

The new coefficient of correlation is:—

$$R = \frac{BX_{10}X_5 + CX_{10}X_2 + DX_{10}X_8}{(X_{10})^2}$$

$$= \frac{1{,}112 + 24 + 167}{2{,}610} = \frac{1{,}303}{2{,}610} = ·4992$$

R = ·706

The inclusion of an index of seasonality has, therefore, not significantly raised the correlation (the increase is only ·006).

Of interest, however, is the change, if any, in the weights of the individual items. Expressed as percentages of the whole correlation, they are:—

	P.C.
Female content	85·3
Age liability to unemployment	1·8
Average earnings per week worked	12·9

We see that what weight seasonality has is drawn nearly equally from female content and average earnings per week worked. This is both significant and logical. It has been shown that seasonal industries have a very small female content and also a low rate of average earnings per week worked. Therefore, when seasonality is isolated, the correlation between female content and unemployment is lowered. In other words, the fact that absence of females in an industry and a low rate of earnings coincide with large unemployment is in part because of the influence of seasonality.

The deduction is, therefore, that the influence of seasonality is accounted for when the structure of the industry group (*i.e.*, the combined weight of female content, age liability to unemployment, average earnings per week worked, etc.) is related to unemployment.

APPENDIX 4
ON THE SAMPLE OF OCCUPATIONS AND INDUSTRIES

It may be seen in the scatter diagram (Chart 16) that a much stronger central tendency exists among occupations in the matter of duration of unemployment than in percentage losing time. The extent to which this central tendency exists in the one case and not in the other is shown in Table 19 which, if charted would show the frequency distribution of occupations by duration to be a typical very sharply-humped, bell-shaped curve, while in the percentage unemployed June 1, there is a greater number at the very small percentages than at larger ones, giving the distribution a rough J-shape.

But since the number of males in an occupation varies from 10 to 400,000, any tendency of the large occupations to have greater unemployment than the small ones would mean that our J-shaped distribution was merely accidental. Such is in fact the case. There is a natural tendency in any occupational classification to split up into the finest classes the most skilled and specialized types of work, and to have in large groups the more unspecialized ones. This has the effect of rendering almost meaningless such a table as the first three columns of Table 19. The logical procedure is to use, not occupations, but persons in the occupations. Thus we have Column 4 of Table 19 giving the number of males in occupations having 1, 2, 3, etc., p.c. unemployment on June 1, 1931. But it can be seen at once that this, while perhaps giving the distribution more faithfully than Column 1, since it allots importance to an occupation in proportion to the number of its wage-earners, is extremely unsatisfactory because of its rough nature. It really tells us nothing about unemployment in the occupations except that there is little central tendency among them taken as a whole.

How can we solve the problem of investigating the vast fund of information embodied in the Census of Occupations (and the same problem exists for industries)? First, we can describe individual cases. This has been done in considerable detail. But it is naturally desirable to use the occupation (or industry) data as a whole, as we have been more or less attempting to do in in the larger part of this monograph. The problem of the enormous variation in size between the occupation classes, which variation renders it impossible to draw any conclusion from Statements CXVI and CXVII, was solved by selecting a group of occupations within certain rather narrow limits of size. The same approach was used in industries, in Chapter IV, for the same reason.

Further, since occupations and, most particularly, industries, tend to differ considerably in nature from one province to another, there was a very great advantage in taking the occupation or industry in the given province as the unit. In Chapters III and IV the result of this method of sampling is shown in the satisfactory representation it gives to provinces and major groupings. To determine its representativeness for industries with regard to age we have added up the numbers in the various age groups both of employed and of unemployed. The results are given in Columns 1 and 3 below. In Columns 2 and 4, under the heading "Expected" are the fraction of the numbers in Canada of wage-earners and unemployed males which the total of the sample bears to the total of the sampled quantity. It will be seen at once that the age distribution expected is close to that of the sample; of undue emphasis of particular ages there is obviously no danger.

A.—ACTUAL AND EXPECTED REPRESENTATION OF WAGE-EARNERS AND UNEMPLOYED IN THE 122 INDUSTRIES OF THE SAMPLE SELECTED IN CHAPTER III, BY AGE GROUP, CANADA, JUNE 1, 1931

Age Group	Number of Wage-Earners			
			Unemployed June 1	
	Actual (1)	Expected (2)	Actual (3)	Expected (4)
All ages	410,490	410,491	62,955	62,957
17	14,925	15,280	2,133	2,173
18-19	21,059	21,907	3,719	3,725
20-24	63,424	62,591	10,976	10,405
25-34	112,084	109,439	15,803	16,667
35-44	89,480	88,886	11,941	12,022
45-54	64,735	66,471	9,991	9,806
55-64	32,328	33,203	5,832	5,651
65-69	7,703	8,010	1,627	1,604
70	4,752	4,704	933	904

$\chi^2 = 200.73$ $\chi^2 = 87.98$

But from the viewpoint of providing a measure of the randomness of the sample, how do the actual and expected age distribution compare? The value of χ^2 was taken for both the wage-earners and the unemployed independently (*i.e.*, between Columns 1 and 2 and between 3 and 4) and was found to be 200·73 for the wage-earners and 87·98 for the unemployed. A table of P would of course show odds of many millions to one against either of Columns 1 and 3 being randomly chosen from the true distribution, provided every individual male wage-earner had as good a chance as any other of being chosen.

But such was not the intention of the sampling. The wage-earners were not selected individually from the census schedules but as industrial classes. The random nature of the sample was intended to be random industries and not individuals. As individuals are by no means randomly aggregated by age into industries, it might be said that in selecting by industries we should test by some χ^2 which would take into account (a) the number of industries used and (b) the degree of selection away from the average age distribution of Canada which each industry exercises. As the second of these items seems incommensurable, it appears impossible to get any precise notion of the age-representativeness of our sample on the χ^2 test; we can only say that it seems on inspection, taking into account the very considerable age peculiarities of industries, to be satisfactorily representative.

With the same object, of determining the representativeness of the samples used for occupations and for industries (Chapters III and IV) the distribution in each case between provinces was found and is given below. Accompanying is the "expected" distribution on the basis of the number of wage-earners in each province. The representativeness attained is rather remarkable in view of the fact that the choice of industries and occupations was made solely on the basis of size. It seems that the Prairies are somewhat under-represented—perhaps because they are less diversified than the rest of Canada—and the Maritimes, on the other hand, seem to show the effect of their very considerable industrial diversification. But these slight differences between actual and expected are not great enough to make an essential difference in the χ^2 test result—it shows for industries a P, the chance of purely random sampling deviation equal to or greater than that obtained, of 0·57 for industries, and 0·98 for occupations.

B.—DISTRIBUTION INTO PROVINCES OF THE 122 INDUSTRIES AND 118 OCCUPATIONS OF THE SAMPLES SELECTED IN CHAPTERS III AND IV, WITH DISTRIBUTION EXPECTED ON BASIS OF WAGE-EARNING MALES IN EACH PROVINCE

Province	Sample of			
	Industries		Occupations	
	Actual	Expected	Actual	Expected
Prince Edward Island	1	0·6	1	0·6
Nova Scotia	7	5·7	5	5·5
New Brunswick	6	4·0	5	3·9
Quebec	36	32·3	33	31·2
Ontario	48	45·4	46	43·9
Manitoba	4	8·0	5	7·7
Saskatchewan	4	7·0	7	6·8
Alberta	4	7·0	6	6·8
British Columbia	12	12·0	10	11·6
	122	122·0	118	118·0
	$\chi^2 = 6.7$		$\chi^2 = 2.1$	
	P = 0.57		P = 0.98	

If we calculated χ^2 on the basis of the number of persons in the samples in each province and the number of persons to be expected instead of on the number of industries, we should have no greater percentage error than here obtained, but a very much larger χ^2 would result, due to the increase in absolute numbers. We should in such a calculation obtain a probability of many billions to one against such a sample as we have being representative of the total individual wage-earners in the various provinces. This is once again a reflection of the fact, pointed out above, that the samples obtained are representative of industries and occupations only, not of individuals. The correlations performed, and the conclusions drawn, apply in no way to the totality of wage-earners, but to the totality of industries and occupations. It is, of course, impossible to perform correlations between characteristics of individuals unless those characteristics are tabulated for

individuals. When in the sample of industries, for example, it is found that unemployment is positively related to earnings, the conclusion drawn is that in those industries in which average earnings per week worked are high there is a low percentage of unemployment. This does not prove among other things that a man with long periods of unemployment during the year is likely to have low earnings during such weeks as he has worked. To establish this latter fact we should have to have a table of the distribution of wage-earners into earnings groups, which is not available. Hence, for our purpose it must suffice to obtain a sample representative of industries.

But throughout this monograph and all of the monographs using census data, it has been emphasized that it is the viewpoint of the worker, not of the industry—the individual, not the institution—that the statistics present. Throughout we have claimed that the nature of our data is such as to tell a story complementing rather than duplicating the information of the annual Census of Industry. The sample and correlations between industries, therefore, must be understood to refer to industrial attachments as the wage-earners themselves see them.

The importance of this point has been mentioned elsewhere in this monograph. The report of an employer as to unemployment in his establishment will only take in those men whom he considers still attached, it will tend to exclude those whose unemployment has been of long duration, and for whom there is little likelihood of re-employment. On the other hand the man out of a job continues to state the industry of last attachment in the census; thus it is "industry" and "occupation" as understood by all the wage-earners, at work or out of work, that is used in the discussions of Chapters III and IV as well as throughout the monograph.

APPENDIX 5

CALCULATION ON THE DISTRIBUTION OF THE UNEMPLOYED BY DURATION OF UNEMPLOYMENT

If we equate the zero, first and second moments of the distribution of wage-earners by weeks lost, to those of the normal curve truncated at a distance "d" from its mode, we shall have three equations which may be solved for the area, the modal point and the standard deviation of the uncurtailed normal. As the three equations are rather involved, it is desirable to have tables for their solution. Such tables are given by Karl Pearson in his volume, *Tables for Statisticians and Biometricians*, (Part I, Table XI), for the case when less than one-half of the normal curve is fitted. For the cases where more than one-half the normal curve is truncated a table was expressly constructed.

The figures in Chapter V were obtained by fitting to a distribution in which the week-classes of 40 and over were omitted. Since the number losing the whole year was disproportionately greater at the older than at the younger ages, it was felt that the age-to-age comparison might best be made in this way. The object was to measure the differences in duration at various ages, omitting as far as possible the effects of the fact that a person aged 15 is unlikely to have lost a whole year because he had often not had a whole year to lose, and that thus his average duration is not comparable with that of a man aged 70 who might have been out of work twenty years. It is plain of course that no measure of duration can quite eliminate this prejudicing of the older ages.

In Chapter I a somewhat different method was followed. There the complete normal curve was *assumed* to represent the entire population and the fitting was performed as follows: The percentage losing no time was looked up in the body of a table of ordinates of the normal curve and the corresponding argument found. The percentage losing no time plus the percentage losing four weeks was then looked up and the argument corresponding to it found. In the same way the percentage losing no time to eight weeks was looked up, etc. These values of the argument formed in all cases a reasonably smooth sequence and were fitted to a least-squares straight line, $y = ax + b$, where y is the number of standard deviations from the mode of the normal curve and x is the number of weeks of unemployment measured from zero; a was taken to equal the number of weeks in the standard deviation of the normal curve and the position of its mode was considered to be at the point where $y = 0$, *i.e.*, at $\frac{b}{a}$ weeks.

In experiments carried out on the fitting of part of a normal curve to the duration distribution of unemployment by the two different methods mentioned it was found that neither method fitted all cases perfectly.

Where unemployment was high the method of moments, which paid no attention to the proportion losing time but was fitted only to the duration distribution of those who *did* lose time, seemed rather well adapted to the data. On the other hand it gave a poor fit in certain cases where unemployment was low.

Quite the opposite was the case with the method of fitting which took into account the proportion losing time. There the curve was very close to the facts where the percentage losing time was small or average and rather less close where the percentage losing time was abnormally great.

Working from these facts, we are led to believe that unemployment brings the people losing time into a grouping about a central duration-point which the unemployed alone determine in cases where the average time-loss is great; where the average time-loss is small, the duration groupings are attracted towards the centre established by the aggregate of employed and unemployed.

Substantiating this finding is the positive correlation, obtained between occupations, of duration of unemployment with frequency. The same high general level of unemployment which has caused the individual to lose his job in the first place makes it difficult for him to get

back again. The greater the percentage unemployment the greater is the pressure of unemployed applicants on any available employment; hence the greater the number unemployed the less the chance of an individual getting a job within one or two weeks, *i.e.*, the greater the chance of his having to wait six months.

Considerable attention has been paid throughout the monograph to the element of duration in unemployment. In almost every chapter some observations have been made, averages calculated, relationships between duration and frequency sought among industries, occupations and ages, less with the object of establishing the last word on the subject, of formulating final principles, than in an effort to find a suitable method of attack on the vital problem of how unemployment is spread among individuals. It is felt that the duration distribution is the most important piece of information concerning unemployment. From the viewpoint of unemployment as a general economic index, like the index of steel production or shares traded on the stock exchange, the main element is the actual number of people out of work from week to week and month to month. In the past unemployment surveys have confined themselves to this one question in enumeration, in tabulation, and in interpretation.

But in the 1931 Census we have had access to duration statistics and these have enabled us to see the viewpoint of the individual wage-earners. We have proceeded on the belief that three weeks of unemployment in each year for the whole working community are very different in their social effect from an entire year of unemployment for one-seventeenth of the wage-earners. A short stretch of unemployment for the larger part of the community can hardly result in the demoralization, the loss of skill or the problem of relief that arises from long idleness on the part of even a few persons.

APPENDIX 6

GRADUATION OF POPULATION, GAINFULLY OCCUPIED, WAGE-EARNERS AND UNEMPLOYED

By the method of divided differences, formulae for pivotal values were obtained at quinquennial age intervals. The formulae follow:—

$$
\begin{aligned}
U_{22} &= -0{\cdot}01774w_{18} + 0{\cdot}20946w_{20} - 0{\cdot}00083w_{25} - 0{\cdot}0036w_{35},\\
U_{27} &= 0{\cdot}02400w_{20} + 0{\cdot}10800w_{25} - 0{\cdot}02400w_{35} + 0{\cdot}00400w_{45},\\
U_{32} &= -0{\cdot}03131w_{20} + 0{\cdot}09868w_{25} + 0{\cdot}02069w_{35} - 0{\cdot}00371w_{45},\\
U_{37} &= 0{\cdot}00656w_{25} + 0{\cdot}11681w_{35} - 0{\cdot}02931w_{45} + 0{\cdot}00494w_{55},\\
U_{42} &= -0{\cdot}00856w_{25} + 0{\cdot}08719w_{35} + 0{\cdot}02631w_{45} - 0{\cdot}00494w_{55},\\
U_{47} &= 0{\cdot}00586w_{35} + 0{\cdot}12006w_{45} - 0{\cdot}03495w_{55} + 0{\cdot}01806w_{65},\\
U_{52} &= -0{\cdot}00786w_{35} + 0{\cdot}08394w_{45} + 0{\cdot}03295w_{55} - 0{\cdot}01806w_{65},\\
U_{57} &= -0{\cdot}00372w_{35} + 0{\cdot}02068w_{45} + 0{\cdot}09870w_{55} - 0{\cdot}03132w_{65},\\
U_{62} &= 0{\cdot}00401w_{35} - 0{\cdot}02399w_{45} + 0{\cdot}10800w_{55} + 0{\cdot}02400w_{65},\\
U_{67} &= 0{\cdot}00103w_{35} - 0{\cdot}00437w_{45} + 0{\cdot}00654w_{55} + 0{\cdot}19362w_{65},
\end{aligned}
$$

where the w's represent the number of persons in the various age groups, *e.g.*, w_{18} = persons 18 and 19, w_{35} = persons 35–44.

Intermediate values were then derived by George King's well-known method of osculatory interpolation using third differences.

The adequacy of the Census of Industry's age groupings (mainly 10-year intervals) was tested by grouping Canada males in this fashion, graduating by the above formulae and then comparing the graduated frequency with the numbers in the single years of age which are tabulated in Volume III. It was found that the fit could hardly be improved upon. This gives us considerable confidence in the graduations of gainfully occupied, etc., for though there is no possibility of comparing with the figures for individual ages in their case, there is no reason to believe them less accurate than the graduation of Canada males.

APPENDIX 7

THE DIFFERENTIAL LIABILITY TO UNEMPLOYMENT, BY AGE, INDUSTRY, OCCUPATION AND PROVINCE

An analysis was made to determine the relative importance to an unemployment study of age, industry, occupation and province, for each of the two sexes. This was done by finding the average amount of variation between groups when the classification was performed in different ways. The weighted coefficient of variability of unemployment in census groups when the grouping is by industry, occupation, etc., is given below.

Variant	Coefficient of Variability	
	Males	Females
Industry	0·6148	0·3983
Occupation	0·5503	0·3013
Province	0·1432	0·1603
Age	0·0932	0·1319

Thus, of the four ways of analysing unemployment, industry gives, both for males and for females, the highest coefficient of variability, *i.e.*, the difference in unemployment between one industry and another is greater than between one province and another or one age and another. Following industry is occupation and following occupation are province and age in turn. Females show, as is to be expected, a higher age variability than males.

The most striking aspect of the above coefficients is that the variability in industry and occupation is out of all proportion to that of province (indicating locality) and age which is a means of indicating the individuality of workers. The workers are divided into definite classes not by where they happen to be or who they are but by the industry in which they are engaged. As pointed out in the text, occupations are merely the supply side of industry and partly at least created by industry. They are less differentiated than industry because an occupation supplies more than one industry.

Because unemployment varies so little from age to age a difference of given amount between ages will have more significance than one of the same amount between industries, say.

Since these figures give the relative significance of the various classifications with regard to unemployment they would be a consideration in determining the premium to be paid in a scheme of unemployment insurance.

The greatest variance is shown by industry and the least by age. But unfortunately for the fixing of premiums, age is a definite quantity for a given individual at any time, while industry is far less so. A man's industry may change at any time; and in any case a sufficiently vigorous classification of industries for monetary purposes is difficult to attain. Hence, it would be very difficult for a government to collect premiums differentiated by industries in the way that Life Assurance companies collect premiums graduated by age. On the other hand the small amount of variance between ages as compared with that between industries makes it seem too great a refinement to pay attention to the former if the latter is neglected.

Following is an example of the calculation performed with regard to age for males:—

Age Group	Rate of Unemployment, June 1 (1)	Weight (wage-earners in group) (2)	d = Deviation of (1) from Its Mean (3)	d^2 (4)	fd^2 (5)
Under 17	19·36	75,275	−1·51	2·280	171,627
18–19	23·14	107,926	2·27	5·153	556,143
20–24	22·62	308,351	1·75	3·063	944,479
25–34	20·73	539,145	−0·14	0·020	10,783
35–44	18·41	437,893	−2·46	6·052	2,650,128
45–54	20·08	327,464	−0·79	0·624	204,338
55–64	23·16	163,571	2·29	5·244	857,766
65–69	27·25	39,461	6·38	40·704	1,606,221
70 and over	26·15	23,174	5·28	27·878	646,045
		2,022,260			7,647,530

$\Sigma^2 = 3{\cdot}7817$ $\Sigma = 1{\cdot}9446$ $\frac{\Sigma}{m}$ = coefficient of variation = ·0932

The coefficients of variation between provinces at the different ages were calculated in a similar manner, as the example below for the age group "under 17" shows.

Province	x	f	d	d^2	fd^2
Prince Edward Island	7·52	652	−11·84	140·19	91,403·88
Nova Scotia	21·63	3,707	2·27	5·15	19,091·05
New Brunswick	29·47	2,901	10·11	102·21	296,511·21
Quebec	19·17	27,005	−0·19	0·04	1,080·20
Ontario	16·74	24,895	−2·62	6·86	170,779·70
Manitoba	21·31	4,237	1·95	3·80	16,100·60
Saskatchewan	23·08	4,007	3·72	13·84	55,456·88
Alberta	21·18	2,856	1·82	3·31	9,453·36
British Columbia	21·67	5,015	2·31	5·34	26,780·10
					686,656·98

$$\Sigma^2 = 9{\cdot}122 \qquad \Sigma = 3{\cdot}0198 \qquad \frac{\Sigma}{m} = 0{\cdot}1560$$

where x = percentage unemployed June 1, 1931;
f = number of wage-earners under 17 in various provinces;
d = deviation of x from its mean.

APPENDIX 8

MAXIMA AND MINIMA BY THE METHOD OF LEAST SQUARES

If $y = ax^2 + bx + c$, then $\frac{dy}{dx} = 2ax + b$ and $\frac{dy}{dx} = 0$ for a maximum, hence the maximum ordinate is at the abcissa given by $2ax + b = 0$, *i.e.*, $x = -\frac{b}{2a}$.

If we are fitting $y = ax^2 + bx + c$ to the series of values, $x_1, y_1; x_2, y_2$; etc., we have, as equations for the valuation of constants in a least-squares fit:—

$$\begin{aligned} a\Sigma x^2 + b\Sigma x + nc &= \Sigma y \\ a\Sigma x^3 + b\Sigma x^2 + c\Sigma x &= \Sigma xy \\ a\Sigma x^4 + b\Sigma x^3 + c\Sigma x^2 &= \Sigma x^2 y \end{aligned}$$

The ratio $-\frac{b}{2a}$ can be expressed, without a complete solution of the equations, in the determinantal form:—

$$\frac{a}{\begin{vmatrix} \Sigma x & n & -\Sigma y \\ \Sigma x^2 & \Sigma x & -\Sigma xy \\ \Sigma x^3 & \Sigma x^2 & -\Sigma x^2 y \end{vmatrix}} = \frac{-b}{\begin{vmatrix} \Sigma x^2 & n & -\Sigma y \\ \Sigma x^3 & \Sigma x & -\Sigma xy \\ \Sigma x^4 & \Sigma x^2 & -\Sigma x^2 y \end{vmatrix}}$$

i.e.,

$$-\frac{b}{2a} = \tfrac{1}{2} \frac{\begin{vmatrix} \Sigma y & \Sigma xy & \Sigma x^2 y \\ n & \Sigma x & \Sigma x^2 \\ \Sigma x & \Sigma x^2 & \Sigma x^3 \end{vmatrix}}{\begin{vmatrix} \Sigma y & \Sigma xy & \Sigma x^2 y \\ n & \Sigma x & \Sigma x^2 \\ \Sigma x^2 & \Sigma x^3 & \Sigma x^4 \end{vmatrix}}$$

and expanding each determinant by the top row:—

$$-\frac{b}{2a} = \tfrac{1}{2} \frac{\Sigma y\,(\Sigma x \Sigma x^3 - (\Sigma x^2)^2) - \Sigma xy\,(n\Sigma x^3 - \Sigma x \Sigma x^2) + \Sigma x^2 y\,(n\Sigma x^2 - (\Sigma x)^2)}{\Sigma y\,(\Sigma x \Sigma x^4 - \Sigma x^2 \Sigma x^3) - \Sigma xy\,(n\Sigma x^4 - (\Sigma x^2)^2) + \Sigma x^2 y\,(n\Sigma x^3 - \Sigma x \Sigma x^2)}$$

In the special case when the abcissae are equally spaced and we choose the point zero so that they are symmetrically placed about it, Σx and $\Sigma x^3 = 0$ and the abcissa of the maximum reduces to the simple form:—

$$-\frac{b}{2a} = \tfrac{1}{2} \frac{\Sigma y\,(\Sigma x^2)^2 + \Sigma x^2 y\,(n\Sigma x^2)}{-\Sigma xy\,(n\Sigma x^4 - (\Sigma x^2)^2)}$$

In either case the value sought may be easily obtained on the machine as the quotient of two weighted sums.

For the modal point of the distribution of weeks lost by those losing time, found on this method, the following particular formula was used:—

$$\text{mode} = \frac{256w_{1-8} + 72w_{9-16} + 200\,w_{17-24} + 128\,w_{25-32} - 144w_{33-40}}{-10w_{1-8} + 5w_{9-16} + 10w_{17-24} + 5w_{25-32} - 10w_{33-40}}$$

where w_{1-8}, etc., are the numbers losing 1–8 weeks, etc.

APPENDIX 9

MAXIMA AND MINIMA FOR UNEQUAL INTERVALS OF ARGUMENT

In the census age groupings of wage-earners, earnings and unemployed, the intervals are uneven and the ordinary formula for the mode does not apply. The procedure used was the fitting of a second degree parabola to the three groups about the mode, and the obtaining of its maximum. If the maximum is in the group 20–24, for example, the fitted curve is: $y = \alpha + \beta x + \gamma x^2$, and we have:—

$$w_{18} = \int_{18}^{20} (\alpha + \beta x + \gamma x^2)\, dx$$

$$w_{20} = \int_{20}^{25} (\alpha + \beta x + \gamma x^2)\, dx$$

$$w_{25} = \int_{25}^{35} (\alpha + \beta x + \gamma x^2)\, dx$$

where the w's represent the number of persons in the various age groups. From these three equations the ratio $-\frac{\gamma}{2\beta}$ is found by the determinantal method of Appendix 8, the result being:—

Mode in the *20–24 group*:—

$$\frac{2000w_{18} - 1094w_{20} + 147w_{25}}{75w_{18} - 44w_{20} + 7w_{25}}$$

Mode in *25–34 group*:—

$$= \frac{280w_{20} - 220w_{25} + 80w_{35}}{8w_{20} - 7w_{25} + 3w_{35}}$$

Mode in *35–44 group*:—

$$= \frac{45w_{25} - 80w_{35} + 35w_{45}}{w_{25} - 2w_{35} + w_{45}}$$

Mode in *45–54 group*:—

$$= \frac{55w_{35} - 100w_{45} + 45w_{55}}{w_{35} - 2w_{45} + w_{55}}$$

Mode in *55–64 group*:—

$$= \frac{190w_{45} - 410w_{55} + 440w_{65}}{3w_{45} - 7w_{55} + 8w_{65}}$$

Mode in *25–44 group* (for occupations, in which tabulations give 25–44 as a single group):—

$$= \frac{1000w_{20} - 400w_{25} + 300w_{45}}{24w_{20} - 11w_{25} + 10w_{45}}$$

APPENDIX 10

SOME NOTES ON ECONOMIC THEORY AND THE CENSUS OF UNEMPLOYMENT

In the preceding pages a large number of conclusions are to be found as to the nature and incidence of unemployment, all deduced, more or less directly, from the material of the Canadian Census of 1931. It would be interesting to see to what extent these conclusions agree with the opinions on the cause and cure of unemployment expressed by the leading minds in the contemporary economic world. One question that arises is: "To what extent can the deductive method foresee and predict the results of a statistical investigation?"

The Personal Element in Unemployment—Qualitative.—There is a large group of books giving the effects of unemployment on the men and women who constitute the reality corresponding to the problem (abstract) of unemployment which economists discuss. Written admittedly from the lay point of view, they discuss the effects of trade unionism, of unemployment insurance, of employment agencies, etc., as these things affect the individual. Including often excerpts from conversations with unemployed men, they discuss the social problems of the loss of skill and the decline of hope with continued unemployment and they give the economic opinions of the unemployed themselves rather than the economics of unemployment; hence they are sociological rather than economic studies.

Working on a purely impressionistic, non-statistical basis, Wight Bakke's *The Unemployed Man* is a valuable book of this class. The writer made a study of the unemployed in the Metropolitan Borough of Greenwich (London) with the object of finding out how unemployment insurance fits into their daily lives and activities and how far it aids or retards their efforts to find employment as they realize the hopelessness of the situation. He concludes from his personal observations that the fact of the unemployed drawing benefit in no way weakens their effort to find work. *The British Attack on Unemployment* published by the Brookings Institution, written by A. C. C. Hill and Isador Lubin, follows the history of the treatment of unemployment from the days when an unemployed worker was looked on as a criminal or a pauper, to the present highly developed placement and insurance system. The authors, like Bakke, do not believe that labour has lost mobility through the system at present in force in Great Britain or that the recipients are in any way harmed by the benefits they draw.

A. C. Richmond writing in the *Nineteenth Century* of January, 1938, says that since unemployment is here to stay we must see in what way we can prevent those affected from feeling the suffering which it involves. He suggests the use of small plots of land on which unemployed workers, particularly those beyond the ages where re-employment is likely, could maintain their morale, and in addition derive economic benefit. Handicraft centres, unemployment clubs, and, for long-term policy, the remodelling of our towns to make them places of recreation as well as the places of work for which they were originally designed, are advised.

Men Without Work, A Report Made to the Pilgrim Trust is a record of the investigators' personal interviews with twelve hundred of the "long unemployed" (*i.e.*, those out of work for more than a year) in six English towns. The attempt is not to reveal information about the statistical facts of unemployment as obtained from the sample—these are taken rather as background while the book concerns itself mainly with the psychological, moral and physical consequences of unemployment. Among scores of other matters, it describes the disastrous effect on domestic harmony of idleness on the part of the husband, so that an abnormal proportion of the long unemployed were living apart from their families. It describes the intense interest, particularly among the Liverpool unemployed, in gambling; how day after day the chances of individual teams were weighed as the one serious matter in life; how the fairness of pools was contrasted with the supposed injustices of the Labour Exchanges; how the man lucky enough to win money in the pool acquired thereby a certain social standing and was listened to with respect when he voiced opinion on any subject whatever. It found that those men who had previously worked for any long period were always dissatisfied with their dole status, and on the whole made persistent efforts to find work, while on the other hand those who had only worked for a short

time or not at all, these usually being the younger unemployed, contained a very great number of "work-shy" cases. The investigation has been carried out with great care and skill, and the result is a unique achievement.

The Personal Element in Unemployment—Quantitative.—A second class of books on unemployment is constituted by research of a statistical nature on the unemployed by individuals or small groups. Working on a small scale these investigators can hardly collect more than a very small sample, and their tables are bound to be affected by such accidents as the locality which they happen to choose, the occupational stratum in which their sample happens to fall, etc. *Occupational Abilities* by N. W. Morton is a good book of this type, in which the author is very cognizant of the limitations of his procedure. Not only is the sample small, but each man who formed part of the study presented himself quite voluntarily. This is a difficulty with which an official body such as the Dominion Bureau of Statistics is not concerned at all, by reason of its complete coverage of the field and the powers conferred on it by the Statistics Act. Taking these difficulties into account the results obtained are not uninteresting; they show slight superiority on the whole for the employed groups in the various intelligence and other tests performed. In *Ten Thousand Out of Work* Ewen Clague and Webster Powell announce the result of an investigation in which approximately 10,000 applicants for work relief were interviewed as to their family circumstances, employment history, education, etc. Miss Margaret Hogg in *The Incidence of Work Shortage* made a fairly detailed survey of the city of New Haven, Conn., finding among the families questioned that males suffered more heavily from unemployment than females, single men than married, foreign born than native born, young and old than middle-aged. The census figures show similar results on these points, but through their greater detail they supply the basis for a fuller theory.

In general a reading of the books of this class shows to how great an extent the individual field investigator in statistics, hampered by the fewness of the cases he can cover, feels obliged, to the extent to which he is conscientious, to condition his conclusions by referring to the large probable error due to his sample and is likely to terminate his work with a number of expressions of likelihood rather than conclusions.

Sir William Beveridge has been outstanding in the study of unemployment and unemployment insurance for at least thirty years. He has based his work principally on the experience of the unemployment insurance scheme in Great Britain whose definition of unemployment is not co-terminous with that of the Canadian Census but his results are on many points the same as those of the present monograph. He concludes (in *An Analysis of Unemployment in Great Britain*—a series of three articles in *Economica*; I, Nov., 1936; II, Feb., 1937; III, May, 1937) that the vastly different rates of unemployment that have always existed between different parts of the country indicate that immobility among the unemployed is a factor to be reckoned with; that while females show about half the rate of unemployment of males the main cause of this is their more favourable location in industry; that at the older ages men are little more likely to lose their jobs than at younger ones, but they are very much less likely to get back into industry once they have lost their jobs.

Opinion on Unemployment.—An investigation of the opinions of leading trade unionists was made in Great Britain in 1928, and the results were published in a book *Unemployment—Its Cause and Cure* by W. A. Appleton. The number of causes to which unemployment is attributed is as great as the number of cures suggested. Causes given ranged from tariffs to the capitalistic system. The recommendations are for lower governmental expenditures, lower taxes, lower rates of interest, and emigration from Great Britain. The book ends by stressing the importance of industrial and commercial expansion, the claim being that there is no alternative to expansion other than unemployment and forced reductions of population. Similar in conclusion is *Unemployment and Prospects for Re-employment in Massachusetts*, a publication of the Graduate School of Business Administration of Harvard University, which states that the solution of the unemployment problem in Massachusetts is an expansion of business activity which would have the effect of re-absorbing the unemployed. The present monograph shows that with, say, 20 p.c. out of work, a 25 p.c. expansion is not a sufficient condition for the mopping up of all unemployment because of the way labour is recruited during a boom from "own account" occupations.

Unemployment in Relation to Business.—In the *Review of Economic Statistics* for February, 1937, an article by Professor Sumner H. Slichter, *The Period 1919-36 in the United*

States; Its Significance for Business Cycle Theory announces the preliminary findings of a sub-committee for research on the trade cycle. Four cycles are noted in the post-War period with the turning-points—1920-21, 1923-24, 1926-27 and 1929-35. Professor Slichter lays great stress on the concept of the "technical position of business" and emphasizes the importance of keeping it strong. Presumably the technical position of business would be considered strong when stocks of materials in the hands of producers are not too large to enable them to defer purchases of replacements for any very long period; when there is a suitable balance between the amount of money seeking investment and the amount of investment taking place; when there are no large holdings of finished products in weak hands, *i.e.*, in hands likely to have to liquidate in the face of a small price decline.

It seems to be implied throughout the article that we are still far from the attainment of a complete knowledge of the mechanism of the business cycle, and still farther from the ability to control it.

Technology and Unemployment.—*Mechanization of Industry* by Harry Jerome, published by the National Bureau of Economic Research, goes in great detail into the extent and effects of the application of machinery and automatic processes in the various branches of industry in the United States. The writer is optimistic about the future, believing on the one hand that there is not likely to be mechanization running beyond control, and on the other that the continuance of mechanical progress is unlikely to be abruptly terminated as some fear. He seems to believe that although there is some tendency for highly skilled trades to be eliminated by mechanization the average level of skill has been and will continue to be raised.

Mr. Jerome does not believe that there is a tendency to the creation of an increasing permanent body of unemployed as a result of mechanization. Many economists would take issue on this point. It is generally believed that dislocations in the division of labour, which are theoretically independent of, but actually accompany, the use of machinery, are definitely related to unemployment. In their book *Can Governments Cure Unemployment?* Norman Angell and Harold Wright take this view; on the Vermont farm of a hundred years ago there could be no unemployment because everyone was independent, was his own employer and himself used the products of his labour. If there was "overproduction" (which could only happen momentarily) no problem arose; the producer-consumer simply decreased his efforts for a while.

In *Machinery, Employment, and Purchasing Power*, published by the National Industrial Conference Board, Inc., a large number of facts are arrayed from which the conclusion is drawn that machinery increases rather than decreases employment. According to the writers there is no sign that machinery adds to the intensity of either cyclical or seasonal unemployment. In defence of this conclusion it is pointed out that there is actually a long-term increase in the percentage of the population classed as gainful workers. This last statement is true. Census figures show, in Canada as in other advanced countries, a greatly increased number of persons in the wage-earning classes, but it is also true that they show a very much larger number of unemployed.

Opposing this thesis of the National Industrial Conference Board is the implication of Wladimir Woytinsky in the International Labour Office publication *Three Sources of Unemployment*, where he gives as one of the three sources the technological one, stating that even in 1929 when the economic position of the world was very good, there were more unemployed workers in industrial countries than there usually were during times of depression before the War—in short, some of the labour has been eliminated from the production process.

Unemployment in the Classical Economics.—But Woytinsky does not believe that technology is the sole cause of unemployment. He states that the unemployment which has come into existence since 1929 is due entirely to a falling-off in industrial production, which falling-off in production he refers to as the economic source. The nature of this economic source, and even its existence, has been the subject of keen discussion among economists.

According to the equilibrium theories which for some generations have constituted economic orthodoxy, there could be no unemployment in a free market. Such beliefs were expressed in the maxim that "supply creates its own demand" and, more academically, "the current wage is such as to equalize the marginal demand for labour and its marginal disutility". On this theory such idleness as arose from sickness, seasonality, the individual worker preferring living on his savings to working, or his having finished one job and not yet found another, could be accounted

for, but no other. Permanent, involuntary unemployment, such as undoubtedly exists in addition to all the cases of unemployables and of dishonest persons on the relief rolls, was never discussed as a possibility. The classical view is put by Mill as follows:*—

> "What constitutes the means of payment for commodities is simply commodities. Each person's means of paying for the productions of other people consist of those which he himself possesses. All sellers are inevitably, and by the meaning of the word, buyers. Could we suddenly double the productive powers of the country, we should double the supply of commodities in every market; but we should, by the same stroke, double the purchasing power. Everybody would bring a double demand as well as supply; everybody would be able to buy twice as much, because everyone would have twice as much to offer in exchange."

All this is true, according to Marshall, the outstanding neo-classicist, except that men may not choose to use their power to purchase. After describing what happens in a depression, he says that the cause of depression is lack of confidence. If people simply had confidence and kept on producing, no glut or over-production could possibly arise. But the question one asks to-day, when depression has become so regular a phenomenon, is: "What causes the lack of confidence in the first place?" There is room for the belief that economic causes act as well as psychological ones.

A very different attitude from Marshall's is taken toward the underlying assumptions of the classical view by a not unsympathetic critic, Paul Douglas, in his *Theory of Wages*. After listing as the assumptions of marginal productivity theory the mobility of capital and labour, the atomistic nature of the employment market, etc., assumption number 7 states that all labour finds employment. Comment is made on the failure of the classical economists to recognize the possibility of unemployment, on their proving, in fact, that unemployment can not exist in order to bear out the doctrine (basic in their scheme) that over-production is impossible. Douglas himself later in the book uses the marginal-productivity theory for a solution of the problem of distribution—where indeed it seems to give a valid (partial at least) answer to that difficult question—but he does not apply it to the problem of unemployment, for it is plain that we can not explain unemployment by a theory whose first corollary is that it does not exist. Douglas asserts that the orthodox school describes a part of reality; that there is no objection to such a partial description as long as it is not claimed to represent the whole.

Money as a Cause of Unemployment.—Mr. R. G. Hawtrey believes that the cause of economic depression is in the credit system.† By a sufficient contraction of credit, the world's bankers could at any time provoke a depression. Such matters as tariffs, which are blamed by other writers, are dismissed briefly as merely aggravations rather than as causes of depression. He calls for a sufficient expansion of the currency to bring prices to pre-depression levels. Stabilization must be in terms of prices of goods—no object is achieved in stabilizing in terms of gold so long as gold itself remains unstable. The various schemes for governmental works during depression that have been advocated as cures for depression Hawtrey finds of use only in so far as they involve the creation of credit that would not otherwise be created. He objects to the proposals of Keynes and others, who see in public works the cure of depression through the distribution of purchasing power in the form of wages, claiming that public works, financed by the creation of credit, are a vehicle of inflation and the inflation would be quite as useful without the actual construction. It is part of Hawtrey's view that industry must be made and kept profitable if we are to escape from depression. Thus he says with regard to a rise in wages, that though it would stimulate demand, it would do so only by increasing cost, and that the inflationary process which is recommended throughout would be interfered with in its normal tendency to increase profits.

The shortening of hours as a means of spreading available employment over a greater number of individuals is criticised as showing want of faith in the ability of the monetary cure to solve the problem, though its usefulness as a temporary measure is admitted.

Hawtrey carries his interpretation of post-War economic history in terms of the dearness and cheapness of money to extreme lengths. When finally he says that the solution of the trade depression lies in each country's adjusting the purchasing power of its currency so as to obtain an

*Quoted by Alfred Marshall in *Principles of Economics*.
†*Trade Depression and the Way Out*, by R. G. Hawtrey.

equilibrium between prices, wages and debts, the question is suggested whether, as between prices and wages, at least, the expansion or contraction of the monetary unit will necessarily secure equilibrium.

Corresponding to the viewpoint of Hawtrey in England is that of Irving Fisher in the United States. He suggests* a method of stabilization (of prices) suitable to the banking set-up of the United States. A Commission on Stabilization would secure from the Treasury short-term United States Government 3 p.c. bonds; it would offer these bonds to the national and state banks, and would receive a credit for deposits. The bonds would become the property of the banks, and would enable them to increase their loans and investments thus creating new purchasing power for the public, and raising the price level. If the price level became too high, the process could be reversed. This solution is based on the belief that the depression was caused solely by the necessity for liquidation forcing prices down; that this in turn caused more liquidation (directly in the cases of holdings on margin, indirectly in other cases) and even lower prices; in short, the vicious spiral of deflation. The object of all policy should be greater flexibility in the debt structure, and most important of all, a dollar whose value in terms of goods shall be constant from month to month and from year to year.

This is also the opinion of Carl Snyder of the Federal Reserve Bank and both men emphasize the necessity for good statistics in the applying of stabilizing measures. Among the other expedients which are important, though secondary to monetary adjustment, are the reduction of cost by lower taxes and tolerance of combinations; the encouragement of debt-formation in the shape of preferred and common stocks rather than of bonds (if bonds are to be used, perpetuals rather than fixed-maturity ones should be favoured); the use of receiverships deferring or avoiding liquidation; debt- and wage-scaling in the face of lowered prices, etc.

The money theory of Fisher is largely based on his equation of exchange ($MV = PT$, where M is the amount of money, V the velocity of circulation, P the price level and T the number of transactions). According to the Fisher-Snyder way of thinking, the possibility of controlling M by central bank action gives us a way of controlling P, provided V and T remain constant. The question has been asked whether a change in M would not have some neutralizing effect on V and on this point there is no general agreement among economists.

Keynes does not believe that a mere lowering of the rate of interest by making money more plentiful will solve the problem of the trade cycle. Liquidity-preference, on which he lays great stress throughout *The General Theory of Employment, Interest, and Money*, is the element that is so hard to deal with. After the first shock of the crisis has passed off, a drop in the rate of interest is a help and probably a necessary aid to recovery, but temporarily at the moment of collapse there is no rate of interest low enough to maintain investment. The marginal productivity of investment is controlled by the psychology of the business world and there is no simple way of reviving it. He concludes that when confidence falls so low that investment has fallen almost to zero, governments should undertake investment on their own account in public works.

Debt in Deflation as a Cause of Unemployment.—A. Loveday† emphasizes the role of money in so far as it operates through a rigid debt structure. When contracts are binding over long periods there is a shifting of real income and real purchasing power in favour of those contractors who have money claims and this shifting is of very serious amount. It is, further, the case that as industry becomes larger and larger in its scale of operations, and as it comes to be carried on more and more by wage- and salary-earners who can not invest their savings in themselves but must buy securities, then to the extent to which such people prefer fixed-interest bearing obligations to industrial shares the rigidity of the financial system is increased. We have, in short, an evil which has increased with the proportion of economic activity carried on with borrowed capital. If a man invests a sum of money of his own saving, earned perhaps when prices were high, in business and if the price of his product declines, then all that happens is that part of the investment is written off—he is no longer as rich as he thought he was—and the adjustment is very simple. But when the capital has been borrowed there is no possible way of writing it off; if payments of interest at least are not maintained bankruptcy and unemployment occur. This line of thought brings us back to Irving Fisher's suggestion that profit-sharing equities be encouraged in debt-formation rather than bonds.

**Booms and Depressions*, by Irving Fisher.
†*Financial Organization and the Price Level.—Economic Essays in Honour of Gustav Cassel.*

In a country such as Canada, recently opened up, in large part with outside capital, the element of rigidity which debt in any case introduces was intensified by foreign exchange differentials—these differentials being themselves brought about through our need for foreign exchange to pay bond interest. Students of Canada's debt structure have pointed out its great rigidity, and hence our position of vulnerability before world business fluctuations. Our position in this respect has been intensified by the specialization of our industry, now less narrow than it was a few years ago.

Rational Behaviour and the Classical Economics.—There has been discussion of the possibility that classical economics fails because it postulates rationality. Frank D. Graham* asserts that to the extent to which business men are not guided by strictly rational motives, to the extent to which they allow their calculations to involve fear, hope, etc., the situation which the classical theory proves will be the pivot of stable equilibrium; full employment of all resources will be replaced by a situation of only partial employment of resources. And he believes that the events of the past few years in particular show that business men will act either on their own irrational fears, or through an anticipation of irrational fear on the part of others.

The Effect of National and International Politics.—In *The Great Depression* Lionel Robbins expresses the belief that the depression is due to dislocations in the capital markets, ultimately traceable to the Great War, to the tying-up of international trade, and most particularly to the intervention of the State in industry through protective tariffs and other means. His cure is the restoration of the free market, including the abolition of rigidities in labour remuneration due to trade unions and unemployment insurance, the removal of restrictions to price movements imposed by cartels and trusts, which he claims are the result of state policy indirectly encouraging rigidities. Whether rigidities are really caused by state action would determine whether they would disappear if the state withdrew its interest in industry; many believe that the State in practice actually restricts rather than fosters monopoly. Also the restoration of free trade has too many opponents to have much prospect of realization in the present world political situation. Even if unemployment insurance were discontinued, trade unions and public opinion would keep a floor under wages; in addition, Keynes' argument that high wages are essential to the sale of the product is applicable; furthermore, the entire argument on this point, of both Pigou and Robbins, that lower wage levels would remove unemployment, depends on a certain level of the elasticity of demand for labour, the existence, in practice, of which is not regarded as having been satisfactorily established.

Similar in its emphasis on the political aspect is *International Unemployment* (M. L. Fledderus, editor) which gathers up a good deal of evidence to show that unemployment usually comes to a country from abroad; that countries trading heavily with one another show greater and less amounts of unemployment at the same time. The conclusion is that nationalism, in preventing economic co-operation, is responsible for that disturbance in international trade which is at the root of the present lack of full employment.

The Orthodox School To-day.—In the background of A. C. Pigou's exposition† is the implication that wages are fixed by labour, which insists on a wage determined partly by tradition, partly by the extent of its bargaining power; after the wage is fixed the employers make their calculations and employ all the labour at the set wage that they can put to work with profit.

To this point of view Keynes takes strong opposition. He says of Pigou's book that even its title is a misnomer. It really concerns itself according to him not with unemployment but with how much employment there will be when the conditions for full employment are satisfied, given the supply function of labour.

Keynes implies the absurdity of saying that the two million unemployed of England were simply holding themselves off the labour market. He differs from earlier economists by starting off with the assumption that unemployment does occur, real unemployment, both of labour and of capital, and shows that a state of equilibrium can exist in which very much less than the total willing resources of society are occupied in processes of production.

The Relation between Savings and Investment.—To show this Keynes has to split the circle of classical economic reasoning, which he does in somewhat the following fashion:

In order that there may be equilibrium at the point of full employment it is necessary that the total income of the community be disposed in one of two ways—either in consumption or

*Economic Theory and Unemployment.—Economic Essays in Honour of Gustav Cassel.
†The Theory of Employment.

else in the production of new equipment which will ultimately produce consumption goods. If this is the case workers will give themselves employment both with their savings and with their spendings. In an undeveloped economic community savings are small and the need for investment is pressing. But with the rise of the standard of living and with the accumulation of more and more capital goods there will arise a state of affairs where more and more will be saved and investment will be less and less profitable.

Now, according to theory, interest, which is the reward for waiting, *i.e.*, abstinence, comes in here to equilibrate the increased amount of saving with the decreased profitability of investment by falling steadily until demand and supply of capital are equated. But at this point Keynes separates from the classical economics. The amount of saving which goes on at any time, according to his *General Theory*, is due not to the rate of interest, but to the level of individual incomes. One can hardly avoid saving the larger part of an income of a million dollars a year, but one can hardly avoid spending the larger part of one of six hundred. In neither case is the rate of interest the primary force deciding the proportion spent.

Further, if interest falls in such a way as to remain equal to the marginal efficiency of capital, *i.e.*, to the profitability of new investment, then why did it happen that, in 1932 when no kind of new investment was profitable without exceptional skill or good fortune, the rate of interest did not go down to zero?

The answer is in Keynes' new statement of the function of interest. Suppose the community desires to save a very large amount of money, larger in fact than the total (assumed inextensible) stock of money available, then it is plain that everyone who wishes to put money under his mattress will not be able to do so. At the same time there are some people who require liquid cash more than others, perhaps through approaching maturing obligations, or a feeling of "bearishness" with regard to the market or merely through general nervousness. It is between the parties needing cash and the limited amount of such cash available that the rate of interest enters as an equilibrating force. Interest becomes, thus, not a premium on abstinence, but a premium on not-hoarding.

Now Keynes believes that the entire structure of the classical economics is based on the assumption of a special relation between the prevailing rate of interest (determined by liquidity-preference, etc.) and the marginal profitability of investment, *viz.*, their equality. These two elements need not be, and in general theory are not, equal; when the first is higher we have a depression, when the second is higher a boom.

Keynes' approach has been highly praised and severely criticised. Professor Frank H. Knight* asserts that Keynes' classical economics is but a straw man created for purposes of argument. He attacks on the ground of unbased assumption, claiming that the involuntariness of unemployment, which Keynes assumes, is not apparent, that in fact the conclusion is a deduction from the principles of the system which he sets up.

According to Keynes a boom occurs when the current rate of interest is lower than the (anticipated) marginal productivity of investment. The boom comes to an end when the rate of interest, which during the boom period has been rising, at last catches up with the profitability of new investment, and business pessimism replaces business optimism. Enterprises which at an earlier date were considered profitable with money at 6 p.c. are now considered unprofitable even though money is down to 3 p.c. The rate of interest follows the marginal productivity of investment downward; but since there is a "conventional" rate of interest below which lenders are not willing to advance money, it is not possible for the price of capital to come down immediately to the return on its investment. It is, in fact, necessary for investment to regain its profitability. This can only happen through the attainment of a state of relative scarcity, such scarcity arising as a result of the obsolescence and the physical deterioration of existing plant. When the process has gone to the point where the rates of profit and interest again meet, new construction is undertaken.

To put the viewpoint of the present monograph in economists' terms, one might say that the labour-asset of the industrial machine reacts to the cycles in the same way as the capital-asset. During the time of boom when the process of capital construction, and hence of increasing division of labour, is at its height, it was found that labourers are drawn from farming operations, particularly from subsistence farms where there is small prospect of profit from expanding

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industry's demand for raw materials, into the wage-earning class where they are liable to unemployment, along with the capital which they are building and operating, in the subsequent period of depression. Such as have no work will withdraw from the machine processes and in many cases, as a comparison of the Censuses of 1931 and 1936 shows, they will find their way back to farms. They will stay in the country while the machinery which was built in the last boom is rusting in the city or in the factory town, until there arises simultaneously a shortage of capital and of labour. The observation that the rural population increases during depression, and decreases during expansion, is made by Cassel in his *Elements of Political Economy*.

Definition of Unemployment as Determining the Approach to Its Study.—It requires no more than a brief survey of the writers above-mentioned to see that they have used different methods of attacking the problem of unemployment, and they have arrived at different *kinds* of results from those of the census. We can see how the differences of treatment and result arise by considering the definition of unemployment which Keynes adopts on page 15 of *The General Theory of Employment, Interest, and Money*. We can see that his definition corresponds roughly to what one ordinarily considers as a state of unemployment, for if there were full employment, the small fall of real wages specified could not leave an aggregate supply of labour willing to work greater than the present number employed. But a definition in terms of the aggregate does not admit, directly at least, of a quantitative treatment. On page 41 the nature of employment is further considered; it is stated that for the purpose of the analysis "quantities of labour can be made . . . . strictly homogeneous . . . . we shall call the unit in which the quantity of employment is measured the labour unit".

And this is almost the entire mention we find in the whole book of the employed or unemployed as such. The Bureau's definition, in sharp contrast, was simply the statement of the individual wage-earner that he was not at work on the census date and that he wants to work. The number of such individuals can be readily ascertained.

With such different definitions it is to be expected that different results will be reached. The monograph tried to get underneath generalized concepts; to take the aggregate of the unemployed apart and see of what it is made up; particularly, to find out something about the evenness of the spread of unemployment, *i.e.*, the amount of its turnover. Though unemployment as a business indicator may be only concerned with the percentage of wage-earners unemployed from week to week, or from month to month, there is, in the matter of relief, the maintenance of morale and the preservation of occupation skills, a vast difference between one twentieth of the working community losing the whole year and the entire body losing two and a half weeks. The census attempts to find out the incidence of unemployment on occupations and industries, the age structure and the racial origin composition of the unemployed and the different durations of unemployment for people losing time in different industries.

Weakness of the Non-Quantitative Treatment.—Economists frequently refer to these points, but they form no important part of their work. For example, Pigou, in the *General Considerations* which are preliminary to his *Theory of Unemployment* speaks of the importance of considering the size of the lumps which are served out to individual unemployed men, which corresponds to the statistician's emphasis on distribution, but we find no further reference to the matter in the main body of his book.

Pigou says that the unemployment which acts at any time is not the effect of a number of causes summed, but the result of a balance of forces. But if economics studies a situation in which there are a large number of forces balanced against one another, then it is vital to know not only what are the forces acting, but their relative importance. At that point statistical measurement is essential. One example of the failure to use such measurement occurs in the discussion of mobility (*Theory of Unemployment*) where a good deal of involved reasoning leads to the conclusion that with absolutely rigid wage-rates immobility intensifies unemployment, and that with absolutely plastic rates immobility reduces it. Under intermediate plasticity conditions it is admitted that no general conclusion can be drawn, but subsequently (without factual evidence) it is stated that the considerable degree of rigidity in England undoubtedly renders mobility desirable. The criticism of this section is its omitting to present evidence of the amount of rigidity existing. To determine the effects of the amount of rigidity in wage-rates which actually exists, it may be contended, is a statistical task of considerable difficulty; it is nevertheless essential for the completion of the argument.

Pigou brings out the same point in an earlier passage, basing it this time on the assumption that it only requires a reduction of wages to bring about a return to full employment when there is a sudden slackening of demand for labour. He reasons that the cut in wages will be concentrated in the point where it arises if there is no mobility, necessitating large reductions for the few workers affected and that, on the other hand, if there is easy movement the necessary cut in wages can be distributed in small amounts among a large number. The result is true though the demonstration may be attacked. The monograph stresses mobility very strongly. With a complete distribution of unemployment there is in effect a system of unemployment insurance in the sense that the load is borne equally by the entire community.

Joan Robinson (Mrs.) in *Essays in the Theory of Unemployment* sees a need for mobility. She says that when workers fail to move they form separate groups. There would be no harm in this if the tide of prosperity each time flowed back in the same place where it last ebbed, but that is not what happens. Each boom to some extent brings up a different set of industries and calls for a different set of techniques. Therefore individual workers may easily be left grounded unless they have some degree of adaptability.

A case of *a priori* discussion leading to a conclusion at variance with the indications of statistical evidence is Pigou's treatment of the effect of boom wages on the number of wage-earners. He states first the possibility that the wage-earning body is increased in time of high wages by the drawing in of people living on small incomes, on pensions or with friends, or in non-wage-work, which is in accordance with one of the principal findings of the monograph. He then says, however, that there is a contrary tendency in that husbands will be able to support their families without requiring their wives to work, and even that men might work fewer days in the week. The final conclusion is that the two factors are of little importance and in any case balance one another out; therefore the number of would-be wage-earners may be assumed to be unrelated to the employment situation. Since this is opposed to what the figures for Canada, at least, indicate, the subsequent discussion can not be regarded as complete.

Unemployment as Treated by the Census.—As the alternative to formalistic deduction on old assumptions, the monograph begins with a discussion of the nature of the facts which the census reveals and their seeming accuracy; tests were made of their degree of reliability by the consistency which their several aspects show and by comparison with labour union figures and such other information as is available.

It was shown that the census is superior to any other account of unemployment in that, for the single date to which it refers, it represents the answer to a direct question put to every man, woman, boy and girl in the country asking each whether he is at work, and how much time he lost during the past year. The trade unions, the questionnaire to employers which the Bureau sends out each month, the relief figures, the English unemployment insurance figures—none of these alternative sources is as direct as the census. It gives, not the employer's, the trade union's, nor the relief administrator's viewpoint, but the viewpoint of the wage-earner himself. That will be found to be the basic viewpoint also of the interpretation of the numerical facts; the interpretators could look from no special angle so long as they held to census data.

Thus the industries were considered on the basis of the wage-earners they left unemployed. Dislocations in production to which economists of contemporary schools have been drawing attention (*e.g.*, between capital and consumers' goods and services) are analysed as revealed by the employment information. They are not considered in relation to standard economic theory; the attempt is rather to develop what the figures show.

Labour is not taken as homogeneous (Keynes) but in the varied and multiform way in which it actually exists; abstract units of labour are not considered, but units of carpenters', bakers' or machine operators' labour.

Dislocations of production as between different types of goods may be investigated by the incidence of unemployment on industries as given by the census. For unemployment on the census definition is the reflection partly of anticipated production which failed to materialize and partly of capital construction which was completed. It is generally accepted by all schools of contemporary economic thought that these dislocations are important in causing the general symptoms of the depression, and in particular, unemployment. From this point the census penetrates the problem by a detailed study of the persons and industries involved, while economists in general proceed to a refined *logical* analysis of causes.

The method of investigating the incidence on industries is shown in Chapter III where a sample consisting of 122 of the detailed industry groups, representing the nine provinces, was used. (Following the principle of break-down into the greatest detail it was not assumed that "Sheet Metal Products", say, in Quebec, was the same thing as "Sheet Metal Products" in British Columbia; the industry of a given province was taken as the unit in the sample. Thus the sample of 122 was out of a universe of about 2,000 possible provincial industries.) In the course of the analysis the industries of the sample were considered from the point of view of the unemployment which they showed on the three criteria two of which are necessary for its description (number idle at a given moment, number losing any time during the year and average duration of unemployment for those losing time). The industries showing average unemployment (more properly those within an arbitrary range about the precise average) were 24 in number; those above numbered 40, those below, 58. It was found that most of the 24 industries that followed the average amount of unemployment of the country as a whole were in the field of production for immediate consumption—biscuits and confectionery manufacturing, retail filling stations, retail coal and wood, hosiery and knitted goods and furniture manufacturing, including upholstering. These are the branches of the economy which depend most immediately on the effective demand, *i.e.*, on the purchasing power, of the ultimate consumer and, in consequence, we may expect them to suffer from depression to the extent that income as a whole suffers. Into this group crept a few of the more prosperous (in 1931) of the capital goods industries—those (like nickel mining and smelting) that were more fortunate than the average of their class in having exceptional resources and stable or increasing international markets.

Showing greatest unemployment in the industrial scale are iron smelting and building and structures. Showing less than average were industries outside of the reach of fluctuations in the business community—police, defence, postal service, education, health—or such commercial enterprises as are so closely organized in a few corporations that they can keep their help through good times and bad—banking, electric railways, telephone systems, etc. Capital-goods industry immediately dependent on primary production, of which the manufacturing of agricultural implements is an example, suffered very greatly through the decline in the prosperity of its customers; there was to be expected a process of disinvestment in equipment on the part of farmers with the large relative fall in the prices of primary products together with rigid rates of interest.

The depression is said to be caused by a situation in which the production of various commodities has got out of alignment. We see in the census that of all the cross-classifications of the unemployed, that which shows the greatest divergences between different groups in the percentage out of work—as among age, province, occupation, industry, race, etc.—is industry. Industry in the census definition refers to the product of the economic activity—occupation to the place of the individual worker in the process. Productive capacity—in relation to money demand at existing prices—appears to be excessive in housing and farm equipment, for example, and relatively fitted to demand in the various consumption goods industries and in such services as health and education.

The main lesson of the present investigation is that the creation of wage-earners for special work, as in a boom, leads within a short time to unemployment; it also shows (by a comparison of 1931 and 1936 figures) that employment may increase greatly without much decrease in wage-earner unemployment. Public works planned in such trades, in such industries and in such parts of the Dominion, that both in their direct effects on employment and in their secondary effects they result in the re-hiring of labour rather than in the creation of new wage-earners, are to be chosen against works where, say, the labourers attracted will in many cases be farmers or farm hands. The individual is not to be blamed for attempting to get into that branch of industry in which he seems to have the best chance of satisfactory employment at good wages; but the fact that he does so is responsible for the carrying to too great lengths of the process of division of labour in time of boom. During the subsequent depression the process is reversed—labour becomes de-differentiated, as is to be seen from the great variety of previous occupations among persons giving their 1936-census-date occupation as "odd jobs". To stimulate an industry, when the effect will be to encourage individuals engaged in general farming, say, to become machine tenders, is carrying the process of division of labour beyond the point where it is economically justifiable, to a point where it could not permanently exist and where it would have the long-term result of increasing wage-

earners and increasing the unemployed in a subsequent depression. The task is, therefore, to find schemes to fit those branches of activity in which the greatest number of the unemployed exist. At the same time the normal effect of the depression, to cause skilled workers in the unwanted lines to enter other fields, should be interfered with as little as possible so that in the long run the natural working of the economic system will provide that the division of labour be carried to just the right degree and in just the right direction.

Can any recommendations be made for the reduction of unemployment by using such considerations as these along with census data on the number of persons unemployed in the various classifications? As we look down the list of occupations showing unemployment, we may read (Table 18, page 338) coal miners, plasterers and lathers, lumbermen, labourers in coal mining, brick and stone masons, coal mining haulage workers, drivers and cagers, labourers and unskilled workers and stevedores, structural iron workers in construction and actors, to name 11 occupations showing the worst unemployment in Canada in 1931. Now, like all figures from social statistics, these do not permit of an immediate sweeping conclusion, but they invite study. It will be seen that there are included four of the most important construction occupations, three very important coal mining occupations, the principal occupation connected with lumbering, unskilled workers —a very large number of whom have probably at one time or another been engaged in construction —as well as longshoremen and actors.

It would seem that the longshoremen and actors will have to be given relief or put to some other type of work, for Canada needs no more longshoremen than are required to handle her volume of trade and to put the actors to work would require the establishment of a theatre— a scheme such as the Actor's Project of the W.P.A. in the United States. As for the coal miners, there must be faced the substitution of oil and the very general and increasing use of hydro-electric power. As indicated by the trend of the recent past, we shall in the future use even less coal through oil and electricity becoming more widely available. Once it is decided that there is a permanent surplus force in this, or in any other field, steps might be taken to transfer it to some other activity. The longer the delay, the longer the period that elapses with no aid but money-relief, the greater the demoralization and the fewer the individuals remaining who will have the initiative or the will to re-enter productive activity. We are more fortunate than the English in that we have the invaluable asset of space for transfer from any region threatening to become a "depressed area".

The remaining industry with occupations represented in the group of 11 trades most badly affected by the depression is construction. It has many points of difference from the others mentioned. In so far as construction (of houses at least) is concerned, the market is that fraction of the population of Canada compelled to dwell in conditions below a reasonable level of civilized comfort. It is one industry for whose product there is no likelihood of a substitute being invented; the trades involved are healthy; wages generally represent a good livelihood (in contrast to coal mining) and the product is in no sense a luxury. Furthermore a census study of the unemployed involved shows that they are distributed throughout the country and the need for houses is likewise widely distributed, so that men could be employed where they live. Unlike many other branches of industry the production of houses requires relatively simple tools; hence the expenditure of capital per man employed would be small, an important consideration where it is desired that the bulk of the employment created be direct employment, having the minimum amount of indirect effect on the economic system and involving the smallest possible total expenditure per unit of employment created.

A housing program would not demand the employment of many in supervisory or more skilled capacities who would have to be drawn out of existing industry. For, beside the trades mentioned above, a study would show considerable amounts of labour available in all the other required occupations; unemployed carpenters, for example, numbered 22,314. Even foremen and overseers, showing an average percentage unemployed of 6·24 in all industries have 11·45 p.c. in construction. In 1931 construction workers plus unskilled labourers totalled 45 p.c. of the unemployed.

It also happens to be the case that the industries that would be immediately stimulated by a housing programme are those which next to it have the greatest amounts of unemployment. Lumbering, for example, which showed 39.3 p.c. unemployment in 1931, would be benefited by a strong demand for constructional timber.

The total number of unemployed can only be ascertained at the time of the census, for the questioning of employers, trade unions, etc., fails to reveal all of the labour available. However, the tabulation of replies to the Employers' Questionnaire published by the National Employment Commission shows 44,000 men in other than railway and highway construction in 1929, in 1933 15,000, and in 1936 23,000. No other of the more important industries in the classification showed nearly so great a decrease from 1929 to 1933, or was so far from having recovered its 1929 level by 1936.

It has been pointed out that there is a sense in which there is no labour cost in a relief project. For one of the characteristics of labour as a commodity is that it is dissipated whether or not it is used. This is the thesis of Frank D. Graham (*Economic Theory and Unemployment.—Economic Essays in Honour of Gustav Cassel*). In his words, "It (labour) is either embodied in production as it evolves or it is forever wasted. Regardless of the wages actually paid it would therefore cost nothing to pay for such labour. Any output deriving therefrom would be unalloyed social gain. All discussions of the cost of putting an unemployed man to work are therefore misleading and indeed silly."

Many schemes for the solution of depression involve the great difficulty of requiring the government to intervene directly in production. It is not necessary to go into the objections to such a broad extension of the powers of government. But indirectly, governments may intervene through the regulation of the rate of interest by the national bank and in other ways. Now the "interest" element involved in the production of a loaf of bread, *i.e.*, the interval of waiting by the producer between the mean time of production and the mean time of consumption, is very small; while the "interest" element in the production of a house is very great. If money stands at 5 p.c., and the initial cost of the house is $5,000, and the house is to be consumed in the course of forty years and we assume that the would-be owner has no accumulated resources and wishes to pay in the course of his occupancy, then the rate per month is $24.30. But if the repayment is to be by a similar annuity calculated at the rate of 2½ p.c., then the monthly instalment, corresponding to what is otherwise paid as rent, is $16.40. Hence a lowering of the rate of interest from 5 p.c. to 2½ p.c. would bring into the market for $5,000 houses those families who are in the $16-$24 per month rent group (numbering 116,000 according to the 1931 Census, counting only urban families with wage-earner heads).

A housing scheme such as described is not the only nor necessarily the best method of combating unemployment; it is given as an example of the manner in which the census can be used to supply information on both the human resources available for a project and the utility of it. Road building, forest conservation, irrigation work, etc.; for any of these the census can tell how many men are available in the required occupations, where they are, and how long they have been out of work.

If the solution of unemployment is to be in the encouragement of industry by subsidy, loan, or other means, the important considerations in the choice of activities to be stimulated are that they should be such as to fit the surplus of trained labour available; both the demand for their product and their labour requirements should be widely distributed throughout the country; they should have the minimum effect in raising prices in industries which depend on foreign markets; they should call on the minimum number of men from already operating industry; they should produce goods which will be permanent assets; the raw materials needed should be indigenous. By the combined use of the unemployment and the industrial censuses all of these considerations may be taken into account.