DOMINION OF CANADA
DOMINION BUREAU OF STATISTICS

ILLITERACY AND SCHOOL ATTENDANCE IN CANADA

A STUDY OF THE CENSUS OF 1921
WITH SUPPLEMENTARY DATA

Published by Authority of the Hon. James Malcolm, M.P.,
Minister of Trade and Commerce

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PREFACE

The present report is an analysis of the results of the 1921 Census of Canada relating to illiteracy and school attendance. A series of three questions under the general heading "Education" were included in the Census, namely: (1) Can you read? (2) Can you write? and (3) Months at School since September 1, 1920——the census being taken as of date June 1, 1921.

The statistical tables compiled from these questions have been previously issued in separate census bulletins, Bulletin No. 17 dealing with School Attendance and Bulletin No. 18 with Literacy. The statistics have also been included in further elaboration in Volume II of the Census Report. The present report is a descriptive examination and interpretation of these statistics. In view of the importance of education and its results under democratic institutions, it will be agreed that scarcely any subject illumined by the census is worthy of more careful study in its relation to social and economic progress.

In the Dominion Bureau of Statistics a branch on Education Statistics, working, in co-operation with the several provincial Departments of Education, issues an annual "Survey of Education in Canada." This deals first on a co-ordinated and comparative basis, with the extent of public educational activities throughout the Dominion. These data are supplemented by inquiries conducted by the Bureau into higher educational activities, private education, etc., with the final result that a comprehensive annual report on education is maintained. To this, the decennial census inquiry is designed to serve as background and check. The questions as to ability to read and write may be regarded as of the nature of a test of the results of the educational activities annually recorded. The third question as to school attendance, in some degree duplicates the materials obtained through the annual survey based on reports from educational institutions; the latter, however, for various reasons—in particular, through registrations of the same student at two or more institutions—are in need of a check such as the census permits. Moreover nothwithstanding the difficulties inherent in obtaining accurate returns from the people enumerated, the census results remain the most suitable for certain purposes of analysis and research. The two sets of figures throw a good deal of light on each other, the study of the one supplementing and rounding out that of the other. The analysis of the census results on literacy and school attendance is accordingly carried out under the supervision of the branch on Education Statistics, the chief of the latter, Mr. M. C. MacLean, M.A., being the author of the present monograph.

The monograph is in four parts. Part I is devoted to an examination of the census data from the standpoint, first, of their accuracy, and second, of their adequacy. Part II proceeds to an analysis of the census data on illiteracy and their significance in correlation with such concepts as sex, age, race, rural and urban, etc. Part III deals in two chapters with the progress that has been made in Canada in the elimination of illiteracy, first, as indicated by the reduction in the percentage, and secondly, as indicated by the increased segregation of illiterate communities. In Part IV the agencies in this process of elimination are inquired into, more particularly the agency of the school, the data of the census on school attendance being co-ordinated with those of the annual Education Statistics and other known facts.

ILLITERACY AND SCHOOL ATTENDANCE IN CANADA

SYNOPSIS OF RESULTS

The following is a synopsis of the conclusions reached in this monograph:—

1. Accuracy of the Information on Illiteracy.—If "illiteracy" is understood to connote complete lack of education, the information given by the census would seem to be accurate within a very small margin of error; when examined in conjunction with collateral information on language, racial origin, etc., it shows a remarkable coherence. The principal ground for this conclusion, however, is the correlation of the information by census divisions with data on school non-attendance furnished by the census and also information on school standing given by reports of provincial Departments of Education. Information by census divisions is more liable to error, as being subject to the personal equation of a few enumerators, than information by ages, sex, etc., where the personal equation is distributed and neutralized. The strong correlation shown between the information on illiteracy in each division and the school non-attendance and standing in the same division, therefore, shows a coherence which forces conviction of its reliability. If it is reliable where the danger of error is greatest it should be reliable in other respects. Care should be taken, however, in quoting a single index of illiteracy to state other particulars and especially the ages included in the index. Thus, the correct information for 1921 is that 5·1 per cent of the population over 10 years of age including aboriginals were unable to read or write.

2. Adequacy of the Information on Illiteracy.—While the information is reasonably reliable within the limits set to the meaning of "illiteracy" it does not seem to be adequate so far as concerns persons who have been to school but are illiterate for all practical purposes. These are sometimes termed "near illiterates." On the bases of evidence from the census of school attendance and also reports on education, these would seem to form a proportion of the school leaving population of today of not less than 20 per cent. The nature of accumulated waste from year to year in non-attendance at school, together with the distribution of mental capacity, is such that the proportion of "near illiterates" tends to remain constant, or to decrease very slowly—much more slowly than "illiterates"—while those who succeed in going beyond this point tend to advance with accelerated speed.

3. Factors Contributing to Illiteracy.—(a) The element of sex, which in the crude figures shows a wide differentiation with respect to illiteracy, is found on close analysis to be relatively unimportant. The differentiation is not a sex phenomenon, but one due to the nature of the distribution of the sexes in respect of age, nativity, racial origin and rural and urban residence.

(b) The element of rural and urban residence is found on close analysis to be much less important than appears from the crude figures. The differentiation between the per cent illiterate of the rural and urban populations is partly caused by favourable distribution in urban centres according to nativity, especially of foreign born females, partly to favourable race distribution and somewhat, but very little, to sex distribution. Age distribution is slightly in favour of rural centres, but this is perhaps more than counterbalanced by the fact that increase in the proportion of children of school age to the rest of the population operates against completeness of school attendance. The balance of the difference, which is genuinely caused by the superior educational advantages of urban residence, amounts to between 1·5 and 2 per cent of the population over 10 years of age, so that rural conditions generally applied would raise the illiteracy of Canada no more than 1 per cent.

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(c) The element of nativity, although somewhat involved with that of race, has an independent bearing upon illiteracy. The foreign born of the same race, at the same age and in the same locality is considerably more illiterate (with certain exceptions) than the native born, while persons born in other parts of the Empire are less illiterate than the native born. Further, the nativity of the parents has an independent bearing upon illiteracy, the least illiterate being persons with one parent Canadian, the other British. The effects of nativity are particularly noticeable in the case of females.

(d) The element of age may be said to have an independent bearing upon illiteracy, which increases in almost all cases (racial, sex, etc.) with increase in age. The most important age group from the point of view of illiteracy would seem to be that from 21 to 34 years. An increase in the proportion of the population formed by this group is attended with a net decrease in illiteracy; that is, it is not attended by the difficulties mentioned in connection with increase in the proportion of children of school age but on the contrary contributes towards solving these difficulties. This is probably the modal age for immigration and emigration and immigration thus has a tendency to bring about a decrease and emigration an increase in illiteracy (since immigration tends to make the population younger and emigration older). Of course this is entirely apart from the question of the class of immigrants or emigrants. Again, the war, the influenza epidemic of 1918 and 1919, and other such catastrophes, by reducing the proportion at the ages of 21 to 34, had a tendency to bring about an increase in illiteracy. That this formed no small item in the illiteracy of 1921 is shown by the fact that age distribution was on the whole more unfavourable in 1921 than in 1911, for while the proportions of the two youngest groups (10 to 14 and 15 to 20) had increased, the proportion at the other extremes had also increased while the proportion at 21 to 34 had decreased. Weighting the illiteracy of each group by these increases and decreases (and also by the consideration that an increase in the proportion of children is a liability as well as an asset to literacy) discloses a condition more unfavourable to literacy in 1921.

(e) The element of race would seem to be the strongest factor in illiteracy in Canada. The per cent illiterate of the people of Canada is raised from 1 to 5 by races other than British. A further increase is caused by differentiation in these non-British races. Some deductions have to be made on the score of favourable distribution (urban, etc.) but the racial element in illiteracy remains paramount. By "race" in this connection is meant the census definition, which relates to original geographical and family habitat as probably the nearest approach that can be made in practice to an ethnic classification.

What is especially remarkable about racial characteristics in respect of illiteracy is that they seem to persist. The foreign born of a certain race in one province tends towards the same characteristics of illiteracy as the foreign born of the same race in another province. This is not unnatural, perhaps, although it must be admitted that it serves as a means of identification. It is also true, however, that the illiteracy of the foreign born children, native or British born children and native or British born adults, although greatly decreased, corresponds race for race with the illiteracy of the foreign born adult. To make this point clear, suppose, A-1, A-2, A-3 and A-4 represented respectively the foreign born adults, foreign born children, native or British born children and native or British born adults of race A; and B-1, B-2, B-3 and B-4 similarly represented the same groups of race B. Then the relationship between the illiteracy of A-1 and B-1, would be maintained in the case of A-2 and B-2, A-3 and B-3, and A-4 and B-4 in spite of the fact that the illiteracy of each of the last three pairs had been reduced so as to be much less than that of the first pair. It would also seem that the persistence of the racial characteristics of illiteracy is greater than that of inability to learn English or French.[1]

4. *Progress made in the elimination of illiteracy.*—Progress in the elimination of illiteracy is measurable directly for the ages of 10 and over and by age groups as between 1891 and 1921. No direct comparison is available for 1901. As between 1911 and 1921 there is a direct means of comparison in the case of males 21 years and over. The percentage illiterate of the population 10 years and over (exclusive of Indians) in 1891 was 13.8; in 1921 it was 5.1. The per cent illiterate of males 21 years and over in 1911 (Indians included) was 9.5; in 1921 it was 6.5

Another measure of progress is the difference between the illiteracy of age groups in 1921. The percentage illiterate at the ages of 10 to 14 was 2.0; at 15 to 20 it was 2.8; at 21 to 34 it was 3.9; at 33 to 64 it was 6.5; at 65 and over it was 13.2; and at "age not given" it was 24.3

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[1] See Chapter 8.

A still better measure of progress is the difference between the illiteracy of Empire and foreign born of the same races. This, however, is not entirely the work of Canadian schools as some of the "empire born" were born in other parts of the Empire than Canada. However, if the British and French races be excluded, the proportion of other races born in other parts of the Empire than Canada is small. Excluding, then, the English and French speaking races, the percentages illiterate of the other races were as follows: foreign born 21 years and over, 18.8; foreign born 10 to 20 years, 5.7; native born 10 to 20 years, 2.9; and native born 21 years and over, 3.9.

A method of measuring the absolute progress made, in contradistinction to the progress from census to census, is to ascertain the extent to which high percentages of illiteracy have been segregated into smaller areas, into certain geographical positions and among certain classes of people. Investigation shows that among the great masses of the Canadian population in 1921 "illiteracy" was practically unknown. By arranging the census divisions in descending order of per cent illiterate and taking into consideration the size of the population in each division it would appear that 72.2 per cent of the total number of Canadian born illiterates in Canada were confined to one-third of the Canadian born population. The remaining two-thirds had an illiteracy of only 2 per cent over the age of 10 years.

Twenty-six divisions containing 18 per cent of the population had a rate of illiteracy of less than 1 per cent. On the assumption that the modal point is the point of maximum probability, the characteristic illiteracy of Canada — that is the chances that the passing stranger meeting a Canadian-born person over 10 years of age would find that person illiterate, (that is, unable to read or write) would be about 2 in 100.

5. *Instruments of Progress in Eliminating Illiteracy.*— Progress made in the elimination of illiteracy might reflect a more favourable distribution of the population from year to year (age, urban, sex, etc.) or it might be directly due to the work of the schools. Investigation shows that what changes in distribution have taken place since 1891 have been on the whole unfavourable from the point of view of literacy. Consequently the progress made has been accomplished by the school alone, in the face of increasingly unfavourable conditions.

6. *Improvement in School Attendance between 1911 and 1921.*— The general conclusion on improvement in school attendance during the decade is that the proportion not attending school at any time was in 1921 reduced to less than half of what it was in 1911. This has a direct bearing upon what has been defined as "illiteracy". The regularity of those actually attending was also greatly improved. The nature of the attendance, however, has a peculiar aspect. There persists a tendency to postpone the commencement of school attendance till after what may be considered the optimal age, that is, an age which will enable a child to complete the common school course by the age of 14 years. Regularity of attendance also improves with increasing age up till the age of 11 years. Improvement in "regularity" was less marked (or rather negative) at the age of 5 than at the age of 6; less marked at 6 than at 7 and so on. The result is a tendency to acceleration in the advancement of those who succeed in passing beyond a certain point at school; also a tendency to a rapid increase of pupils ready to enter high school; on the other hand the same process creates a tendency on the part of the proportion unable to pass beyond a certain point to remain constant. This has a strong bearing upon the question of "near illiteracy" which has to contend not only with the mental differentiation of those actually at school, but also with the persistent accumulated waste from year to year occasioned by postponing to a late age the date of beginning school and reaching the point of maximum regularity in attendance.

7. *Factors Influencing School Non-Attendance.*— (a) There is a very strong correlation between non-attendance of children 7 to 14 years of age at school in 1921 and the percentage of illiteracy of the community to which the school population belonged. Since it could not have been the non-attendance of 1921 that caused the illiteracy, it is reasonable to conclude either that illiteracy operated as a direct cause in this case, or at least that the same conditions which caused school non-attendance (and hence illiteracy) in the past were still operative in 1921. A further investigation revealed facts which seemed to confirm the direct causal operation of personal characteristics leading to illiteracy independently of such conditions as rural residence, geographical position, etc. The conclusion seems to follow that illiteracy has a tendency to perpetuate itself and that the school has not only the task of educating those within its reach but also of overcoming this form of inertia. This point is discussed at length in Chapters 15 and 16.

(b) There was also a strong correlation between the illiteracy of the community and the standing of pupils at school as shown in the reports of Departments of Education. The immediate inference is that illiterate communities do not send their children to school as regularly or as long as less illiterate communities. As a confirmation of this conclusion it may be mentioned that the correlation between illiteracy and the non-attendance at school of children 7 to 14 years of age was further analyzed to ascertain whether this was due to the early leaving of pupils (that is at 14 years), the late commencement, or a general cause applying to all ages. The correlation between illiteracy and school non-attendance was a little weaker at the age of 7 than at 8 to 13 and this again than at the age of 14, but it was strong in all three groups. It would seem, therefore, that the tendency of illiterate communities to fail to take advantage of school opportunities is not due to need for the labour of the children, which should be more profitable at the age of 14 than at earlier ages, but to a general attitude towards education.

(c) The combined effects of rural residence, geographical position and other physical conditions upon school non-attendance seem to be somewhat less than the effects of non-physical conditions. The class of residents seems to be the determining factor, so that one class fairly consistently shows good attendance even under physical disadvantages, while another class equally consistently shows poor attendance even under physical advantages.

(d) School non-attendance has a closer connection with the illiteracy of females than with that of males. This has a favourable aspect, inasmuch as females at present, whether owing to opportunity or for other reasons, have a tendency to remain at school longer and therefore to attain to a more advanced standing than males. The result is that the more influential sex (from the point of view of school attendance) is preparing itself for the wielding of that influence.

(e) School non-attendance seems to show a certain connection with occupation. It increases with the proportion of persons employed in mining or manufacturing—especially where large numbers of women are so employed. Further investigation shows that this is not necessarily due to the tendency of parents to send their children to work at the age of 14, since the younger children of such groups, whose services would not be so valuable, also show a tendency to non-attendance. It would seem, therefore, that want of oversight is a stronger factor in school non-attendance than need for the labour of the children. It would not be fair to conclude from this evidence that manufacturing and mining have an unfavourable influence on parental care, since the facts lend themselves equally well to the explanation that certain classes of foreigners and illiterate persons, who would not take great pains to send their children regularly to school in any case, are particularly attracted to the occupation of manufacturing or mining.

(f) The waste occasioned by school non-attendance and by irregularity in attendance from year to year has the tendency already mentioned of keeping constant the body of "near illiterates." It has the further tendency to keep this body dangerously large in certain communities and among certain classes of people, occupations, etc., while it is negligible in others.

PART I.—VALUE OF THE CENSUS INFORMATION ON ILLITERACY

CHAPTER I

ACCURACY OF THE CENSUS INFORMATION

In proceeding to an examination of the accuracy of the data available through the census as to illiteracy it will be convenient to deal in succession with the different types of error to which the statistician and student is liable in the collection, analysis and publication of the information, including errors of interpretation, statement and observation.

Errors of Interpretation.—The single index used to express the illiteracy of Canada in 1921 is 5·1 per cent representing the illiteracy of the population of 10 years of age and over. Obviously our first duty is to explain the exact meaning of this index, particularly in comparison with the similar index as of the immediately preceding censuses.

In 1911 the index commonly quoted was 10·50 per cent; in 1901 it was 14·38 per cent. In the censuses of 1901 and 1911, however, the age of 5 years was taken as the starting point and the index of illiteracy was quoted as a percentage of population, including all classes over the age of 5 years. Since then it has become increasingly obvious that a quotation of illiteracy of children of 5 years is meaningless. On examining, for example, the school attendance bulletin of the census it will be seen that only about 142 out of every 1,000 children (exclusive of Indians) in Canada begin school at or under 5 years of age; some 381 begin at the age of 6; some 302 at the age of 7; some 87 at 8; some 24 at 9; some 10 at 10 and 1 at 11 years of age— when the schools may be said to be have their quota completed. The remainder (about 50) evidently do not attend at all, or dribble in at ages after 11. Evidently, therefore, 10 years of age is the earliest starting point for a quotation of illiteracy. At this age, when the regularity of attendance at each age is considered,[1] 142 out of 1,000 have had about 35 months or 3½ school years at school; 381 have had about 29 months or nearly 3 years at school; 302 have had about 23 months or over 2 years; 87 have had 15½ months or over a year and a half, while about 35 have had less than a year at school. The remaining 50 odd presumably have not yet been to school. Thus at 10 years the children average about 2 years at school. A quotation on illiteracy with 10 years as a starting point, then, has at least a certain amount of meaning, and it is on this basis that the index above quoted is prepared.

In 1921 the percentage of all classes of the population over this age not able to read or write was 5·10. Clearly this index is not in any sense comparable with 10·50 per cent over the age of 5 years in 1911 or 14·38 over the age of 5 years in 1901. Nevertheless, unless care is taken to state the age used as a starting point, the illiteracy of the three census years will be quoted as above.

In 1891 no single index was used, apparently for the reason that no satisfactory index could be devised. The Indians formed a larger proportion of the population of Canada than they do at present and it might be questioned as to whether the illiteracy of Canada should be quoted as that of Canada including Indians or of Canada excluding Indians.

The question, however, may be asked whether it is ever justifiable to use a single index of illiteracy. True, there were 341,019 persons in Canada in 1921 out of a population of 6,682,072 over 10 years of age who could neither read nor write, a percentage of 5·10, but what is the meaning of this percentage? Does it mean that one out of every twenty persons over 10 years of age selected at random in Canada is unable to read or write? If this were true it would follow that any unselected group of twenty persons of the ages in question might be expected to have one illiterate person; or if this group happened to have no illiterate persons, the next group might be expected to have two illiterate

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[1] At the age of 5 years the children actually at school in Canada in 1921 attended on an average 5·7 months; at 6 years, 6·5 months; at 7 years, 7·3 months; at 8 years, 7·6 months; and at 9 years, 7·7 months.

persons, and so on. If the percentage of 5·10 is intended to mean the probability in Canada of coming across an illiterate person, then it is clearly absurd. For example, if a town of 5,000 over the age of 10 years contained a home for feeble minded persons with 1,000 inmates all illiterate, the fact could not be denied that 20 per cent in the town was illiterate; yet it might be equally the case that no person outside the walls of the home mentioned was unable to read. It is a question, however, whether it would be more absurd to give the quotation of 20 per cent for that town than the quotation of 5·10 per cent for all Canada. Everything depends upon whether the 5·10 per cent are evenly distributed among the population. If the distribution were even the quotation would be correct; if it occupied strategic positions the quotation would be an under statement of the fact; if it were segregated in corners of the country in a manner analogous to the segregation in the town above mentioned, 5·10 per cent would be an over-statement. The effect of illiteracy in a country depends not only upon the number of illiterate persons but also upon the manner in which these are distributed and influence the rest of the population.

Another source of misinterpretation lies in comparisons, as of province with province, sex with sex, rural with urban, etc. True, if a certain number of illiterates live in a province, that province has a definite per cent illiterate, whilst another province has likewise a definite per cent. Comparisons are usually made, however, for a purpose and in a given context. If the purpose of comparing one province with another is to ascertain the amount of mischief done by illiteracy, then the nature of the distribution of the illiterates should also be compared. If the purpose is to ascertain the comparative achievements of the two provinces in education, then it is clearly imperative to take also into consideration the comparative educational problems of the two provinces, such as rural and urban distribution, sex and age distribution, densities of population, climatic conditions, past educational progress, and—most important of all— comparative immigration. Again, the gross figures show females as having a smaller percentage of illiterates than males. This is partly due to the fact that the "weight" of females is in urban centres, while that of males is in rural centres; that in rural centres the "weight" of females is in the populous and settled parts, while the thinly and newly settled parts are inhabited largely by males; as well as to economic considerations, such as the fact that in cases of poverty the boy is first taken out of school to help support the family. A large element in the comparison between sexes, therefore, does not pertain to sex comparison at all, though this is often lost sight of when the female sex is mentioned as being less illiterate than the male. Again, when rural centres are compared with urban, the most prominent if not the usual object is the comparative incidence of rural and urban conditions. But if the rural community contain a preponderance of illiterate adults born and brought up in another country it is clear that Canadian rural condi- tions had nothing to do with their illiteracy. On the whole the class of immigrants gravitating towards rural communities are more illiterate than those gravitating towards urban communities. This is especially true of immigrant females. Again persons of the female sex, which is slightly less illiterate than the male, are relatively more numerous in urban than in rural communities. Again, the proportion of the population at school age is greater in rural than in urban communities; this happens to be an important factor in school attendance and consequently in illiteracy, as the greater the proportion of children the more difficult it is on the whole to send them to school. When comparing rural and urban illiteracy, therefore, it is necessary to remember that the crude data do not afford a comparison between what is intrinsically rural and what is intrinsically urban, but merely supply a complex mass of information which includes elements which are common to both rural and urban centres but happen to exist on a larger scale in rural than in urban communities.

Taking the above into consideration it will be seen that serious errors may arise in making comparison on the bases of what may be called improper weighting. To pursue somewhat further the example just given: rural centres have 8.3 per cent over the age of ten British-born and 10.9 per cent foreign-forn. These have percentages of illiteracy respectively of 0.70 and 15.74. Urban centres have 16.0 per cent British-born and 9.3 per cent foreign-born having percentages of illiteracy respectively of 0.72 and 10.71. Leaving aside the Canadian born it will be seen that of the other two classes the rural illiteracy is 9.24 per cent and the urban 4.39 per cent or less than half the percentage in the rural. It is clear that neither the British nor the foreign born are twice as illiterate in the rural communities, and that it is the nature of the distribution that causes the great difference between the two. This effect of the weighting may be seen more clearly from the following example. ("Number" in each case is the number per thousand of the population).

TABLE I

	British born		Foreign born		Total	
	Number	Percent illiterate	Number	Percent illiterate	Number	Percent illiterate
Rural..	83	0·70	109	15·74	192	9·24
Urban..	160	0·72	93	10·71	253	4·39

If the percentages of illiteracy had happened to be exactly the same in rural as in urban communities, the actual distribution of British and foreign born would give the following results:—

TABLE 2

	British born		Foreign born		Total	
	Number	Percent illiterate	Number	Percent illiterate	Number	Percent illiterate
Rural..	83	0·70	109	15·74	192	9·24
Urban..	160	0·70	93	15·74	253	6·23

Thus with the same illiteracy of the two classes in the community the rural would appear as one half again as illiterate as the urban, due to the distribution of the population. It may be repeated that in the case of adults or juveniles the rural and urban schools or communities of Canada may have had but little to do with their illiteracy.

On the other hand, if the distribution in the urban had been the same as in the rural, and the percentages illiterate the same as the actual the following would result:—

TABLE 3

	British born		Foreign born		Total	
	Number	Percent illiterate	Number	Percent illiterate	Number	Percent illiterate
Rural..	83	0·70	109	15·74	192	9·24
Urban..	83	0·72	109	10·71	192	6·39

It is thus seen that the distribution of the population had more to do with the difference between rural and urban communities than the considerations of locality. These points will be investigated fully in subsequent chapters. It should be clear, however, that they are a fruitful source of misinterpretation.

Errors in Statement.— Even if the information itself were fully understood, it would be necessary to compare Canada with other countries before a concept of Canadian illiteracy could be formed. The errors, possible, however, in such a comparison are numerous. Among sources of error may be mentioned: (1) different methods of collecting the information; (2) different methods of quoting the index of illiteracy; (3) different ages used as a starting point; (4) different dates at which the information is collected.

(1) The first source of misstatement, namely, different methods of collecting the data, can best be explained by stating the nature of the data in the principal countries of the world as follows:—

England and Wales.—The number of persons who signed the marriage register by mark is published every five years, by sex, in the Annual Report of the Registrar General. The latest figures published relate to the year 1919.

Scotland.—The number and percentage by sex of persons signing the marriage register by writing and by mark are published yearly, while decennial averages are also given. The latest annual figures available are for 1922; the latest decennial averages are of course for 1911-1920.

Northern Ireland.—This country gives, on the bases of the census enumeration, the population 9 years and upwards and the number of these illiterate. It is not stated whether "illiterate" here means those who could neither read nor write or those who could not read and write, but presumably it means the former. The number of the population at all ages who can read and write and who can read only are also given. The latest census information is for 1911. The percentages by sex signing the marriage register by mark are given as late as 1923.

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Irish Free State.—The latest information with regard to illiteracy by administrated counties, county boroughs, and provinces is contained in the general report of the census of 1911. The data give the percentages of the population able to read and write, able to read only, and "illiterate"

Australia.—The 1921 census gives by sex the total number, exclusive of full-blood aboriginals, able to read and write, and read only, according to the two languages—English and foreign; also according to decennial age groups.

Austria.—The population over 10 years, with the number and per cent of these able to read and write, able to read, and unable either to read or write, are given by provinces for 1910.

Belgium.—The latest information is that of the general census of 1910. The number and percentage of persons out of the total population able to read and write are given by the census. Estimates from these data of the percentages able to read and write of the population over 5 years and over 8 years are made in the Statistical Year Book of 1914.

Czecho-Slovakia.—The latest information obtained was for 1910 in Manual Statistique de la République, 1920. Here is given for the Slovak and Ruthenian counties the number and percentage of the population over 6 years of age able to read and write, to read only and not able to read or write. For Bohemia and Silesia the same information is given for the population 10 years of age and over. The single index of illiteracy quoted for the two counties is the percentage of the population over 6 years able to read and write. That for Bohemia, Moravia and Silesia is the number per thousand over 10 years unable to read and write.

Denmark.—The school knowledge of conscripts was last investigated in 1914.

Finland.—The number and percentage over 15 years in rural and urban communities unable to read and write are given for 1920.

France.—The census of 1911 gives the population 5 to 14 and 15 and over able to read and write, and illiterate.

Germany.—The numbers and percentages of recruits unable to read or write are given for 1911, 1912 and 1913. These are the latest statistics available.

Hungary.—The census of 1920 gives by sex the number and percentage over 6 years of age, also by nine age groups, able to read and write; also by religions.

Iceland.—No statistics are available as illiteracy is not considered to exist.

India.—The 1921 census gives by sex the number per thousand over 5 years of age able to read and write.

Italy.—The latest census figures are for 1911. The status of illiteracy, as ascertained from the number unable to sign the marriage register, is available as late as 1923.

Netherlands.—The latest statistics on illiteracy are published in the Statistical Year Book of the Netherlands, 1919. Unpublished yearly data concerning illiteracy of military persons are available for the years 1920 to 1923. These figures give the number of persons able to read and write, to read only, and unable either to read or write, by provinces and for the Kingdom.

New Zealand.—The census of 1916 gives by sex and decennial age groups, also 10 years and over, the number and percentages able to read only and not able to read and write in rural and urban communities as well as in the whole Dominion.

Norway.—As the problem of illiteracy is practically non-existent, no special publications on the subject are issued.

Poland.—The census of 1921 gives the number and percentage illiterate over the age of 10 by decennial age groups; also by sex and religion.

Portugal.—The percentage 15-59 unable to read and write.

Sweden.—In this country also the problem of illiteracy is considered not to exist (except of course in the case of defectives), and no statistics are collected on the subject. A certain amount of information is afforded by the ability to read and write shown by the conscripts serving their first period of training in 1921–1922.

Switzerland.—There are no direct statistics on illiteracy since illiteracy is not considered to exist except in the case of defectives.

United States.—The census of 1920 gives statistics on illiteracy in greater detail than Canada. Although the percentage unable to read or write is given for the population over 10 years of age, the single index quoted for "illiteracy" is the percentage over 10 years of age unable to read and write.

Uruguay.—(Annuario Estadistico, Lib. XXX, 1922). The percentage illiterate is given as on November 1920.

From the above it is seen that information on illiteracy is obtained by widely different methods in different countries, the three main sources of information being (1) the census, (2) the marriage register, and (3) army records. Information from such a variety of sources can not be strictly comparable. A still greater variety exists in the ages for which the information is quoted. In some cases the percentage is that of the total population; this includes the illiterates under 5 years of age. From this extreme, the minimum ages vary from 5, 6, 9, 10, 14 to adults, as in the case of the indices derived from the marriage register and the army records. The danger of

comparing the illiteracy of two countries on the bases of the single index quoted for these countries may be seen from the fact that the percentage of "illiteracy" (*i.e.* inability to read or write) in Canada over the age of 5 years in 1921 was 9.25; over the age of 10 years, 5.10; over the age of 15 years, 5.34; over the age of 21 years; 5.92. The index quoted from the army and marriage registers would probably be nearer that for 15 years and over in Canada than any of the other groups. Again, some countries quote the index for the population exclusive of full blood aboriginals. If the illiteracy of Canada is quoted exclusive of Indians it is appreciably less than when Indians are included. Again certain countries mean by their index those unable to read and write (*e.g.* the United States). On this basis the index for Canada would be 5.74 instead of 5.10. Again, the date for which the illiteracy is quoted is important, especially if there is a difference of several years between the quotations for the two countries under comparison. This can be readily seen if the illiteracy in Canada in 1891 is compared with that in 1921. It is therefore necessary, when comparing illiteracy in two countries, to know the exact content of the index quoted in each case.

Errors of Observation.— What are here called errors of observation are those which are usually, and perhaps unjustly, regarded as the main errors in connection with statistics of illiteracy. These are the supposed errors made by the enumerators either in failing to make proper inquiries about the person enumerated, or in forming improper judgments of the answers received. The questions asked are "Can you read." and "Can you write." Directions are given to the enumerators to ascertain whether the person enumerated can read or write in any language. The age, sex, citizenship, etc. of the person are entered in the same schedule. The answers received by the individual enumerators are checked by a local representative or "commissioner" who has intimate knowledge of the locality, as well as easy access to sources of direct information. The schedules are later checked at the Dominion Bureau of Statistics by trained compilers where any inconsistent answers are readily observed and referred back to the enumerator or commissioner. It is thus seen that the questions are simple, and that due precautions in a direct way are taken against errors of observation. On the part of the enumerator the probabilities of error depend almost solely upon his honesty. On the part of the enumerated there are a number of probabilities: *e.g.* he may not wish to tell the truth; he may not understand what is meant by "can you read", *i.e.* whether it means being able to read generally and deeply or being able to read merely elementary matter. Indeed, as already stated, it would be impossible to frame a question that would elicit an answer giving the exact degree of literacy. The most probable error arising from the enumerated would be the case of one man who, if he could read a simple statement but could not read well, would answer that he could not read, while another with the same attainments would answer that he could read.

It must be admitted, however, that the cases mentioned are exceptional. When a question is framed so that a man of ordinary intelligence can understand it, those who do not understand it must be in a small minority. Further, the literate person would be more likely to understand it than the illiterate person, so that the small minority mentioned would likely include more illiterate than literate persons. If an illiterate person misunderstands the question and answer that he can not read he is still stating the general truth. When all things are considered, therefore, the error due to a misunderstanding of the question must be small. Errors due to dishonesty on the part of the enumerator are limited by the possibilities of detection; incoherences in returns are likely to be detected at some stage of the compilation and they at once lead to careful investigation of the entire returns of the particular enumerator. That untruthfulness is in the long run incoherent may be accepted as a general principle.

In the introduction to Chapter XII, Volume II, of the 1920 Census of the United States, the following opinion is expressed:— "There is undoubtedly a margin of error in the statistics of illiteracy resulting from a variety of causes. In some cases there may be unwillingness to admit illiteracy on the part of the persons enumerated. Furthermore, in parts of the country where practically all native white persons are literate the enumerators are likely to acquire the habit of returning them as such without formal enquiry, and in this way a few isolated cases of illiteracy may be overlooked. On the other hand, in the case of negroes, the opposite assumption may be made by white enumerators, while in the case of foreign born, inability to write in English may be taken as constituting illiteracy, although the instructions make it clear that a person able to write in any language is to be returned as literate. For the United States as a whole and for the

states and large cities the figures are probably nearly enough accurate to supply a sound basis for judgment as to the relative illiteracy of different classes of the population, of persons of different age groups, and of males as compared with females. Beyond question comparisons between different censuses show the general tendencies with substantial accuracy. The returns for small areas, however, may be open to question in some cases."

It should be noticed that the sources of errors mentioned in the foregoing quotation are specifically mentioned as sources of possible errors and that there is no contention that these errors are prevailing or even numerous. The distinction is important. In no field of enquiry, even in the most exact sciences, can it be said that errors of observation are not possible and do not occur. This possibility, however, does not render the information obtained in an investigation in such a science valueless — the value depends upon the proportion of errors the information contains, and the degree of accuracy required. If for, example, the question was asked as to how many illiterate persons there were in Canada in 1921 and the answer was given as 340,000 instead of the presumably correct figure, 341,019, the error for most practical purposes would be negligible. It might make a difference if the information were required for the purpose of providing each illiterate person with a course of training,— and in this case it would be more important that the information be correct in particular centres than in the country as a whole. If, however, the information is required merely for the purpose of describing the situation in general, the round number is as good as the exact number. Again, if it was required to compare two cities and one was given as 3.6 per cent illiterate while the other was given as 3.2 per cent instead of true figures, 3.3 for the first and 3.4 for the second, it might be said that the inaccuracy here was unfair. The answer would be that there was no significant difference between the figures for these cities; a difference of less than one-half per cent in what is after all an unmeasurable quantity may be credited to a probable error, whether it is an error or not. The whole question, then, is whether all the sources of errors mentioned are sources of large errors or only of small errors. If they form only a small proportion of the facts they do no harm for most purposes; if they are likely to form a large proportion, then the information is useless for most purposes.

In the matter quoted from the United States census it will be noticed that emphasis was laid upon the manner in which the data on illiteracy show "general tendencies with substantial accuracy". This may appear like a begging of the question, but it is not. It is merely another way of stating that truth is coherent and untruthfulness generally or in the long run incoherent. An examination of the coherence of the census figures on illiteracy is therefore a valid means of arriving at an estimate of their general accuracy. Let us proceed to such an examination.

If "illiteracy" is in any sense what we understand by the term it must have a cause or causes and also effects. Some of these causes may be hidden, but there is one of which there can be no possible doubt, namely, school attendance. It is true that school non-attendance during the year 1920-21 was in the strict sense not the cause of illiteracy in 1921 except in the case of the few actually at school or not at school and who required just one school year to change their status from illiteracy to literacy. What is meant is that school attendance during an adequate period is the direct cause of literacy. Home tuition may give a literacy status to some in spite of school non-attendance; mental deficiency may give an illiteracy status to others in spite of school attendance, but both these cases are so few that they can safely be ignored. While school non-attendance in 1920-21 could not have been the cause of illiteracy in 1921 there is no doubt that it should be closely connected with illiteracy in that year, since an illiterate community was illiterate either because it was impossible to provide school accommodation owing to conditions of settlement, or because an illiterate population would fail to provide school accommodations owing to want of appreciation of such or because illiterate people would fail to send their children to school when accommodations had been provided. It is therefore reasonable to expect that illiteracy in 1921 and school non-attendance in 1920-21 should be connected.

However, if the connection were not strong or the data accurate it was not necessary that this connection should come out very clearly in the census statistics. Several causes might intervene to prevent this. An epidemic of sickness might make school attendance poor during one year in a literate community which normally recorded good attendance. A thinly settled community under pioneering conditions might not have a sufficient number of children to open a school; this second condition, however, would by its very nature make but a small difference, owing to the small number of children involved. Several accidents might prevent a literate person or community

from sending children to school during a certain year. If, therefore, no connection had been shown between figures of illiteracy and figures of school non-attendance this would not have been proof that the figures were inaccurate. If, however, in spite of the many conditions that might have masked the connection, a strong connection was actually shown between two things that are known to be fundamentally related, it may be adduced as an argument that the data on illiteracy are coherent.[1]

There were 219 census districts in 1921 for each of which data on illiteracy and school attendance were compiled separately for rural and urban parts and for the Canadian, British and foreign born; also 79 cities and towns with a population of more than 7,500. It is to be remembered that there were over 11,000 enumerators distributed throughout these divisions, most of whom were unknown to each other. It would be absurd to suspect that there could have been an understanding between them as to deliberate error in recording illiteracy. More absurd would be the supposition that all could make the same kind of mistake without an understanding. Even if it had occurred to them all to say that a child could read because he was at school, this would have covered only a very small proportion of the literacy. If further, it had occurred to them all to say that the parent of a certain child was illiterate because the child was not at school it would still have covered only a small number of cases, since the older children and other relatives were still to be taken into account. Moreover, the matter is not thus simple. In fact so many possibilities arise that no amount of collusion on the part of the enumerators could make such complex facts cohere if erroneous. On the other hand, that they could cohere by accident would be equally unbelievable. One household might have a large number of children, some 5 or 6 who had not begun school and some over 14 who had discontinued school; another might have very bright children of 12 or 13 who had finished the common school course and had no means of going on to high school work. Further, since the British and foreign born are immigrants, most of their adults at least would have had their school training outside of Canada and consequently the connection of their illiteracy would not be expected to be as strong with school non-attendance in Canada in 1920-1921 as that of the Canadian born, a large number of whom would be born and educated in the same community as their children. Further, some of the immigrants would have arrived in Canada in 1921 too late to send their children to school before June 1, so that literate immigrants might show poor school attendance during that year. If, then, the figures actually show that the school non-attendance of the Canadian born is more closely connected with the illiteracy of the Canadian-born than the school non-attendance of immigrants is with their illiteracy, this is a further proof of coherence in the statistics of illiteracy. Further, if a community is found to be an apparent exception showing very poor school attendance and very little illiteracy or *vice versa* and on investigation it is found that there is a single and satisfactory explanation for this, the proof of coherence is still stronger. To cite one case out of many, a certain city showed a good school attendance and a high rate of illiteracy. On investigation, it was ascertained, that in the case of the Canadian born in this city the rate of illiteracy was very low and that nearly all the children at school were Canadian born; the illiterates were practically all oriental adults with no children in Canada.

There is an efficient means of measuring this connection in the coefficient of correlation. Errors may arise in the interpretation of this coefficient, i.e., it may be difficult to interpret what the correlation may mean, but as an actual measure of a connection there can be no question as to its validity. A coefficient of linear correlation merely states to what extent every pair of items correlated are together above or below the averages of all the pairs of items correlated. From it and its byproducts is calculated the probability that when one item is a given size the other is a certain size. The greater the number of items correlated the smaller the likelihood that this coefficient is merely the result of coincidence. If in one community the percentage not at school were 7·2 and the percentage illiterate were 4·8; if in another community the percentage not at school were 14·4 and the percentage illiterate were, say, 10·5; if in still another community the school non-attendance were 2·5 per cent and the illiteracy were 0·8 p.c.— since these are only three cases the connection shown might be only accidental. If, however, the same connection were found to hold in 27 cases the reliability of the results would be three times as great; if it held in 243 cases the reliability of the results would be nine times as great as the original, and so on.

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[1] Unless, of course, there is reason why two inaccurate statements might be reported together. This point is discussed in the following paragraphs.

That a consistent connection shown in 219 or even 100 cases could be due to accident is extremely unlikely.

The percentage illiterate over the age of 10 and the percentage not at school at the ages of 7 to 14 years have been separately correlated for rural and urban communities, also for the 79 cities and towns over 7,500; also separately for Canadian born and for all classes; also the correlation between school attendance at ages 7 to 14 and illiteracy of the population over 21 years was obtained. Some scores of correlations were thus worked out, including that between illiteracy and school attendance at the ages of 8 to 13. Illiteracy was also correlated with other data, such as physical conditions. In subsequent chapters more details of these correlations will be given. It is sufficient to state here that a decided correlation was found between illiteracy and school non-attendance. The connection shown was too strong and the number of cases correlated was too large to leave any question of accidental connection. In the case of the Canadian born in 96 rural census divisions, selected for the purpose of excluding Indians and extreme climatic conditions from the calculation, the coefficient was found to be over 0·90 or practically perfect. The chart on page 113 will show how steadily school non-attendance goes up as illiteracy rises, and *vice versa*. This leaves no doubt as to the general coherence of the data on illiteracy. That "illiteracy" may not mean exactly what one person thinks it ought to mean is not a question of accuracy. What the census enumerator was comcerned with was receiving a true answer to a single question. The degrees to which the question was misinterpreted might affect the adequacy of the answer but not its accuracy. That is, "able to read" might not mean very profound learning and might express various degrees of reading ability, but the answer would be accurate if the enumerated had passed the boundary line between utter inability to read and ability to read something.

It is needless, perhaps, to add that this coherence minimizes the danger of unwarranted assumption on the part of an enumerator that because a person can not speak English or French he is therefore illiterate. This may conceivably happen in the same way that other errors may arise, but it must again be emphasized that the question is not whether the data are absolutely free from all errors, but whether they are free from large or significant errors. If a Canadian born of foreign parentage was unable to speak English (or French) in what language was he likely to have learned to read or write—[1]

The person who did not send his children to schools in Canada but was teaching them at home, may have existed, but must have been extremely rare. A person born in Canada—his parents also probably born in Canada—would undoubtedly in most cases try to learn the language of the people around him, if he were intelligent enough to be able to learn it. Such a combination of circumstances as that a certain person, although an adult and born in Canada, could not speak the language of the enumerator; that he did not send his children to school; and that the enumerator at the same time was dishonest and assumed unjustly that he was illiterate, is extremely improbable and could have happened in so few cases that it is not worth while considering them. Even where it happened "illiteracy" might be said to have meant a quality which prevented people from sending children to school—also a quality that prevented persons, although born and brought up in Canada, from learning the languages of Canada.

As the inability to speak the language of the enumerator is a possible source of error, however, and as it is suspected as a fruitful one, it may be advisable to investigate the possible or probable extent to which it may have affected the data on illiteracy.

The census inquiry required an answer from every person over 10 years of age to three questions : *(a)* can you speak English? *(b)* can you speak French? *(c)* language other than English or French spoken as mother tongue? Canada as a whole had 84·79 per cent of the population over 10 years able to speak English, 58·61 per cent speaking English only, 16·03 per cent speaking English and French, 9·49 per cent speaking English and a foreign tongue, and about 0·6 per cent or 43,970 persons speaking English and French in addition to the language of their racial group. French was used as a sole medium by about 13 per cent of the population, those able to speak either English or French thus constituting 98 per cent of the population 10 years old and over. Before proceeding it may be well to mention that the population other than English and French speaking to the number of 1,180,948 included 116,408 unable to read or write. The latter is 1·7 per cent of the total population of Canada (over 10), or about the same proportion as those unable to speak English or French. Thus if we were to suppose that all

[1] Again it might be answered that there are cases of private or sectarian schools, where these people learn to read in their native language. The total number of Canadian born so taught, however, can not exceed a negligible percentage of persons of foreign parentage.

those unable to speak the language of the enumerator were set down as illiterate then all those able to speak the language must have been set down as literate. Since illiteracy is also charged against English and French speaking people it is unreasonable to suppose that persons of other races would be specially favoured by the enumerator.

The following table gives the number and per cent 10 years and over of each race other than English-speaking and French-speaking people able to speak their mother tongue only; also the number and percentage illiterate.

TABLE 4.—ABILITY TO SPEAK ENGLISH OR FRENCH OF THE DIFFERENT RACES IN CANADA, 1921

Racial origin	Unable to speak English or French		Unable to speak English or French minus illiterates		Not able to read or write		Population 10 years and over
	Number	Percent	Number	Percent	Number	Percent	
Austrian	12,669	18·19	−6,460	− 9·28	19,129	27·47	69,633
Belgian	630	4·09	− 247	− 1·60	877	5·69	15,407
Bulgarian	272	18·00	− 82	− 5·40	354	23·40	1,513
Chinese	12,048	32·10	639	1·71	11,409	30·39	37,536
Czecho-Slovak	395	6·22	− 192	− 3·03	587	9·25	6,344
Danish	214	1·36	− 20	− 0·13	234	1·49	15,476
Dutch	6,783	7·68	4,757	4·39	2,026	2·29	88,347
Finnish	2,329	14·13	618	3·28	1,711	10·85	15,774
German	3,818	1·70	−3,140	− 1·45	6,958	3·15	221,131
Greek	273	6·50	− 181	− 4·31	454	10·81	4,199
Hebrew	5,082	5·44	−1,808	− 1·94	6,890	7·38	93,403
Hungarian	911	10·42	− 145	− 1·67	1,056	12·09	8,738
Icelandic	727	5·90	480	3·89	247	2·01	12,308
Italian	6,343	12·32	−2,474	− 7·12	8,817	19·44	45,363
Japanese	4,958	41·20	2,605	21·65	2,353	19·55	12,033
Norwegian	651	1·29	− 43	− 0·09	694	1·38	50,262
Polish	4,804	13·60	−2,124	− 5·97	6,928	19·57	35,394
Roumanian	1,163	13·35	− 905	−10·38	2,068	23·73	8,715
Russian	11,345	16·90	−1,779	− 2·65	13,124	19·55	67,120
Serbo-Croatian	254	8·59	− 398	−11·06	552	19·65	2,809
Swedish	1,040	2·22	− 60	− 0·12	1,100	2·34	46,933
Swiss	54	0·55	− 46	− 0·46	100	1·01	9,923
Syrian	220	3·95	− 701	−12·58	921	16·53	5,572
Ukranian	17,726	26·20	−2,835	− 4·19	20,561	30·39	67,654
Unspecified	33	0·17	− 932	− 4·89	965	5·06	19,074
Various	464	11·64	− 452	− 7·12	856	18·76	5,562

If these facts were not subject to the question as to whether the enumerator may not have made an unwarranted assumption to the effect that the person unable to speak his language was illiterate, the figures would be very interesting as illustrating how far ability to master the language and ability to read went together. As there is such a question it will, perhaps, be better to draw no conclusions on this point.

It is noticeable that 9,099 belonging to five different races could not speak any language except their own and yet were not illiterate. The total over 10 years of these races was 165,999, so that 5.5 p.c. of them although speaking only their own language were able to read. There were in all (of these 5 races) 26,845 who could speak only their own language. Of these evidently at least 9,099 could read; this is equivalent to about 34 per cent — not an unreasonably low percentage. The point, however, is that this offers clear evidence that the enumerators made inquiries in the cases of persons who could not speak their (the enumerators') language. If they did so in the case of some races there is no reason to assume that they did not do so as a regular practice.

In the case of 20 other races or race groups, 24,092 or 3.1 per cent of the total over 10 were illiterate, over and above the number who could speak only their own language, namely 68,168. (The number illiterate was 92,260 out of a total of 779,907 over the age of 10). Evidently this number at least (24,092) were illiterate and yet able to speak English or French. In the case of Germans, for example, there were only 3,818 unable to speak English or French and yet 6,958 were illiterate, leaving at least 3,140 illiterate who must have been able to speak English or French. The Germans are not an illiterate race and would not naturally be assumed as being illiterate, so that it is unlikely that the 3,818 able to speak only their own language would be assumed as being all illiterate. The same applies to certain other races, so that it is unlikely that all the 68,168 able to speak only their own language were set down as illiterate. This point comes out more clearly when the data are given separately for Canadian born and British born and foreign born as follows:—

14050—2½

TABLE 5

Race	Unable to speak English or French	Unable to read or write		Unable to speak English or French minus illiterates	Population 10 years and over
	Number	Number	Per cent	Number	Number
Austrian	1,124	1,281	6·83	— 157	18,750
Belgian	4	43	1·56	— 39	2,761
Bulgarian	5	6	16·67	— 1	36
Chinese	52	49	4·61	3	1,064
Czecho-Slovak	12	14	0·90	— 2	1,547
Danish	4	36	0·82	— 32	4,394
Dutch	5,152	1,709	2·46	3,443	69,485
Finnish	55	59	2·22	— 4	2,656
German	660	3,111	2·18	—2,451	142,620
Greek	2	9	2·51	— 7	358
Hebrew	124	153	0·61	— 29	24,894
Hungarian	23	41	1·79	— 19	2,287
Icelandic	22	26	0·49	— 4	5,317
Italian	110	238	2·61	— 128	9,130
Japanese	73	27	4·27	46	632
Norwegian	15	90	1·24	— 65	7,237
Polish	490	814	7·82	— 324	10,403
Roumanian	99	91	6·50	8	1,401
Russian	2,357	1,488	8·06	869	18,469
Serbo-Croatian	7	8	1·93	— 1	415
Swedish	15	81	0·92	— 66	8,760
Swiss	1	30	0·56	— 29	5,329
Syrian	7	32	2·04	— 25	1,571
Ukranian	1,777	1,475	7·65	302	19,289
Various	344	556	23·06	— 212	2,411

First, there are at least 4,671, belonging to 6 races, of the Canadian born, who could speak only their own language and yet were not illiterate. This adds three races to the number discovered when the Canadian and foreign born were taken together, so that in the case of 8 races at least there is evidence that the enumerator made inquiry in the case of those unable to speak English or French.

In the case of the other races there were in all 3,024 who could not speak English or French and 6,628 illiterate, so that at least 3,604 of the illiterates could speak English or French. Thus in the case of six races the majority of those who could speak only their mother tongue were not illiterate, and in the case of 19 other races the majority of the illiterates could speak other than their mother tongue.

TABLE 6

Race	Unable to speak English or French	Unable to read or write		Unable to speak English or French minus illiterates	Population 10 years and over
	Number	Number	Per cent	Number	Number
Austrian	11,545	17,848	35·08	—6,303	50,883
Belgian	626	834	6·59	— 108	12,654
Bulgarian	267	348	23·56	— 81	1,477
Chinese	11,996	11,360	31·15	636	36,473
Czecho-Slovak	383	573	11·94	— 190	4,803
Danish	208	198	1·74	10	11,352
Dutch	1,631	317	1·68	1,314	18,862
Finnish	2,274	1,652	12·59	622	13,118
German	3,158	3,847	4·90	— 689	78,511
Greek	271	445	11·59	— 174	3,843
Hebrew	4,957	6,737	9·83	—1,780	68,510
Hungarian	888	1,015	15·73	— 127	6,453
Icelandic	705	221	3·16	484	6,991
Italian	6,230	8,579	23·68	—2,349	36,233
Japanese	4,861	2,326	20·40	4,535	11,425
Norwegian	634	604	1·40	30	43,025
Polish	4,312	6,114	24·46	—1,801	24,991
Roumanian	1,064	1,977	27·03	— 913	7,307
Russian	8,988	11,636	23·92	—2,648	48,661
Serbo-Croatian	207	544	22·72	— 297	2,405
Swedish	1,925	1,019	2·67	906	38,175
Swiss	53	70	1·52	— 17	4,595
Syrian	213	889	22·22	— 676	4,002
Ukranian	15,949	19,086	39·46	—3,137	48,365
Various	120	300	13·95	— 280	1,693

In the case of the foreign born we find 8 races where the number given as being able to speak only their own language was greater than the number illiterate; while in the Canadian born there were only 6. In other words there were two races who had Canadian born English or French-speaking persons who could neither read nor write and foreign born speaking only their mother tongue who could read or write. On the assumption that the enumerator made proper inquiries this is what might have been expected; on the assumption, however, that the enumerator did not make proper inquiries, it would be extremely unlikely. There were 8,537 foreign born persons who could speak only their mother tongue, over and above the number who could neither read or write (17,697). That is, one-third at least of those who could speak only their mother tongue were ascertained to be not illiterate. It would be a very unfair assumption that no inquiry was made in the case of the other two-thirds. On the other hand, 21,572 were illiterate, over and above the number who could speak only their mother tongue. The language spoken would certainly not be the explanation of these illiterates.

There are only four or five provinces in which most of these races are to be found, and in many cases they are found in colonies. It is not difficult, then, to select sample returns and examine them for traces of improper investigation. The most difficult locality for the enumerator to make thorough inquiries would be a colony of foreigners where hardly anyone spoke English or French. If in such a colony the enumerator's return showed a person as literate who was not able to speak English or French, it would be strong evidence that that enumerator had made proper inquiries.

It must again be mentioned that the question is whether language was a source of large errors in the returns. No one could expect that it would not be a source of some errors. On investigating the compiled returns it has been seen that there could not possibly have been a wholesale assumption that the foreigner who did not speak the language of the enumerator was illiterate, or that the person who did speak that language was not illiterate. On investigating the original schedules it was impossible to find a trace of an individual enumerator who had made such an assumption.

General Conclusion on the Accuracy of the Information.— The lack of evidence of the existence on a large scale of a one-sided source of error such as language, and on the other hand the coherence of the data on illiteracy when correlated with school attendance and other data, even where correlation might be expected to be masked by irrelevant or opposite factors, would seem to be a proof that the census data on illiteracy are on the whole no more subject to errors of observation than may be expected of any social measurements. They would seem to be more nearly accurate than the data on ages, for example, and certainly more accurate than the results of questionnaires sent to only selected localities and answered without the strictest precautions as to comparability. The two simple census questions "Can you read." and "Can you write." answered for the whole of Canada elicit more thorough information of its kind than an exhaustive inquiry on the subject of illiteracy would conceivably elicit either in the hands of a census enumerator and asked of all persons, or in the hands of an expert and asked of only certain persons who might be either unable or unwilling to answer.

There is a further evidence of coherence in the data on illiteracy in that they agree with certain figures on the school standing of pupils. In four provinces where this information could be obtained by counties, the percentage illiterate in each county was correlated with the percentage of the children at school below Grade III, in order to ascertain whether there was evidence that the illiteracy of the community had any effect upon the school standing of the children. The correlation was so close as to leave no doubt on the subject.

CHAPTER 2

ADEQUACY OF THE CENSUS INFORMATION ON ILLITERACY

The adequacy of the census information on illiteracy is an entirely different question from that of the accuracy of this information. The information may be regarded as accurate if the number who have not passed the border line of absolute illiteracy has been truthfully reported. It is degree of *illiteracy* that is in question, not degree of *literacy*. Those reported as not illiterate may be able merely to read the most simple print or they may be profound scholars, but this does not affect the accuracy of the number reported as illiterate, provided the latter term is strictly limited to those with no education whatever. Errors occur only in so far as those who have had some education are reported as illiterate or those who have had no education are reported as literate.

The question of adequacy, on the other hand, deals entirely with those reported as "literate". It is desirable to obtain some estimate of how much the fact that a person is not illiterate means. In Canada in 1921 there were 341,019 or 5.1 per cent over the age of 10 years reported as not being able to read or write, but 42,349 or 0.64 per cent were reported as being able to read only. according to the definition of illiteracy in the United States and some other countries, there were thus 383,368 or 5.74 per cent illiterate in Canada. The importance of the difference between the two definitions is, of course, a matter of opinion. A person able to read extensively is not illiterate, even though unable to write. If the definition of illiteracy is limited to "no education whatever" it would seem that inability to read *or* write is a preferable definition to inability to read *and* write.

The American Army tests revealed a considerable discrepancy between the proportion illiterate according to the census and the proportion illiterate according to the tests. In the United States census of 1910 the percentage of the population 10 years of age and over "not able to write" was 7.7. In a census of the army in 1917, out of 1,552,256 men raised under the draft and thus constituting a fair sample examined, 386,196 or nearly 25 per cent were found unable to read. Needless to say this was a question of the different standards used, the army tests being more thorough and the information received more valuable as to the powers for practical purposes acquired by school training. Information on such a scale would be impossible to obtain in a nation-wide census, but the data of the latter may be no less valuable as an index of certain conditions. It has just been seen that illiteracy correlates closely with non-attendance and also with standing at school. This would seem to indicate that the census percentage of illiteracy is a valuable index of the proportion of the people who will not send their children to school or provide school accommodation; also, perhaps, a rough index of their mental capacity.

It would be difficult if not impossible to frame questions by means of which the enumerator could ascertain what "able to read" really means. It is well known that the more complex the nature of the information asked the less reliable it is apt to be. For example, it might be asked at what grade the enumerated left school. The answer to this would give the information required if the enumerated remembered the grade at which he left school or understood what "grade" meant. The probabilities are, however, that a large number of different descriptions of what practically amounted to the same degree of education would be received. If the enumerators were educationists they might by careful questioning ascertain the actual standing, but it would be difficult. The only means, then, of estimating the borderline between "illiteracy" and "literacy", is that of inference from indirect evidence.

In the Census of 1921 the number at school and the number between the ages of 5 and 9 years are given as follows:—

TABLE 7

Population 5-9 years	At school		Not at school		Illiterate		Could read only	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1,048,761..........	686,616	65·5	362,145	34·5	374,148	35·7	15,905	1·5

These figures show only 12,000 difference between the number of illiterates and the number not at school. Including those who can read only there was a difference of about 28,000 between the number who could not write and the number not at school, or 2.7 per cent of the population 5 - 9 years of age. If we assume that at these ages those not at school were illiterate, that is, that those not illiterate were practically all included among those at school, we have 95.9 per cent of those at school enumerated as able to read and write, which with the additional 2.3 per cent just mentioned as able to read leaves only 1.8 per cent unable to read or write.

On page 11 was shown approximately the time spent at school by children over 5 and under 10 years of age; 14.2 per cent had spent $3\frac{1}{2}$ school years at school; 38.1 had spent 2 9/10 years at school; 30.2 had spent $2.\frac{3}{10}$ years at school; 8.7 per cent had spent $1\frac{1}{2}$ years at school; 3.5 per cent had spent less than one year at school, the rest presumably never having been to school.

A study of the school standing of one and one quarter million pupils in Canadian schools in 1922 will not give figures exactly coinciding with the census figures, but the percentage on the basis of so large a sample should be near enough to the distribution of Canada as a whole for r ost purposes.

TABLE 8.—GRADE DISTRIBUTION OF 520,805 CANADIAN SCHOOL CHILDREN
9 YEARS OF AGE AND UNDER, 1922

—	K-KP	I	II	III	IV	V	VI	VII	VIII	Total
5 years and under....	13,999	15,899	112	10	1	–	–	–	–	30,021
6 years..............	11,001	78,808	5,535	281	17	5	–	–	–	95,647
7 years..............	2,932	82,057	35,946	5,803	1,183	55	1	–	–	127,977
8 years..............	1,254	41,825	51,237	27,658	11,199	1,772	107	18	–	135,070
9 years..............	518	17,612	36,637	38,058	28,697	12,228	1,970	355	15	132,090
Total 5–9...........	29,704	236,201	125,467	71,810	41,097	13,960	2,078	373	15	520,805
Percent in each grade	5·7	45·4	24·1	13·8	7·9	2·7	0·4	0·07	–	100

Now, if only 1.8 per cent of those at school at the ages of 5 to 9 were reported as being unable to read or write, it follows that about two-thirds in kindergarten and kindergarten primary grades were able to read while over half were able to read and write. It is clear from this that the percentage of literates given for these ages is meaningless — although not necessarily inaccurate. On the contrary, it would show that it had a somewhat stronger meaning than "no schooling whatever". Yet it is questionable whether the average child below grade V can be said to be able to read to advantage, especially if he leaves school at this stage. Over 96 per cent of the children 5 - 9 years at school were below this grade.

Taking now the ages of 10 - 14 years we have the following:—

TABLE 9

Population 10–14 years	At school		Not at school		Illiterate	
	Number	Percent	Number	Percent	Number	Percent
901,623.................................	803,830	89·15	97,793	10·85	13,700	2·0

The grade distribution of children 10 to 14 years was as follows:—

TABLE 10

———	K. and K.P.	I	II	III	IV	V	VI	VII
1υ years.....................	92	8,054	16,191	27,056	35,043	28,024	10,787	2,666
11 "	50	3,567	7,542	14,919	25,312	32,833	23,136	10,528
12 "	20	2,132	3,947	8,329	16,193	25,185	28,402	20,131
13 "	13	1,444	2,045	4,403	9,129	16,461	22,408	22,747
14 "	11	395	1,058	2,223	4,986	9,275	14,374	17,696
Total 10–14 years..............	192	15,592	39,783	56,930	90,655	111,778	99,107	73,768
Percent......................	0·04	2·7	5·3	9·8	15·6	19·2	17·0	12·7

———	VIII	IX	X	XI and XII	Total
10 years...........................	327	14	1	–	128,255
11 "	2,989	342	9	–	121,227
12 "	12,327	2,305	225	·12	119,208
13 "	24,495	8,015	1,672	158	112,990
14 "	29,056	14,166	5,695	1,057	99,992
Total 10–14 years...................	69,194	24,842	7,604	1,227	581,672
Percent............................	11·9	4·3	1·3	0·02	100

Between the ages of 10 and 14 years there are 33.4 per cent below Grade V and 17.8 below Grade IV of those actually at school. To these are to be added at least the same proportions of the 10.88 per cent not at school. When it is remembered that only 2 per cent at these ages are illiterate a conception can be formed of how far the term "illiteracy" goes. There are 2.7 per cent in Grade I alone, which is more than the percentage of illiterates. When it is remembered that even at the age of 11, the age of maximum attendance, 5.3 per cent are not at school, it seems reasonable to suppose that a large proportion of these have never been to school and that the 2 per cent illiterate are mostly such as have never been at school — "mostly", because it has been seen and will further be seen that at least some of those at school are considered illiterate.[1]

In the following table a collection is made of the data of three cities as samples of the amount of school attendance that seems to be capable of removing illiteracy in the case of children 5 to 9 years of age.

TABLE 11.—SCHOOL ATTENDANCE AND ILLITERACY OF CHILDREN 5 TO 9 YEARS OF AGE IN THREE CITIES

Nativity	Age	Population at age	Number illiterate	Number not at school	Per cent illiterate	Per cent not at school	Number illiterate and at school	Per cent of population illiterate and at school
Grand total...................	5–9	18,366	5,709	4,908	31·1	26·7	801	4·4
Canadian......................	5–9	16,627	5,292	4,528	31·8	27·2	764	4·6
British.......................	5–9	992	213	188	21·5	18·8	25	2·7
Foreign.......................	5–9	747	204	192	27·3	25·7	12	1·6x
Total.........................	5	3,805	3,258	2,847	85·7	74·8	411	10·9
Total.........................	6	4,000	1,738	1,281	43·5	32·0	451	11·5x
Total.........................	7	3,706	524	445	14·2	12·0	79	2·2
Total.........................	8	3,548	132	181	3·7	5·1	—49	—1·4
Total.........................	9	3,307	57	154	1·7	4·7	—97	—3·0
Canadian......................	5	3,551	3,050	2,659	85·9	74·9	391	11·0
Canadian......................	6	3,716	1,623	1,194	43·7	32·1	429	11·6x
Canadian......................	7	3,413	477	403	14·0	11·8	74	2·2
Canadian......................	8	3,166	102	149	3·2	4·7	—47	1·5
Canadian......................	9	2,781	40	123	1·5	4·4	—83	2·9
British.......................	5	148	123	107	83·1	72·3	16	10·8
British.......................	6	132	52	29	39·4	22·0	23	17·4x
British.......................	7	166	19	24	11·4	14·5	—5	—3·1x
British.......................	8	234	11	8	4·8	3·4	3	1·4x
British.......................	9	312	8	20	2·6	6·4	—12	—3·8
Foreign.......................	5	106	85	81	80·2	·76·4	4	3·8
Foreign.......................	6	152	63	58	41·4	38·2	5	3·2
Foreign.......................	7	127	28	18	22·0	14·2	10	7·8x
Foreign.......................	8	148	19	24	13·0	16·2	—5	—3·2x
Foreign.......................	9	214	9	11	4·2	5·1	—2	—0·9

It will be noted that 14·3 per cent of the children at 5 years of age are not considered illiterate, while 25·2 per cent have been or are at school. It is conceivable that a considerable number learn to read at home, so that it can not exactly be said that nearly 57 per cent of the children of 5 years at school are considered as not illiterate. At the ages of 5, 6 and 7 in the case of all classes the percentage illiterate exceeds the percentage not at school, while the latter is in excess in the case of children 8 and 9 years of age. It would seem that certain children who are not at school at 8 or 9 years, then, are considered as having learned to read. This is, of course, quite possible even in the real sense of reading. In the case of the British born there would seem to be children even at 7 who are not at school but are considered as being able to read. As already mentioned, it would be unsafe to conclude that the difference between the number at school and the number illiterate means anything definite, since private tuition may account for a certain number being able to read. In the case of the ages of 5, 6 or 7 years, for example, some allowance should be made for precocious children. What is significant about the table is that the figures on illiteracy and school non-attendance do not coincide; also that illiteracy is practically wiped out at the age of 9 years—at least it is less than one-third of the illiteracy of the population over 10 years of age in all Canada.

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[1] There is an element of estimate in the above owing to Indians having to be allowed for.

Only stray samples of the actual school standing of those leaving school are available. On page 138 is given an estimate of the school standing as based upon the time at school, and it is believed that this estimate is fairly close to the facts. Direct evidence is available in one province, and has been available for a number of years in one large city. In this city during 8 years (1915 to 1922) 3,786 were withdrawn from school to go to work. The total number withdrawn during the same time was 31,011. The balance was made up of: (1) those who removed from the city; (2) those who entered private schools; and (3) those removed by illness and death, the last two numbering 2,246 and 233 respectively. Of the 3,981 withdrawn to go to work, 162 were under Grade IV; 276 in Grade IV; 430 in V; 525 in VI; 569 in VII; 445 in VIII; 1,285 in secondary grades and 276 in special classes. The distribution by percentages of the 3,981 was as follows:—

Special classes..........	6 per cent	Grade VI............	13 per cent
Grades I to III........	4 "	Grade VII..........	14 "
Grade IV.............	7 "	Grade VIII.........	11 "
Grade V..............	11 "	Secondary..........	34 "

The point most relevant to what is under consideration is that 4 per cent of those leaving school were under Grade IV and 6 per cent in special classes. It is not certain, however, what these special classes were. Some of them may have been classes on special subjects not included in the grades. In this case the pupils may have been advanced. If they were special classes for subnormals they could safely be added to the percentage under Grade IV.

If Grade V is considered as the first safe step beyond illiteracy at least for those who leave school, it is clear that at least 11 per cent left school under this grade and 22 per cent under Grade VI. In a record of 10,708 pupils in the same city, 5,723 were still at school, while the grades at leaving school of 741 others were not given. The exact showing at the time of leaving school of 4,244 was ascertained and was as follows:—

Grade I-IV......	218 or 5 per cent	Grade IX........	375 or 9 per cent
Grade V.........	405 or 9 "	Grade X........	370 or 9 "
Grade VI........	664 or 16 "	Grade XI.......	173 or 4 "
Grade VII.......	788 or 19 "	Grade XII......	19 or 5 "
Grade VIII......	1,232 or 30 "		

Of the 4,985 leaving school (4,244 + 741), 1,587 or about 32 per cent had attended educational classes since leaving. Presumably these were evening classes in technical schools, etc. There was some evidence, however—and this is a most significant point—that those thus attending classes since leaving were to be found among the higher grade pupils rather than the lower. No great improvement after leaving school on the part of those in the lower grades is, therefore, to be expected. On the contrary—with some brilliant exceptions, of course—it is questionable whether those leaving school before Grade V or VI retain any of what they have learned. The very fact that they left school in these grades argues that either their mentality or their environment was not conducive to educational advancement. Granted, however, that they were average children, it is clear that, since only a small minority attend classes after leaving school even in cities—much less in communities where classes are not provided—a person of Grade IV standing could not be employed at work of an intellectual nature. He is able to read an easy school book and on being questioned can reproduce the matter he reads more or less coherently; he has learned the four elementary rules of arithmetic; but has not had time to apply them to any great extent, and he could not be depended upon to do work requiring a knowledge of reading or arithmetic. Unless he is an unusual person, therefore, he is likely to forget what he has learned and by the time he has grown up to have become illiterate.

In the case of a whole province, out of 10,833 leaving school at the age of 15 years, during three years (1920-1922) the distribution by grade was:—

I........ 114 or 1·0 per cent	V..... 1,008 or 9·0 per cent	IX...... 945 or 9·0 per cent
II....... 142 or 1·3 "	VI.... 1,662 or 16·0 "	X....... 377 or 3·0 "
III...... 335 or 3·0 "	VII... 1,996 or 19·0 "	XI...... 179 or 1·6 "
IV....... 616 or 5·7 "	VIII.. 3,342 or 32·0 "	XII..... 117 or 1·0 "

To show that in certain respects these percentages are fairly constant from year to year, the figures for 1923 may also be given for 4,159 leaving school at 15 years:—

I........ 45 or 1·1 per cent   V....... 361 or 8·7 per cent   IX...... 495 or 11·9 per cent
II....... 42 or 1·0   "   VI.... 544 or 13·1   "   X....... 191 or 4·6   "
III...... 164 or 4·0   "   VII... 787 or 19·0   "   XI...... 91 or 2·2   "
IV....... 234 or 5·6   "   VIII.. 1,188 or 28·5   "   XII..... 17 or 0·4   "

There is a remarkable uniformity from year to year in the percentage in Grades I to V, namely about 20 per cent in this province. It is practically the same for the eight years in the city previously discussed. Those in Grades I to III are evidently not decreasing, being between 5 and 6 per cent. Great improvement is being shown in the percentage in the upper grades in all provinces. also shown in the percentage at school in 1921 as compared with 1911. The regularity of those actually attending is improving still faster. At the same time there is still left an apparently irreducible residuum around and below the threshold between illiteracy (in its real sense) and literacy. The size of this residuum agrees fairly closely with the findings of the American Army tests. Since increasing opportunities seem to have so little effect in reducing it, it is probably to be attributed partly at least to mental status, although in Canada our observations do not extend over sufficient time to make this certain. The fact that it can be shown that this proportion have not attended school long enough to have gone higher does not conflict with the notion that mental status is responsible, for it may be asked—why have they not attended school? However, while mental status may be the natural force behind this condition, there is some evidence that it is not the immediate cause. A more detailed discussion on page 136 argues that in spite of the improvement in regularity of attendance it is still sufficiently slipshod to bring about a tendency to constancy in the proportion of near-illiterates.

A comparison between the status of those leaving school at 15 (in the province already mentioned) and those enrolled at school at 14 in the same year (that is, those who on an average would be 15 before the opening of the next school year) should show whether any inference upon the status at leaving school may be drawn from the standing of those actually at school. If so, it will be possible to arrive at certain conclusions in the case of provinces which give the distribution at each age but not the status at leaving school.

TABLE 12

—	I	II	III	IV	V	VI	VII	VIII	IX	X
Per cent at school at 14 in 1922.....	1·1	1·3	3·6	7·0	9·8	17·4	22·4	24·5	10·2	2·5
Per cent leaving school at 15 in 1922	1·1	1·6	3·6	7·0	11·3	16·5	19·3	29·8	6·6	2·3

——	XI	XII	I-III	I-IV	I-VIII	VIII-XII
Per cent at school at 14 in 1922............................	0·6	0·02	6·0	22·8	62·6	37·8
Per cent leaving school at 15 in 1922.....................	0·8	0·02	6·3	24·6	60·4	39·5

The status of those at school at 14 and those leaving school at 15 is thus seen to be almost identical. Those leaving school at 15 would be either (a) those enrolled at 14 during the year and dropping out on reaching 15 before the end of the year, or (b) those who had completed the year as "14 year" pupils and did not come back in the next year as "15 year" pupils, or (c) those who came back among the "15 year" pupils and dropped out before the end of the next year, that is before their arrival at 16. It is probable that most of them would belong to the second group, that is, those who enrolled during the year as "14 year" pupils and left at the end of the term on completing their 15th year. This would mean that those leaving school at 15 would on the whole have the advantage of the terminal promotions over those enrolled at 14 who were reported before the promotions were made. This accounts for the slightly higher percentage in Grades VIII to XII in the case of those leaving at 15. The important point is that in spite of the advantage of the promotion there is a higher proportion in Grades I to III and I to IV among those leaving school at 15 than among those at school at 14. This would

seem to be conclusive evidence that the status of those leaving school is inferior to that of those remaining at the same ages. As a corollary it might be added that the lower grades leave school at or before 15, while with small exceptions only the higher grades go on. It would seem safe to conclude, then, that the status of the pupils enrolled at 14 is at least as good as the status of those leaving school at or before 15. Consequently the age 14 in 1923 should be a fair index of the status which the present day pupil has attained by the time he leaves school. (An exception should, of course, be made in the case of the higher grade pupils.)

The following statistics on the distribution by grade of 99,992 pupils at school in seven provinces at the age of 14 years throw light on this point:—

Grade	I	II	III	IV	V	VI	VII	VIII	IX	X	XI and XII
Per cent......	0·4	1·1	2·2	5·0	9·3	14·4	17·8	29·0	14·2	5·6	1·1

Since there would seem to be unmistakable evidence that the standing of those leaving school at 15 is lower generally than that of those at school at 14, that is, since the standing of those leaving school at 15 is weighted towards the lower grades more than that of those remaining at school; also since over 45 per cent leave school before the age of 15, 6 per cent leaving before 13 and over 20 per cent leaving before 14; and since the lower standing of these would at least compensate for the higher standing attained by those in the lower grades remaining after 15, it would seem a safe conclusion that at least 20 per cent leave school still in danger of lapsing into illiteracy. It would seem that those who are reported by the census as illiterate might be added to these, so that from 20 to 25 per cent are likely to grow up without any or with very slight educational equipment.

Conclusions.— The following conclusions as to the adequacy of the census information on illiteracy would seem to be justified by the foregoing analysis of the census figures and collateral data:—

1. Since a considerable number at the age of 5 are considered as not illiterate, and since the number illiterate at the earlier ages is considerably less than the number in kindergarten and Grade I at school, and since practically all at the age of 9 years are considered as not illiterate, it is clear that illiteracy at these ages means in practice "no schooling whatever". The same seems to be true of the ages of 10 to 14. How far it is true of adults is a matter of conjecture, but judging by the percentage illiterate among adults as compared with that among children, it is clear that it cannot mean much more in the one case than in the other, if the illiteracy in Canada is decreasing instead of growing.

2. The census of illiteracy, consequently, leaves out of account a large residue who have had some time in school, but who have not learned to read in any practical sense.

3. There would seem to be a residuum of the population actually attending school who fail to pass a certain dead line. The size of this residuum does not seem to vary much from year to year, in spite of the fact that school attendance has been improving at a rapid rate and that those who pass this deadline are making rapid strides toward completing the elementary school course and attending secondary schools or higher institutions. It would look, then, as if this residuum were practically irreducible. It includes, of course, those who begin school very late, those who leave very early, and those who attend very irregularly while at school, but particularly those who suffer under the three handicaps combined. In addition to these, but perhaps more likely largely included with these, are the mentally and morally subnormal who are incapable of making or unwilling to make progress at school. For the benefit of these, special classes have been introduced in order to train them so far as they are capable of being trained.

4. The constancy in the size of this residuum when measured for different provinces, for cities and whole provinces and from year to year, would seem to justify the belief that the percentage of the school children it indicates is reliable. Under different conditions it is found that 20 per cent. leave school without passing beyond Grade V. To these might be added the percentage returned by the Census as illiterate making in all from 20 to 25 per cent of the present growing population as unlikely to pass the deadline of what might be termed near illiteracy. This agrees fairly closely with the findings by means of the American Army tests.

5. Census figures on illiteracy are, therefore, inadequate as a measure of educational status and ought not to be so applied. What they do measure is illiteracy within defined limits, namely, as meaning "no education whatever". Their value is not as information about the number or percentage who can read in a practical sense, but as information about a phenomenon of defined symptoms, causes and effects. The percentage of illiteracy is a measure of the shadow rather than of the object and as such it has probably greater value than if it was an actual measurement of educational status, which might be meaningless unless its results could be seen. If, however, it can be shown (a) that an illiterate community will not provide school accommodation or send children to school on the same scale as a literate community; (b) that illiterate parents are likely to have illiterate children and conversely; (c) that illiterate females have greater influence on school attendance than illiterate males; and (d) that illiteracy is likely to be produced by certain conditions; then the Census data on illiteracy may be considered as having a great and distinct value. The remaining chapters will be devoted to investigating these symptoms, causes and effects.

PART II.—ANALYSIS OF THE INFORMATION ON ILLITERACY

CHAPTER 3

STATEMENT OF THE ILLITERACY OF CANADA AND COMPARISON WITH OTHER COUNTRIES

To compare the illiteracy of Canada with that of other countries several items of information are required. The following items would seem to supply data for approximate comparison:—

1. Population over 10 years of age, with number and percentage able to read and write and able to read only — also percentage unable to read and write — for comparison with the United States.

2. Population over 5 years of age, exclusive of Indians, with numbers and percentages able to read and write and able to read only, with percentage unable to read or write — for comparison with New Zealand or Australia.

3. Population over 15 years of age, with number, etc. unable to read and write. This would seem to approximate to the information concerning persons signing the marriage register by mark in certain countries.

4. Population over 21 years of age, with number, etc. unable to read and write. This with (No. 3) would approximate the information in countries giving data on the basis of the illiteracy of recruits.

The following table supplies the information for Canada under the foregoing headings:—

TABLE 13

Age	Population	Can read and write		Can read only		Can neither read nor write		Cannot read and write
		Number	Per cent	Number	Per cent	Number	Per cent	Per cent
5 years and over..................	7,730,833	6,957,412	90·00	58,254	0·75	715,617	9·25	10·00
10 years and over..................	6,682,072	6,298,704	94·26	42,349	0·64	341,019	5·10	5·74
15 years and over..................	3,998,645	3,757,478	93·97	27,879	0·69	213,288	5·34	6·03
21 years and over..................	3,239,531	3,022,030	93·29	25,752	0·79	191,749	5·9?	6·71
5 years and over excluding Indians	7,635,177	–	–	–	–	673,922	8·85	–

Since the data on illiteracy in different countries are not given in a comparable manner it will be inadvisable to attempt to show them in tabular form, lest comparability be shown where none exists. The latest data, received in most cases directly from the countries concerned, may be summarized as follows:—

England and Wales.—In 1919 the total number of marriages was 369,411. The numbers signing the register by mark were 2,463 men and 2,433 women. The percentages signing by mark were 0·67 men and 0·66 women; total 0·666.

Scotland.—In 1922 out of a total of 34,375 marriages, 70 men and 105 women signed by mark. This makes 0·20 per cent of the men and 0·21 per cent women signing by mark. The averages for the 10 years 1911-1920 were 35,647 marriages, with 221 men and 300 women, that is 0·62 per cent of the men and 0·84 per cent of the women signing by mark.

Northern Ireland.—The census of 1911 showed a population of 1,018,879 at 9 years of age and upwards. Of these 70,623 were "illiterate." (presumably this means able neither to read nor write).• Thus 6·93 per cent over the age of 9 years were illiterate. In 1923 according to the marriage register 2·2 per cent of the men and 2·0 per cent of the women signed by mark.

Irish Free State.—The census of 1911 showed that at the ages of 9 years and upwards 2·8 per cent could read only while 10·1 per cent were illiterate (presumably able neither to read nor write).

Austria.—The census of 1910 gave a total population over 10 years in five provinces[1] of 5,007,698. Of these 4,792,208 could read and write, 40,222 could read only and 175,268 could neither read nor write. The percentage were 95·70 read and write, 0·80 read only and 3·50 neither read nor write.

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[1] Niederoesterreich darunter Wien, Oberoesterreich, Salzburg, Steinmark, Karinten, Tirol, Vorarlberg.

Australia.—According to the census of 1921, 805,798 persons (at all ages) exclusive of full-blooded aboriginals, could not read. The number returned as able to read but unable to write totalled 14,493. The number of persons able to read and write English was 4,513,585 while 15,217 were returned as able to read and write a foreign language but not English. The status of 86,641 was not given. The population over 5 years of age was 5,435,734, and of these 205,592 or 3·78 per cent could not read. The population of stated ages over 10 years of age was 4,225,560 and of these 68,098 could not read; 12,290 could read English but could not write and 4,078,787 could read and write English, 921 could read a foreign language but could not write; 14,955 could read and write a foreign language only; while the status of 50,509 was not given. Thus out of the 4,175,051 over the age of 10 years whose status was given 68,098 or 1·63 per cent could not read.

Of those stated as being born in Australia, the number exclusive of aboriginals unable to read out of 3,283,685 of stated ages and educational status over the age of 10 years was 40,131 or 1·21 per cent. The number unable to read out of 802,912 of stated ages and degree of instruction, stated as being born outside of Australia, was 27,498 or 3·42 per cent.

Belgium.—The census of 1910 gave the total population and the total number of persons who could read and write. Official estimates made on this basis for the population 8 years and over show that 86·70 per cent could read and write. This leaves 13·30 per cent of the population over 8 years who could not read and write.

Esthonia .—According to the census of 1922, the illiteracy (unable to read or write) of persons over 10 years of age was 5·6 per cent, that of males being 4·5 per cent and of females 6·6 per cent. The percentage able to read only was 5·3, that of males being 2·8 and of females 7·4. Over the age of 15 years 4·7 per cent males, 6·9 per cent females or 5·9 per cent of both sexes could neither read nor write, while 3·0 per cent males, 8·2 per cent females or 5·8 per cent of both sexes could read only.[1]

Finland[2].—According to the ecclesiastical registers, out of a population over the age of 15 years in 1920 of 2,057,227, 20,546 could neither read nor write, while 598,821 could read only. The percentage unable to read or write was, therefore, 0·99 while the percentage able to read only was 29·1. The percentage unable to read or write of males was 1·00 and of females 0·88.

France.—The census of 1911 showed that at the ages of 5 to 14, 5,241,620 could read and write, 986,587 were "illiterate" (presumably not able to read and write) while the educational status of 383,446 was not given. At the ages of 15 years and over, 24,803,755 could read and write, 3,550,056 were illiterate, while the educational status of 508,306 was not given. Percentages are not officially stated.

Germany.—Data for 1912, 1913 and 1914 show that the percentage of illiterates was practically negligible.

Holland.—Information regarding army recruits in 1923 showed that out of 17,212 persons 17,137 could read and write, 15 could read only while 60 could neither read nor write. This makes 0·35 per cent unable to read or write.

Hungary.—The census of 1920 shows Hungary as having 15·2 per cent over the age of 6 years and 16·3 per cent over the age of 24 years unable to read and write. About 13 per cent over the age of 12 years were unable to read and write.

Iceland, Norway, Sweden.—Not officially reported, as the problem is regarded as non-existent.

India.—According to the census of 1921, out of 229,651,433 over the age of 10 years whose literacy status was known, (119,134,195 males and 110,517,238 females) 207,966,631 were illiterate in the sense of not being able to read a letter sent to them or write a letter. These included 99,992,576 males and 107,974,055 females. The percentages illiterate over 10 years of age were 90·6 for the total, 83·9 for the male and 97·7 for the female population. It will be noticed, however, that the standard for non-illiteracy is probably much higher than in Canada, United States and other countries.

Italy.—In 1923 the numbers signing the marriage register by mark formed 11·16 per cent of the males signing and 18·61 per cent of the females signing.

New Zealand.—The census of 1916 gives a population (exclusive, of Maoris) of specified ages and over the age of 5 years of 956,128 of whom 39,886 or 4·17 per cent could not read, 7,429 could read only, and 909,055 could read and write, while the educational status of 9,758 was not given. Over the age of 10 years, 822,865 could read and write, 4,267 could neither read nor write, while the educational status of 7,782 was not given. Thus out of 835,600 over the age of 10 years whose educational status was given 8,467 or 1·01 per cent could neither read nor write.

Poland.—(County of Polesia only). The census of 1921 gives the population of ages 10 years and over as 683,263, of whom 485,313 or 71·0 per cent were illiterate ("Analfabea". The term "illiterate" is not defined.) The percentage illiterate of males was 60·6 and of females 80·7. The percentage illiterates by groups were: 10–14 years, 75·2; 15–19 years, 65·9; 20–29 years, 63·5; 30–39 years, 67·1; 40–49 years, 73·5; 50–59 years, 77·8; 60 years and over, 83·5; unstated ages, 68·2.

Switzerland.—Illiterates are estimated as about ½ per 1,000. Examination of the military records shows only a negligible proportion illiterate.

United States.—The census of 1920 gives a total population over the age of 10 years (including unknown ages) of 82,739,315, of whom 4,931,905 or 6·0 per cent were illiterate in the sense of not being able to "write". These illiterates were subdivided as, 4,483,565 unable to read or write, and 448,340 able to read but not write. On the same basis as Canada, then, the percentage illiterate (unable to read or write) was 5·42 per cent or about the same as in Canada. The native whites over 10 years had 1·1 per cent unable to read or write.

[1] Rahva Demograafiline Koorseis fa Korteriolud Elstis 1922 a Uldrahvalugemise Andmed vihk 1.

[2] Finlands Folkmangd Dem 31 December 1920 (Enlist Forsamlingarnas Kyrkoorocker).

The different ways in which illiteracy is reported in most of the twenty-two countries above mentioned render difficult a comparison between these countries and Canada. It would seem desirable, therefore, to restrict the definite comparison to four countries, viz. Canada, United States, Australia and New Zealand. The following table attempts such comparison, placing the figures on a comparable basis so far as possible. It should be noticed that the figures for Australia and New Zealand are slightly different from those already given in that in the table they include persons of unknown educational status; this is done in order to make them strictly comparable with the United States and Canada. The error from this source must be negligible especially as respects ages, since most of the unknown ages must have been over 10 years. Neither of the items thus included affects the percentage of illiteracy at the second place of the decimals. Unless it is supposed that those of unknown educational status had a larger proportion of illiterates than the remainder, the error for comparative purpose in including them cannot be great considering their actual numbers and that they are included in all four countries.

TABLE 14.—COMPARATIVE DATA ON ILLITERACY OF POPULATION OVER 10 YEARS IN CANADA[']
UNITED STATES, AUSTRALIA AND NEW ZEALAND

—	Population 10 years and over[1]	Able to read only		Unable to read or write	
		Number	Per cent	Number	Per cent
All classes exclusive of Aboriginals[2]—					
Canada, 1921	6,602,035	?	?	299,324	4·53
United States, 1920	82,562,390	477,141	0·54	4,423,034	5·36
Australia, 1921	4,239,770	13,385	0·31	70,161	1·65
New Zealand, 1916	844,576	4,277	0·50	8,491	1·01
Native white population[3]—					
Canada	4,706,428	-	-	187,364	3·98
United States	60,861,863	-	-	1,074,769	1·77
Population born outside country—					
Canada	1,882,702	13,675	0·73	110,811	5·89
Australia	819,460	8,258	1·01	28,360	3·46
Foreign whites[4]—					
Canada	797,639	-	-	88,910	11·15
United States	13,497,886	152,211	1·13	1,611,529	11·96

TABLE 15

—	Population 10 years and over	Able to read only		Unable to read or write	
		Number	Per cent	Number	Per cent
Canada—					
Indians	76,179	-	-	38,084	49·99
Chinese	37,536	-	-	11,409	30·39
Japanese	12,033	-	-	2,353	19·55
Negroes	14,268	-	-	1,200	8·41
United States—					
Indians	176,926	1,199	0·61	60,531	34·21
Chinese	56,230	651	1·12	10,611	18·86
Japanese	84,238	403	0·41	8,873	10·54
Negroes	8,053,225	127,029	1·58	1,715,132	21·29

The similarity between the illiteracy of the foreign white population in the United States and Canada might be considered an indication either that the educational status was accurately ascertained in both countries, or that if an unwarranted assumption was made on the score of language in the one country it was made in the other. It is unlikely, therefore, that there was a bias in this respect peculiar to Canadian enumerators. In other respects there are striking points of similarity between the United States and Canada. The proportion of foreign whites in the population over 10 years of age is somewhat larger in the United States (12 per cent in Canada, 16 per cent in the United States.) but the difference is not great. As this is a very important item in connection with illiteracy it will be interesting to compare the number and illiteracy of the native born of foreign or mixed percentage in the two countries.

[1] Including unknown ages and persons of unknown literary status.
[2] Indians in the case of Canada and United States.
[3] Excluding Indian, Negroes, Chinese and Japanese in the case of Canada.
[4] Nine provinces only in the case of Canada.

TABLE 16

Native born white population only	United States			Canada[1]		
	Population 10 years and over	Able to read and write		Population 10 years and over	Able to read and write	
		Number	Per cent		Number	Per cent
Foreign parentage...........................	11,462,926	84,157	0·75	196,923	7,426	3·79
Mixed parentage............................	5,321,373	29,320	0·55	146,477	3,035	2·07
Native parentage...........................	44,077,854	962,292	2·18	4,432,061	216,503	4·89

'It will be noticed that in the United States the foreign parentage, mixed parentage and the native parentage are respectively 19,9 and 72 per cent of the total native white population; in Canada they are 4,3 and 93 per cent respectively of the white Canadian born population. The difference in relative sizes of the foreign and mixed parentage in the two countries is due to a degree of incomparability between the figures of the two countries in that "foreign parentage" in the United States includes British born. The figures on a more comparable basis are as follows:— ("Native 'Parentage" include only Canadian born, mixed parentage include Canadian and British or foreign ,while the "Immigrant parentage" include British and foreign).

TABLE 17

	Canada			United States		
——	Population 10 years and over	Unable to read or write		Population 10 years and over	Unable to read or write	
		Number	Per cent		Number	Per cent
Native parentage.........................	3,579,557	206,486	5·77	44,077,564	962,292	2·18
Mixed parentage..........................	521,545	7,089	1·36	5,321,373	29,320	0·55
Immigrant................................	673,359	13,369	1·99	11,462,926	84,157	0·75

The proportion of immigrant parentage, mixed parentage and native parentage in Canada, then, is 15,10 and 72 respectively as compared with 19,9 and 72 in the United States or almost exactly the same; the order of illiteracy of the three classes is exactly the same in the two countries. Thus there is a remarkable similarity between the illiteracy problems in Canada and the United States. It is important to remember that in the latter table "mixed parentage" refers to both British and foreign and that this lowers the percentage of illiteracy very considerably. The class of the Canadian born with the lowest percentage of illiteracy was that with one parent Canadian the other British. This class had a population over 10 years of 375,068, with 4,054 or 1.08 per cent illiterate. The order followed by each class stated was:—

TABLE 18

Parentage	Population 10 years and over	Unable to read or write	
		Number	Per cent
Parentage not stated.......	24,909	3,244	13·02
Canadian born................	3,579,557	206,486	5·77
Foreign born.................	195,923	7,426	3·79
One parent Canadian or British, the other foreign.......	146,477	3,035	2·07
British born.................	477,436	5,693	1·25
One parent Canadian, the other British...............	375,068	4,054	1·08

By age groups the following comparison can be made for all classes over 10 year of age in Canada, United States, Australia and New Zealand. As the number who can not read or write is not given for all these countries, illiteracy in this table is used in the same sense as in the United States, namely "can not write" or "Can not read and write".

[1] Nine provinces only in the case of Canada. The "Native parentage" in Canada includes British as well as Canadian born. The native white includes all colours but Indians, but the native and British born Chinese and Japanese in all number ed only 1,696. Those whose parentage was not stated are not included.

TABLE 19.—ILLITERACY OF ALL CLASSES OVER TEN YEARS OF AGE BY AGE GROUPS IN FOUR COUNTRIES

Country	Age groups	Population	Cannot read and write	
			Number	Per cent
Canada...........................	10–14 years........................	913,149	19,226	2·1
	15–20 years........................	984,377	29,308	3·1
	21 years and over..................	4,820,546	334,834	6·9
	21–34 years........................	1,904,057	84,388	4·4
	35–64 years........................	2,476,105	180,810	7·3
	65 years and over.................	419,107	64,317	15·3
	Age not stated....................	21,277	5,219	24·5
United States......................	10–14 years........................	10,641,137	246,360	2·3
	15–19 years........................	9,430,556	283,316	3·0
	21 years and over..................	60,737,821	4,333,111	7·1
	20–34 years........................	26,434,705	1,354,053	5·1
	35–64 years........................	31,151,003	2,441,310	7·9
	65 years and over.................	4,933,215	591,385	12·0
Australia...........................	10–14 years........................	529,040	3,370	0·64
	15–19 years........................	462,429	2,860	0·62
	20 years and over..................	3,242,301	77,324	2·4
	20–34 years........................	1,360,644	11,908	0·80
	35–64 years........................	1,629,052	40,597	2·5
	65 years and over.................	283,395	22,582	9·5
	Age not stated....................	14,210	2,237	15·7
New Zealand........................	10–14 years........................	109,225	468	0·57
	15–19 years........................	91,404	336	0·37
	20 years and over..................	632,681	11,858	1·9
	20–34 years........................	259,334	1,476	0·56
	35–64 years........................	329,951	5,783	1·8
	65 years and over.................	53,396	4,599	8·7
	Age not stated....................	1,176	106	9·0

The remarkable similarity between conditions in Canada and the United States again appears in this table. Notice that the illiteracy at the different age groups is practically the same for both countries; also that the group 10 - 14 in both has the lowest percentage in contradistinction to Australia and New Zealand. If the distribution of the population over 10 years among the different age groups is compared for Canada and the United States it is found to be practically the same. In round numbers, the percentages of the total over 10, are as follows:—

TABLE 20

	Canada	United States
10–14 years..	14	13
15–20 years..	14	14
21 years and over..	72	73
21–34 years..	29	30
35–64 years..	37	38
65 years and over..	6	6
Total 10 years and over...	100	100

The following table shows the illiteracy of the population over 10 years in urban and rural centres in the three countries: Canada, United States and Australia. As in the last table and for the same reason illiteracy is taken in terms of those who can not read and write.

TABLE 21

	Urban			Rural		
	Population 10 years and over	Unable to read and write		Population 10 years and over	Unable to read and write	
		Number	Per cent		Number	Per cent
Canada................................	3,395,987	122,695	3·7	3,286,085	260,673	7·9
United States..........................	43,978,576	1,955,112	4·4	38,760,739	2,976,793	7·7
Australia..............................	2,674,550	42,613	1·6	1,536,212	39,488	2·6

The following table shows the distribution of the population of Canada, United States, Australia and New Zealand on the basis of birth place. As the figures of New Zealand are for 1916 and the others for 1921 the comparative distribution by individual European countries would be subject to many readjustments and corrections; furthermore it is a question whether it would mean very much after it was done, since immigrants from a European country may be composed of more than one race. The broad groups used in the table it is believed classifies the different countries in the manner in which they have the greatest bearing on illiteracy.

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The groups are as follows:—

1. United States, Canada, Australia, New Zealand and all British possessions (excluding Indians and Negroes).
2. Northwestern Europe — Iceland, Norway, Sweden, Denmark, Holland and Belgium, also Germany, France, Switzerland and Finland.
3. Central, (except Germany) Southern and Eastern (except Finland) Europe.
4. Asia and other countries.
5. Indians and other aboriginals.
6. Negroes.

TABLE 22.—BIRTH PLACE OF THE POPULATION OF CANADA, UNITED STATES, AUSTRALIA AND NEW ZEALAND

(Aboriginals and Negroes shown separately)

—	Canada		United States		Australia		New Zealand	
	Popu-lation	Per cent distri-bution	Popu-lation	Per cent distri-bution	Popu-lation	Per cent distri-bution	Popu-lation	Per cent distri-bution
Total population.................	8,788,483	100	105,710,620	100	5,495,734 1	100	1,148,225	100
1. United States and all British countries.	8,147,143	92·7	84,498,963	79·9	5,326,723	96·9	1,079,569	94·0
2. Northwestern Europe, etc. Whites only	144,049	1·7	3,493,303	3·3	44,709	0·8	9,357	0·8
3. Central, Southern and Eastern Europe.	315,279	3·6	6,216,027	6·0	21,816	0·4	4,624	0·4
4. Asia and other........	56,930	0·6	794,739	0·7	42,480	0·8	5,899	0·5
5. Aboriginals..................	110,814	1·3	244,437	0·2	60,000 1	1·1	49,776	4·4
6. Negroes......................	14,268	0·15	10,463,131	9·8	–	–	–	–
Total of 2, 3, 4, 5, and 6.........	641,340	100·0	21,211,657	100·0	169,005	100·0	69,656	100·0
2. Northwestern Europe, etc.....	144,049	22·5	3,493,303	16·5	44,709	26·5	9,357	13·5
3. Southern Europe, etc..........	315,279	49·1	6,216 027	29·4	21,816	13·0	4,624	6·6
4. Asia and other................	56,930	8·9	794,739	3·7	42,480	25·1	5,899	8·5
5. Aboriginals..................	110,814	17·3	244,437	1·1	60,000 1	35·4	49,776	71·4
6. Negroes......................	14,268	2·2	10,463,131	49·3	–	–	–	–

It is a question whether the geographical features of the countries compared have a sufficient bearing upon illiteracy to justify the space that would be occupied by the data. New Zealand and Australia might be considered dissimilar geographically in many respects especially in respect of size, yet the problem of illiteracy has well nigh disappeared in these two countries. Canada and the United States might also be considered dissimilar geographically, and yet the problem of illiteracy seems to be very similar in the two countries. The composition of the population, especially in the respects indicated in the foregoing table seems to touch the heart of the problem. Exclusive of aboriginals, a summary of the composition by place of birth may be given as follows:—

TABLE 23

—	Canada	United States	Australia	New Zealand
1. British possessions and United States.............................	93·9	80·0	98·0	98·2
2. Northern Europe, France, Germany and Finland...................	1·6	3·3	0·8	0·9
3. Other countries and Negroes......................................	4·6	16·7	1·2	0·9

This is not the most satisfactory arrangement of the birth places for the purpose of showing the extent of the problem of the different countries, but it is difficult to make a better one on a comparable basis for all the four countries. It is better, however, than the classification of "Native Born" and "Foreign born" which becomes meaningless when applied to countries where the native born of one are among the foreign born of another. The "foreign born" who mean an added burden of illiteracy to all the four countries are those termed "other countries" and it is noticeable that the share of the United States first and of Canada second are beyond all comparison greater than those of Australia and New Zealand, the United States having 6.7 per cent and Canada having 4.2 per cent of their total population belonging to this class as compared with 1.2 per cent and 0.9 per cent in Australia and New Zealand respectively.

1 Estimated for aboriginals—See Australia 1924 Year Book, page 955.

CHAPTER 4

MISCONCEPTIONS ARISING FROM THE CRUDE FIGURES ON ILLITERACY IN CANADA

The data given in the last chapter on illiteracy in different countries have clearly no final value as measurements of comparative achievement in these countries. Even if a percentage of illiteracy always meant the same, to compare the illiteracy of the old countries of Europe with that of the newer countries of America and Australasia is not a comparison of achievement. In the old countries, which send out emigrants instead of receiving them on a large scale, illiteracy is the product of conditions for which they and their schools are in a large measure responsible. A study of illiteracy in these countries would for example reveal points of difference between sexes, locality of residence (e. g. rural and urban) and nature of government, which would either be completely disguised or would mean something different in the case of countries where a large part of the population is either immigrant or one or two steps removed from immigrant. The study of illiteracy in the old countries is a study of schools and their efficiency; in the new countries it is only partially a study of school efficiency, and is to a great extent one of the composition of the population. An illustration of this is seen in certain census divisions of Canada where the ubiquity of schools results in only a slight trace of illiteracy being found among children from 10 to 14 years old, while there is a high percentage among adults who are largely immigrants and beyond the influence of the schools of Canada.

What applies in this way to a comparison between countries, also applies to comparisons between the different provinces of Canada, rural and urban localities, sexes, etc. There is danger that the educational status as reflected by the data on illiteracy may be appraised according to its surface significance, the illiteracy of one province compared with that of another being attributed to inferior or superior educational effort. Nothing could be more unfair. It would seem desirable, therefore, to attempt to show the data on illiteracy in Canada, as fully as possible in their true perspective. Since information on the absolute figures is given in Bulletin XVIII of the Census (See also Vol. 11), it is not considered necessary here to repeat these figures, and attention will be confined to percentages except when the absolute figures are needed as weights. Percentages are not only more easily grasped, but they smoothe out certain errors that inevitably occur in the collection of data on a large scale.

The following table gives the percentage of illiteracy (not able to read or write) by sex and rural and urban residence for the different provinces of Canada:—

TABLE 24.—PER CENT OF PERSONS TEN YEARS AND OVER ILLITERATE IN CANADA, BY PROVINCES SEXES AND RURAL AND URBAN AREAS

	Rural and Urban			Rural	Urban	Rural by sexes		Urban by sexes	
	Both sexes	Male	Female	Both sexes	Both sexes	Male	Female	Male	Female
Canada.................	5·10	5·73	4·43	7·16	3·11	7·73	6·48	3·58	2·66
Nine Provinces.........	5·01	5·64	4·32	6·97	3·11	7·56	6·25	3·58	2·66
Prince Edward Island..	3·07	3·57	2·55	3·40	1·88	3·95	2·84	2·13	1·66
Nova Scotia...........	5·11	5·61	4·59	6·54	3·24	7·16	5·86	3·46	3·02
New Brunswick........	7·61	9·24	5·90	10·09	2·68	11·97	7·99	3·23	2·19
Quebec...............	6·20	7·85	4·54	8·75	4·33	11·38	5·85	5·04	3·67
Ontario...............	2·96	3·58	2·34	3·88	2·33	4·68	2·94	2·72	1·97
Manitoba.............	7·09	6·48	7·78	9·54	4·07	8·36	11·01	3·91	4·23
Saskatchewan.........	5·92	5·00	7·08	7·47	2·30	6·04	9·45	2·36	2·24
Alberta...............	5·18	4·62	5·92	7·18	2·01	5·91	9·07	2·26	1·74
British Columbia......	6·21	6·83	5·37	9·01	3·17	8·89	9·19	4·34	1·78
Yukon................	26·82	19·95	43·58	38·76	1·47	28·18	68·89	1·63	1·10
Northwest Territories..	89·30	85·10	93·87	92·06	–	85·10	93·87	–	–

In the above table there are 108 items of information each one of which is often quoted singly, but not one of which is free from many misleading possibilities, although of course the more specific data in the four last columns are to a considerable extent more free from these possibilities. That 5.73 per cent of the males and 4.43 per cent of the females in Canada are illiterate, also that 7.16 per cent in rural communities and 3.11 per cent in urban communities are illiterate, are accurate statements of fact, but they are accurate only in so far as they are complete and independent statements and not comparative statements.

Taking first the most general figure of all, the percentage illiterate in all Canada, it has already been pointed out that this is a true index of illiteracy or not according as the illiterate persons are or are not evenly distributed over Canada. If they are evenly distributed, then it is safe to say that one in every 20 persons over 10 years of age in Canada is illiterate. If they are not evenly distributed, then the 5.10 is worse than it appears if the elements with the large proportion of illiterates are more permanent than those with the small proportion, and better than it appears if the illiterates are in a certain measure segregated and if the conditions under which they are illiterate are temporary and abnormal.

The investigation of how this general percentage is distributed will require a separate chapter, but there are sufficient data in the table to give a general idea of the distribution. Since the figures of the Yukon and Northwest Territories are exceptional and since the populations of these form only a negligible proportion of the population of Canada it may be better to ignore them for the present and consider the percentage of illiteracy in Canada as 5.01 per cent, or the aggregate of the nine provinces.

The percentage illiterate of males, it is noticed, is 5.64; of females, 4.32. If the sexes had been evenly distributed the percentage for Canada would have been the average of the two. This average is 4.98. Thus the percentage for Canada is slightly raised by virtue of the fact that the males are in the majority. It is a well known fact that this distribution of the sexes is not exactly normal — the tendency being one peculiar to a new country — and that the general tendency is for the sexes either to approach a numerical equality or for the females to become numerically greater. Thus there is found already one non-permanent element in the percentage of illiteracy.

Again, the percentage in rural centres is 6·97 and in urban centres 3·11. If rural and urban populations were equal, these percentages remaining the same, the percentage for Canada would be the average of the two, namely 5·04, or slightly greater than the actual percentage. If the element which made the actual percentage lower than the average of the two component parts were a temporary one it might be said that 5·01 understated the illiteracy of Canada. In truth however, this element is due to the fact that the weight of the population (over 10 years) is actually inclined towards urban rather than rural residence. This would seem to be a permanent tendency, being only slightly apparent as yet in a new country like Canada. The implication, however, is that as the urban population increases relatively to the rural, the percentage of illiteracy will decrease. Thus the 5·01 per cent is not really an understatement. If the average of the male and female, rural and urban percentage is taken it is found to be 5·01, or the same as the actual, showing that the superior weight of the urban population happens exactly to balance the inferior weight of the female population.

Again taking the average of the unweighted percentages, male and female, rural and urban, in the nine provinces, the percentage obtained is 5·12 or appreciably greater than the actual weighted percentage of the aggregate population. This shows clearly that the weight of the population is inclined towards the provinces, centres or sex with the lower rates of illiteracy. This does not necessarily show that as populations increase illiteracy becomes less, but it should show either this or that as the country becomes older or longer settled illiteracy decreases. In making up the average of 5·12 per cent in the 36 items averaged, it is noticeable that 15 of them are above the aggregate percentage (5·01). Of these 15, only one is urban (male) while 7 are rural (female), and 7 are rural (male). The whole of Canada as represented by the nine provinces, then, is favoured by the weight of urban population.[1] As there are 21 items below the average as compared with 15 above it is clear that the 5·01 per cent illiterates represent to this degree a segregation and not an even distribution. The segregation is towards 14 out of the 18 rural items (4 of the rural being better than the percentage for all Canada), and one male urban. The point which it is desired to make clear is that on the whole the 5·01 per cent illiterate in the

[1] This, of course, refers to the population over 10 years of age. Although the total urban population is less than the rural (4,352,122 and 4,436,361 respectively) the population over 10 years is larger than the rural (3,395,987 and 3,286,085 respectively).

nine provinces is, on the strength of the data given, really an over statement in that it is raised to this size by temporary elements, while the elements holding it down to its actual size are permanent. Thus if in the 36 items averaged, 18 had been above and 18 below the 5·01 this percentage would have been a more accurate statement of the illiteracy of Canada; likewise if there had been 9 female items and 9 male above the·average. (There were only 7 females above the average and 11 below and 8 males above and 10 below.) Further, it would seem that four out of the 7 females above the averages were due not to intrinsically Canadian conditions but to the conditions of a new immigrant population, while in all cases below the average the conditions are normal and with a permanent tendency.

In the next place, taking the comparison of illiteracy by sex, it is seen that the males have 5·64 per cent illiterate as compared with 4·32 per cent for females. The disparity in these figures is very great, the percentage for males being over 30 per cent greater than for females. The implication is that this is a sex differentiation—that females attend school more assiduously or more advantageously than males. In a subsequent chapter it will be shown that this is not altogether true. The percentage of males not at school at any age period under 14 years is not appreciably greater than the percentage of females. There is a still smaller difference between the percentages attending over seven months in contradistinction to those attending less than seven months. If, therefore, this difference between the sexes is due to superior school attendance on the part of the females it must have been a differentiation in the past which has now been removed. This is no attempt to question that there is some differences between the sexes in this respect and that females are somewhat less illiterate than males. What is questioned is whether the differentiation—as a sex phenomenon—is as great as that implied by the comparative figures 5·64 and 4·32.

Without using other figures than those in Table 24 it is seen that rural males have 7·56 illiterate and urban males 3·58 per cent. If the males were evenly distributed among rural and urban centres, then, without any change in the relative illiteracy of these areas the per cent illiterate of males would be 5·54 instead of the actual 5·64 while that of females would be 4·46 instead of 4·32. This, it will be noticed lowers the illiteracy of males and raises that of females. This suggests that the actual percentage for females is favoured by the superior weight of females in urban communities, while that of males is handicapped by their superior weight in rural communities. This readjustment alone makes a considerable difference, for whereas the illiteracy of the males is actually 31 per cent greater than that of the females, the even distribution between rural and urban would make the males only 25 per cent greater. Still greater disparity between the sexes is to be discovered in other non-essential causes which will be investigated in another chapter. It should also be noticed here that in four provinces the females are more illiterate than the males. With their actual percentage of illiteracy it is clear that if these four provinces had the majority of the population of Canada the situation would be reversed as between the sexes—a result which would misrepresent the real situation even to a greater extent than it is misrepresented by the actual figures.

Again, the percentage illiterate in rural areas is 6·97 as compared with 3·11 in urban centres. The immediate inference is that these figures represent the comparative difficulties in the way of school advantages in the two areas—that the high rural percentage is the result of disabilities essentially connected with rural residence. The table does not supply data which suggest the real situation and this data will be given in another chapter. It is true, however, that while some of the difference is due to the comparative advantages of rural and urban residence, a part and perhaps the greater part, is due to the composition of the population—a composition with which rural and urban residence have no connection except in so far as they are responsible for attracting different classes of people. The schools of Canada have still less to do with this difference.

Again, the difference between provinces, as shown by the crude figures of Table 24 is grossly misleading, if the figures are taken to represent the comparative results of educational effort in the different provinces. Expressed in terms of the standard deviation the average difference between the provinces represents about 3 per cent illiteracy, or over half the illiteracy of all the nine provinces. If it were true that this difference represented differences in educational effort it would not be possible to change it by a readjustment of the distribution of the population. Without taking into account the relative size of the population of each province it will be seen that the average of the percentages illiterate in the nine provinces is 5·48. If the average of

the rural and urban male and female in the last four columns is taken it is only 5·12. This shows that the distribution of sex and rural and urban populations handicaps some of the provinces and favours others while it also favours the Dominion as a whole (which has only 5·01 per cent in the nine provinces).

The most misleading features, however, are not revealed by the figures of Table 24, namely, the influence of the Indian population and that of the foreign born. Although the illiteracy of the Indians affects the percentage of Canada as a whole by only a fraction of one per cent, its influence upon individual provinces is very great. Now, it is quite clear that the illiteracy of Indians ought to be considered as a thing apart from that of the rest of the population. Australia and New Zealand do not include aboriginals in their quotations of illiteracy, while the United States draws a very clear distinction between the illiteracy of the native whites as compared with other classes. The percentage illiterate in the nine provinces, as has just been seen, is 5·01. Excluding Indians it is 4·49, a very small difference. The effect upon the provinces, however, will be found illustrated in the following table which shows illiteracy including Indians and excluding Indians.

TABLE 25.—PER CENT ILLITERATE OF THE POPULATION TEN YEARS OF AGE AND OVER IN THE NINE PROVINCES OF CANADA

Province	Per cent illiterate	
	Including Indians	Excluding Indians
Nine provinces	5·01	4·49
Prince Edward Island	3·07	3·02
Nova Scotia	5·11	5·01
New Brunswick	7·61	7·50
Quebec	6·20	6·04
Ontario	2·96	2·70
Manitoba	7·09	6·13
Saskatchewan	5·92	5·05
Alberta	5·18	3·73
British Columbia	6·21	3·83

The Indians are only very slightly connected with the educational efforts of the different provinces, the responsibility for their education lying with the Dominion and private denominational institutions. Taking the illiteracy of the population excluding Indians, then, as a more accurate description of the true situation, it remains to investigate how far the difference between provinces is due to elements which have no connection with the schools of these provinces save in so far as they add to their problems.

TABLE 26.—PER CENT ILLITERATE OF THE POPULATION TEN YEARS OF AGE AND OVER EXCLUSIVE OF INDIANS BY NATIVITY AND SEX

	Per cent illiterate			Number per 1,000 of the population over 10 years of each province belonging to each class		
	All classes	Canadian and British born	Foreign born	All classes	Canadian and British born	Foreign born
Nine provinces	4·49	3·36	12·11	1,000	872	128
Prince Edward Island	3·02	3·02	2·80	1,000	985	15
Nova Scotia	5·01	4·87	9·30	1,000	969	31
New Brunswick	7·50	7·46	8·89	1,000	968	32
Quebec	6·04	5·91	8·33	1,000	946	54
Ontario	2·70	1·86	13·05	1,000	925	75
Manitoba	6·13	1·54	20·68	1,000	760	240
Saskatchewan	5·05	1·45	11·39	1,000	637	363
Alberta	3·73	0·98	8·01	1,000	610	390
British Columbia	3·83	0·68	13·89	1,000	761	239

In showing the influence of the foreign born in its true perspective a distinction must of course be made between those from the United States and certain other countries on the one hand, and from Southern and Eastern Europe, Asia, etc. on the other. This will be done presently, but even the figures just given show that the differentiation between the provinces as shown in the first column can not be due, except to a small extent, to differences in educational

effort, and is consequently not a normal differentiation. If it were a true provincial difference then item for item the British and foreign born should be fairly consistently better or worse in one province than another.

The province with the lowest percentage of illiteracy has 2·70 per cent unable to read or write. It will be interesting to see what the illiteracy of each province would be if it had the same proportion of the two classes of the population as Ontario, namely 925 per thousand Canadian and British and 75 foreign, the illiteracy item for item of each province being the same as the actual percentage.

TABLE 27.—ILLITERACY OF EACH PROVINCE AND OF THE NINE PROVINCES COMBINED STAND ARDIZED FOR COMPARISON BY ASSUMING IN EACH PROVINCE THE SAME PROPORTION-RESPECTIVELY OF BRITISH AND FOREIGN BORN POPULATION AS FOUND FOR THESE TWO CLASSES IN ONTARIO

	Canadian and British born		Foreign born		All classes	
	Population[1] (per 1,000)	Per cent illiterate	Population[1] (per 1,000)	Per cent illiterate	Population[1] (per 1,000)	Per cent illiterate
Nine provinces	925	3·09	75	10·70	1,000	3·66
Prince Edward Island	925	3·02	75	2·80	1,000	3·00
Nova Scotia	925	4·87	75	9·30	1,000	5·20
New Brunswick	925	7·46	75	8·89	1,000	7·57
Quebec	925	5·91	75	8·33	1,000	6·09
Ontario	925	1·86	75	13·05	1,000	2·70
Manitoba	925	1·54	75	20·68	1,000	2·98
Saskatchewan	925	1·45	75	11·39	1,000	2·20
Alberta	925	0·98	75	8·01	1,000	1·51
British Columbia	925	0·68	75	13·89	1,000	1·67

[1] Ten years and over.

It should be noticed that the percentages illiterate of the Canadian British and of the foreign born have not been altered in any respect in any of the provinces, the only alteration being in the proportion of the population formed by each class. If, then, every province had the same proportion of each class as Ontario, the illiteracy of these classes remaining the same as it actually is in each province, the illiteracy of Canada would be lowered from 4·49 to 3·66 per cent; that is, lowered 18 per cent of what it actually is; the illiteracy of the British born in Canada would be lowered from 3·36 to 3·09, or 8 per cent and that of the foreign born from 12·11 to 10·70, or 12 per cent.

If instead of supposing each province to have the same proportion of the population of British and foreign born as Ontario, its illiteracy being unchanged, it were supposed that every province had the same percentage illiterate of the respective classes as Ontario, its proportion of the population belonging to the classes remaining unchanged, we should have the following results:—

TABLE 28.—CHANGES IN THE ILLITERACY OF EACH PROVINCE AND OF THE NINE PROVINCES COMBINED AFFECTED BY GIVING TO EACH PROVINCE THE SAME PER CENT ILLITERATE OF EACH CLASS (CANADIAN AND BRITISH AND FOREIGN-BORN) AS ACTUALLY FOUND IN ONTARIO, THE DISTRIBUTION OF THE POPULATION TEN YEARS AND OVER REMAINING UNCHANGED

	Canadian and British born		Foreign born		All classes	
	Population[1] (per 1,000)	Per cent illiterate	Population[1] (per 1,000)	Per cent illiterate	Population[1] (per 1,000)	Per cent illiterate
Nine provinces	840	1·86	160	13·05	1,000	3·65
Prince Edward Island	985	1·86	15	13·05	1,000	2·03
Nova Scotia	969	1·86	31	13·05	1,000	2·20
New Brunswick	968	1·86	32	13·05	1,000	2·21
Quebec	946	1·86	54	13·05	1,000	2·46
Ontario	925	1·86	75	13·05	1,000	2·70
Manitoba	760	1·86	240	13·05	1,000	4·55
Saskatchewan	637	1·86	363	13·05	1,000	5·92
Alberta	610	1·86	390	13·05	1,000	6·22
British Columbia	761	1·86	239	13·05	1,000	4·53

[1] Ten years and over.

A remarkable feature of the results of this readjustment is that for the nine provinces as a whole the percentage is practically the same as in the previous table; that is, the result is the same if all provinces were given the illiteracy of Ontario, the proportions of British and foreign born remaining unchanged, as it is when all provinces are given the same proportion of British and foreign population as Ontario, the illiteracy remaining unchanged. It is also noticeable that three provinces would lose by being given the illiteracy of Ontario, which shows that item for item their illiteracy is less than that of Ontario, although on the whole it is greater.

Perhaps a still more remarkable feature is the fact that there is a greater difference between the provinces under the last re-adjustment than under actual conditions. The actual mean variation from the average is 1·33; the mean variation between provinces when all provinces are given the illiteracy of the British and foreign born of Ontario is 1·48.

The two tables show that the differences in the illiteracy of the nine provinces are not due solely to differences in educational effort on the part of the provinces but at least partly to differences in the composition of their population with which the schools have only an indirect or hypothetical connection. For example, it is possible that the school conveniences in a province or part of a province may be an inducement for education-loving immigrants to settle there rather than where the school accommodations are not so good. The total result of such possibility, however, cannot be so great as to make much difference in percentages while it might make some difference in absolute numbers.

It may now be useful to show how much of the difference in illiteracy between each province and the average of the nine provinces is due to the higher or lower percentage of illiteracy of British (including Canadian) and foreign born and how much to the proportion of each of these elements of the total population. This can be done by finding the difference between the illiteracy of one province and that of all nine provinces and breaking the difference up into its constituents. For example the percentage illiterate in all nine provinces is 4·49; the percentage in Prince Edward Island is 3·02. Prince Edward Island is therefore 1·47 below the average, and this fact can be expressed by saying that the difference of this province is −1·47. In breaking up this −1·47 into its constituents it is seen that the illiteracy of the British born in Prince Edward Island is 3·02 as compared with 3·36 in all provinces so that the differences in the case of British born is −0·34. But the British born form 98·5 per cent of the total population, so that the difference between the British born of Prince Edward Island and the British born of all nine provinces accounts for −0·34 × 0·985 or = −0·33 out of the total difference of −1·47. Similarly, the amount by which the foreign born of the Island are lower than the foreign born of all nine provinces (2·80−12·11 = −9·31) accounts for −0·14 (i. e. −9·31 × 0·015) out of the total difference of −1·47. The amount by which the illiteracy of both British and foreign born in Prince Edward Island is lower than in all nine provinces, then, accounts for −0·47 (i. e. −0·33 + −0·14) out of the total difference of −1·47. The balance or −1·00 is due to the favourable distribution of the two classes of the population (British and foreign born) in Prince Edward Island as compared with their distribution in the rest of Canada.

TABLE 29.—DISTRIBUTION OF THE PROVINCIAL DIFFERENCES IN ILLITERACY SHOWING THE CONTRIBUTION BY THE PROPORTIONS OF THE TWO CLASSES (BRITISH AND FOREIGN BORN) AND BY THE ILLITERACY OF THESE CLASSES

Province	Difference between per cent illiterate of province and of all nine provinces	Amount contributed by illiteracy of the		Amount contributed by the nature of the distribution of these two classes
		British born	Foreign born	
Nine provinces.............................	-	-	-	-
Prince Edward Island.................	−1·47	−0·33	−0·14	−1·00
Nova Scotia..........................	0·51	1·46	−0·09	−0·86
New Brunswick.......................	3·01	3·97	−0·10	−0·86
Quebec..............................	1·55	2·41	−0·20	−0·66
Ontario.............................	−1·79	−1·39	0·07	−0·47
Manitoba............................	1·64	−1·38	2·06	0·96
Saskatchewan........................	0·56	−1·15	−0·26	1·97
Alberta.............................	−0·76	−1·45	−1·60	2·29
British Columbia....................	−0·66	−2·04	0·43	0·95

[1] For statistical tables on the contents of this chapter see Census 1921, Vol. II, page 610.

The cases of Saskatchewan and Alberta are especially interesting. It is noticeable that these two provinces gained both by the illiteracy of the British born and by that of the foreign born, but that they lost by the distribution, so that Saskatchewan lost by this distribution to the extent of raising her above the average of the nine provinces. This is a most striking example of misrepresentation on the part of the crude figures. If both the British and the foreign born had a lower percentage of illiteracy than the average, it most certainly follows that the illiteracy of the province can not really be said to have been above the average although the crude data seem to say as much.

This provincial analysis might be extended to include the contributions of other items, such as age, sex, rural and urban residence, Canadian, British, foreign and mixed birth and parentage, etc. The labour of the calculation would be out of proportion to the importance of the results, especially since the point of the analysis is already sufficiently emphasized, namely that the differences in percentage illiterate between the provinces are by no means entirely due to differences in educational effort as between provinces, but are largely due to the nature of the distribution of their populations, with which distribution the schools of the province have little or no connection.

CHAPTER 5

THE CONSTITUENTS IN RURAL AND URBAN ILLITERACY[1]

The method described in the last chapter may now be used to analyze the difference between the illiteracy of rural and urban localities into its constituent elements. This is very important not only as a means of clearing away misconceptions but as a means of ascertaining, if possible, to what extent rural conditions affect illiteracy.

It has been found impossible to eliminate a certain source of error from the data on which the discussions in this chapter are based, namely the error caused by difference in interpretation in different provinces as to what constitutes "rural" and "urban". It is clear that from the point of view of illiteracy and school non-attendance the physical effects of rural residence are almost as truly non-existent in a tiny hamlet as in a large city—not fully, since such a hamlet derives a larger proportion of its school population from the surrounding rural districts than a large city. This last point is of almost insignificant importance, however. In Ontario, for example, a community has a comparatively large population before it is incorporated as a village, while in Saskatchewan and Alberta even a town may have only one or two hundred of a population. The distinction between rural and urban, therefore, is much truer for the purposes of this chapter in the prairie provinces than in Ontario. However, the effects of such an error have been minimized where possible throughout not only this chapter but the whole treatise. In the case of the discussion on the 1911 census, for example (see chapter 15) the distinction is uniform and almost absolute—not consisting of the distinction drawn by legislation between rural and village, but of one based upon evidence of a communal aggregation of population based upon areas of a certain size and population (except of course in the cases of cities, towns and villages which were known as such). In this case a rural district in Ontario would mean practically the same as rural district in Saskatchewan. The results compared so very closely with the results of the ready to hand compilations of 1921 that it is doubtful whether a very serious error creeps into the main results from the provincial differences between rural and urban. Further, in chapter 15 which contains the main discussion on effects of physical environment the distinction is uniform throughout, the places on which the discussion is based being selected partly with this end in view; besides, the districts mentioned as urban include all but what is almost completely rural. The conclusions of the treatise as a whole are vitiated to only a very small extent by the want of uniformity mentioned and not nearly to the same extent as they would be if all the provinces had a uniform practice but had a larger minimum of population to constitute an urban centre as in Ontario. There are, however, a few scattered sources of error in the cases of "rural municipalities" in the neighborhood of large cities. These municipalities may be more strictly urban from an educational standpoint than some large towns. It is interesting to see that these crop up as exceptions when two sets of data are correlated, which indicates that if such errors could have been completely eliminated, the results would point to the conclusions arrived at more decisively than they actually do.

Before proceeding, however, it will be necessary to state a postulate which may not already have been made clear. Suppose that only two constituents were present in rural and urban illiteracy, namely (1) British born males and (2) foreign born males. Suppose that in both rural and urban areas the percentage illiterate of British born was 3 and the percentage illiterate of foreign born was 8. Since, then, class for class, the illiteracy of the urban areas is exactly the same as of the rural areas, it is postulated that any difference which appears when the two classes are combined is not one essentially connected with rural and urban conditions but rather with the nature of the distribution of the two classes.

To give a definite example: suppose that there were 10 British born in the urban and 6 in the rural areas, while there were 3 foreign born in urban and 5 in rural (the small number being used for the sake of clearness). The percentage illiterate of all classes in the areas would be as follows:—

TABLE 30

	British-born		Foreign-born		Both classes	
	Population	Per cent illiterate	Population	Per cent illiterate	Population	Per cent illiterate
Urban areas................................	10	3	3	8	13	4·15
Rural areas................................	6	3	5	8	11	5·27

Notice that although the illiteracy of the British born is exactly the same in the rural as in the urban; and also the illiteracy of the foreign born, yet the illiteracy of both classes together is higher in rural than in urban areas. It is clear that this is either not at all or very indirectly connected with rural residence. The fallacy of connecting the difference with rural residence will appear at once if it is further supposed that the foreign and British born were adults who had recently arrived in Canada. An indirect connection may be conceived on the supposition that the illiterate classes were attracted to rural rather than to urban areas, but this is far fetched and at any rate has no connection with the comparative effects on illiteracy of rural and urban schools.

[1] For statistical tables on the contents of this chapter see Census 1921, Vol. II, page 610.

The actual situation is not so simple as that shown above. It may be taken for granted that there is some essential difference between urban and rural areas. Class for class, sex for sex, age for age, etc., illiteracy will sometimes be higher but more often lower in urban than in rural centres, irrespective of the nature of the distribution of the population. The problem is to separate so far as possible the essential differences from the differences caused by the distribution or weighting. It will not be possible to do this completely, since however far population analysis is carried, there will be a limit either owing to want of complete information or to an overlapping of facts or conditions. For example, urban foreign born females might have a lower percentage of illiteracy than rural foreign born females, but this might not be the result of better educational conditions in urban centres; it might be due to the fact that the urban foreign-born females had a large proportion of United States or Northern European born, while the rural were from Southern or Eastern Europe or Asia. If, further, it were found that urban foreign-born females of Eastern European birth had a smaller percentage illiterate than rural females of the same origin and nativity, it would be still necessary to ascertain the comparative ages of the two classes of females, whether or not they had been educated in Canada, and if not whether they had originally come from urban or rural areas, etc. Thus the analysis may be practically without a limit. At the same time every step in it clears up a part of the situation. Thus one point at least that can be cleared up fairly satisfactorily is, how far the difference in distribution or weighting of the different elements affects the difference in illiteracy at the point up to which the analysis has been carried.

The following table shows the illiteracy in rural and urban areas under eighteen different conditions. Further than this the information is not available, except that the analysis might be extended so as to show all the 216 census districts separately. In that case it would be impossible to show the effects of age, which are very important. Furthermore there is a possibility that the data as analyzed have an advantage on the score of a higher degree of accuracy. The data of each census division might be affected by the idiosyncracies of two or three enumerators, while in the case of the data by age groups, covering as they do the field of all the 11,000 enumerators, the idiosyncracies of one are likely to be either cancelled by the opposite idiosyncracies of others, or rendered harmless because of the small proportion which their influence bears to the more accurate tendencies of the body of enumerators as a whole.

†TABLE 31.—PER CENT ILLITERATE IN RURAL AND URBAN AREAS BY NATIVITY, AGE GROUPS, AND SEX; CONTRIBUTION OF EACH PHASE TO THE DIFFERENCE BETWEEN RURAL AND URBAN ILLITERACY

Age	Sex	Nativity	Rural	Urban	Total	Distribution of rural and urban population per 1,000 persons		Contribution of each item to amount per cent illiterate rural is above per cent rural and urban
						Rural	Urban	
10-20	Male	Canadian born	4·13	1·01	2·78	135	100	0·18175
		British born	0·45	.0·24	0·32	9	14	0·00117
		Foreign born	4·40	3·21	3·92	14	9	0·00672
	Female	Canadian born	3·14	0·75	2·01	125	109	0·14125
		British born	0·32	0·23	0·26	7	15	0·00042
		Foreign born	4·95	2·74	3·92	·12	10	0·01236
21-64	Male	Canadian born	8·36	3·19	5·90	235	205	0·57810
		British born	0·83	0·57	0·67	49	81	0·00784
		Foreign born	12·19	12·33	12·26	67	53	−0·00469
	Female	Canadian born	5·64	2·07	3·70	200	230	0·38800
		British born	0·42	0·57	0·50	37	75	−0·00296
		Foreign born	18·04	12·51	15·32	41	39	0·10988
65 and over	Male	Canadian born	19·86	11·21	16·36	29	19	0·10150
		British born	3·78	2·64	3·11	5	7	0·00335
		Foreign born	25·90	13·77	21·39	4	·2	0·01804
	Female	Canadian born	16·18	8·30	12·44	25	22	0·09350
		British born	4·09	3·43	3·70	4	7	0·00156
		Foreign born	30·77	17·07	24·56	2	2	0·01242
Total			6·97	3·11	5·01	1,000	1,000	1·65021

Difference between per cent illiterate rural and per cent illiterate rural and urban=−1·96 (i.e. 6·97—5·01)
Amount of this difference contributed by British born=0·01138
  "   "   "   Foreign born=0·15473
  "   "   "   Indians=0·51500
  "   "   "   Other Canadian born=0·96900
  "   "   "   weighting or nature of distribution=0·30979

† This table contains the figures of the nine provinces only.

It may make this calculation clearer to state the results in another way as follows:—

The difference between the percentage illiterate rural and the percentage illiterate urban is 3·86. Of this difference 0·51 per cent is caused by the amount by which the rural British born are more illiterate than the urban British born; 7·9 per cent is caused by higher illiteracy of rural than of urban in the case of foreign born; 26·3 is caused by the illiteracy of Indians who are practically all rural; 49·4 per cent is caused by the higher illiteracy of other Canadian born in rural than in urban areas. The remaining 16 per cent is caused by the fact that the nature of the distribution of the various elements specified favours the urban areas. In other words, without any action whatever on the part of the schools, a mere shifting of certain classes of the population between rural and urban areas would reduce the difference between rural and urban illiteracy by about one-sixth. Leaving aside the Indians, it is noticeable that the manner in which certain elements of the population gravitated towards rural rather than urban areas is responsible for nearly twice as great a share of the difference between the illiteracy of the rural and the urban areas as the differentiation in the illiteracy of the British and foreign born, and almost one-third as great as that contributed by the differentiation in the illiteracy of the Canadian born other than Indians. It is unfortunate that Indians could not have been altogether excluded from this calculation since their illiteracy vitiates the results to a certain extent. It was not possible to exclude them owing to the fact that the age groups for which their illiteracy is given do not correspond to the age groups given above.

The above analysis, of course, no more than illustrates the manner in which the real difference caused by the comparative educational advantages of rural and urban residence is disguised by other factors. It is true to the extent of saying that of the (3·86) difference between the illiteracy shown by rural and urban areas, roughly 2·27 is caused by the difference class for class between the rural and urban Canadian, British and foreign born, 1·03 by Indians for whose illiteracy rural residence can not be held responsible, and, 0·61 by the manner in which the different classes specified are distributed in favour of the urban areas. It is not true, however, that the 2·27 is purely a difference between rural and urban. To obtain this true difference even approximately the analysis would have to proceed almost indefinitely. For example the rural foreign born show greater illiteracy than the urban, but this is not necessarily the result of rural residence. As a matter of fact the foreign born males at the ages of 21 to 64 years are more illiterate in urban than rural areas; so are the British born females in the same age group. It is not for a moment to be suspected that this is an unfavourable result of urban residence. It merely means that the foreign born males at these ages were more illiterate when they came to the urban areas than those who came to rural areas. To obtain anything approximating the real difference, it would be necessary to subdivide the foreign born into their various races and find which races reside in rural areas and which in urban. The same would be necessary in the case of the Canadian and British born, although the last mentioned cause but a negligible proportion of the difference. The possible effects of race upon the difference between rural and urban areas may be seen as follows: The total number of persons over 10 years illiterate in Canada (exclusive of Indians) was 295,940 and of these 102,723 were foreign born. The total foreign population over 10 years was 848,561 so that 12·11 per cent of them were illiterate. Of this total population 272,703 were from Southern and Eastern Europe (excluding Finalnd and Hebrews) and Asia, and a few from other continents, while 575,858 were from the United States, Northern Europe, Germany and France and Hebrews. The 272,703 had 80,020 or 27·7 per cent illiterate, while the remainder had only 22,703 or 3·9 per cent illiterate, that is, they had a smaller percentage of illiteracy than the Canadian born. The 272,703 had 78 per cent of the foreign born illiterates, although they formed only 32 per cent of the foreign born population. Now if these 272,703 had a tendency to immigrate into rural areas, while the other foreign born had a tendency to immigrate into urban areas it would make the rural foreign born more illiterate than the urban foreign born, but this would by no means be due to rural residence. Similarly, the Canadian born had a large element of foreign parentage, namely 195,923 with both parents foreign and 146,477 with one parent foreign. These, however, had smaller percentages illiterate than those whose parents were Canadian born.

There is also a considerable differentiation of the Canadian born races who form the great majority of the population. The nature of the distribution of these and of the Canadian born of foreign parentage is to no extent included in the 0·30979 mentioned as being due to mere weighting in Table 31, although the contribution to what is credited to difference in illiteracy amounts to 0·96900 (excluding Indians) as compared with 0·15473 in the case of foreign born and 0·01138 in the case of British born. The 0·30979

which was credited to the unfavourable distribution of nativity, sex and age in rural areas in Table 31 no doubt involves an element of racial distribution, so that at least some of it may be added to what may afterwards be discovered as being solely due to racial distributions.

In the note appended to this chapter it will be seen that the manner in which the mere weighting of racial distribution favours urban areas is responsible for a considerably larger proportion of the difference between rural and urban illiteracy than the weighting in the case of nativity, age and sex together. It must also be remembered that in Table 31 the Indians were seen to cause a difference of over 1 per cent illiteracy between rural and urban areas over and above that caused by the manner in which the population was distributed by nativity. If the influence of mere weighting of age, sex, nativity and race be combined it would seem that it would leave a net difference between rural and urban illiteracy of about 2 per cent; that is, the illiteracy which may be credited to intrinsically rural conditions raises the illiteracy of Canada as represented by the nine provinces only 1 per cent (out of the 5·01 per cent). It will be seen in chapter 15 that the same general statement holds true of illiteracy as of school non-attendance, namely, that intrinsically rural conditions are responsible for less than one-half the gross difference shown between rural and urban illiteracy or school attendance.

It should be noticed that the ages of 65 years and over contribute ·23 or about one eighth of the total difference, while the ages of 10 to 20 years contribute ·34 or over one-sixth of the total difference, the ages of 21 to 64 contributing 1·08 or over half of the total difference. The ages of 10 to 20, however, form 30·2 per cent of the rural population, while the ages of 65 years and over form only 6·9 per cent. It should also be noticed that the ages of 65 years and over form 6·9 per cent of the rural population and 5·9 per cent of the urban, while the ages of 10 to 20 form 30·2 of the rural and 25·7 of the urban, so that the advantage on point of age is if anything in favour of rural communities. This is an advantage which should ultimately tend to reduce the difference in the comparative illiteracy of rural and urban centres.

The contribution of geographical position and other physical conditions to the real difference between rural and urban illiteracy is very difficult to ascertain, owing to the fact that the ubiquity of non-essential elements constantly interferes with the investigation. In the case of the Census of 1911 an attempt was made to ascertain the influence of density of population as measured by the number of rural persons to the square mile. It is true that the percent rural illiterate and the number of rural persons per square mile showed a strong inverse correlation, but this was misleading in many respects. The most sparsely populated districts contained the largest percentages of Indians whose illiteracy was very high; the most thickly populated contained elements whose illiteracy was naturally low, so that no conclusions could be reached. A rather minute analysis of the connection between illiteracy and school attendance and conditions of land settlement is made in chapter 15. On the whole the conclusion seems to be that the combined effects of geographical position and physical conditions are responsible for less than one half of the difference between rural and urban areas.

The following table, showing the statistics of illiteracy of 36 census divisions in which the illiteracy of the urban areas was greater than that of the adjoining rural areas, may be of interest. It should be noticed that 36 divisions is one sixth of the total number of divisions in Canada and consequently no small proportion of the whole. The data should illustrate what has been so frequently pointed out, namely, that a difference shown in the crude figures between rural and urban areas is not necessarily a difference essentially connected with rural and urban conditions, and that illiteracy is more sensitive to certain occupations or the prevalence of certain classes of people than to physical conditions. The cases of Norway, Sweden and Iceland, where illiteracy is practically confined to subnormals, illustrate the point in question.

TABLE 32.—CENSUS DIVISIONS IN WHICH ILLITERACY WAS HIGHER IN URBAN THAN IN RURAL PARTS, 1921

	Total			Rural			Urban		
	Population 10 and over	Number illiterate	Per cent illiterate	Population 10 and over	Number illiterate	Per cent illiterate	Population 10 and over	Number illiterate	Per cent illiterate
Kent, N.B.	16,923	3,051	18·03	16,053	2,838	17·68	870	213	24·48
Prescott, Ont	18,765	2,163	11·53	12,987	1,281	9·86	5,778	882	15·26
Charlevoix, Que	14,480	1,582	10·92	10,226	1,041	10·18	4,254	541	12·72
Montcalm, Que	10,026	1,060	10·57	7,929	832	10·49	2,097	228	10·87
Argenteuil, Que	11,768	1,200	10·20	8,746	880	10·06	3,022	320	10·59
Glengarry, Ont	14,896	1,513	10·16	12,370	1,181	9·55	2,526	334	13·14
Maskinonge, Que	11,485	1,136	9·89	10,225	1,006	9·84	1,260	130	10·32
Deux Montagnes, Que	10,546	821	7·78	8,742	649	7·42	1,804	172	9·53
Megantic, Que	22,775	1,572	6·90	12,072	832	6·89	10,703	740	6·91
Stormont, Ont	18,029	1,239	6·87	12,738	827	6·49	5,291	412	7·79
Queens, N.S.	7,527	516	6·86	5,286	818	6·02	2,247	198	8·81

TABLE 32.—CENSUS DIVISIONS IN WHICH ILLITERACY WAS HIGHER IN URBAN
THAN IN RURAL PARTS, 1921—*Concluded*

	Total			Rural			Urban		
	Population 10 and over	Number illiterate	Per cent illiterate	Population 10 and over	Number illiterate	Per cent illiterate	Population 10 and over	Number illiterate	Per cent illiterate
Wolfe, Que..............	12,108	763	6·30	8,369	474	5·49	3,471	289	8·33
Drummond, Que........	13,729	854	6·22	10,966	638	5·82	2,763	216	7·82
L'Assomption, Que.....	10,529	630	5·98	7,953	453	5·70	2,576	177	6·87
Stanstead, Que.........	15,769	873	5·54	6,555	260	3·97	9,214	613	6·65
Soulanges, Que.........	7,029	381	5·42	4,722	249	5·27	2,307	132	5·72
Missisquoi, Que.........	12,009	640	5·33	6,895	335	4·86	5,114	305	5·97
Nicolet, Que............	21,404	1,097	5·12	17,114	859	5·02	4,290	238	5·55
Vercheres, Que.........	8,973	456	5·08	5,910	258	4·37	3,063	198	6·47
St. Hyacinthe, Que.....	17,228	869	5·04	6,661	316	4·74	10,567	553	5·23
Rouville, Que..........	9,669	483	5·00	6,459	305	4·72	3,210	178	5·55
Bagot, Que.............	12,614	629	4·99	9,043	417	4·61	3,571	212	5·94
Athabaska, Que........	17,206	839	4·88	11,716	531	4·53	5,490	308	5·61
Beauharnois, Que.......	14,138	675	4·77	4,368	146	3·37	9,770	529	5·41
Simcoe, Ont....:......	57,059	2,560	4·49	30,009	1,018	3·39	27,050	1,542	5·70
Iberville, Que..........	6,768	276	4·08	4,747	165	3·48	2,021	111	5·49
Lotbiniere, Que.........	15,470	601	3·88	12,092	459	3·79	3,378	142	4·20
Shelburne, N.S.........	10,165	338	3·33	7,782	226	2·91	2,383	112	4·70
Cumberland, N.S.......	28,933	874	3·02	14,220	350	2·46	14,713	524	3·56
Div. 7, Man...........	16,753	396	2·36	10,184	57	0·56	6,569	339	5·16
Norfolk, Ont............	18,790	360	1·97	12,890	231	1·79	5,400	129	2·39
Kings, N.B............	14,911	278	1·86	12,628	225	1·78	2,283	53	2·32
Div. 9, Man...........	12,909	228	1·76	10,705	139	1·30	2,204	89	4·04
Northumberland, Ont..	22,024	342	1·55	14,538	223	1·53	7,486	119	1·59
Peel, Ont..............	14,853	86	0·58	10,731	62	0·58	4,122	24	0·58
Div. 4, Alta...........	7,144	30	0·42	5,304	21	0·40	1,840	9	0·49
Total..............	554,904	31,411	5·7	370,205	20,102	5·4	184,707	11,309	6·0

It is impossible from the census of 1921 of the population 10 years of age and over to give the illiteracy by racial origin for rural and urban areas, so that the difference between rural and urban illiteracy, so far as it is affected by racial distribution, can not be ascertained. It is not necessary, however, to calculate the difference down to a very fine point, and a fair approximation may be obtained from the relative racial distribution at all ages (instead of 10 years and over) in rural and urban areas. The races are divided into two groups only, group 1 consisting of British races, Belgians, Dutch, Germans and Scandivanians; group 2 consisting of all the other races. It was not found possible to separate the Swiss from the other races, a regrettable fact as these have a very low percentage of illiteracy. The following table will give their distribution:—

TABLE 33.—POPULATION OF CANADA BY RACE GROUPS: (1) BRITISH RACES, NORTHERN EURO-
PEANS AND GERMANS, AND (2) OTHER RACES

	Group 1 (British, etc.)	Group 2 (other races)	Total
Rural..	2,677,833	1,758,528	4,436,361
Urban..	2,917,001	1,435,121	4,352,122
Total..	5,594,834	3,193,649	8,788,483

DISTRIBUTION PER 1,000 OF EACH GROUP

	Group 1	Group 2 (less Indians)	Indians	Total
Rural...	604	371	25	1,000
Urban...	670	330	–	1,000

The illiteracy of persons 10 years and over in each group was: Group 1, 1·40; Group 2, 10·61; Indians, 52·10.

Now if each group had the same illiteracy in both rural and urban centres the total percentage illiterate would be: Rural, 6·08, and urban, 4·44. This gives a difference of 1·64 between rural and urban which is due purely to the varying proportions of the races in rural and urban areas (not to difference in physical environment). The actual figures for rural and urban areas in all Canada are: Rural 7·16; urban 3·11, showing difference of 4·05 in favour of urban areas. It was shown above that 0·61 out of the difference of 3·96 in the nine provinces was due to distribution by nativity, age and sex.

It may be useful to show more fully what was attempted on page 43 how far the nativity groups and racial group elements overlap in the true distribution differences, 0·61 and 1·64. On Table 31 it was seen how urban areas are favoured in respect of nativity group distribution; rural areas have a greater weight of Canadian born than urban areas to the extent of 64 per 1,000 of the total population. This weight is unfavourable to the rural areas since the Canadian born have a higher rate of illiteracy than the British born. Without a doubt the disadvantage of this weight to rural areas is largely, although not wholly, a racial one especially because of the Indian element it includes. Again, urban areas have a greater weight of British born than rural areas to the extent of 88 per 1,000 of the total population. This weight is also unfavourable to rural areas and the disadvantage is practically all a racial one. However, as may be seen in Table 31, the illiteracy of British born in both rural and urban areas is so low that this weight contributes only a negligible quantity to the difference between rural and urban areas. Again, rural areas have a greater weight of foreign born than urban areas, to the extent of 25 per 1,000 of the total population. This is also unfavourable to rural areas, but the disadvantage in this case is by no means purely racial.

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The purely racial advantage consists of the proportion urban areas may contain of group 1. A purely nativity element enters into group 1 even to a greater extent than into group 2, so that it does not follow that nativity enters at all into the 1·64. Including the British races the empire born of group 1 has 1·2 per cent illiterate; the foreign born 2·0 per cent illiterate; the foreign born contains nearly twice as large a percentage illiterate as the empire born. Without including British races a greater relative disproportion obtained between the empire and foreign born in the case of group 1 than in the case of group 2†. Further, group 1 represents a much larger population. Even without the British races it has 470,054 persons as compared with 378,507 in group 2. It is clear, then, that there is a net nativity element over and above the racial element in illiteracy in the 0·61 which would be added to the 1·64 by which the nature of racial distribution is to the disadvantage of the rural areas. To this again must be added other disadvantages of population distribution in rural areas, especially the element in provincial distribution which is free from the influence of sex, age, nativity and race. This element is of course an unknown quantity. On the whole, therefore, it would seem that the difference between rural and urban illiteracy caused solely by the nature of distribution (that is of course, by mere weighting which is unfavourable to rural areas) approaches very closely to 2 per cent of the population over 10 years of age, or half the total difference between the illiteracy in rural and urban areas. In other words what might be considered intrinsically rural conditions including geographical features raises the illiteracy of Canada about 1 per cent out of 5·01 per cent; the other 4 per cent illiteracy in Canada must then be due to other causes.

It may be contended that racial differentiation in illiteracy is affected by rural and urban distribution instead of rural and urban differentiation being affected by racial distribution. This is not likely. It will be seen in a subsequent chapter how the facilities offered by favourable physical conditions to school attendance are neutralized by the existence of certain racial elements. The sensitiveness of illiteracy to the existence of these elements is shown by the easy interchange of percentage of illiteracy between rural and urban centres according to the element which predominates. The fact that there were 36 divisions in which illiteracy of the urban centres was higher than in the adjoining rural centres, although the physical advantages of these rural centres over other rural centres were in no way marked, is an illustration of this sensitiveness.

It might also be argued that the small intrinsic difference shown above between rural and urban centres is incompatible with the large difference in school attendance between rural and urban centres. Subsequent chapters will show, however, that the elements which enter into illiteracy, over and above unfavourable physical conditions, also enter into school non-attendance.

† Excluding the British races the illiteracy of group 1 empire born was 1 p. c. as compared with foreign-born 3 p. c.; ‡ lliteracy of group 2 empire born was 8 p. c. as compared with foreign born 23 p. c.

CHAPTER 6

SEX AND ILLITERACY[1]

The percentage unable to read or write of females 10 years of age and over in the nine provinces, exclusive of Indians, was 3·75, as compared with 5·17 per cent of males. From the point of view of the percentage illiterate of both sexes, (*i. e.* the average illiteracy), viz. 4·49, the percentage illiterate of females is 0·74 below the average and of male 0·68 above the average, *i. e.* there is a difference of 1·42 per cent between the two sexes. It has been already suggested that this is not entirely a sex difference but a phenomenon due largely to disposition of the sexes, the males having a larger proportion living under conditions conducive to illiteracy, while the females tend to be distributed under conditions inimical to illiteracy. An attempt will now be made to examine these conditions.

The number of males over 10 years of age in rural areas in the 9 provinces was 1,793,994, with 7·56 per cent illiterate; of females, 1,482,412 with 6·26 per cent illiterate. These include Indians, and since the Indian population is almost entirely rural only a negligible error is involved in deducting the number of Indians and illiterate Indians from these figures. This leaves 1,740,262 rural males with 117,174 or 6·73 illiterate, and 1,430,593 rural females with 73,190 or 5·11 per cent illiterate. In urban areas there were 1,667,244 males with 3.58 per cent illiterate, and 1,727,586 females with 2·66 per cent illiterate. Thus the disposition of the males was 511 per thousand rural and 489 per thousand urban, while that of the females was 453 rural and 547 urban. If sex for sex the illiteracy of the males were the same as that of the females — say that the illiteracy of each was 5·1 in rural areas and 2·7 per cent in urban areas — there would still be the difference shown in the following table:—

TABLE 34

	Rural		Urban		Total	
	Population	Per cent illiterate	Population	Per cent illiterate	Population	Per cent illiterate
Males..........................	511	5·1	489	2·7	1,000	3·91
Females......................	453	5·1	547	2·7	1,000	3·75

Thus the disposition of sexes in rural and urban areas is accountable for an appreciable amount of the difference in their illiteracy. If the method employed in the last chapter to ascertain this difference is used here, it is found that out of the total difference of 1·42 per cent between the illiteracy of the two sexes, 0·17 per cent or about one-eighth (of the 1·42) is due to the fact that the proportion in urban residence favours the female sex and the proportion in rural residence is to the disadvantage of the male.[2]

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[1] Ref. Census 1921, vol. II, pp. 606, 610 and 668.

[2] The per cent illiterate rural (exclusive of Indians) is 6·00; of urban 3·11. The per cent illiterate of rural males is 6·73, and of rural females 5·11; the per cent illiterate of urban males is 3·58, and of urban females 2·66. The per cent illiterate of all males is 5·17, and of all females 3·75. Out of every 1,000 males, 511 are in rural and 489 in urban residence; out of every 1,000 females, 453 are in rural and 547 in urban residence. The illiteracy of males is 0·68 above the average of both sexes of which, 0·60296 is due to the difference between illiteracy sex for sex, so that 0·07704 is due to distribution; the illiteracy of females is 0·74 below the average of which 0·64832 is the difference sex for sex, so that 0·09168 is due to distribution. This makes 0·16872 in all out of 1·42 due to distribution.

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Again the disposition of the ages affects the difference in illiteracy between the sexes. It is impossible in this case to exclude Indians, so that different percentages illiterate of male and female have to be used as follows:—

TABLE 35.—ILLITERACY OF THE MALE AND FEMALE POPULATION OVER TEN YEARS OF AGE IN CANADA BY NATIVITY AND AGE GROUPS

—	Population per thousand of each sex at age		Per cent illiterate			Difference between illiteracy of males and illiteracy of both sexes	Amount of the difference due to each item
	Male	Female	Male	Female	Total	Male	
Total..................................	1,000	1,000	5·73	4·43	5·10	0·63	0·46285
Canadian Born—							
10–14 years..........................	117	124	2·30	1·92	2·11	0·19	0·02223
15–20 "	109	119	3·43	2·25	2·84	0·59	0·06431
21–24 "	183	202	3·91	2·41	3·15	0·76	0·13908
35–64 "	240	246	7·53	4·87	6·24	1·29	0·30960
65 and over........................	45	48	16·37	12·47	14·44	1·93	0·08685
Age not stated.....................	3	3	23·56	26·44	24·92	−1·36	−0·00408
British Born—							
10–14 years..........................	8	8	0·27	0·65	0·26	0·01	0·00008
15–20 "	14	15	0·34	0·26	0·30	0·04	0·00056
21–34 "	46	49	0·42	0·35	0·39	0·03	0·00148
35–64 "	80	68	0·81	0·65	0·74	0·07	0·00560
65 and over........................	11	11	3·11	3·66	3·37	−0·26	−0·00286
Age not stated.....................	0·09	0·05	7·82	5·78	7·07	0·75	0·00007
Foreign Born—							
10–14 years..........................	9	8	2·20	2·15	2·18	0·02	0·00018
15–20 "	14	14	4·98	5·05	5·01	−0·03	−0·00042
21–34 "	50	40	9·80	12·32	10·87	−1·07	−0·05350
35–64 "	65	41	14·14	18·19	15·65	−1·51	−0·09815
65 and over........................	6	4	21·34	24·55	22·71	−1·37	−0·00822
Age not stated.....................	0·2	0·04	20·31	18·90	20·11	0·20	0·00004

The disposition of sex by ages and according to the three classes Canadian born, British born and foreign born is accountable, therefore, for more than one-fourth of the amount by which the illiteracy of the males is above the average of males and females. It is noticeable, also, that although the age group 35 to 64 Canadian born forms only 24 per cent of the total of males, it is responsible for about 0·31 out of the 0·46 by which age for age and class for class the males are above the average; i. e., this age group is responsible for nearly 70 per cent of the difference between the sexes, while the ages of 10 to 20 (Canadian born) although they form nearly 23 per cent of all males, are responsible for only 18 per cent of the difference. It is also noticeable that while the males of all classes at 10 to 20 form only 27·1 percent of the total males, the females form 28·8 per cent of the total females. Since the earlier ages have by far the lowest proportion illiterate, this distribution is greatly to the advantage of the females. Under 35, the Canadian and British born males form 47·7 per cent of the total male population, while the same class of females form 51·7 per cent of the total female population. On the other hand the foreign born males form 14·4 per cent of the male population, while the foreign born females whose illiteracy is higher than that of the males, form only 10·7 per cent of the total female population, the discrepancy being particularly noticeable over the age of 35 years. Thus the females have the advantage of age and class distribution. It has already been seen that they have the advantage in connection with urban and rural distribution.

It is possible to carry this analysis much further, since the illiteracy of sexes has been compiled according to racial origin, with which illiteracy is connected to a greater extent perhaps than with any other factor and which is continually involved in an analysis of illiteracy whether by age groups, rural and urban residence or by nativity groups (Canadian born, British born and Foreign born). It is reasonable to expect, therefore, that the difference caused by the nature of the distribution of the races will account for most of the misleading features due to distribution and that the remainder will not be far from showing the true difference between the sexes.

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TABLE 36

		Males			Females	
—	Number belonging to each race per 1,000	Difference in illiteracy of males from that of both sexes	Amount of difference due to each race	Number per 1,000 females in each race	Difference in illiteracy of females from that of both sexes	Amount of difference due to each race
English............British	280·0	0·22	0·06160	293·0	−0·23	−0·06739
Foreign	15·0	0·07	0·00105	15·0	−0·07	−0·00105
Irish............British	124·0	0·35	0·04340	130·0	0·37	−0·04810
Foreign	8·0	0·08	0·00064	7·0	−0·10	−0·00070
Scotch............British	134·0	0·04	0·00536	137·0	−0·04	−0·00548
Foreign	6·0	0·06	0·00036	6·0	−0·08	−0·00048
Welsh............British	5·0	0·12	0·00060	4·0	−0·14	−0·00056
Foreign	0·6	−0·10	−0·00006	0·5	0·14	0·00007
French............British	251·0	2·18	0·54718	267·0	−2·21	−0·59007
Foreign	10·0	0·80	0·00800	10·0	−0·82	−0·00820
Austrian............British	3·0	−1·16	−0·00348	3·0	1·23	0·00369
Foreign	9·0	−5·87	−0·05282	6·4	8·85	0·05664
Belgian............British	0·4	0·62	0·00025	0·4	−0·62	−0·00025
Foreign	2·0	−0·06	−0·00012	1·7	0·10	0·00170
Bulgarian............British	0·007	−3·03	−0·00002	0·004	4·76	0·00002
Foreign	0·4	−0·36	−0·00014	0·06	2·50	0·00015
Chinese............British	0·2	0·37	0·00007	0·1	−0·63	−0·00006
Foreign	10·0	−0·30	−0·00300	0·3	10·17	0·00305
Czech............British	0·2	0·02	0·00004	0·3	−0·01	·000000
Foreign	0·8	−2·47	−0·00198	0·7	3·41	0·00239
Danish............British	0·6	0·26	0·00016	0·7	−0·27	−0·00019
Foreign	2·0	−0·03	−0·00006	1·4	0·06	0·00084
Dutch............British	10·0	0·60	0·00600	10·7	−0·64	−0·00685
Foreign	3·0	−0·30	−0·00090	2·6	0·39	0·00101
Finnish............British	0·4	0·39	0·00016	0·4	−0·37	−0·00015
Foreign	2·0	−1·19	−0·00238	1·7	1·78	0·00303
German............British	22·0	0·46	0·01012	22·0	−0·48	−0·01056
Foreign	13·0	−0·91	−0·01203	11·0	1·12	0·01232
Greek............British	0·06	0·06	0·00000	0·05	−0·06	0·00000
Foreign	1·0	−3·23	−0·00323	0·2	13·97	0·00279
Hebrew............British	4·0	−0·04	−0·00016	4·0	0·05	0·00020
Foreign	10·0	−3·43	−0·03430	10·0	3·65	0·03650
Hungarian............British	0·3	−0·13	−0·00004	0·4	0·14	0·00006
Foreign	1·0	−2·82	−0·00282	0·9	3·53	0·00318
Icelandic............British	0·8	0·02	0·00002	0·8	−0·03	−0·00002
Foreign	1·0	−0·56	−0·00056	1·0	0·57	0·00057
Italian............British	1·0	−0·04	−0·00004	1·5	0·03	0·00045
Foreign	7·0	−2·64	−0·01848	3·7	5·98	0·02213
Japanese............British	0·1	−1·15	−0·00012	0·09	1·46	0·00013
Foreign	2·0	−4·49	−0·00898	1·0	11·28	0·01128
Lithuanian............British	0·05	0·55	0·00003	0·05	−0·57	−0·00003
Foreign	0·13	4·39	0·00057	0·1	6·04	0·00060
Negro............British	1·0	0·89	0·00089	1·7	−0·97	−0·00165
Foreign	0·5	−0·12	−0·00006	1·0	0·14	0·00006
Norwegian............British	1·0	−0·16	−0·00016	1·0	0·17	0·00017
Foreign	8·0	−0·34	−0·00278	5·7	0·52	0·00296
Polish............British	1·5	0·55	0·00805	1·7	−0·45	−0·00077
Foreign	4·0	−3·99	−0·01596	3·0	5·75	0·01725
Roumanian............British	0·2	−0·69	−0·00014	0·2	0·65	0·00015
Foreign	1·3	−0·90	−0·01170	0·8	7·33	0·00586
Russian............British	3·0	−2·40	−0·00720	3·0	2·42	0·00726
Foreign	9·0	−4·43	−0·03987	6·0	6·75	0·04050
Serb............British	0·07	−0·53	−0·00004	0·07	0·56	0·00004
Foreign	0·5	−1·90	−0·00095	0·2	5·33	0·00107
Swedish............British	1·0	0·33	0·00033	1·4	−0·32	−0·00045
Foreign	7·0	−0·39	−0·00273	4·7	−0·35	−0·00165
Swiss............British	0·8	−0·01	−0·00001	0·8	0·02	0·00002
Foreign	0·8	−0·28	−0·00023	0·6	0·00	0·00003
Syrian............British	0·2	−0·27	−0·00005	0·2	0·26	0·00005
Foreign	0·7	−7·34	−0·00514	0·5	11·56	0·00578
Ukranian............British	3·0	−1·08	−0·00324	3·0	1·15	0·00345
Foreign	8·0	−8·63	−0·06904	6·3	12·19	0·07680
Unspecified............British	2·0	−0·56	−0·00112	2·7	0·57	0·00154
Foreign	0·4	0·54	−0·00022	0·4	−0·58	−0·00023
Various............British	0·5	7·89	−0·00395	0·2	−20·11	−0·00402
Foreign	0·4	0·14	−0·00006	0·2	−0·33	−0·00007
Total due to difference in illiteracy race for race..........	....	....	0·38337	....	....	−0·42326
Total difference..........	....	....	0·68000	....	....	−0·74000
Difference due to nature of distribution..........	....	....	0·29663	....	....	−0·31674

According to the above calculation ·30 out of the ·68 by which the illiteracy of males is above the average is due to unfavourable racial distribution and has nothing to do with the difference in illiteracy sex for sex. Since in the age distribution in the previous table the classes — Canadian, British or foreign — were also involved and since these in turn involve racial distribution, it will be necessary to determine how much of the difference between the sexes is due to age distribution alone.

TABLE 37.—ILLITERACY OF THE MALE AND FEMALE POPULATION OVER TEN YEARS OF AGE BY AGE GROUPS

Age group	Per 1,000 males at each age group	Per cent illiterate males	Per cent illiterate males and females	Difference in male illiteracy from average	Amount of total difference due to each age group
All ages..	1,000	5·73	5·10	0·63	0·63000
10–14 years..	133	2·18	2·01	0·17	0·02261
15–20 "	137	3·25	2·80	0·45	0·06165
21–34 "	280	4·41	3·93	0·08	0·02240
35–64 "	385	7·25	6·50	0·75	0·28875
65 and over..	62	14·46	13·15	1·31	0·08122
Age not stated.....................................	3	23·00	24·32	−1·32	−0·00264
Total..........................					0·47399
Amount due to age distribution..................					0·15601
					0·63000

It is possible that the race distribution may be, to a certain extent, involved in the age distribution, but this cannot affect the two separate results for race and age seriously enough to cause an over estimate,in regarding them as roughly the sum total, especially when it is to be remembered that a further sex difference must be due purely to rural and urban distribution. It seems then that about ·30 out of the ·68 by which the illiteracy of the males is above the average is due to unfavourable racial distribution and ·16 to unfavourable age distribution, making for both ·46 as due to unfavourable distribution. This is almost three-fourths of the total amount by which the illiteracy of males is above the average. The remainder which is not entirely free from the effects of distribution brings the illiteracy of the sexes within one half of one per cent, instead of 1·42 per cent as the crude figures appear to show.

It would seem, however, since the differences in favour of the female sex are shown principally by Canadian born, as if there were a tendency for long settlement in Canada to cause a differentiation in the illiteracy of the sexes. Moreover, it might seem that as the rate of illiteracy becomes very small any difference that may arise tends to be in favour of females. Both these conclusions may be questioned on the basis of the figures just given. Taking the table on age groups, it is to be seen that about three-fourths of the difference caused by ages occurs at the ages of 35 and over; and while the younger ages show a balance in favour of the female sex, this balance is so small that it may be considered merely residual. It is not improbable, therefore, that any difference in illiteracy between the sexes sex for sex (i. e. which is not due to the nature of the distribution of the sexes) is merely residual, and may be fictitious. When a difference in illiteracy is within one half of one per cent it is almost safe to concede it to a probable error. The result of certain mental tests sometimes show a small balance in favour of females, but it is just possible that the cases tested have not been altogether free from the influence of race, age, geographical distribution and other extrinsic elements. There was only a very slight difference in school attendance between the sexes in 1921 and this would seem to confirm the belief that what sex difference is shown in illiteracy is largely fictitious.[1]

It may be objected that the figures given explain the difference in illiteracy between the sexes instead of explaining it away — that females are less illiterate than males because they are younger, because they tend to live in urban communities rather than in rural, and because they tend to come from literate rather than illiterate countries, the opposite to which hold true of males. This may be conceded either way so long as it is clear that the difference in question is not a sex phenomenon.

[1] There would seem to be a further point in the fact that the influence of birth in Canada or other British countries tends to favour the females in the case of most races. Two explanations of this might be suggested. One is the assumption that females were especially handicapped in the country from which they came and when this handicap was removed on their arrival in Canada their natural superiority asserted itself. That this conclusion is by no means unanswerable is seen from the fact that certain races with a low rate of illiteracy in their country of birth showed a higher rate of illiteracy among females than males; e.g. the Welsh, Danish, Dutch, Icelandic, Norwegians and Swedish races; while certain other races which showed a comparatively high rate of illiteracy in their country of birth favoured the females, e.g. the French, and "Various" which latter included a large number of Asiatic, African, South American and West Indian races. The other explanation suggested is that the social or physical conditions of Canada tend to favour females and handicap males. That this is a reasonable explanation may be seen from the different points brought up in this chapter. The males outnumber the females in rural, especially frontier rural settlements; the females outnumber the males in urban centres. The males are likely to be deprived of educational advantages to a greater extent than the females in cases where the children have to help support the family, etc. The small difference there actually is when due allowance is made for weighting can hardly be attributed to a mental difference. From analysis of the standing at school in 1923–24 of about 650,000 of each sex it is seen that the rate of progress between the ages of 7 and 13 is slightly greater in the case of boys than of girls. On account of the very large numbers involved this would seem to be more conclusive than the results of finer tests with small numbers and where due allowance is not made for environment, origin, etc.

CHAPTER 7

AGE AND ILLITERACY[1]

One of the very few factors affecting illiteracy in Canada for which no deductions are to be made from the actual figures given in the census is that of age. It has been seen that in the case of rural and urban illiteracy about half the difference shown in the census was due to age, nativity group and race distribution and that only the other half represented the true difference between rural and urban illiteracy; in the case of sex illiteracy the same distribution practically explained away the difference between the two sexes as shown by the census. On the other hand, if the census figures of the illiteracy of different age groups be taken and cleared of the influences of nativity group or rural and urban distribution, it will be seen that their relative sizes remain practically unchanged, while if they are cleared of the influences of racial distribution the difference is considerably greater than that actually shown by the census figures. In other words, if all the races in Canada had the same age distribution, the differences shown by the census between the illiteracy of the older and younger groups would be greater than they actually are. This is an interesting point in itself, but as it has not yet been proved it is premature to enter upon an explanation. The point will be reconsidered later.

To show the differences as given by the census between age-groups certain data already given in the last chapter must be repeated here as follows:—

Age group	Number per 1,000 population in each group	Per cent illiterate in each group	Number per 1,000 population for every year in each group
All ages...	1,000	5·10	11·1 (90 year group)
10–14 years..	137	2·01	27·4 (5 year group)
15–20 years..	142	2·80	23·7 (6 year group)
21–34 years..	285	3·93	20·4 (14 year group)
35–64 years..	370	6·50	12·3 (30 year group)
65 and over..	63	13·15	1·8 (35 year group)
Age not stated..	3	24·32	?

Since the groups are of different lengths, it was necessary to insert the last column in the table to show the trend of distribution of the population according to age.

The marked distinction between the illiteracy of persons under 35 years and persons over 35 years of ge is due to the fact that the groups 35 - 64 has 30 years as compared with 14 in the case of the group immediately below, so that it is not safe to say that there is any sudden change at any age. It would seem rather as if the increase in illiteracy with advancing years were gradual. If this is true, there has been a gradual decrease in illiteracy of the people now living in Canada from 13·15 to 2·01 during the last 71 years (taking the illiteracy of 10 to 14 as the illiteracy of the mid age of the group, namely 12 years, and that of the 65 year and over group as of the mid age, 83), or about ·16 per cent a year. According to this, illiteracy would disappear in the case of the youngest group in 13 years, or by 1934 and in the case of the oldest group in 84 years. This is not exactly true, however. Although the differentiation between the age groups must show a degree of progress from year to year, there are other elements in the differentiation apart from yearly progress.

The higher rate of illiteracy in the 15 to 20 year group than in the 10 - 14 year group is not easy to explain. It may mean what it appears to mean, namely, that there has been this amount of improvement during the time elapsing between the groups. Again it may mean that a different

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Ref. Census 1921, vol. II, especially pp. 634 and 666.

interpretation is placed upon the term illiteracy in the two age groups. At the ages of 10 to 14 most persons are at school, while at the ages of 15 to 20 most persons are out of school. If the fact that the enumerator considered the person at school as *ipso facto* literate, while in the case of the older group enquiries had to be made to determine the literacy status, then it is conceivable that the difference between these two age groups is partly one of standard. It has already been seen (page 24) that in the case of three cities minutely investigated, illiteracy was found to have practically disappeared at the age of nine. In Canada as a whole it is clear that a number of persons begin school after the age of 10. Considering the comparatively small size of the illiteracy of the 10 to 14 group, it would seem that "illiteracy" in this group means practically the fact that the illiterates have never been to school, while in the older groups it may mean somewhat more.

The superiority of the 10 - 14 year group over the next older group is by no means constant. In the three prairie provinces in 1916 the figures of illiteracy for the age groups were as follows:—

Age group	Males	Females	Both sexes	Number per 1,000 in each group
10–14	7·2	7·3	7·2	130
15–20	5·6	6·5	6·1	134
21–34	5·2	6·8	5·9	361
35–64	7·6	10·6	8·6	340
65 and over	13·8	16·9	15·1	29
Age not given	35·0	62·3	45·0	6
All ages	6·8	8·4	7·5	1,000

Incidentally, the favourable age distribution from the point of view of literacy in these provinces in 1916, and the difference between it and that of Canada in 1921, should be noted. The group with the lowest illiteracy (the 21-34 year group) had 36·1 per cent of the population, while this group and the two groups below had 72·5 per cent of the population. Canada in 1921 had only 28·5 per cent in this group and 56·4 per cent in this and the two lowest groups.

The fact that in this year the younger groups had a higher rate of illiteracy may possibly be explained by the conditions of pioneer life. The immigrants of the better class, particularly persons from other parts of Canada, from Great Britain, the United States and Northern Europe, would largely belong to the 21 to 34 year group. The younger groups would suffer somewhat from the difficulties in keeping up school accommodations, while for the same reason there was also a tendency to begin school later than in all Canada in 1921. This may be the true explanation, but it is remarkable that in both Australia and New Zealand the group with the lowest percentage of illiteracy is the 15 to 19 year group. In the United States the same conditions hold as in Canada. The youngest group has the lowest percentage of illiteracy for every class of the population—white, negro, Indian, Japanese, and all other, native white, native parentage, foreign or mixed parentage and foreign born white. It is also true of males and females. It was not quite so constantly true in 1910, exceptions being found in the case of female negroes, oriental males and all females of native parentage. In 1900 it was not quite true of orientals or of native white females. In Canada in 1921 it was true of every class and of the two sexes. When taken by provinces only a few exceptions were found, namely, Nova Scotia and New Brunswick (Canadian born females); Quebec (British born males and females); Alberta (British born females); British Columbia (British born males); Yukon (Canadian born males); and the Northwest Territories (Canadian born males and females).

There is a remarkable constancy under different conditions in the differentiation of illiteracy among the age groups. It was conceivable, as in the case of differentiation by sex and by rural and urban areas, that the group 10-14 years, say, might be more favourably situated or otherwise under more favourable conditions than the other groups. This is true to a certain extent. In a sense it is entirely true, since this is part of the school age and the members of this group are thus more favourably situated than ever before in Canada. This, however, has no bearing upon what is meant by favourably situated—which is, that a larger proportion of this age group might, for example, be in a province where illiteracy was generally lower than elsewhere;

similarly a larger proportion of it might be in urban rather than in rural areas; similarly a larger proportion of it might be British born rather than Canadian or foreign; and so on. These would be accidental conditions, and if the age group were thus favoured it would lessen or eliminate the educational significance of its low rate of illiteracy.

It is true that to a certain extent the younger ages are thus accidentally favoured by the fact that immigrants tend to belong to the adult groups while the younger groups tend to be native born. This advantage, however, is in a large measure compensated by the fact that the British born, the United States born and persons from Northern Europe are on the whole less illiterate than the native born. To test the contribution to the differentiation in illiteracy between age groups it has been seen that to take them rural by urban or sex by sex is scarcely worth while. The same may be said of taking them province by province, since the differentiation shown between provinces seems highly accidental and perhaps even fictitious. It may, however, be of some interest to show for purposes of illustration the effects on one age group—10 to 14— of its distribution by provinces. Only the Canadian born (including Indians) will be used in this illustration.

Province	Number in each province per 1,000 of the population 10-14 years of age	Per cent illiterate, 10-14 years	Per cent illiterate, all ages	Difference in 10-14-year illiteracy from that of all ages	Amount of difference contributed by each province
Canada................................	1,000	2·11	4·80	−2·69	−2·67960
Prince Edward Island.................	11·4	1·26	3·01	−1·75	−0·01985
Nova Scotia..........................	67·8	2·10	5·03	−2·93	−0·19865
New Brunswick.......................	52·5	4·82	7·79	−2·17	−0·11393
Quebec..............................	328·4	1·72	6·35	−4·63	−1·52049
Ontario.............................	299·5	1·10	2·52	−1·42	−0·42529
Manitoba............................	69·2	2·62	4·01	−1·39	−0·09619
Saskatchewan........................	77·4	2·52	3·84	−1·32	−0·10217
Alberta.............................	51·1	3·58	5·22	−1·64	−0·08380
British Columbia....................	41·8	4·31	7·04	−2·73	−0·11411
Yukon...............................	0·3	41·23	45·73	−4·50	−0·00135
Northwest Territories................	0·6	85·77	92·06	−6·29	−0·00377

The amount contributed by favourable provincial distribution to the 2·69 by which the illiteracy of the 10-14 year group is lower than the general illiteracy is thus shown to be only 0·01 (2·69—2·68), or a negligible amount which could well be due to the number of places of decimals to which the different percentages of illiteracy were worked out. It is hardly worth while to carry the analysis into the other ages since provincial differences are on the whole so misleading.

Taking the ages 10-14 by nativity we have the following results:—

Province	Number in each class per 1,000 of the population 10-14 years	Per cent illiterate, 10-14 years of age	Per cent illiterate, all ages	Difference in 10-14-year illiterates from that of all ages	Amount of difference conbuted by each class
Canadian.............................	876·9	2·11	4·80	−2·69	−2·35886
Empire..............................	58·7	0·26	0·76	−0·50	−0·02935
Foreign.............................	64·4	2·18	12·11	−9·93	−0·63949
All classes......................	1,000·0	2·01	5·10	−3·09	−3·02770

The difference between 3·09 and 3·03 is only 0·06, again a negligible difference due to favourable nativity group distribution.

The disposition of ages by race should include most of whatever advantages the younger ages derive from distribution. To avoid complications due to nativity and length of residence in Canada (such for example as the fact that some foreign born children may have arrived in Canada as infants and consequently have had all the advantages of the native born; while others arrived in 1921) only the Canadian born will be used in the calculation. The illiteracy of the ages 10 to 20 will be compared with the illiteracy of all the other age groups combined.

TABLE 38.—COMPARISON OF THE ILLITERACY OF THE AGES 10-20 YEARS WITH THAT OF ALL THE AGE GROUPS BY RACE IN THE CASE OF CANADIAN BORN, 1921

Province	Number in each race per 1,000 of the population 10–20 years	Per cent illiterate, 10–20 years of age	Per cent illiterate, all ages	Difference in 10-20-year illiterates from that of all ages	Amount of difference contributed by each race
All races	1,000	1·69	3·36	−1·67	−2·17503
English	283·0	0·63	1·03	−0·40	−0·11320
Irish	123·6	0·61	1·42	−0·81	−0·10012
Scotch	127·0	0·52	1·12	−0·60	−0·07620
Welsh, etc.	4·1	0·49	0·73	−0·24	−0·00098
French	348·7	2·97	8·10	−5·13	−1·78883
Austrian	10·0	6·42	6·83	−0·41	−0·00410
Belgian	1·1	0·93	1·56	−0·63	−0·00069
Bulgarian	0·02	17·24	16·67	0·55	0·00001
Chinese	0·5	3·13	3·61	−1·48	−0·00074
Czech	0·7	0·73	0·90	−0·17	−0·00013
Danish	1·5	0·45	0·82	−0·37	−0·00056
Dutch	13·0	1·50	2·46	−0·96	−0·01248
Finnish	1·4	2·12	2·22	−0·10	−0·00014
German	30·5	1·12	2·18	−1·06	−0·03233
Greek	0·2	1·66	2·51	−0·85	−0·00017
Hebrew	10·7	0·34	0·61	−0·27	−0·00289
Hungarian	1·2	1·38	1·79	−0·41	−0·00049
Icelandic	1·8	0·37	0·49	−0·12	−0·00022
Italian	4·0	1·65	2·61	−0·96	−0·00384
Japanese	0·3	3·44	4·27	−0·83	−0·00025
Lithuanian	0·2	3·37	3·02	0·35	0·00007
Negro	1·9	6·75	9·56	−2·81	−0·00554
Norwegian	3·4	0·81	1·24	−0·43	−0·00146
Polish	4·6	4·27	7·82	−3·45	−0·01587
Roumanian	0·8	5·87	6·50	−6·63	−0·00050
Russian	8·4	8·50	8·06	0·44	0·00370
Serbo-Croatian	0·2	1·48	1·93	−0·45	−0·00009
Swedish	3·7	0·61	0·92	−0·31	−0·00115
Swiss	1·1	0·45	0·56	−0·11	−0·00012
Syrian	0·8	1·63	2·04	−0·41	−0·00033
Ukranian	10·8	6·93	7·65	−0·72	−0·00778
Unspecified	0·6	4·68	5·08	−0·40	−0·00024
Various	0·3	1·84	23·06	−21·22	−0·00637

Instead of being favoured by racial distribution, the literacy of the younger group—10 to 20 years—as compared with older groups, is badly handicapped. The crude figures show that the illiteracy of the 10 to 20 year group is 1·67 below the average for all races excluding Indians. Race for race, the illiteracy of the group is 2·18 below the average, so that 0·51 or nearly one-fourth of its real difference is lost by distribution. It would seem, then, that there is rarely a danger of any age difference shown in illiteracy being an overstatement. It is noticeable that only in three cases was the illiteracy of the older groups lower than that of the younger group. It seems safe, therefore, to consider age as a constant influence in determining illiteracy.

The point that race distribution lessens the real difference in illiteracy between age groups is interesting. Its explanation lies on the surface. The older members of race A, say, are much more illiterate than the younger members of the same race. Likewise in the case of race B, which has generally a higher rate of illiteracy, than race A. The number of younger members of race B is larger in proportion to the number of older members of the same race than is the case of race A. Consequently the younger members of both races combined have their illiteracy raised by the larger proportion of race B, while the older members of both races combined have their illiteracy lowered by the larger proportion of race A. The following illustration (purposely made an extreme one) will make the matter clearer.

	Older members		Younger members	
	Number	Per cent illiterate	Number	Per cent illiterate
Race A	8,000	6·0	4,000	2·0
Race B	1,000	30·0	4,000	10·0
Both races	9,000	8·7	8,000	6·0

Thus while in the case of each race the illiteracy of the older group is three times the illiteracy of the younger group, the illiteracy of the two races combined shows only a small difference in favour of the younger group.

As a corollary it follows that if races do not tend to lose their identity on the score of illiteracy owing to birth in Canada—that is, if the Canadian born children of illiterate races only make the same rate of progress as those of literate races—the schools of Canada have to contend not with a problem that is once and for all solved and done with, but with one which has a tendency to require continual resolving. For example, if the schools within the next decade did the same amount of work in clearing illiteracy as in the decade 1911–1921 and no more, it is conceivable that the illiteracy of the youngest group would be higher in 1931 than in 1921. In the next chapter it will be shown that there is an actual tendency on the part of races to retain a certain identity on the score of illiteracy. This may not be a true racial identity; it may be merely a phenomenon inherent in the nature of progress. For example, if the older members of one race showed an illiteracy, say, of 20 per cent and of another race, say, 10 per cent, then the younger Canadian born members of the respective races would not be on a common level in spite of progress made ·by both races but would show in the case of the first mentioned race an illiteracy of, say, 5 per cent and in the case of the second race, say, 2½ per cent. If the number of the younger members of the first race increased faster than those of the second race, it is clear than in spite of the progress of both races the combined illiteracy would tend to increase before it decreased and that its final elimination would.require increasing efforts on the part of the schools.

Whilst the real difference between the illiteracy of different age groups in Canada is understated by the crude census figures by reason of the nature of the racial distribution, the age distribution in Canada is an important factor to be taken into consideration when comparing the illiteracy of other elements of the population. For example, it has been seen that the difference in the illiteracy of the sexes was strongly affected by the comparative age distribution of the sexes. Again, it forms no small factor in the comparative illiteracy of the provinces. Again the change in age distribution might form no small part of the progress shown in literacy status from·census to census; mention has already been made of the difference between the distribution of the 10 to 14 year group in the three prairie provinces in 1916 and its distribution in all Canada in 1921. For illustration of what the change in age distribution may mean, the age group distribution of the prairie provinces in 1916 will be compared with that in the same provinces in 1921 as follows:—

—	Number in each group per 1,000 at all ages		Per cent illiterate in 1916
	1916	1921	
All ages	1,000	1,000	7·5
10–14 years	130	145	7·2
15–20 "	134	138	6·1
21–34 "	361	313	5·9
35–64 "	340	368	8·6
65 and over	29	35	15·1
Not stated	6	1	45·0

The illiteracy of all ages over 10 years in 1916 was 7·51 per cent and in 1921, 6·03 per cent. According to the illiteracy of each age group in 1916 and the age distribution of 1921 the illiteracy of 1921 would be 7·47 per cent or about the same as in 1916. Thus these provinces gained nothing in age distribution during the five years in spite of the relative increase in the groups 10 to 14 years and 15 to 20. This is, of course, due to the relative decrease in the 21 to 34 group as a result of the war and the increase in the older groups. This would seem to add one more to the many bad results of war—that it has a tendency to increase illiteracy through causing a decrease in the younger groups and a relative increase in the older groups of the population. Thus, in spite of the results of a large natural increase in the prairie provinces between 1916 and 1921, so that the ages of 10 to 20 increased from 264 to 283 per thousand, the ages of 10 to 34 decreased from 625 to 596 per thousand, and the ages of 35 and over increased from 369 to 403 per thousand.

It is clear that a relative increase in the younger groups and decrease in the older groups is an important factor in the elimination of illiteracy. Yet even this has its compensating features or drawbacks. It will be seen in chapter 13 that while the younger groups are less illiterate than the older, a relative increase in the proportion of the population at school age is on the whole detrimental to school attendance. It would seem, therefore, that a decrease in illiteracy would not be most speedily brought about by a rapid increase in births, or increase in the deaths of the older population, but by increase in the younger group of the adult population, namely, that from 21 to 34 years, the quality of the group, of course, not deteriorating. This would in effect mean that the greatest foe to illiteracy in Canada would be an increase in the proportion of immigrants of the class which have hitherto arrived from British dominions and certain other countries.

CHAPTER 8

RACE AND ILLITERACY[1]

The ethnic distinction implied in the term "race" in the Canadian Census has been already referred to (page 8). The relevant point in the present connection is that aggregates of persons describing themselves as belonging to a certain race have fairly distinctive rates of illiteracy. One or several ethnic groups may be represented by each of these aggregates, so that the question of racial heredity can not be considered together with the question of racial illiteracy. If after remaining in this country for some generations the illiteracy of people giving themselves as of a certain race should correlate with the illiteracy of other members of the same race from other countries, then the question of racial inheritance might be considered. What is to the point here, however, is the effect produced upon the present illiteracy of Canada by these aggregates.

In the interests of accuracy it is better not to have too many racial subdivisions, nor is this necessary for the present purpose. The rougher the subdivision, the more accurate the distinction is likely to be. For example, it is not likely that there is much danger of mistaking people from China or Japan for people from northern Europe, but there is danger of mistaking for one another the different races of North Western Europe, also the different races from Russia, Austria and Hungary. If, then, only two groups are used to separate the low illiterate races from those of higher illiteracy, the first group would include the British races, Scandinavians, Dutch, Belgians, Germans, French, Swiss and Hebrews, while the second group would include all other races.[2] A very definite classification is thus made from the point of view of illiteracy.

First, without going further into classification of races than a distinction between what are known in the Census bulletin as "British races" and other races we have the following facts:—

In the nine provinces, out of a total population over the age of 10 years (excluding Indians) of 6,595,040, with 295,940 or 4·49 per cent illiterate, 3,843,382 with 42,568 or 1·10 per cent illiterate were of English, Irish, Scotch, Welsh and other British descent, while 2,751,638 with 253,372 or 9·21 per cent illiterate belonged to all other races. Thus out of the 4·49 per cent illiteracy in the nine provinces, illiteracy equivalent to that of the British races was responsible for 1·10 per cent, while the amount by which the illiteracy of all other races exceeded that of the British races was responsible for 3·39 per cent. The only one of the other races which had a lower illiteracy than the highest of the British races was the Swiss, which came the third lowest with only 1·01 per cent illiterate, so that the division is a fair one.

The point that the higher rate of illiteracy quoted for the other races was due to their want of knowledge of English has already been discussed in a general way. Only 146 persons of the British races over the age of 10 in all Canada were unable to speak English or French, while 134,047 of the other races were unable to speak these languages. This was only about one-half of the number of illiterate as given above. Of these 134,047 unable to speak English or French, 50,998 were Canadian or British born and 83,049 were foreign born. The total number illiterate of the foreign born of these races was 95,929, so that, to say the least, inability to speak English or French could not possibly be responsible for 12,880 of these illiterates. Further, on close examination it is found that several races show a considerable .percentage illiterate who must have been able to speak English or French, while several others showed literates who could not have been able to speak either of these languages. The Swiss, the race showing the lowest rate of illiteracy, had 54 who could not speak English or French and 100 illiterates; the Norwegians, the

[1] Ref. Census 1921, Vol. II, especially p. 668.
[2] N.B.—The grouping is neither a geographical nor a biological but a literacy grouping.

next lowest, showed 649 unable to speak English or French and 694 illiterate; the Danes showed 214 and 234 illiterate; the Icelanders 727 and only 247 illiterate; the Dutch 6,783 and only 2,026 illiterate; the Swedes 1,040 and 1,100 illiterate and so on. The six races just mentioned have slightly higher rates of illiteracy in Canada than those reported of the people at home, but neither race obtains data for persons 10 years of age and over.

The rates of the five races are as follows:—

—	Foreign born	British born	Total
Swiss	1·52	0·56	1·01
Norwegian	1·40	1·24	1·38
Danish	1·74	0·82	1·49
Icelandic	3·16	0·49	2·01
Dutch	1·68	2·46	2·29
Swedish	2·67	0·92	2·34

That these percentages of the foreign born are higher than those reported in the country of their origin is no proof that they are reported as illiterate because of the influence of their language upon the enumerators. The absolute numbers illiterate are so small—in the case of the Icelanders for example, only 221, and in the case of all six only 2,737, while those of the British born are 1,972—that they could easily be accounted for by the difficulties of pioneer life in Canada and the United States. Of the 2,737 foreign-born illiterates, 2,252 were 21 years and over. The illiteracy at 10 to 20 years of the six races was as follows:—

—	Foreign born	British born	Total
Swiss	0·64	0·45	0·50
Norwegian	0·70	0·81	0·74
Danish	1·19	0·45	0·76
Icelandic	1·41	0·37	0·54
Dutch	0·56	1·50	1·37
Swedish	1·11	0·61	0·86

Any error made on the score of language must be within these percentages. When other factors are taken into consideration, such as: (1) pioneering in Canada and the United States, where schools were difficult to provide; (2) the reporting of some as illiterate who are known to speak English or French, while others are reported as not illiterate who are known to be unable to speak English or French; (3) the fact that a census of illiteracy is not taken in these countries, the data on illiteracy being based upon the status of recruits, etc.—when these factors are taken into consideration, together with the knowledge that a certain amount of illiteracy is admitted in the country of origin of these races, it is clear that the margin of error in their case must be negligible. In the case of other races the illiteracy reported by the Canadian Census is in many cases no higher than that reported by Census taken in their country of origin, while the higher percentage in some cases could be accounted for by differentiation in the class emigrating and those remaining at home, by educational difficulties connected with immigration, etc. Furthermore, a differentiation in school attendance is noticeable between communities according to the proportion they contain of these races. The margin of error on the score of language, therefore, must be within reasonable limits and cannot seriously affect the accuracy of the data.

Without assuming any close correspondence between the races as named in the census reports and the ethnical classification of these races, a list will now be made of the foreign-born races as classified by the Census in ascending order of percentage of illiteracy.

TABLE 39.—RACES IN CANADA OTHER THAN BRITISH AND FRENCH RACES WITH THEIR PER-
CENTAGES ILLITERATE AND PER CENT UNABLE TO SPEAK ENGLISH OR FRENCH

Racial origin	Over ten years of age per cent illiterate	Over ten years of age per cent unable to speak English or French
(1) Norwegian	1·40	1·41
(2) Swiss	1·52	1·15
(3) Dutch	1·68	8·70
(4) Danish	1·74	1·84
(5) Swedish	2·67	2·68
(6) Icelandic	3·16	10·09
(7) German	4·90	4·02
(8) Belgian[1]	6·59	4·94
(9) Hebrew	9·83	7·24
(10) Greek	11·59	7·05
(11) Czech	11·94	8·00
(12) Finnish	12·59	17·31
(13) Various	13·95	–
(14) Hungarian	15·73	13·76
(15) Japanese	20·40	42·50
(16) Syrian	22·22	5·32
(17) Serbo-Croatian	22·72	10·27
(18) Bulgarian	23·56	18·08
(19) Italian	23·68	17·19
(20) Lithuanian	23·74	9·61
(21) Russian	23·92	18·47
(22) Polish	24·46	17·26
(23) Roumanian	27·03	14·55
(24) Chinese	31·15	32·60
(25) Austrian	35·08	22·68
(26) Ukranian	39·46	32·98

A sharp rise in the percentage of illiteracy is noticeable between the 8th and 9th races such as does not occur at any later point,[2] the first 8 also forming a geographic group of northwestern Europeans. The 9th also takes an almost intermediate position between this group and the others, which is also fairly characteristic. If the first be considered as one group and the 10th to the 26th be considered as another group there is not much danger of an overlapping of races except in the case of the Austrians and Germans.

The correlation between the per cent illiterate and the per-cent unable to speak English or French is 0·65. This correlation would be interesting as showing the connection between ability to learn a language and ability to learn to read if there were no question as to the assumption on the part of the enumerator that the person unable to speak his language was illiterate and *vice versa*. As it is, the correlation is not remarkable, and it is certainly not high enough to warrant the suspicion that the two items correlated are mere identities. There are a number of points of difference to be found in the items when examined closely. While the proportions

[1] The Belgians in Canada are mostly Flemish in speech, hence the comparatively low figure for inability to speak English or French cannot be explained by French being their mother tongue.
[2] This is true, for notwithstanding the absolute size of the break in the percentages between the Hungarians and Japanese it is not relatively comparable to the break between the Belgians and Hebrews.

unable to speak English or French are on the whole greater than the proportions illiterate there is a greater general uniformity between the races on the score of inability to speak English or French than on the score of illiteracy.[1] This may be explained on the ground that the opportunity element, such as time in the country, etc., enters more largely into the learning of a language than into learning to read or write. The conclusion would be that there was a greater "racial" distinction shown by illiteracy than by the inability to speak the language. This is quite reasonable. Ability to speak the language of the adopted country would be mainly acquired after entering that country, while ability to read the mother tongue would be mainly acquired before leaving their original country. The Dutch and Icelanders, for instance, have a low percentage of illiteracy and a fairly high percentage unable to speak English or French; Syrians and Lithuanians, on the other hand, have a very high percentage of illiteracy, while the percentages unable to speak English or French are below the average. The year of arrival of immigrants from three of the countries represented by these four races may throw some light on this point.

	Total pop.	Years of immigration						
		1921 (5 mos.)	1920	1919	1915 to 1918	1911 to 1914	1900 to 1910	Before 1900
Holland	5,828	140	406	144	389	2,266	2,173	286
Iceland	6,776	15	66	37	97	561	1,933	4,010
Syria	3,879	58	216	32	137	763	1,713	902

The proportion of immigrants in the country only 1 year (that is, arrived in 1920 or 1921) might explain the difference between the Hollanders and Syrians, but certainly does not explain the case of the Icelanders. It is also true that the 6,776 account for nearly all the Icelanders in Canada (the total number of foreign born Icelanders being 7,133 of whom 1,008 were born in the United States).

The distribution of the races, according to their nativity as Canadian, United States or other foreign countries, was as follows:—

TABLE 40

Racial origin	Canadian born	United States born	Born other foreign countries	Total	Per cent of foreign born from foreign countries other than United States
Norwegian	23,568	22,168	23,102	68,856	51·0
Swiss	7,942	1,690	3,205	12,837	65·5
Dutch	97,262	10,176	10,068	117,506	49·8
Danish	8,910	4,122	8,092	21,124	66·3
Swedish	21,727	11,625	28,151	61,503	70·8
Icelandic	8,741	1,008	6,127	15,876	85·9
French	2,379,636	50,630	22,485	2,452,751	30·8
German	211,374	40,009	43,253	294,636	52·0
Belgian	6,761	734	12,739	20,234	94·6
Hebrew	50,892	4,851	70,453	126,196	93·5
Greek	1,759	122	3,859	5,740	97·0
Czech	3,890	1,044	3,906	8,840	79·0
Finnish	7,944	1,427	12,123	21,494	89·0
Hungarian	6,592	575	6,017	13,181	91·3
Japanese	4,344	16	11,508	15,868	100·0
Syrian	4,122	253	3,887	8,282	94·0
Serbo-Croatian	1,419	234	2,253	3,906	90·6
Bulgarian	264	11	1,490	1,765	99·0
Italian	28,732	1,912	36,125	66,769	94·9
Lithuanian	820	44	1,106	1,970	96·2
Russian	49,678	6,158	44,228	100,064	87·8
Polish	27,650	1,507	24,246	53,403	94·1
Roumanian	6,028	144	7,298	13,470	95·0
Chinese	2,966	35	36,586	39,587	100·0
Austrian	56,109	1,402	50,160	107,671	97·3
Ukranian	57,702	297	48,632	106,721	99·5

[1] The measure of uniformity is the standard deviation which is greater in the case of illiteracy than in the case of the other phenomenon. The standard deviation of per cent illiterate (excluding French) is 17·77; of the per cent unable to speak English or French is 10·41.

The length of residence of the foreign born in Canada cannot be given directly by racial origin. This is given by country of birth, and the numbers of foreign born by racial origin and by country of birth do not correspond for many reasons. One reason, namely, that large numbers of the different races have been born in the United States, has been practically removed in the above table, which gave the foreign born of each race over and above those born in the United States. This removes the greatest discrepancy. Of course a few of each race naturally come from countries other than the country representing their origin. The greatest difficulty occurs in the case of the Dutch, Germans and Hebrews. People giving their origin as Dutch in 1921 were in some cases probably Germans from Russia; and persons of German origin sometimes come from Russia or Austria, whilst Hebrews were apt to come from almost any country. A general idea—and no more—however, will be given by the following figures: (Again, it would be impossible to state exactly which of the races have come from Austria.)

TABLE 41.—YEAR OF IMMIGRATION OF PERSONS FROM DIFFERENT COUNTRIES

Country of birth	(1) Pop. total	(2) 1921 (5 mos.)	(3) 1920	(4) 1919	(5) 1915-1918	(6) 1911-1914	(7) 1900-1910	(8) Before 1900	(9) Not given	(10) Number born in other countries than Canada or United States of races corresponding to countries given	Col. (10) minus Col. (1)
Norway	23,127	317	518	404	1,918	5,772	12,171	1,847	180	23,102	−25
Switzerland	3,479	120	220	104	240	916	1,191	660	38	3,205	− 274
Holland	5,828	140	406	144	389	2,266	2,173	286	24	10,068	4,240
Denmark	7,192	332	436	173	754	1,729	2,396	1,247	125	8,092	900
Sweden	27,700	311	708	428	1,673	7,368	12,940	3,695	307	28,151	450
Iceland	6,776	15	66	37	97	561	1,931	4,010	59	6,127	− 649
France	19,249	245	927	1,006	785	3,988	7,780	4,146	372	22,485	3,236
Germany	25,266	118	247	127	398	5,397	8,291	10,384	304	43,253	17,987
Belgium	13,276	489	1,695	863	720	3,723	4,247	1,410	129	12,739	− 537
(Hebrews)	–	–	–	–	–	–	–	–	–	70,453	70,453
Greece	3,769	89	185	65	437	1,346	1,407	200	40	3,859	90
Czecho-Slovakia	4,322	77	80	31	96	1,276	2,225	520	27	3,906	− 416
Finland	12,156	211	559	140	823	3,985	5,243	1,090	105	12,123	− 30
Hungary	7,493	67	44	34	91	1,528	4,850	846	33	6,017	− 1,476
Japan	11,650	252	474	561	2,242	1,810	4,818	1,426	67	11,508	− 142
Syria	3,879	59	216	32	137	763	1,713	902	57	3,887	8
Jugo-Slavia	1,946	36	73	17	92	819	795	98	16	2,253	307
Bulgaria	1,005	10	20	5	30	698	212	22	8	1,490	485
Italy	35,531	1,461	3,624	863	1,854	11,740	12,536	3,065	388	36,125	594
Lithuania	–	–	–	–	–	–	–	–	–	1,106	–
Russia	101,055	1,574	1,314	519	2,733	33,561	42,822	17,689	843	44,228	−56,827
Poland	29,279	893	1,520	200	619	10,759	11,843	3,069	376	24,246	5,033
Roumania	22,779	326	308	78	364	7,101	11,497	2,997	108	7,298	15,481
China	36,924	582	1,053	1,006	3,963	10,613	13,267	6,109	331	36,586	− 338
Austria	57,535	457	333	164	662	17,461	28,161	9,846	451	50,160	− 7,375
Ukraine	11,357	95	53	39	133	3,943	5,746	1,320	163	48,632	1,250
Galicia	36,025	318	145	37	217	10,457	18,947	5,769			

The figures in the last column do not mean that the figures headed "Country of Birth" are expected to be the same as those in column (10), for even if the figures in the two columns corresponded exactly it would not prove that they represented identically the same persons. They are given merely to show roughly which countries of origin have contributed more immigrants and which fewer than the number of foreign born of the racial origin corresponding to the country. The figures with the minus sign should indicate (very roughly, of course) that the country named has sent in more immigrants than the number of the corresponding racial origin in Canada, the surplus being, perhaps, people of other racial origins; the figures with no sign may indicate that persons of the racial origins come from countries other than the corresponding countries in the first column. To the first class belong especially Hungary, Russia, Poland, Roumania and Austria; to the second, the Dutch, Germans, Hebrews and Ukranians. With exception of the cases of the countries represented by these nine there are no great discrepancies between columns (1) and (10). The country in column (1) represents the country of birth, not the country of last residence, so that persons whose last residence was the United States but who were not born there are included. Although proportionately the differences between

columns (1) and (10) in the case of countries other than the nine mentioned are somewhat large, the absolute differences are so small that it is not difficult to account for them. In the case of the Scandinavian countries, for instance, the Danish and Swedish are in excess of the number sent out by Denmark and Sweden, but Norway and Iceland sent out more than the number of Norwegian and Icelandic, and these might be Danish or Swedish. There are more French than those sent out from France, but Belgium and Switzerland sent out more than the number of Belgians and Swiss in the country. The rest of the French might be largely from Alsace, etc. Italy and the two Asiatic countries may be said to correspond. When it comes to the nine countries already mentioned we have the following figures:—

—	(1) Country of birth	(2) Racial origin	Excess of (1) over (2)
Group A..................................	Austria............ 57,535	Austrians....... 50,160	7,375
	Russia.......... 101,055	Russians........ 44,228	56,827
	Roumania...... 22,779	Roumanians.... 7,298	15,481
	Poland......... 29,279	Polish.......... 24,246	5,033
	Hungary........ 7,493	Hungarians..... 6,017	1,476
			86,192
On the other hand we have:			
Group B..................................	Holland........ 5,828	Dutch.......... 10,068	− 4,240
	Germany....... 25,266	Germans....... 43,253	−17,987
	Ukraine and		
	Galicia....... 47,382	Ukranians...... 48,632	− 1,250
		Hebrews........ 70,453	−70,453
			−93,930

(The excess in Group A is probably mainly the same personnel which constitutes the defect in Group B.)

That Group B is 7,738 in excess of Group A may easily be accounted for by Hebrews, especially, coming from countries other than those mentioned. A number would, no doubt, come from British countries other than Canada, since only the Canadian and United States born have been taken from the total in the table of these races, to obtain column (10). On the surface at least, there would seem to be nothing contradictory between the number in Canada of persons born outside of Canada and the United States by racial origins, and the number of immigrants born in the countries from which these races have originally sprung. Since there is no great necessity for mathematical exactness, the correspondence is near enough to give a good general idea. It throws a flood of light upon the illiteracy of such persons as the Germans. While Germany is practically free from illiteracy, the foreign born Germans in Canada have 4.90 per cent illiterate, but out of the 83,252 Germans born outside of Canada, about 57,996 or nearly 70 per cent were evidently born outside of Germany. Similarly, out of the 20,244 Dutch born outside of Canada, 14,416 or about 70 per cent were evidently born outside of Holland. The case is similar with the Scandinavian countries and Switzerland, although not to the same extent. That the illiteracy of these people is so low, considering the difficulties of educating the children of those immigrating to frontier settlements, is some evidence that literacy and illiteracy are dependent more upon racial characteristics than upon opportunity. It would seem that literacy may be considered by some races as much a requisite of life as food and clothing. Since there are no great discrepancies between the number of persons of certain races born outside of Canada and the United States and the number of persons from the corresponding countries, some light may be thrown upon the proportion of each race unable to speak English or French by comparing this proportion with the following table, which shows the proportion of immigrants from each country less than 5 months in Canada, etc. The year of immigration is given for all immigrants, while the language acquisition is given for persons over the age of 10 years. This should be remembered as well as the other facts mentioned. It should also be remembered that while these people had lived in Canada only for the period mentioned, some of them lived in other British countries and the United States subsequently to leaving their country of birth. It is clear, therefore, that each race had at least the time mentioned to learn the language.

TABLE 42.—LENGTH OF RESIDENCE IN CANADA OF FOREIGN BORN EXCLUDING
UNITED STATES BORN

PERCENTAGES OF THE TOTAL WITH THEIR NUMBER OF YEARS IN CANADA

Country of birth	Total	Less than 5 months	5 months to 1½ years	1½ years to 2½ years	2½ years to 6½ years	6½ years to 10½ years	10½ years to 21½ years	Over 21½ years
Norway	23,127	1·4	2·3	1·8	8·4	25·2	52·8	8·1
Switzerland	3,479	3·5	6·4	3·1	7·0	26·4	34·5	19·1
Holland	5,828	2·4	7·0	2·5	6·7	39·0	37·5	4·9
Denmark	7,192	4·7	6·0	2·5	10·7	24·5	33·9	17·7
Sweden	27,700	1·2	2·7	1·6	6·0	26·6	47·4	14·5
Iceland	6,776	0·2	1·0	0·5	1·5	8·4	28·7	59·7
France	19,249	1·3	4·9	5·3	4·2	21·1	41·2	22·0
Germany	25,266	0·5	1·0	0·6	1·2	21·7	33·3	41·7
Belgium	13,276	3·8	13·0	6·6	5·5	28·0	32·3	10·7
Greece	3,769	2·4	5·0	1·7	11·7	36·0	37·8	5·4
Czecho-Slovakia	4,322	1·8	1·9	0·7	2·2	29·6	51·7	12·1
Finland	12,156	1·8	4·6	1·2	6·8	33·1	43·5	9·0
Hungary	7,493	0·9	0·6	0·5	1·2	20·5	65·0	11·3
Japan	11,650	2·2	4·1	4·9	19·0	15·8	41·6	12·4
Syria	3,879	1·6	5·7	0·9	3·6	19·8	44·8	23·6
Jugo-Slavia	1,946	1·8	3·8	0·9	4·8	42·4	41·2	5·1
Bulgaria	1,005	1·0	·2·0	0·5	3·0	70·0	21·3	2·2
Italy	35,531	4·1	10·3	2·4	5·3	33·4	35·7	8·8
Russia	101,055	1·6	1·3	0·5	2·7	33·5	42·8	17·6
Poland	29,279	3·0	5·3	0·7	2·2	37·2	41·0	10·6
Roumania	22,779	1·4	1·3	0·4	1·7	31·3	50·7	13·2
China	36,924	1·6	2·9	2·8	10·8	29·0	36·3	16·7
Austria	57,535	0·8	0·6	0·2	1·2	30·6	49·3	17·3
Galicia and Ukraine	47,382	0·9	0·4	0·2	0·7	30·5	52·3	15·0

TABLE 43.—LENGTH OF RESIDENCE IN CANADA CORRELATED WITH ABILITY TO SPEAK ENGLISH
OR FRENCH

	Percentage unable to speak English or French	Approximate per cent in Canada less than 2½ years	Number of years in Canada to equal or exceed percentage unable to speak English or French[1]
Norwegian	1·40	5·5	5 months.
Swiss	1·15	13·0	5 months.
Dutch	8·70	11·9	Less than 1½ years.
Danish	1·84	13·2	5 months.
Swedish	2·68	5·5	Less than 1½ years.
Icelandic	10·09	1·7	Less than 10½ years.
German	4·02	2·1	?
Hebrew	7·24	?	
Belgian	4·94	23·4	Less than 1½ years.
Greek	7·05	9·2	Less than 1½ years.
Czech	8·00	4·4	Less than 10½ years.
Finnish	17·31	7·6	Less than 10½ years.
Hungarian	13·76	2·0	Less than 10½ years.
Japanese	42·50	11·2	Less than 10½ years.
Syrian	5·32	8·2	Less than 1½ years.
Serbo-Croatian	10·27	6·5	Less than 6½ years.
Bulgarian	18·08	3·5	Less than 10½ years.
Italian	17·19	16·8	Less than 10½ years.
Russian	18·47	3·4	Less than 10½ years.
Polish	17·26	9·0	Less than 10½ years.
Roumanian	14·55	3·1	Less than 10½ years.
Chinese	32·60	7·3	Less than 10½ years.
Austrian	22·68	1·6	Less than 10½ years.
Ukranian	32·98	1·5	Less than 21½ years.

[1] About 1·40 per cent Norwegians were in Canada 5 months; the remainder longer than this; about 1·15 per cent Swiss were in Canada less than 5 months and so on.

It will be seen that with the exception of the first five and the Belgians, Greeks and Syrians' there is no explanation on the score of short residence in the country for inability to speak the languages of Canada. Further it is noticeable that with the exception of Greeks and Syrians, the races whose short stay in the country might explain inability to speak the languages are among the least illiterate, while with one exception (the Icelandic) the races who have been from 6½ to 10½ years, or say, at least 8½ years in Canada without learning either of its languages are among the most illiterate. This should be some evidence that the correlation between illiteracy and inability to speak English or French is a genuine correlation between two distinct features and not merely a correlation due to the identity of items correlated. It should also serve to inspire confidence in the data on illiteracy.

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The foregoing tables should indicate also that what is known as "racial origin" in Canada is not a meaningless term, even if it has not a complete ethnic significance. It would seem to be consistent with the data on immigration by countries of birth. One more item of information on this point may serve to establish the identity of people of certain racial origin, namely the language spoken by them as mother tongue.

TABLE 44.—MOTHER-TONGUE OF RACES IN CANADA

Racial origin	Total Number over 10 years in each race (1)	Speaking languages corresponding to name of race (2)	Speaking English or French where not included in column (2) (3)	Speaking other tongue than English, French or tongue in column (2)	
				Number (4)	Per cent (5)
Norwegian	50,262	40,574	8,606	1,082	2·0
Swiss	9,923	2,957 [1]	6,008	958	10·0
Dutch	88,347	17,743	63,800	6,804	8·0
Danish	15,746	9,356	4,924	1,466	9·0
Swedish	46,933	37,264	8,199	1,470	3·0
Icelandic	12,308	11,508	748	52	0·4
French	1,770,610	1,748,427	18,930	3,253	0·2
German	221,131	117,562	101,790	1,779	0·8
Belgian	15,407	10,859 [2]	3,853	695	4·0
Hebrew	93,403	84,732 [3]	3,277	5,394	6·0
Greek	4,199	3,712	370	117	3·0
Czech	6,344	4,864 [4]	664	816	13·0
Finnish	15,774	14,821	470	483	3·0
Hungarian	8,738	5,174	280	3,284	37·0
Syrian	5,572	4,964	532	76	1·0
Serbo-Croatian	2,809	1,603	145	1,061	36·0
Bulgarian	1,513	1,289	52	172	11·0
Italian	45,363	41,829	3,386	148	0·3
Russian	67,120	33,856	2,813	30,451	45·0
Polish	35,394	27,728	1,952	5,714	16·0
Roumanian	8,715	5,728	253	2,734	31·0
Chinese	-	-	-	-	-
Austrian	69,633	28,748 [5]	2,411	38,474	55·0
Ukranian	67,654	62,013 [6]	397	5,244	8·0

[1] French or German. [2] French or Flemish. [3] Yiddish. [4] Bohemian or Slovak. [5] German. [6] Bukovinian, Galician, Ruthenian, Ukranian.

The above table, especially the last column, is given merely for the purpose of sorting out the races which show large discrepancies between the number belonging to the racial origin and the number speaking a language other than the language corresponding to the race name or English or French. This was done in order to investigate these discrepancies and to discover any improbabilities in the result. The race which might be expected to show a large discrepancy is the Ukranian, and yet it does not show any greater than the Dutch, and not as great as the Swedish, about whom there can be no question as to their Scandinavian identity. The case of the Swiss may be dismissed at once, for practically all the discrepancy was due to 754 being incorrectly reported as speaking "Swiss".

A selection will now be made of such races as show discrepancies of 8 per cent or more.

TABLE 45

	Number speaking language other than corresponding or English or French	Scandinavian languages other than corresponding	Germanic languages other than corresponding	Other languages than the corresponding or English, French or Scandinavian or Germanic languages	
				Number	Per cent of total
Dutch	6,804	74	6,651	79	0·09
Danish	1,466	1,215	230	21	0·1
Czech	816	-	431	385	6·0
Hungarian	3,284	8	1,718	1,558	18·0
Serbo-Croatian	1,061	2	75	984	35·0
Bulgarian	172	-	16	156	10·0
Russian	30,451	42	27,774	2,635	4·0
Polish	5,714	30	3,161	2,523	7·0
Roumanian	2,734	10	1,105	1,619	19·0
Austrian	38,474	9	8	38,357	55·0
Ukranian	5,244	10	1,292	3,944	6·0

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The case for the Dutch and the Danish may be considered as settled. Any want of identity in the case of the remaining nine races, due to confusion between Slavic races, must be confined to the numbers and percentages in the last two columns. The absolute number in the case of the Bulgarians is so small that it need not be included in the following table. It may be mentioned that out of the 156 in the second last column, 82 spoke Greek and 33 Russian.

The other languages spoken by the remaining eight races will now be given.

TABLE 46.—LANGUAGES SPOKEN

Racial origin	Number speaking language other than English, French, Scandinavian, Germanic or race language	Austrian	Bohemian	Bulgarian	Lettish	Lithuanian	Polish	Russian	Serbo-Croatian	Slovak	Ukranian Bukovinian	Ukranian Galician	Ukranian Ruthenian	Ukranian Ukranian	Spanish	Others
Czech...............	385	3	–	1	–	2	125	71	30	–	1	3	92	14	–	43
Hungarian...........	1,588	12	16	–	–	–	62	24	6	115	–	40	106	7	1,109	61
Serbo-Croatian.......	984	11	34	7	1	–	29	38	–	754	–	–	17	30	–	63
Russian..............	2,635	61	30	5	140	184	1,003	–	1	40	1	44	326	403	–	397
Polish...............	2,523	34	49	2	1	29	–	705	2	68	–	56	658	853	–	66
Roumanian.........	1,619	41	3	2	–	2	147	306	7	16	132	10	509	177	–	267
Austrian............	38,357	9,792	226	2	–	21	4,832	1,351	95	574	7	545	13,305	5,932	1	1,675[1]
Ukranian............	3,944	135	28	4	–	33	2,486	902	12	–	–	–	–	–	–	344

[1] Magyar 803, Italian 104, Roumanian 538, others 230.

The Czechs, Hungarians and Serbo-Croatians can not have been confused to any material extent in the recording of racial origins. The only races left, therefore, are the Russian, Polish, Austrian and Ukranian. Ignoring any possible confusion of these with other races and confining attention to possible confusion among themselves we have the following as the maximum probable interchange of data:—

LANGUAGE SPOKEN

Racial origin	Russian	Polish	Austrian	Ukranian	Total	Total race over 10 years
Russian.........................	–	1,003	61	784	1,848	67,120
Polish.........................	705	–	34	1,567	2,306	35,394
Austrian......................	1,351	4,834	–	19,789	25,972	69,633
Ukranian......................	902	2,486	135	–	3,523	67,654
Total..............	2,958	8,321	230	22,140	33,649	239,801

The only possible confusion of any magnitude is that between Austrians and Ukranians, or rather that sub-division of the Ukranians called Ruthenians. As most of these had always been considered Austrians in nationality, it is a question whether this could be considered a confusion at all. With reference to the other races, for example the 2,486 Ukranians speaking Polish and the 1,567 Polish speaking Ukranian, this maximum probable interchange of races forms only about 4 per cent in each case of the totals of the two races. Considering the difficulties of the situation, owing to the changes in the geography of Europe, this would seem a remarkably close approximation.

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The deductions of the last few tables throw a considerable amount of light on the illiteracy of such races as the Germans and Austrians in Canada. The illiteracy of the foreign-born Austrians in Canada is very high, while that of the five provinces of Austria, as now constituted, is only about 3 per cent of the population over 10 years. Persons speaking Ukranian languages and from the old provinces of Austria naturally called themselves Austrians, while in illiteracy they showed their identity with the other Ukranians. Similarly while illiteracy in Germany is practically unknown, there is a comparatively high percentage of illiteracy among foreign-born Germans in Canada. This can be accounted for by the Germans from Russia and elsewhere.

The question now arises as to whether there is such a thing as a persistence of racial characteristics on the point of illiteracy. This, of course, is a very difficult question to answer, but it is very important. While it can not be answered with finality, it would seem reasonable to expect that once persons from countries with a high rate of illiteracy are removed from the environment of that country into one with good educational opportunities, they would lose their characteristic illiteracy after a certain period. Persons from countries with no illiteracy should also lose what ever superior advantages they had in their own countries and meet the persons from illiterate countries on a common level. If, on the contrary, persons from literate countries either make their own opportunities or take advantage of every scrap of opportunity in their adopted country, while those from illiterate countries fail to take advantage of what opportunities are offered, there will be a tendency to the persistence of characteristics which, even if they may not be considered strictly racial, are at least due to rather constant concomitants of race.

There is some evidence, even on the surface of the figures already given in table 39 that these characteristics persist. The race whose foreign born have the lowest rate of illiteracy in Canada is the Norwegian. The physical conditions in Norway are not the most favourable and yet illiteracy there is considered an abnormal condition. The Norwegian immigrants of this race have come to Canada, some directly from Norway, and others, in the first or second generation, from the United States. A sufficient number of these have lived under pioneer conditions, some in the lumbering districts of Minnesota and others on isolated homesteads in Canada where no schools existed on their arrival, to create a large percentage of illiteracy if they had succumbed to the prevailing conditions; and yet the total number of illiterates among them does not form half as great a percentage of their total population as the illiterates in cities and towns in Canada form of their total population, urban centres being assumed to be situated under perfect conditions from the point of view of non-illiteracy. (The per cent illiterate of foreign-born Norwegians is 1·45; that of all classes in the urban parts of Canada is 3·11). The case is similar with the other Scandinavian races, notably the Icelanders, who seem to experience considerable difficulty in learning the languages of the country. If it be contended that even if there is less illiteracy among foreign-born adults of certain races than among those of other races, and even among foreign-born children, still this does not show racial characteristics but merely differentiation in opportunity, it will be difficult to carry the contention so far as the claim that the same holds true if there is a correlation between the races in the four cases: (1) foreign-born adults 21 years and over; (2) foreign-born children 10 to 20; (3) native-born children 10 to 20; and (4) native-born adults 21 years and over. Table 42 shows that persons from different countries have been coming in at all times since the last 21 years, while a considerable proportion were in Canada 21 years before the last census was taken. Certain persons of different races came from their original country more than 21 years ago, and thus had no experience of the changes that country had undergone in the course of 21 years or more; some of them came to Canada through the United States and thus had the opportunities offered there; others came to Canada as children and thus had the same opportunities as those of Canadian-born children—at least as the children of other races who came to Canada under similar conditions; others were born in Canada over 21 years ago and under whatever educational conditions prevailed then; others have been born since under improving conditions. It is therefore not to be expected that there should be any resemblance between the illiteracy of different age and nativity groups of the same race, nor that a certain race, say in Ontario, should show the same illiteracy characteristics as the same race, say, in British Columbia. The following table shows the illiteracy of foreign born over 10 years of age of the different races according to the various age and nativity groups already mentioned:—

TABLE 47.—PER CENT ILLITERATE OF DIFFERENT RACES BY AGE AND NATIVITY GROUPS

Race	(a)[1] Foreign born 10 years and over	(b) Foreign born, 10–20 years	(c) Foreign born 21 years and over	(d) British born, 10–20 years	(e) British born, 21 years and over
1. Norwegian	1·41	0·70	1·57	0·81	2·72
2. Swiss	1·52	0·64	1·66	0·45	0·62
3. Dutch	1·68	0·56	1·92	1·50	2·90
4. Danish	1·74	1·19	1·85	0·45	1·28
5. Swedish	2·67	1·11	2·97	0·61	1·70
6. Icelandic	3·16	1·41	3·32	0·37	0·64
7. French	4·19	2·53	4·74	2·97	10·80
8. German	4·90	1·65	5·64	1·12	2·78
9. Belgian	6·59	4·21	7·20	0·93	2·78
10. Hebrew	9·83	2·76	11·76	0·34	1·33
11. Greek	11·59	6·35	12·03	1·66	4·27
12. Czech	11·94	2·38	14·11	0·73	1·61
13. Finnish	12·59	3·87	14·25	2·12	2·93
14. Various	13·95	5·17	15·21	1·84	29·23
15. Hungarian	15·73	5·64	17·85	1·38	5·02
16. Japanese	20·40	17·21	20·62	3·44	10·13
17. Syrian	22·22	4·61	24·36	1·36	4·52
18. Serbo-Croatian	22·72	5·51	25·62	1·48	3·90
19. Bulgarian	23·56	11·97	24·56	17·24	14·29
20. Italian	23·68	9·09	26·11	1·65	5·25
21. Lithuanian	23·74	–	26·30	3·37	–
22. Russian	23·92	6·13	28·02	8·50	6·65
23. Polish	24·46	7·58	27·34	4·27	18·12
24. Roumanian	27·03	9·85	29·77	5·87	12·14
25. Chinese	31·15	20·59	31·96	3·13	7·90
26. Austrian	35·08	14·60	38·07	6·42	10·29
27. Ukranian	39·46	19·05	42·50	6·93	19·71
All races	12·11	3·92	13·90	1·69	4·06

[1] (a) is inserted merely for purposes of reference; the comparison is really between (b), (c), (d) and (e).

Even a superficial study of the above table will show that there is a correspondence between the percentage of illiteracy race for race shown in the columns (b), (c), (d) and (e). The average for all races in Canada (including races not given in the table) is given at the foot of the table. Notice that in each column from (b) to (e) those below the average are grouped towards the top of the table and those above grouped towards the foot, corresponding to the arrangement by percentage of illiteracy in column (a). In column (b), for example, there is only one, namely the Belgians, above the average 3·92 in the upper half, while there is not one below the average in the lower half; in column (c) there are only two races above the average of 13·90 in the upper half, and none below this average in the lower half; in column (d), there are two above the average of 1·69 in the upper half and two below and just two on this average in the lower half; in column (e) there are two above the average of 4·06 in the upper half and one below in the lower half. The exact correspondence can be measured by the coefficient of correlation. In obtaining the coefficient in this case use was made of all the races including English, Scotch, Irish and Welsh, etc., as well as those given above.[1]

The correlations obtained were as follows:—

(For convenience, 10- to 20-year groups are referred to as children and the others as adults.)

1. British born children with foreign born children, correlation = 0·50.
2. British born children with British born adults, correlation = 0·71.
3. British born children with foreign born adults, correlation = 0·54.
4. Foreign born children with British born adults, correlation = 0·68.
5. Foreign born children with foreign born adults, correlation = 0·86.
6. British born adults with foreign born adults, correlation = 0·73.

[1] To anyone unfamiliar with these coefficients it may be explained that a coefficient of 1 shows a perfect correlation; a coefficient of −1 also shows a perfect correlation but an inverse one; a coefficient at or around zero shows no correlation. The reliability of the coefficient depends upon its size and the number of cases compared. In the above there were 32 races correlated. The reliability may be measured by the probable error which is obtained by the following formula·

$$\frac{·64779\ (1-\text{Correlation Squared})}{\text{Square root of the number of cases}}$$

A correlation as large as 0·40 would be considered reliable when the number of cases was as great as 32.

These correlations are interesting apart from the point in question. The large size of number 4 is rather surprising as is the small size of number 3. Considering the relationship, the situation should be reversed. Why should there be any correlation between the illiteracy of foreign born children and British born adults of the same race? Some correlation might be expected between British born children and foreign born children because they may be children of the same parents, except that the first are born in Canada and the others in foreign countries. This correlation is, however, the lowest of all, although it is sufficiently high to be reliable. It is difficult to explain the six correlations obtained on any other ground than that of a persistence of racial characteristics. The changes in environment undergone between foreign born adults and British born adults of the same race must be enormous, even granting that some of the British born adults may be the children of the foreign born adults. Again, different members of the same race immigrate to different parts of Canada, to different conditions such as rural and urban; members of the same race come from different countries and their immigration into Canada has been going on for many years. It is therefore astonishing to find a characteristic illiteracy persisting in spite of these changes in condition and personnel.

It should be significant that four of the above coefficients are larger than the correlation between the percentage of illiterates and the percentage unable to speak English or French. Even if this had not been so, the explanation that the common element in the correlation in illiteracy between the different groups of a race was merely one of common language would be no explanation at all—at any rate it would not explain away anything. That adults born in Canada or in other parts of the British Empire should show the same tendency towards the languages of Canada as shown by adults of the same race born (1) in the United States, (2) in the country from which the race usually comes and (3) in some other foreign country, and that this tendency should be related with a tendency towards illiteracy should be some evidence that if the enumerator did sometimes assume illiteracy on the score of inability to speak English or French the error was not serious. It will be shown later that there is a strong correlation between illiteracy and school attendance, so that the enumerator had the additional evidence that these persons did not send their children to school. However, all additional evidence seems to argue against an unwarranted assumption on a significant scale on the part of the enumerator. The case of the Icelanders is in point. They seem to meet difficulties[1] in learning the languages of Canada; on the other hand the Syrians seem to find them relatively easy, for the percentage unable to speak English or French is only half that of the Icelanders (5·32 per cent as compared with 10·09) although 8·2 per cent of the Syrians have been less than 6½ years in Canada as compared with only 3·2 per cent of the Icelanders. Yet the foreign born Icelanders have only 3·16 per cent illiterate and the foreign born Syrians have 22·22 per cent illiterate.[2]

Again, members of a race living in Ontario show a certain correspondence in illiteracy with members of the same race living in British Columbia. These two provinces were selected because there seemed to be less interchange of population than between Ontario and the prairie provinces or among the prairie provinces themselves. The number of specified races in common in the two provinces (Ontario and British Columbia) is so small, however, that the full correlation cannot be measured. One large exceptional case (there were only 22 races in common) made the correlation much smaller than it otherwise would have been. Leaving this race out the correlation was strong enough to print to reliability.

The conclusion would seem to be that there is a persistence under changing environment of racial tendencies towards illiteracy, though in a modified form. This characteristic may be due either to racial heredity or to certain concomitants which have no essentially ethnic foundation. The persistence seems to be stronger in the case of illiteracy than in that of inability or disinclination to learn a new language.

[1] Difficulties would of course include residence in pioneer settlements, disinclination, etc.
[2] One explanation is that the Icelanders are country-dwellers, the Syrians traders and town-dwellers.

PART III.—PROGRESS IN THE ELIMINATION OF ILLITERACY[1]

CHAPTER 9

PROGRESS AS SHOWN BY REDUCTION IN THE PERCENTAGES OF ILLITERACY

To test the reality of progress in the elimination of illiteracy it is not necessary to make much allowance for the factors considered in the last few chapters. If the percentage of illiteracy has decreased, illiteracy is in process of elimination, whether the decrease has been due to the schools of Canada, or to a more favourable age or race distribution, provided always that "illiteracy" means the same thing in the cases or years compared. It might be said, however, that if the progress were entirely due to relative increase in the school age group of the population the progress shown would in a measure be fictitious—at least so far as it affected the present time, whatever might be said of the promise it held for the future.

Testing the extent of progress is a different matter. Here it would seem desirable to ascertain, approximately, the amount of the progress due to the schools of Canada and the amount due to other factors. If the progress shown were found to be due to a more favourable distribution of the population, then it could not be said to be the work of the schools. Again, if it were found that in 1921 the distribution of the population was more unfavourable than in, say, 1891, then the comparison of the percentage of illiteracy in the two years would not show the full extent of progress due to the schools of Canada. Suppose two elements in the population, A and B; A having a high rate of illiteracy and B a low; if A in 1891 consisted of 30 per cent of the population of which one-fifth was illiterate, while B consisted of 70 per cent and had one-twentieth illiterate, the illiteracy of the whole country would be 9·5 per cent. If in the thirty years A had increased relatively to form 50 per cent of the population but A's illiteracy had decreased to three-twentieths, while B had decreased relatively so as to form only 50 per cent of the population and B's illiteracy had also decreased to one-twenty-fifth, then the illiteracy of the whole country would still be 9·5 per cent, and no progress would be shown. However, it is clear that a decided amount of work would have been done by the schools in reducing the illiteracy of A from one-fifth to three-twentieths and in reducing the illiteracy of B from one-twentieth to one-twenty-fifth. Thus it is possible that the progress made by 1921 has really been greater than the crude figures show.

A comparison between the percentage of illiteracy in 1901, 1911 and 1921 would not be adequate measurement of progress. The illiteracy of 1901 and 1911 was for the population over 5 years of age and while the same facts are known for 1921 a comparison between the three years would be vitiated by the influence of the ages 5 to 9. No great improvement can be expected from decade to decade in the illiteracy of the population 5 to 9. Further, it is doubtful whether "illiteracy" as applied to these ages has the same meaning as when applied to latter ages. Ignoring this fact, however, the illiteracy of 1901, 1911 and 1921 in reference to the population over 5 years is respectively 14 per cent, 11 per cent and 9 per cent.

This shows very little of the true progress, the reason being as follows:—We know that the illiteracy of the population over 10 years of age in 1921 was 5 per cent, and that the number of illiterates at the same ages was 341,019 as against 715,167 over the age of 5 years. Consequently the illiterate children from 5 to 9 years formed 53 per cent of the illiterates 5 years and over in 1921. In the prairie provinces in 1916 the illiterates from 5 to 9 formed 52 per cent of all illiterates. Now if, as is very likely, the percentage of illiteracy of the ages 5 to 9 has remained practically stationary from decade to decade, however much the percentage of illiteracy of the population 10 years and over may have improved, the full measure of improvement would not be seen, on account of the constant quantity of illiteracy at 5 to 9.

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[1] Ref. Census, vols. 1891, 1901, 1911 and 1921, especially vol. II, 1921, pp. 597 seq.

Another constant quantity is the Indian population. The improvement in their general educational status is proceeding very slowly, as is shown by their very high percentage of illiteracy in 1921. Their illiteracy in 1901 and 1911 cannot be separated from that of the rest of the population.

In 1891 and 1921 the illiteracy of the population of Canada exclusive of Indians is given. The age groups by which illiteracy is given do not correspond in the two censuses, the groups of 1891 being 10 to 19, 20 – 29 and so on by 10-year groups, while those of 1921 are 10 to 14; 15 to 20, 21 to 34, 35 to 64 and 65 and over. It is also impossible to separate the illiteracy of the Indians from the groups actually given in 1921 except in the case of those 10 years and over.

The percentage illiterate of the population 10 years and over, exclusive of Indians, in 1891 was 13·8; in 1921 for the same ages, and also exclusive of Indians, it was 4·5. The Indians who could read but not write cannot be excluded in 1921, while they were not included in 1891, so that in giving the total illiterate population of both decades a discrepancy due to Indians is involved:—

—	Population 10 years and over	Able to read and write		Able to read only		Unable to read or write	
		Number	Per cent	Number	Per cent	Number	Per cent
1891[1]........................	3,588,043	2,955,600	82·4	138,296	3·8	494,147	13·8
1921[2]........................	6,682,072	6,298,704	94·3	42,349	0·6	341,019	5·1

[1] Exclusive of Indians.
[2] Including Indians. The number of Indians over 10 in 1921 was 80,037 of whom 41,695 or 52·1 per cent could neither read nor write. The number able to read only was not given.

As the Indians are included in the smaller percentages rather than the larger, and since the only unknown quantity is the 0·6 per cent able to read only in 1921, there is not much error involved, in adding this 0·6 per cent to the 4·5 per cent (exclusive of Indians) unable to read or write in 1921. This shows 5·1 per cent in 1921 (exclusive of Indians) as unable to read and write as compared with 17·6 per cent in 1891. This is a reduction of 71 per cent in 30 years.

As mentioned, the comparison between age groups is vitiated by the inclusion of Indians in 1921 and also by the fact that the years in the groups do not correspond. Nevertheless it will be useful to see the general trend shown by the figures ("illiterate" means unable to read or write):—

TABLE 48.—COMPARISON OF THE ILLITERACY IN CANADA IN 1921 WITH THAT OF 1891

Age group	1891 (exclusive of Indians)			Age group	1921 (including Indians)		
	Population	Illiterate			Population	Illiterate	
		Number	Per cent			Number	Per cent
10–19....................	1,061,814	103,379	9·7	10–14.............	913,049	18,339	2·0
20–29....................	860,603	87,452	10·2	15–20.............	948,377	26,528	2·8
30–39....................	590,040	78,714	13·4	21–34.............	1,904,057	74,869	3·9
40–59....................	728,860	126,477	17·4	35–64.............	2,476,105	160,996	6·5
60 and over...........	328,996	93,017	27·5	65 and over.......	419,107	55,112	13·2
Age not given.........	7,730	5,108	66·1	Age not given.....	21,277	5,175	24·3
Total..............	3,588,043	494,147	13·8	Total..........	6,682,072	341,019	5·1

An estimate might be made so as to show the same age-groups, but this would seem hardly worth while. Perhaps no great error will be involved through over-lapping of ages in the following:—

Age groups	Population		Per cent illiterate	
	1891	1921	1891	1921
10–19 or 20..:	1,061,814	1,861,426	9·7	2·4
20–29 or 21–34..	860,603	1,904,057	10·2	3·9
30 or 35 and over.......................................	1,657,896	2,896,212	18·0	7·5
Age not stated...	7,730	21,277	66·1	24·3

To show the real extent of improvement between 1891 and 1921 it will be necessary to show the age distribution of the population for each of the two census years. It will be possible to give the age groups used in describing the illiteracy of 1891, without Indians for both years. Weighting the illiteracy of each ten or twenty year group in 1891 by the distribution of these groups in 1921 will make clear whether the 1921 distribution was or was not more favourable than that of 1891. The groups 40 years and over are not subdivided as the ages of Indians are not given. :

TABLE 49.—AGE DISTRIBUTION IN 1891 AND 1921 OF POPULATION OF CANADA EXCLUDING INDIANS

Age groups	Per thousand of population at each age group		Per cent illiterate
	1891	1921	1891
10–19	296	256	9·7
20–29	240	209	10·2
30–39	164	193	13·4
40 and over	298	339	20·5
Age not given	2	3	66·1
Total	1,000	1,000	13·8

According to the per cent illiterate at each of the five age groups in 1891 and the distribution of these groups in 1921 the per cent illiterate in all Canada in 1921 would be 14·3 or higher than it was in 1891. The actual per cent (excluding Indians) was 4·5 so that the real decrease in illiteracy since 1891 was from 14·3 to 4·5.

The age distribution was thus more favourable from the point of view of literacy in 1891 than in 1921. As it is difficult to show the distribution by age groups excluding Indians in 1901 and 1911, a comparison will now be given of the decades 1891, 1901, 1911 and 1921 using the illiteracy of each age group including Indians in 1921 and applying it to the age distribution of the population (including Indians) in each of the previous decades as follows.

TABLE 50.—AGE DISTRIBUTION IN 1891, 1901, 1911 AND 1921

Age groups	Number per 1,000 of the population over 10 years in each age group (including Indians)				Per cent illiterate in 1921
	1891	1901	1911	1921	
10–14	151	141	127	137	2·0
15–19	140	135	123	120	2·8
20–34	324	315	347	307	3·9
35–64	307	332	337	370	6·5
65 and over	60	65	62	63	13·2
Age not stated	18	12	7	3	24·3
Total over 10 years	1,000	1,000	1,000	1,000	5·1
	3,643,644	4,112,431	5,535,905	6,682,072	–

With the same illiteracy at each group as in 1921 the illiteracy of each of the decades would be:— 1891: 5·08; 1901: 5·10; 1911: 5·13; 1921: 5·10.

It is clear, then, that the changes in age distribution since 1891 have had little or nothing to do with the decrease in illiteracy. The distributions in 1891 and 1901 were on the whole more favourable than in 1911 and 1921, except in the proportion of persons whose ages were not stated. What 1921 gained over 1911 in the proportion at the ages of 10 to 14 it lost in the 20 - 34 group, so that on the whole the population was older in 1921 than in 1911. This was manifestly due to the war, both because of the number of persons killed at these ages and because of the check to immigration. So far as age distribution affecting illiteracy was concerned, however, each decade may be said to have been practically equal, so that in this respect the decrease in illiteracy in the thirty years from 1891 to 1921 may be said to have been a net decrease.

The place of birth of the population and their racial origins seem to be the most important element in connection with illiteracy. In 1891 the population of Canada consisted of 86·6 per cent Canadian born; 10·1 per cent British born; 1·7 per cent Unites Stated born; 0·4 per cent Asiatics. Too many countries are included in "other countries" to make possible a subdivision of the other countries, but about 0·9 per cent were from Scandinavia, France, Germany and other

Northwestern European countries, leaving a balance of 0·3 per cent from all other countries. In 1921 there were only 77·8 per cent Canadian born as compared with the 86·6 in 1891, while all persons from British possessions formed 89·9 per cent as compared with 96·7 per cent in 1891. The British, United States and Northern Europeans formed 95·63 per cent as compared with about 99·3 per cent in 1891, while the remaining 4·37 per cent in 1921 consisted of 3·72 per cent from the rest of Europe; 0·61 Asiatics and ·04 from elsewhere, this 4·37 comparing with 0·3 in 1891. The distribution of the population by nativity was thus very favourable to the literacy status of 1891 as compared with that of 1921.

There is no means of direct comparison between the literacy of the population 10 years and over in 1901, 1911 and 1921. The percentages unable to read or write of the population 5 years and over in 1901, 1911 and 1921 respectively were 14·38, 10·50 and 9·25; the percentages unable to read and write in the same years were 17·12, 11·02 and 10·0. This shows no great improvement between 1911 and 1921, but, as already suggested, the figures mean very little, since the illiteracy of 5 to 9 forms practically a constant quantity which increases proportionally to the illiteracy of all over 5, according as the illiteracy of the ages over 10 decreases. There is one direct means of comparison between 1911 and 1921, namely, the illiteracy of the males 21 years of age and over. The figures are as follows:—

TABLE 51.—ILLITERACY OF MALES 21 YEARS OF AGE AND OVER IN CANADA IN 1911 AND 1921

—	Male population 21 years and over	Able to read and write		Unable to write but able to read		Unable to read or write	
		Number	Per cent	Number	Per cent	Number	Per cent
1911							
Total......................	2,197,746	1,977,178	89·91	13,702	0·60	207,366	9·49
Canadian born.................	1,442,618	1,294,943	89·76	9,930	0·69	137,745	9·55
British born..................	408,605	395,291	96·74	1,082	0·26	12,232	3·00
Foreign born..................	346,523	286,944	82·81	2,190	0·63	57,389	16·56
1921							
Total......................	2,530,795	2,336,453	92·32	21,188	0·80	173,154	6·82
Canadian born.................	1,636,477	1,507,120	92·09	13,509	0·83	115,848	7·08
British born..................	474,324	468,729	98·82	1,478	0·31	4,117	0·87
Foreign born..................	419,994	360,604	85·86	6,201	1·48	53,189	12·66

The improvement in the illiteracy of males over 21 years since 1911 has been very marked, and there is no reason to believe that there has not been a corresponding improvement among all persons over 10 years of age. A considerable part of this improvement, it will be noticed, is among the British and foreign born, although the illiteracy of the Canadian born also shows about 2·6 per cent of a decrease. The decrease among the British born is remarkable and due no doubt to many causes, particularly the rapid displacement of the older classes of British immigrants by a younger population and new and less illiterate arrivals.

The changes in the distribution of the population during the decade 1911-1921 as between the three classes was as follows:—

Per thousand	1911	1921
Canadian born.......................................	656	647
Empire born..	186	187
Foreign born..	158	166

The changes were not great, but it is clear that their tendencies were unfavourable from the point of view of literacy. The foreign born increased from 158 to 166 per thousand or 6 per thousand. The British born showed also a slight gain, which would be to the good. The net change in distribution, however, was a loss to the cause of literacy unless the foreign element which caused the increase were less illiterate than the Canadian born, which showed a decrease. This is probably not far from the truth. The decrease in illiteracy from 16·56 to 12·66 among the foreign born since 1911 was probably partly due to the changes in the class of immigration, as well as to the work of the schools among the younger portion of the foreign born population. The decrease in the percentage illiterate of the Canadian born from 9·55 to 7·08 per cent must be attributed to the schools, as must also a further decrease which is not shown, namely that

of the younger group of the Canadian population displaced by war conditions, as has already been discussed, *i.e.*, the group 21 to 34 years. Of course another point must also be remembered: during the decade, two of the age groups changed completely, namely the 10 to 14 and the 10 to 20. The 10 to 20 group of 1911 would pass to the 21 to 34 group and so on.

Without any change in the illiteracy of each group between, say, 1921 and 1931, the mere displacement of the individuals of each group by individuals of the younger groups of 1921 who by 1931 would be 10 years older (supposing always that these individuals had retained their literacy status), the illiteracy of 1921 of 5·1 per cent would decrease by 1931 to about 4·3 per cent. This decrease might of course, be all the work of the schools of Canada, but it illustrates how important the displacement is, for even if there were no illiteracy among the younger groups, or the rising generation, the elimination of illiteracy in Canada as a whole would still have to be postponed until the disappearance of the present older groups.[1] The decrease in percentage illiterate would, of course, be speeded up by increased immigration of the class of British born which evidently arrived between 1911 and 1921. The illiteracy of these British born in 1921 was 8·6 less than the illiteracy of Canadian born in 1911. For every 1 per cent of the total population that this British born element increased, the illiteracy of the population would decrease 8·6 per cent of this 1 per cent or ·086 per cent in all. The decrease would be much more rapid if those displaced by the British born were not the Canadian born but some other classes of immigrants, so that a displacement of about 7 per cent between the British and foreign born element would bring about a decrease in the illiteracy of Canada of 1 per cent without any increased activity on the part of the Canadian schools. This process was evidently working between 1911 and 1921, although rather slowly, not by the displacement of foreign born by British born but by the displacement of one class of foreign born by a less illiterate class.

The change in distribution which takes place with the most telling effect on illiteracy is that of race. The British and Northwestern Europeans, the German, the Swiss and Hebrew stocks in 1921 had 4,396,842 persons over the age of 10 years, with 61,694 or 1·4 per cent unable to read or write; all others had 2,198,198 persons over 10 years, of whom 234,206 or 10·7 per cent were unable to read or write. The more illiterate of the two groups, then, formed 335 per thousand of the population over 10 years. They formed 362 per thousand of the population at all ages. In 1911 they formed 369 per thousand of the population at all ages. Assuming the same relationship between the foreign over the age of 10 and all ages in 1911 as in 1921, the number per thousand in 1911 over the age of 10 of these people would be 341 as against 659 per thousand in the case of the other group.

Now if the respective classes had only the same percentage illiterate in 1911 as in 1921 the distribution of 1911 would give Canada an illiteracy of 4·57 as compared with 4·49 in 1921. In 1901 the proportion per thousand of the total population formed by the more illiterate group was 359 as compared with 644 by the other group. This could be estimated at 329 and 671 respectively over the ages of 10 years. According to the per cent illiterate of each group in 1921 the distribution of 1901 would give Canada an illiteracy of 4·46.

Changes in rural and urban distributions are so involved in that of race that it is hardly worth while to investigate the progress due to this source. Changes in sex distribution are also merely a matter of race and age. It would seem therefore that the progress made since 1901 has been a net progress and attributable almost entirely to the schools.

While the above figures show that a more favourable race distribution was accountable for only a very small portion of the improvement between 1901 and 1921 they should not be regarded as meaning that the problem created by immigrants was not serious. They are quoted merely on the supposition that the immigrants between 1901 and 1921 had the same rate of illiteracy as the foreign born of these races in 1921. They therefore do not show the amount of improvement which had to be effected among these immigrants. This was perhaps the most noteworthy achievement of the schools of Canada during the two decades.

It is important to remember that a decrease in the percentage illiterate of the sum total of the population must proceed slowly if it is effected through the agency of the schools alone; that is, unless the schools are aided by immigration of the less illiterate class of immigrants.

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[1] Unless, of course, adults attended school.

As has already been stated, the illiteracy by age groups with the proportion of the population at each age in 1921 was:—

	Per 1,000 population	Per cent illiterate
10–14 years	136	2·0
15–20 "	142	2·8
21–34 "	285	3·9
35–64 "	371	6·5
65 and over	63	13·2
Age not stated	3	24·3
Total	1,000	5·1

The group which the schools most affect is the 10 to 14 year group, while their influence practically ceases with the 15 to 20 year group. Now, if all the present-day children of school age were to come under the influence of the school so that at the next census no person under 21 would be illiterate in 1931, the percentage illiterate would still be over 3 per cent, and the final elimination of illiteracy would not take place until the displacement of all the present groups by new age groups.[1] To estimate progress properly, therefore, it is necessary to know the progress made at each group from decade to decade. In 1891 the illiteracy of the 10 to 19 year group was 9·7 per cent; in 1921 it was about 2·4 per cent. Although it was not to be expected that the illiteracy of the age groups in 1891 would correspond to that of groups 30 years older in 1921 (owing to the changes in the composition of the population through immigration and emigration) there is some correspondence. Thus the illiteracy of the 30 to 39 year group in 1891 was 13·4 per cent; that of the 65 and over group thirty years later (1921) was 13·2 per cent. The illiteracy of the Canadian born males over 21 years of age in 1911 was 9.6; that of the Canadian born males 35 years and over in 1921 was 10·9. This is a close correspondence, considering that there is a handicap of 5 years against the group in 1921.

Since the data of former censuses are so incomplete, it would seem best to attempt to measure progress by the differences shown in the age groups of one census namely, 1921.

The following figures summarize the data on this point.

TABLE 52.—ILLITERACY OF AGE GROUPS IN CANADA BY NATIVITY AND SEX IN 1921

Age group	Males			Females		
	Canadian born	British born	Foreign born	Canadian born	British born	Foreign born
10–14	2·30	0·27	2·20	1·92	0·25	2·15
15–20	3·43	0·34	4·98	2·25	0·26	5·05
21 and over	7·08	0·87	12·66	4·73	0·80	15·79
21–34	3·91	0·42	9·80	2·41	0·35	12·32
35–64	7·53	0·81	14·14	4·87	0·65	18·19
65 and over	16·37	3·11	21·34	12·47	3·66	24·55
Age not stated	23·56	7·82	20·31	26·44	5·78	18·90
All ages	5·71	0·79	11·28	3·87	0·72	13·30

By provinces the summary for the Canadian born alone is as follows:—

—	10–14	15–20	21–34	35–64	65 and over	Not stated	All ages
Canada	2·11	2·84	3·15	6·24	14·44	24·92	4·80
Prince Edward Island	1·26	1·34	1·72	3·41	8·43	4·55	3·01
Nova Scotia	2·10	2·43	3·13	6·10	14·68	10·31	5·03
New Brunswick	4·82	5·56	5·94	9·89	15·10	4·25	7·79
Quebec	1·72	2·61	3·60	9·66	23·83	8·74	6·35
Ontario	1·10	1·52	1·88	3·14	6·51	3·16	2·52
Manitoba	2·62	3·62	3·20	5·10	12·38	13·10	4·01
Saskatchewan	2·52	4·60	3·06	4·32	13·53	12·27	3·84
Alberta	3·58	5·66	4·31	6·12	14·58	5·19	5·22
British Columbia	4·31	4·89	5·14	9·24	20·53	11·42	7·04
Yukon	41·23	39·29	45·14	21·86	32·50	97·79	45·73
Northwest Territories	87·09	85·81	84·67	83·86	94·57	98·40	92·06

[1] This statement should, of course, be modified on the score of the possibility of effective educational work among illiterate adults. Whatever may be done in the future in this field, it is doubtful whether hitherto the number of illiterate adults who gain the status of literacy is not more than counterbalanced by the number of "literate" children and juveniles who lose it.

By nativity and rural and urban residence the summary for illiteracy by age groups in the nine provinces is as follows:—

Age group	All classes		Canadian born		British born		Foreign born	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
10–20	3·58	0·96	3·66	0·88	0·39	0·24	4·65	2·97
21–64	7·48	3·44	7·11	2·60	0·66	0·57	14·41	12·40
65 and over	17·22	8·51	18·15	9·65	3·92	3·05	27·82	15·34
All ages	6·97	3·11	6·76	2·51	0·88	0·69	13·15	10·92

The greatest progress of all is shown in the case of urban communities between the 10 to 20 year group and the other groups. As already suggested it is not necessary to attach very much importance to the fact that these are in urban communities, since racial distribution plays a great part in the difference. The absolute difference between the age groups (except in the case of the 65 and over group) cannot be said to be great in the case of the British born, although many of the 10 to 20 year group must have had their education in Canada and of the others elsewhere in the Empire.

It is probable that the influence of Canadian schools can best be shown by taking first the Canadian born 10 years and over according to the nativity of their parents and next the difference in illiteracy between Canadian born, British born and foreign born of the same races.

Canadian born, ten years and over, 1921:—

CANADIAN BORN, TEN YEARS AND OVER, 1921

All classes	4·80
Both parents Canadian	5·77
Both parents British	1·25
Both parents foreign	3·79
One parent Canadian, other British	1·08
One parent Canadian or British, other foreign	2·07
Parentage not stated	13·02

ILLITERACY OF TWO AGE GROUPS BY NATIVITY AND RACIAL ORIGIN, 1921

Race	10–20		21 and over	
	Canadian and British born	Foreign born	Canadian and British born	Foreign born
All classes	1·69	3·92	4·06	13·90
English	0·63	0·45	1·16	0·54
Irish	0·61	0·44	1·68	1·64
Scotch	0·52	0·25	1·31	0·46
Welsh, etc.	0·49	0·13	0·81	0·38
French	2·97	2·53	10·80	4·74
Austrian	6·42	14·60	10·29	38·07
Belgian	0·93	4·21	2·78	7·20
Bulgarian	17·24	11·97	14·29	24·56
Chinese	3·13	20·59	7·90	31·96
Czech	0·73	2·38	1·61	14·11
Danish	0·45	1·19	1·28	1·85
Dutch	1·50	0·56	2·90	1·92
Finnish	2·12	3·87	2·93	14·25
German	1·12	1·65	2·78	5·64
Greek	1·66	6·35	4·27	12·03
Hebrew	0·34	2·76	1·33	11·76
Hungarian	1·38	5·64	5·02	17·85
Icelandic	0·37	1·41	0·64	3·32
Italian	1·65	9·09	5·25	26·11
Japanese	3·44	17·21	10·13	20·62
Lithuanian	3·37	–	–	26·30
Negro	6·75	0·68	10·69	4·75
Norwegian	0·81	0·70	2·72	1·57
Polish	4·27	7·58	18·12	27·34
Roumanian	5·87	9·85	12·14	29·77
Russian	8·50	6·13	6·65	28·02
Serbo-Crotian	1·48	5·51	3·90	25·62
Swedish	0·61	1·11	1·70	2·97
Swiss	0·45	0·64	0·62	1·66
Syrian	1·63	4·61	4·52	24·36
Ukranian	6·93	19·05	19·71	42·50
Unspecified	4·68	1·31	5·11	5·73
Various	1·84	5·17	29·23	15·21

No sound inference can be made from a comparison between the illiteracy of the Canadian born, British born and the foreign born of the 10 - 20 group, since both of these classes have come under the influence of Canadian schools, although not likely to the same extent. Neither can a proper contrast be drawn between the foreign born children and the foreign born adults, since some of the foreign born children may have come into Canada shortly before 1921 and may not have come under the influence of Canadian schools, while the time lost in immigration would have been detrimental to their educational status. It would seem that the best contrast can be drawn between Canadian born children and foreign born adults of the same race, since these two groups are the most widely divergent in educational experience, although unfortunately the influence of age will prevent this comparison from being purely one of the influence of Canadian schools as contrasted with educational opportunities elsewhere. However, the comparison between these two groups will show the influence of Canadian residence plus that of improvement in Canadian educational advantages, as indicated by age - difference. The comparison between the Empire born children and the Empire born adults of the same race should show the improvement in Canadian educational advantages during the last ten years without the influence of changing nativity. A comparison between the Empire born and the foreign born adults is vitiated by the fact that the foreign born adults might be expected to be on the whole older or to contain older groups than the empire born, inasmuch as some at least of the surviving parents of the Canadian born adults would be among the foreign born adults.

If the English, Irish, Scotch, Welsh and French are deducted the following figures result:—

—	Population 10-20	Illiterate		Population 21 and over	Illiterate	
		Number	Per cent.		Number	Per cent
Empire born..	190,631	5,578	2·93	198,728	7,805	3·93
Foreign born..	94,065	5,402	5·74	497,624	93,613	18·61

The Empire born, 10 to 20, of the other races had 1·53 per cent and the foreign born of the same races (that is, practically all born in United States or France) had ·91 per cent illiterate. The Empire born 21 years and over had 4·10 per cent, and the foreign born had 1·58 per cent illiterate. The Empire born of these races at the ages of 21 years and over would likely be older than the Empire born of the races in the table, as the latter cannot have many belonging to the older generation, inasmuch as immigration on a large scale has not gone on for very long and the Empire born 21 years and over in the table are practically all the descendants of these immigrants. It is impossible, therefore, to draw any conclusions except that the Empire born of the English, Scotch, etc., at the ages of 10 to 20 have 1·53 per cent illiterate, while the Empire born of the immigrant races have 2·93 per cent and the foreign born adults of the same races have 18·61 per cent. Some of the improvement shown by the 2·93 and the 18·61 per cent would be the natural result of the former being in a younger age group. Some of it may possibly have been the result of the handicap of language in reporting illiteracy, but after making all allowances for these possibilities the improvement shown by the difference between the Empire born children and the foreign born adults is striking.

It should be noticed that the illiteracy of the 10 - 20 year group of the native born of these races (2·93) and even of the native born adult group (3·93), is considerably below that of Canada as a whole. In the case of Canadian born of all races, the illiteracy of the 10 to 20 - year group was about 3 per cent and that of the 21 year and over group was 7·08 per cent. After all allowances have been made the great part of the difference between 2·93 per cent in the case of the Empire born 10 to 20 years of all races except English, Irish, Scotch, Welsh and French and 18· 1 in the case of the foreign born over 21 years of age of the same races is to be attributed to the schools of Canada.

PROGRESS AS SHOWN BY THE REMOVAL OF HIGH PERCENTAGES OF ILLITERACY TO FEWER LOCALITIES FROM DECADE TO DECADE[1]

It has already been seen that direct comparison of the census years 1901, 1911 and 1921 cannot be made, owing to the fact that illiteracy in 1901 and 1911 is shown for the ages of 5 years and over, in which ages is included a practically constant quantity, namely the illiteracy of the 5 to 9 year group. The 1901 and 1911 censuses also included the illiteracy of Indians, another practically constant quantity. Although progress from decade to decade cannot be satisfactorily measured, it is possible to measure the trend of progress and the total progress by investigating the concentration of high percentages of illiteracy, using census divisions as units in the different decades. The increase in this concentration, in any case, is a much better evidence of progress than the lowering of the general percentage, considering the number of influences which enter into the latter over and above genuine progress, e.g., increase in the proportion of British born would cause a decrease in the percentage of illiteracy which would have nothing to do with the work of Canadian schools. The same might be said of a more favourable age, race, sex and rural and urban distribution. Of course decrease in illiteracy through any of these agencies is in a sense genuine progress, but it is not attributable to Canadian schools.

It is necessary to explain carefully what is meant by concentration in fewer localities. Already it has been argued that the percentage of illiteracy in a country inhabited by persons of different racial origins and even different nationalities in a country covering a vast area with many differences in climate, occupation, etc.—cannot be represented by a single index such as "5·1 per cent over 10 years unable to read or write." This may actually be the per cent over 10 years unable to read or write in Canada but it is nevertheless a mere average of all the conditions and as such it gives a true picture of the situation only when it is evenly distributed over the country. Everything that literacy stands for affects and is affected by, first and foremost the immediate environment of the literate person. If out of the six million over the age of ten years in Canada only 60,000 or 1 per cent were illiterate, but if these 60,000 were the sole inhabitants of a certain area which had 100 per cent illiterate while the rest of the country had no illiteracy whatever, the situation would be entirely different from what would obtain if the 60,000 were evenly distributed over the country, and one person in every hundred of the people met in Canada were illiterate. In one sense the concentration would represent more favourable conditions than an even distribution; in another sense it would not. With so small a percentage as one evenly distributed, conditions seem to be more favourable because with this small percentage the illiterate person would be considered abnormal, and every effort would be made to remedy his case. If, however, the percentage is as high as 5 or more it is no longer so small that the illiterate person can be considered abnormal. If one out of every twenty persons met anywhere were illiterate it is hardly likely that the illiterate person would consider himself unusual. He could easily find associates and on many occasions his influence would be brought to bear on matters affecting educational activities. It is possible that thus evenly distributed he would become either a constant or very slowly reducible quantity and as such would have a serious effect upon the country. If, on the other hand, the rest of the country were free from illiteracy and the illiterate persons were segregated into small areas where they formed a very large percentage of the population of these areas, the situation would be unfavourable for these areas, but not for the country as a whole. In any case a segregation of illiteracy would be effected and the illiterate person would not be considered as normal in the country as a whole.

The point of this chapter, however, is entirely apart from the favourable or unfavourable aspects of the situation. What is attempted to illustrate here is the course of progress. There is perhaps no greater truth than that everything starts from a dead level. The time was, of course, when no one could read or write. As a next step, one, or one here or there, discovered or created these arts. His influence would affect first his immediate environment; later it would spread, but weakening as it spread, until the areas remote from his environment would not be sensibly affected. Progress in removing illiteracy, then, cannot be regarded as a general levelling

[1] Ref. especially Census 1921, vol. II, p. 610.

down of percentages of illiteracy, but a series of waves, each one extending farther than the last, and each one sweeping more clean, first the spot from which it starts, then the immediate neighbourhood of that spot, and so on with decreasing strength. It is thus a process not of removing illiteracy from the whole community, but of removing one area after another from the toils of illiteracy. From this point of view progress should be measured not in terms of the lowering of the general level of illiteracy, but in terms of the expanse of country which has been either entirely freed from it or where the proportions illiterate are so reduced that there is no longer danger of illiteracy being considered normal.

This will explain what was meant above by concentration of high percentages of illiteracy. For the sake of clearness, it will be assumed that a state of dead level in Canada would be one in which every community had 5 per cent illiterate over the age of ten years, i.e., one out of every 20 in every locality would be unable to read or write. In early pioneer days in Canada this was probably the condition of the Canadian born, except that the percentage of illiterate was much higher than 5, which was the average for all Canada in 1921. If ten years later a census had been taken and this time it was found that only 4 per cent in every locality were illiterate, this would of course represent a decrease of one point or 20 per cent on the previous illiteracy, but there is perhaps no event in nature that would be more unlikely to take place. What would be disclosed at the second census would be that some localities would have reduced their illiteracy by 60 or 70 per cent, others by, say, 40, others by 20, and others perhaps by nothing at all. If there were in all 100 localities each with the same population, and 20 of them reduced their illiteracy until it was only 1 per cent while the remaining 80 reduced it only to 4·75 per cent, then the illiteracy of the one hundred localities would be 4 per cent and the whole country would have reduced its illiteracy by 1 point or 20 per cent as before. This, however, would mean quite a different thing, and it would be a little more like what would actually happen. What would actually happen would be that some localities would affect a large reduction, others somewhat less and so on until some would be found to have remained practically stationary.

In 1921 there were 219 counties or census divisions in Canada. Of these counties, one had 92·06 per cent of its Canadian born illiterate, the second worst had 63·34 per cent; the next had 60·78 and the next 54·73 per cent. These four counties had a Canadian born population over the age of 10 years of 14,424 with 10,572 of them illiterate. The total Canadian born population over 10 years in all Canada was 4,799,370 and the number of these illiterate was 230,208, so that the four counties had 0·3 per cent of the population, but 4·6 per cent of the illiterate Canadian born persons in all Canada. The four counties were unorganized parts and their populations were nearly all aboriginal, the number of Indians being 12,485 of all ages. The next worst 17 counties had a range of from 38·89 to 13·25 per cent illiterate. These had a Canadian born population of 267,891 with 51,703 of them illiterate. The worst 21 counties or less than one-tenth of all the counties had, then, 282,315 Canadian born population with 62,275 illiterates; i.e., they had 5·9 per cent of the population but 27·1 per cent of all the Canadian born illiterates in Canada. These all had a very large aboriginal population. The rest of Canada, then, had 94·1 per cent of the Canadian born population but only 72·9 per cent of the illiterates. The percentage illiterate, then, among 94 per cent of the population was 3·7. If all the divisions are taken in ten groups of 22 counties each, the Canadian born population and illiterates were as follows:—

TABLE 53.—DISTRIBUTION OF THE ILLITERATE CANADIAN BORN AMONG THE REMAINING CANADIAN BORN POPULATION

	Canadian born population 10 years or over	Unable to read or write		Range of per cent illiterate
		Number	Per cent	
1st highest 22 divisions	290,759	62,432	21·5	92·06 to 13·25 per cent
2nd " 22 "	296,650	31,543	10·6	12·25 " 10·05 "
3rd " 22 "	365,902	29,358	8·0	9·97 " 6·87 "
4th " 22 "	371,563	23,469	6·3	6·86 " .5·90 "
5th " 22 "	303,410	17,587	5·8	5·88 " 5·00 "
6th " 22 "	472,966	19,449	4·1	4·99 " 3·44 "
7th " 22 "	967,910	28,048	2·9	3·39 " 2·36 "
8th " 22 "	448,606	8,206	1·8	2·28 " 1·55 "
9th " 22 "	493,818	5,608	1·1	1·48 " 0·92 "
10th " 21 "	766,948	4,448	0·6	0·92 " 0·25 "

There were in all 26 divisions with less than 1 per cent illiterate. These had a population of 886,881 over 10 years of age or over 18 per cent of the total population. There were 35 with more than 1 per cent and less than 2 per cent. These had a population of 632,066 or nearly 14 per cent of the total population.

Now if the Canadian born population in the 219 divisions were arranged side by side in groups of 47,994 (that is one per cent each of the total population) the group from the divisions having the highest illiteracy on the left, the next highest next and so on, then the 230,208 illiterate Canadian persons would be distributed among them approximately as follows:—

The first	1	per cent of the population have			9·0	per cent of the illiterates.
"	5	"	"	"	24·2	" "
"	10	"	"	"	37·0	" "
"	15	"	"	"	46·6	" "
"	17	"	"	"	50·0	" "
"	20	"	"	"	54·3	" "
"	25	"	"	"	61·9	" "
"	30	"	"	"	67·9	" "

The first one-third
    or 34 per cent of the population have 72·2 per cent of the illiterates.

The first	35	per cent of the population have			73·2	per cent of the illiterates.
"	40	"	"	"	77·6	" "
"	45	"	"	"	81·4	" "
"	50	"	"	"	84·8	" "
"	55	"	"	"	87·6	" "
"	60	"	"	"	90·2	" "
"	65	"	"	"	92·5	" "

The first two-thirds
    or 67 per cent of the population have 93·3 per cent of the illiterates.

The first	70	per cent of the population have			94·5	per cent of the illiterates.
"	75	"	"	"	96·1	" "
"	80	"	"	"	97·4	" "
"	85	"	"	"	98·4	" "
"	90	"	"	"	99·1	" "
"	95	"	"	"	99·6	" "
"	100	"	"	"	100·0	" "

There is a curious symmetry noticeable in the above figures and chart. The first five per cent of the population with the highest rate of illiteracy, have 24·2 per cent of the illiterates; the 24 groups at the other extreme have about 4 per cent of the illiterates; half the illiterates are confined to 17 per cent of the population; half the population at the other extreme have about 15 per cent of the illiterates. The points of particular interest are that half the illiterates are confined to 17 per cent of the population; two-thirds are confined to about 29 per cent of the population; 18 groups of the population have each less than 1 per cent illiteracy while the half of the population with the lower rate of illiteracy have only 15·2 per cent of the illiterates; that is, only 1·45 per cent of their number illiterate; two-thirds of the population have only 27·8 per cent of the illiterates while the other one third have 72·2 per cent, the illiteracy of these two-thirds and one third respectively being 2·0 and 10·8 per cent. No group out of the best 66 groups contains as high a percentage of illiteracy as the average of the Canadian born population of Canada, namely 4·8 per cent; that is, the groups with high percentages of illiteracy (above the average) are confined to the first one third of the population, while the other two-thirds average only 2·2 per cent illiteracy, and have no group above the average for Canada, while they have 18 groups with less than 1 per cent illiterate, the average illiteracy of these 18 groups being about 0·7 per cent.

This should illustrate the process by which illiteracy in Canada is being eliminated. Already it has practically disappeared from among about one fifth of the population, considered from the point of view of locality of residence, and two-thirds of it is confined to one-third of the population which has a high rate of illiteracy. In another decade it is to be expected that a much larger area will be practically freed from illiteracy, while high percentages of illiteracy will be confined to fewer areas; while in still another decade the high percentages will be confined to still fewer areas and so on.

Taking the Canadian, British and foreign born populations in groups as above, the following table will show the various degrees of concentration of illiteracy.

CHART I

DISTRIBUTION OF THE 230,208 CANADIAN BORN ILLITERATES (10 YEARS AND OVER 1921)
AMONG THE POPULATION (10 YEARS AND OVER) BY CENSUS DIVISIONS.

[FROM LEFT TO RIGHT, THE FIRST P.C. OF THE POPULATION IS IN THE CENSUS DIVISION WITH THE HIGHEST RATE OF ILLITERACY, THE SECOND P.C. IS IN THAT OR THE NEXT HIGHEST AND SO ON TO THAT CONTAINING THE LOWEST ON THE EXTREME RIGHT].
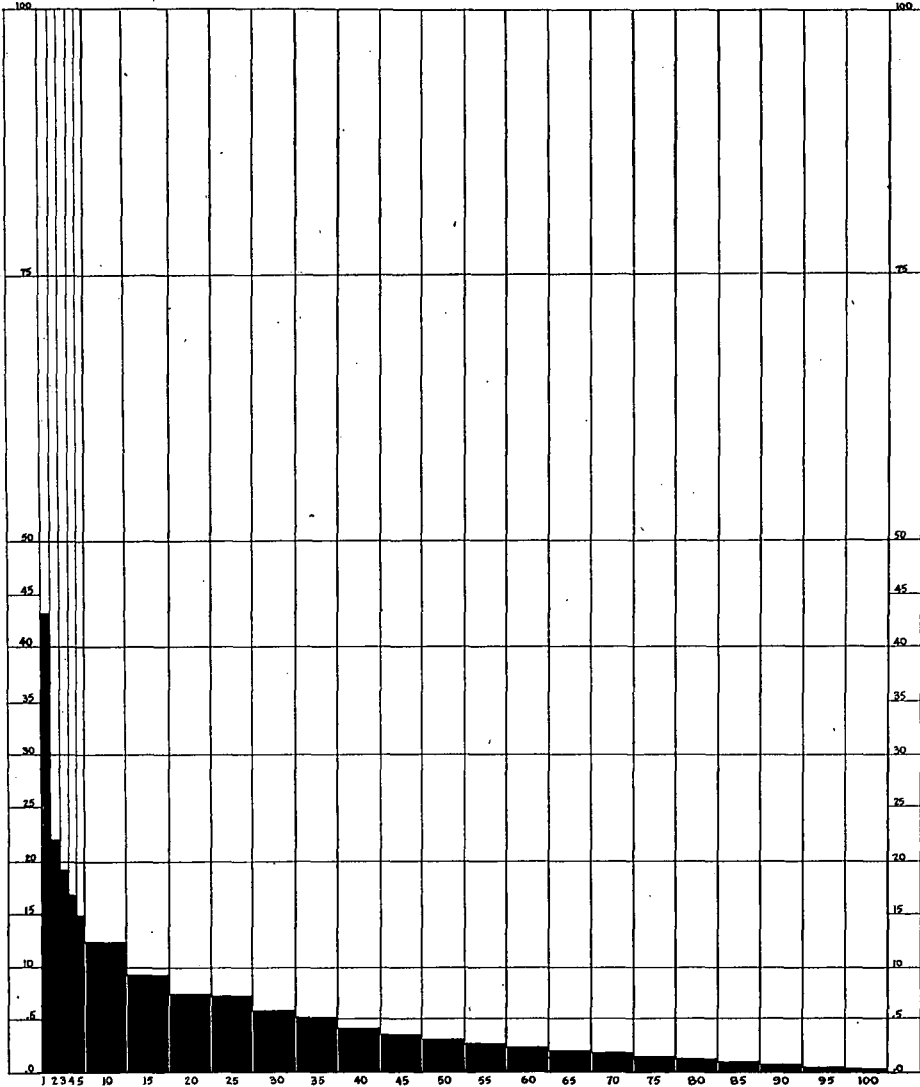
TABLE 54.—DISTRIBUTION OF THE ILLITERATES OF THE CANADIAN, BRITISH AND FOREIGN BORN AMONG THE REMAINING POPULATION OF EACH CLASS

	Proportion of the total number of the illiterates of each class, 1921		
	Canadian born	British born	Foreign born
In the first 5 per cent of population of each class	24·2	27·1	14·4
" 10 " " "	37·0	39·4	25·5
" 15 " " "	46·6	46·8	34·2
" 20 " " "	54·3	52·8	41·7
" 25 " " "	61·9	58·6	48·4
" 30 " " "	67·9	63·6	54·2
" 35 " " "	73·2	67·8	59·5
" 40 " " "	77·6	71·3	64·7
" 45 " " "	81·4	74·6	69·8
" 50 " " "	84·8	77·8	74·3
" 55 " " "	87·6	81·0	78·3
" 60 " " "	90·2	84·1	82·2
" 65 " " "	93·3	87·2	85·9
" 70 " " "	94·5	90·1	89·1
" 75 " " "	96·1	92·6	91·5
" 80 " " "	97·4	94·5	93·7
" 85 " " "	98·4	96·3	95·8
" 90 " " "	99·1	97·9	97·6
" 95 " " "	99·6	99·2	99·1
" 100 " " "	100·0	100·0	100·0

It is noticeable that in the case of the British born the greatest concentration occurs in the first 15 per cent of the population. The illiteracy of these ranged from 8·45 per cent in the worst to 1·0 per cent in the 15th after which point the per cent illiterate is so low as to be almost negligible. The per cent illiterate in the first 15 groups was 2·37; that of the remaining 85 was 0·47. There were in all 1,032,453 British born (that is, born in any part of the empire except Canada) of whom 7,808 were illiterate. Of these, 154,468 or 15 per cent in certain mining or other areas had 3,654 illiterate, that is 2·37 per cent of their number. The remaining 877,585 had 4,154, or 0·47 per cent of their number illiterate. These tended to urban residence.

The case of the foreign born is quite different from that of the other two classes. There is no great concentration here until after the 45th group where increase in the United States element brings about a rapid falling away of illiteracy. A study of this table will show how immigration is affecting the work of the schools. The Canadian born are progressing rapidly in clearing away illiteracy from centre after centre; the inflow of foreign born interferes with this trend of progress by increasing the illiteracy of centres which have otherwise been cleared. The lack of differentiation in the case of foreign born shows that on the whole the illiterate element of them does not tend to immigrate to any special areas. The areas containing the 100th group or the group with the lowest illiteracy had 1·15 per cent illiterate, as compared with 0·09 per cent in the case of the Canadian born and also 0·09 in the case of the British born; the 50th group had 8·6 per cent illiterate as compared with 3·0 in the case of the Canadian born and 0·49 in the case of the British born; the 25th group had 12·46 as compared with 6·1 in the case of the Canadian, and 0·86 in the case of the British born; the worst group had 32·50 as compared with 43·6 in the case of the Canadian and 8·45 in the case of the British born.

The concentration of the illiterates of 10 years and over in 1921 and that of illiterates 5 years and over in 1911 and 1901 are not strictly comparable, but they are more so than the percentage illiterate at these different ages. The following table is drawn on the same plan as the one just discussed.

24050—6

TABLE 55.—DISTRIBUTION OF THE ILLITERATES IN CANADA AMONG THE REMAINING POPULA-
TION IN 1901 AND 1911

—	Proportion of the total number of the illiterates of each class	
	1911	1901
In the first 5 per cent of population of each year...	14·8	₁4·₇
" 10 " " "	24·3	24·0
" 15 " " "	32·1	32·6
" 20 " " "	39·2	40·0
" 25 " " "	45·7	46·9
" 30 " " "	51·7	53·4
" 35 " " "	57·4	59·4
" 40 " " "	62·8	64·8
" 45 " " "	67·6	69·5
" 50 " " "	72·1	73·7
" 55 " " "	76·4	77·7
" 60 " " "	80·2	81·3
" 65 " " "	83·7	84·4
" 70 " " "	86·9	87·3
" 75 " " "	89·8	89·9
" 80 " " "	92·4	92·2
" 85 " " "	94·7	94·4
" 90 " " "	96·8	96·5
" 95 " " "	98·6	98·2
" 100 " " "	100·0	100·0

The concentration among all classes was not so great in 1911 as in 1901. This illustrates further how the tide of immigration between 1901 and 1911 affected the literacy status of the Dominion. The progress as shown by the lowering of the general percentage consisted of a decrease from 14·38 per cent in 1901 to 10·50 in 1911, but illiteracy was more widespread in 1911. Evidently a very decided progress was made by the Canadian born, but this was neutralized by the illiteracy of the incoming foreign born.

PART IV.—AGENCIES IN THE ELIMINATION OF ILLITERACY

CHAPTER 11

THE SCHOOL—PROGRESS IN SCHOOL ATTENDANCE SINCE 1901[1]

In previous chapters we have examined the factors involved in the decline in the percentage of illiteracy in Canada and in the progress that has been made in the elimination of illiteracy as shown by the census. It has been shown that changes in the distribution of various elements in the population may be potent factors in determining relative illiteracy and in changing the percentage of illiteracy. Thus, if urban conditions are inimical and rural conditions conducive to illiteracy, it is clear that an increase in the proportion of urban population will bring about decrease in the percentage of illiteracy of the whole country and conversely. Similarly if illiteracy is less prevalent among females than among males, an increase in the proportion of the population formed by females through immigration or otherwise will cause a decrease in the percentage of illiteracy. Again, illiteracy is less prevalent among British born than among native born and less prevalent among native born than among foreign born; consequently a relative increase in the British and native born and a decrease in the foreign born will bring about a decrease in the percentage illiterate. Again, since the racial element independently of nativity, is so strong an influence in illiteracy, it is clear that changes in the distribution of races will bring about a decrease or increase in the percentage illiterate in the whole country. The case is similar with age distribution, a younger population meaning a lower percentage of illiteracy. The changes in the distribution of these five elements—geographical, sex, rural and urban, nativity and racial have been investigated in previous chapters in connection with other aspects of progress, and while the contributions of some of these elements have been found to have had a very strong influence in determining particular phases of illiteracy the changes which have taken place in this distribution, especially within the two decades previous to 1921, have been on the whole not so favourable or so large as to have brought about very much of what has been accomplished within the period. In the first place it was seen that sex distribution is not an important element in itself being practically all due to the nature of the distribution of the other four. Again, a great part of the differentiation in illiteracy between rural and urban centres seems to be due to the nature of distribution by age and by nativity and race, that of age favouring rural communities slightly while those of nativity and race favour urban communities strongly. The real results of changes in rural and urban distribution cannot therefore be separated fron their concomitants. The constant and fairly independent elements seem to be race and age, and to a certain extent, nativity. If progress since 1891 be considered, it would seem that changes in the distribution of these three elements have on the whole been unfavourable, especially of race and nativity, so that instead of helping they have hindered progress. In the one sense, progress between 1901 and 1911 was retrogressive: while the percentage illiterate in the country as a whole seems to have decreased, illiteracy became more wide spread, i.e., communities which in 1901 had low percentages of illiteracy had high (above average) percentages in 1911, while more communities had percentages above the average in 1911 than in 1901 although the average itself was lower. This would seem to be an important aspect of the situation and one that should always be taken into consideration when estimating progress. The change was due to an unfavourable change in the distribution by race and nativity. Although it is impossible to state so with certainty (owing to the fact that a different age was used in 1921 from that in 1901 and 1911) it would seem from the concentration of high percentages of illiteracy in a small number of areas in 1921 that considerable progress in this respect was made between 1911 and 1921. Further there was a very material reduction in the general percentage of illiteracy as shown by the decrease of illiteracy of persons of 21 years and over and as also shown by the lower rate of illiteracy among the younger age-groups as compared with the older; also as shown by the low percentage of illiteracy among the native born of certain races as compared with the foreign born of the same races. The last mentioned was true even

[1] Ref. Census, vols. 1901, 1911 and 1921.

of persons between the ages of 10 and 20, so that the improvement must have been effected in the decade. The changes in distribution by race and nativity between 1911 and 1921 were on the whole favourable, but so slightly that they could have influenced the decrease in illiteracy by only a fraction of one per cent. The change in the distribution by age was favourable in one sense and unfavourable in another. The younger population—10 to 20—showed a relative increase; this, however, was counterbalanced by an increase in the 65 years and over group. The age group 21 to 35 showed a relative decrease, due no doubt to the number killed and the decrease in immigration as a result of the war. This group shows a comparatively low rate of illiteracy and an increase in this group has the advantage of contributing directly to a decrease in illiteracy. As the groups younger than this increase they increase the school problem, and it will be shown that the larger the proportion these bear to the total population the larger the percentage of persons not attending school. On the other hand the direct inflow of immigrants of the less illiterate class at the ages of 21 to 35 contribute both to the direct relative decrease of percentages illiterate by virtue of their own literacy and also reduce the problem of the schools by helping to support them.

On the whole, therefore, the progress made since 1911, and especially the very marked progress since 1891, may be said to have been brought about solely by the schools of Canada, and that in spite of increasing difficulties, the advantages of improved settlement being more than counterbalanced by the disadvantages of the immigration of illiterate persons. The active instruments of progress in educational status may, therefore, in the case of Canada, be reduced to one—the school, and the remainder of this monograph is devoted to that single topic.

The first subject to claim attention in this connection is the progress in school attendance since 1901. The school attendance which has a special and direct bearing upon the reduction of illiteracy is that of children between 7 and 14 years of age, i.e., at the common school, or during the elementary (that is pre-high school) age. Attendance at subsequent ages may also have a strong bearing upon illiteracy, but it is indirect. In some cases, of course, it is direct, as when a person over 15 begins school to learn to read, but usually persons over this age attending school are in the higher common school grades, in high schools or in higher institutions. There is little doubt that as the proportion of these increases, the attitude towards illiteracy becomes more hostile. This is perhaps especially true in the case of an increase in the proportions having received secondary or higher education among mothers and also other females engaged in social work. It is, therefore, important to emphasize the progress made in school attendance both at the ages of 7 to 14 and at later ages, although this should be done separately.

In comparing the details of school attendance of 1921, with that of previous years a slight discrepancy is involved in the fact that Indians are excluded in 1921 and included in the previous censuses. On a strictly comparable basis the percentage of persons 10 to 14 attending school in the nine provinces in 1921 was 88·59 while in 1911 it was 79·78; excluding Indians, the percentage between 7 and 14 attending school in 1921 was 89·10. The discrepancy caused by the exclusion of Indians, therefore, makes a difference of only one-half of one per cent.

By single years of age, the school attendance in 1911 and 1921 was as follows:—

TABLE 56.—SCHOOL ATTENDANCE BY SINGLE YEARS OF AGE 1911 AND 1921

Age	Per cent at school		Per cent not attending any period		Per cent of those at school attending 7–9 months	
	1911	1921	1911	1921	1911	1921
5 years	14·0	14·2	–	–	57·4	54·5
6 "	44·5	52·3	–	–	67·0	69·0
7 years	72·7	82·6	27·8	17·4	80·0	84·2
8 "	82·1	91·3	17·9	8·7	86·2	89·6
9 "	85·8	93·7	14·2	6·3	88·7	91·3
10 "	86·1	94·7	13·9	5·3	89·6	91·8
11 "	86·9	94·7	13·1	5·3	90·0	92·0
12 "	83·8	93·3	16·2	6·7	89·3	91·5
13 "	77·8	88·5	22·2	11·5	87·6	91·0
14 "	63·3	73·7	36·7	26·3	85·0	90·0
15–17 years	27·1	34·7	–	–	–	–
17–19 "	17·2	24·9	–	–	–	–
20–24 "	1·5	2·3	–	–	–	–

The two aspects of the situation, the percentage attending and the percentage not attending school, are shown above principally for the reason that the second of these aspects is directly, connected with illiteracy. Non-attendance at 5 and 6 is considered unimportant; non-attendance after 14 is considered normal or meaningless and therefore omitted.

It is seen that full attendance is evidently completed at the age of 11 years. There is collateral evidence that children begin school up to the age of 11 and that the proportion beginning after this age is negligible, so that in the above table there is very little error involved in assuming that the percentage not at school at 11 years, though perhaps larger than the percentage never at school, yet generally varies from year to year with the percentage never at school. Calculations made on this assumption, therefore, can not be far wrong if it be premised that these calculations are not intended to be exact but are made merely for the purpose of showing the general trend.

The age of 11 years shows the relative positions of 1911 and 1921 better than any other age It is seen that 13·1 per cent in 1911 and 5·3 per cent in 1921 were not attending school. On the assumption that these figures while not showing the proportions never attending school, are functionally related to these proportions, it would seem that the percentage illiterate as a result of the school non-attendance of 1911 was 2½ times as great as that resulting from the school non-attendance in 1921.

The percent attending 7 to 9 months might be considered as representing those deriving the benefit of approximately a full year's attendance. From the table, then, a rough estimate may be made of the number of full years attended by children leaving school at 14 years of age. Assuming that those attending school less than 7 months at each age would not be the same individuals, if those at the age of 7 were supposed to be at school, say in 1914, those at 8 in 1915 and so on ; also that the regularity in attendance was roughly the same in each of the eight years — i. e., assuming that the pupils falling short of the year's attendance are distributed throughout and are not the same pupils from year to year — then of the 142 pupils (per thousand) attending school at the age of 5 in 1921 only 77 would have attended a full year by the age of 6; only 53 would have attended two full years by the age of 7; 45 three full years by 8; 40 four full years by 9; 37 five full years by 10; 33 six full years by 11; 30 seven full years by 12; about two of these would drop out before 13 and of the remaining 28 only 26 would have attended eight full years by 13; about 4 of the 26 would drop out before 14 and of the 22 remaining only 20 would have attended 9 full years by the age of 14. If a similar calculation is made for 1911 it will be found that only 10 would have thus attended 9 full years by the age of 14, while about 5 others in 1911 and 6 others in 1921 would have attended 8 full years by the age of 13. On making similar calculations for those beginning at the other ages it will be found that about half as many again would have attended long enough to complete the common school course in 1921 as in 1911, while there would be a similar though diminishing difference in the case of those in each grade below the last grade of the common school course. A fact that should be noticed is that the improvement in the attendance of one period over another would have a tendency to increase the difference in the proportions in the more advanced grades to a greater extent than the difference in the proportions in the lower grades as will presently be shown. It is seen in the last table that there is a progression of waste in school attendance from year to year, the waste becoming less as the age of 11 is approached. If there is no fallacy involved in the assumption that this waste is general and not confined to the same individuals from year to year, this tendency has a most significant aspect in its bearing upon what may be termed near - illiteracy. The coherence of the results obtained from deductions on this assumption with the data obtained from teachers' returns on the standing of pupils at school at each age would imply that the fallacy can not be so great as to affect seriously the reliability of the deductions. Out of every thousand beginning school in 1911 and 1921 at, say the age of 5 years, about the same number fail to attend an adequate year by the age of 6 so that there is no divergence between the two censuses in the first year of school. The remainder lose another set of retarded by the age of 7 but more in 1911 than in 1921 and thus show a divergence meaning an improvement in the case of 1921. This progresses until the age of 14, so that the divergence is greater at this than at any previous age. The remainder left over after the successive sets of retarded have been left behind or dropped out of school are the most advanced and are in the higher school grades. This results in a very rapid increase from Census to Census in those in secondary grades at 14, a less rapid increase in the next lower grade, and so on, until those in the lowest grades show the least improvement. There is a tendency to constancy,

then, in the case of those in lower grades at the school - leaving ages. Further, there is strong evidence that there is a tendency for those leaving school before 14 to be recruited from the lower grades in greater proportions than from the upper grades. Consequently a calculation made on the basis of attendance is apt to under - estimate the proportions reaching the higher grades and over - estimate the proportions passing beyond the lower grade. Further, there is a persistency shown from year to year in postponing attendance at school till the age of 8 and later. The persons beginning at these ages may make up a certain amount of lost time by virtue of their superior mental and physical maturity especially over the school worn children who have begun at 5 and have not made normal progress, but it should be clear that this again will only be true of the brighter element among these children, while the average or under average, who can do no more than one year's work in one year, have not time to finish their common school course by the age of 14. This is another feature contributing to the increase in the case of the more advanced grades and constancy in the case of the lower grades. The sum total of the results has a discouraging aspect. While illiteracy in the sense of no schooling whatever is halving from decade to decade, and while the proportion in the upper common school and the high school grades have been about doubling from decade to decade, there is left a residuum of persons leaving school at grades which mean no more than the border line between illiteracy and literacy. This residuum has a tendency to remain constant, partly owing to postponing school attendance until age of 8 years or later but chiefly owing to the waste occasioned by irregular attendance while at school. The most dangerous feature of the situation is that this waste may be so small each year as to be imperceptible while its cumulative results in eight or more years are great. For example, suppose that 7 months of attendance constituted a period sufficient for one promotion; if 90 per cent attended this period in a certain year it would appear like a very satisfactory attendance. Suppose this attendance was repeated from year to year for eight years, then for every 1,000 beginning school only 438 would have attended long enough for 8 promotions in the eight years if none had dropped out of school while if by a little more effort 95 per cent had attended each year, 648 would have attended this full time. Even if 99 per cent attended each year, only 914 would have time enough to complete the work in eight years. As perfection may well be conceded as unattainable, it is clear that even the inevitable quantity of accumulated waste is quite large, but the accumulation effected by each percentage of waste over and above that inevitable quantity has an accelerating tendency which is apt to escape attention when it is not closely watched.

The remaining chapters of this section will deal with certain elements which enter into school non - attendance. The aspect of progress between censuses will be illustrated by one more table showing the improvement by provinces since 1911. Since the age of maximum enrolment, 11 years, shows attendance at its best and consequently non - attendance at its minimum, it will perhaps be sufficient both for the sake of brevity and clearness to show improvement only at that age. Also since non - attendance is the feature directly connected with illiteracy it would seem more correct to calculate the improvement on the basis of the reduction of non - attendance rather than on that of the increase in attendance. If, for example, attendance in 1911 had been 90 per cent while in 1921 it had been 95 per cent the improvement would be shown as 5 per cent over 90 per cent. From the point of view of non - attendance, however, it would be a decrease from 10 per cent in 1911 to 5 per cent in 1921, which is greatly different.

TABLE 57.—PER CENT OF THE POPULATION AT THE AGE OF 11, OR AGE OF MAXIMUM ATTENDANCE NOT ATTENDING SCHOOL, BY PROVINCES, 1911 AND 1921

Province	Per cent not attending school for any period	
	1911[1]	1921[2]
Nine provinces	13·1	5·3
Prince Edward Island	7·7	5·9
Nova Scotia	10·6	6·6
New Brunswick	12·5	10·4
Quebec	9·8	5·0
Ontario	9·9	3·9
Manitoba	20·8	4·4
Saskatchewan	25·0	5·5
Alberta	30·9	5·9
British Columbia	20·5	4·3

[1] Including Indians.
[2] Excluding Indians. The discrepancy caused in this way is insignificant in the case of Canada as a whole, but is serious in the cases of Ontario and the four western provinces.

A COMPARISON OF CENSUS DATA WITH TEACHERS' REPORTS

An exact consilience between the census data of school attendance and the data for 1921 compiled from the returns of teachers in the different provinces is impossible for many reasons. One reason lies in the fact that about 11 per cent of those reported by the census as being "at school" were registered at other than publicly controlled schools, viz., private elementary and secondary schools, private business colleges, normal schools, special schools, technical schools, colleges and universities. Again, in the case of the year 1921 the census data were for nine months only and did not include pupils registered after June 1, 1921, whereas the teachers' reports included not only pupils registered after June 1 but also pupils in summer schools before September, 1920. A more serious source of difference is duplicate registration. A pupil may be registered in one school during the first part of the year, but on moving to another part of the province is registered in another school. Thus the same pupil may be counted twice or oftener. It is all but impossible to eliminate this source of error in education statistics, except perhaps in cases where the pupil is required to carry a school record card.

It may not be practicable to estimate the discrepancy between census data and teachers' reports arising from each source mentioned — it is impossible in the case of certain provinces where the ages at school were not given in 1921. In the cases of provinces giving ages at school in that year, however, it will be possible to give reasonable explanations of the differences. The data for a typical province are assembled in the accompanying table (Table 58).

TABLE 58.—COMPARISON OF TEACHERS REPORTS AND CENSUS FIGURES OF THE NUMBER ATTENDING SCHOOL IN PROVINCE A, 1921

Age	Census	School Reports	School Reports Minus Census
5 years and under	1,742	1,372	− 370
6 years	5,862	6,556	694
7 "	9,327	10,016	689
8 "	10,489	11,217	728
9 "	10,382	11,723	1,341
10 "	10,914	11,381	·467
11 "	10,184	11,515	1,331
12 "	10,755	10,753	− 2
13 "	9,881	10,625	744
14 "	8,982	9,329	347
15 "	6,158	7,009	851
16 "	4,159	4,442	283
17 "	2,262		
18 "	1,276 5,230	3,452	−1,778
19 "	661		
20–21 years	1,031		
Total	104,065	109,391 7,475	−2,150

First, it is noticeable that the difference between the two sets of data is greater than it seems from the total figures; a total difference of 109,391 − 104,065 = 5,325 instead of 7,475 +2,150 = 9,625, for the reason that in the total the plus and minus differences partially cancel each other. In the second place it is noticeable that the ages at which the school reports exceed the census are the ordinary elementary and secondary school ages 6 to 16. The exception at the age of 12 may be attributed to discrepancy in age distribution. It is believed that further discrepancies in age distribution are accounted for by the irregularities which seems to be characteristic of census age distribution in all countries, e.g., 728 at 8; 1,341 at 9; 467 at 10, etc. These would cancel one another in the long run, except at the extreme ages 6 and 16. If some children given at the age of 6 were really 5 it would reduce the 694. However, it is clear that the ages at which the school reports exceed the census are the ages of ordinary school registration. The 370 at 5 and under are at kindergarten ages; some of the kindergarten would not be under public control and consequently would not be registered by the public school teachers. The

1,778 at the age of 17 and over could easily be accounted for by business colleges, normal schools and higher institutions. To the 7,475 at the ages of 6 to 16 might be added the majority of 1,635 in private elementary and secondary schools making a total excess over the census of about 9,000. As the total at the ages of 6 to 16 was 97,093 the excess would be over 9 per cent of the census figures.

The Department of Education's report shows that during the last quarter of the year 4,399 pupils were added to the register. This was evidently during the months of May and June. (The school year is August 1 to July 31), so that a fair proportion of this 4,399 may have been registered after June 1. It is not likely that this would account for more than 2,000 at the most so that at least 7 per cent excess has still to be explained. This proportion and a certain other proportion to be mentioned presently would seem to be explainable only by duplication of enrolment. The proportion mentioned as duplicated does not take into consideration the duplicates over the age of 17 years, where duplication is very apt to take place in view of the large number of high school pupils from districts other than those in which the high school is situated. In 1921 in one class of high schools one-third of the enrolment were non-residents of the locality in which the school was situated. At least 1,000 of the high school pupils attended under these circumstances. These should be added to the 1,778 by which the census figures exceeded the school figures. The total would now account for the pupils and students over and above those in elementary and secondary schools who were distributed as follows:—

1. Universities, residents of the province.. 1,569
2. Colleges,   "   "   900
3. Private schools not included in 1 and 2 (not necessarily all residents of the province).......... 1,175
4. Business colleges (day courses)... 423
5. Normal schools... 241
6. Blind and deaf (residents).. 132

        Total... 4,440

Some of the 1,175 in private schools and business colleges would also have been registered in public schools during the year. Others would be residents of other provinces and countries, so that allowance has to be made for these unknown sources of error. The total enrolment, then, without making this allowance was as follows:—

Enrolment in public schools (school reports)... 109,483
Enrolment in other than public schools... 4,440

        Total... 113,923
        Census figures... 104,065

        Excess over census figures... 9,858

If the number of non-residents of the province and the number of pupils enrolled after June 1 were known, it would be possible to ascertain the exact duplication. As it is, it is probable that considerably ober 2,000 could be thus accounted for. Roughly 7,000 therefore, are duplicates. This is about 7 per cent of the census data.

As these figures are given only for illustration it is not necessary to go into each province in detail. One more illustration, however, may be useful.

TABLE 59.—PROVINCE B, 1921

Age	Census	School reports	School reports minus census	
5 years and under...	1,075	1,607	532	
6 "	8,223	11,073	2,850	
7 "	12,845	14,411	1,566	
8 "	14,065	15,115	1,050	
9 "	13,404	14,278	874	
10 "	13,417	13,699	282	
11 "	12,119	12,987	868	
12 "	12,581	12,851	270	
13 "	11,310	11,878	568	
14 "	9,807	9,611	—	196
15 "	6,444	5,788	—	656
16 "	4,248	3,183	—	65
17 "	2,334	1,557	—	777
18 "	1,322	621	—	701
19 "	702	191	—	511
20 " and over...	981	165	—	816
Total...	124,877	129,015	8,860	—3,722

As in the case of the other province it will be noticed that the excess of the school reports over the census figures is found at the regular school ages in this case only up to the 13th year instead of the 16th. There is no great significance, however, in the difference between the two provinces in this respect, except, perhaps, that the duplications at the high school ages were greater in the first province and thus disguised the proportion in other institutions. The statistics for ages 14 and over again point to private schools, business colleges, normal schools and higher institutions. In that year the numbers in these institutions in the province were as follows:—

1. Universities (residents of the province)	1,402
2. Colleges (practically all residents)	1,884
3. Private schools (over and above preparatory in 1 and 2)	813
4. Business colleges (day courses)	2,206
5. Normal schools	642
6. Schools for blind and deaf (residents)	103
Total	6,850.

Some in (3) and (4) would likely be from other provinces, while others would also be enrolled in publicly controlled schools during the year. The number enrolled in publicly controlled schools was 129,015, which added to the other institutions amounted to 135,865. This gives an excess over the census of 10,988. From this excess would have to be deducted the duplicates and non-residents already mentioned and the number registered after June 1. It will be seen that after making this allowance the net duplication in registration in publicly controlled schools would be very nearly 7 per cent as estimated in the case of the other province.

Taking now the case of a city for which the statistics from teachers' reports are very complete, it will be possible to show the extent of the duplication more directly.

This city had in 1921 an enrolment in publicly controlled elementary and secondary schools (according to school reports) of 35,776 of whom 2,045 were residents of other parts of the province and 180 were registered after June 1. The enrolment in other institutions was 4,689 residents of the province in the case of higher institutions and excluding 276 in private schools who had been withdrawn from public schools during the year. The number of these who were residents of the city is undetermined. The total enrolment, then was 40,465. The census figures were 36,114, making a difference of 4,351 in excess on the part of the school reports over the census figures. Of this excess the non-residents in publicly controlled schools accounted for 2,045 and the enrolment after June 1 for 180. As conceivably there would be no duplication in registration as between the city schools, the non-residents of the city in the other institutions would account for practically all the remainder. The 2,045 non-residents represent those who would be registered in other schools in the province during the year. These also amounted to between 6 and 7 per cent of the residents who would be enrolled on June 1.

SCHOOL ATTENDANCE AND AGE DISTRIBUTION OF THE POPULATION

The differences between the number attending school in one province and another, or between one city or census district and another might be expected to depend to a considerable extent upon the proportion the population of school age bears to the total population in the community. If the ages of 5 to 19 be taken roughly as the extreme limits of school age, the following table shows the relationship between provinces in this respect (Indians excluded).

TABLE 60.—COMPARISON OF THE PROPORTION WHICH SCHOOL ENROLMENT FORMS OF THE POPULATION 5-19 YEARS WITH THE PROPORTION WHICH IT FORMS OF THE TOTAL POPULATION

Province	Population 5–19 (1)	Total population (2)	Per cent of total population at 5–19 (3)	At school 5–19 Number (4)	At school 5–19 Per cent of population 5–19 (5)	Per cent of total population at school
Prince Edward Island	27,771	88,380	31·4	16,853	60·7	19·1
Nova Scotia	168,272	521,789	32·2	103,034	61·2	19·8
New Brunswick	129,319	386,545	33·5	73,120	56·5	18·9
Quebec	819,976	2,349,633	34·9	484,708	59·1	20·6
Ontario	830,326	2,907,008	28·6	532,071	64·1	18·3
Manitoba	196,362	596,249	32·9	123,896	63·1	20·8
Saskatchewan	246,564	744,602	33·1	151,399	61·4	20·3
Alberta	179,612	573,897	31·3	112,712	62·8	19·6
British Columbia	130,322	502,205	26·0	86,124	66·1	17·1
Nine provinces	2,728,524	8,670,308	31·5	1,683,917	61·7	19·4

The last column indicates how much the proportion of the population at school depends upon the proportion the school ages bear to the total population. A compensating feature, however, is seen most strikingly in a comparison of columns 3 and 5. It is noticeable that the percentage at 5 - 19 of the total population in the nine provinces — i. e., the average for the nine provinces — is 31·5. The average percentage at school of the population 5 - 19 in the nine provinces is 61·7. Every province, however, except Manitoba has the figures in the two columns on opposite sides of these averages, i. e., when the figure in column 3 is above its average the corresponding figure in column 5 is below its average and vice versa. It would appear from this that there was an inverse relationship between the percentage which the ages of 5 to 19 form of the total population and the percentage of these at school. In other words, it would seem that a large proportion of children is disadvantageous to school attendance. The province with the smallest proportion of the total population at 5 to 19 has the largest proportion of these at school; the second smallest has the second largest; the rest, with one exception, follow the same trend fairly closely. This is, of course, quite natural from the .point of view of providing accommodation and supervising the attendance of pupils at school. It has the effect, however, of making the proportion of the population of all ages at school between the ages of 5 to 19 almost a constant. It is noticeable that the average for the nine provinces, namely, 19·4, does not vary from the percentage of any province by more than 2·3 points. This would seem to mean that an estimate of the population on the basis of the school enrolment, being 19·4 per cent of it, would be liable to an error of only 2 per cent at the most, while it would be practically perfect for most provinces. Appearances are, however, treacherous in this case, since the very influences that make it constant are the most apt to be removed as conditions improve. It is clear that the ultimate tendency is for the school enrolment to vary as the proportion of the total population formed by the number at school age varies. The offsetting tendency is purely temporary, and may be considered in the nature of a problem to be solved in time, while the main tendency shows normal conditions.

Since school attendance at 5 and 6 is comparatively meaningless, and since attendance after 14 reflects tendencies towards secondary and higher education rather than elementary, the connection between population and school attendance may be shown more clearly in the case of attendance at the ages of 7 to 14 as follows:—

TABLE 61.—COMPARISON OF THE PROPORTION WHICH SCHOOL ENROLMENT FORMS OF THE TOTAL POPULATION 7-14 YEARS WITH THE PROPORTION WHICH IT FORMS OF THE TOTAL POPULATION (INDIANS EXCLUDED)

Province	Total population	Population 7-14	Per cent of total population 7-14	At school 7-14		Per cent of total population at school 7-14
				Total	Per cent	
Prince Edward Island	88,380	15,121	17·1	13,322	88·1	15·1
Nova Scotia	521,789	92,553	17·8	80,914	87·4	15·5
New Brunswick	386,545	71,252	18·4	59,314	83·3	15·3
Quebec	2,349,633	453,398	19·3	393,142	86·7	16·8
Ontario	2,907,008	452,750	15·6	415,947	91·9	14·3
Manitoba	596,249	110,228	18·5	99,548	90·3	16·7
Saskatchewan	744,602	139,640	18·8	124,071	88·9	16·7
Alberta	573,897	100,362	17·5	90,178	89·9	15·7
British Columbia	502,205	73,542	14·7	67,935	92·4	13·6
Nine provinces	8,670,308	1,508,846	17·4	1,344,371	89·1	15·5

The compensating feature mentioned in connection with the ages of 5 to 19 is not so clearly shown in the case of ages 7 to 14, although it is seen to be present. Consequently, there would seem to be a still greater dependence of the portion of those at school from 7 to 14 upon the proportion the population at that age bears to the total population. It may be of value to calculate how much of the differentiation between the provinces in the number at school at these ages is due to this proportion.

TABLE 62

Province	Difference from the average for Canada (15·5 per cent) in per cent of total population at school 7-14	Portion of difference due to age distribution	Portion of the difference due to completeness in school attendance
Prince Edward Island	−0·4	−0·23	−0·17
Nova Scotia	0·0	0·29	−0·29
New Brunswick	−0·2	0·87	−1·07
Quebec	1·3	1·79	−0·46
Ontario	−1·2	−1·64	0·44
Manitoba	1·2	0·98	0·22
Saskatchewan	1·2	1·24	−0·04
Alberta	0·2	0·06	0·14
British Columbia	−1·9	−2·39	0·49
Nine provinces	Mean=15·5		

The point that the percentage of the population at 7 to 14 years attending school is roughly in inverse proportion to the percentage which the population at 7 to 14 forms of the total population would be important if actually true. It is not safe to conclude that it is true on the strength of what happens in so small a number of different cases as nine provinces. If it were found to hold generally true of every census division in Canada, the conclusion might be regarded as valid for Canada, although not necessarily valid in principle — in another country the results might be different. In the next chapter it will be seen that it happens to be true of certain rural divisions, but merely incidentally true, not necessarily true in principle. By this is meant that if it held under all conditions or even under a large number of different conditions, it might be regarded as true in principle; if, however, it is found to hold merely because of the existence of a third known factor, it is to be regarded as holding true only incidentally. The distinction is important. If it were true in principle, it might be regarded as permanent, and school attendance

and age distribution of population might be predicted from one another; if only incidentally true it is merely a temporary phase which will disappear with its temporary cause and no such prediction can be made. At the same time, it would be interesting to ascertain whether it was true in fact — even if incidentally — of Canada in 1921. As mentioned, nine provinces is too small a number of cases to warrant any conclusion. If, however, it should happen to be true of the 79 cities and towns with a population of over 7,500, it may be regarded as true in fact of the urban population of Canada.

In the 79 cities and towns the average percentage of the total population formed by the population 7–14 years was 16·4 while the average percentage not at school was 7·2. In 51 out of the 79 the percentage not at school was above or below the average according as the proportion of the population 7–14 was above or below the average, while 18 more were together within close range of the average, although on opposite sides of it, leaving 10 decided exceptions. The correlation between school non-attendance and per cent of the total population at 7–14 years was 0·38.[1]

Theoretically, then, if the distribution of the population were the same in all cities, the average difference between one city and another in per cent not at school would be appreciably less than the actual difference. The correlation is not high, however, and these actual figures should not be stressed to the same extent as they might be if the correlation were, say, over 60. There seems to be a better correlation in rural centres, however, than in these cities and towns, so that on the whole it may be said to be true of the year 1920-21 that the greater the proportion of the population at 7 to 14 years of age the less the proportion of these at school. It does not, however, prove whether this is generally and permanently true or merely incidentally or temporarily true.

If it is a general truth, and not merely a by-product of some other feature, that a large proportion of the population at school age handicaps completeness of attendance at school — and since in any case it was true in fact of the year 1920-21, it is very much to the credit of five or six cities[2] which were among the highest in point of the proportion of population at the ages of 7 to 14 and among the lowest in point of percentage not at school. The city which showed the lowest percentage not at school (2·5) had 19·1 per cent of its total population at 7 to 14 in which respect it ranked seventh of the 79 cities. It is perhaps still more to the credit of one province which has by far the highest percentage of its population at 7 to 14 that it is one of the very best in point of the proportion at this age at school from 7 to 9 months.

If it is true that a large proportion of the population at school age militates against completeness of school attendance, then this should be considered one of the additional problems a rural population has to face. Excluding Indians, the percentage which the population at 7 to 14 years forms of the total population is 18·7 in rural centres and 16·1 in urban centres. According to the results already mentioned, this 2·6 per cent additional in rural centres would account for a portion of the rural children at these ages as not being at school.

[1] Standard deviation of per cent not at school=2·9; standard deviation of per cent total population at 7-14=2·24.
[2] Among these cities were Medicine Hat, Lethbridge, Brandon and Port Arthur, Medicine Hat showing 19·1 per cent of the total population at 7-14 years (against an average for all cities of 16·4 per cent) and only 2·5 per cent not at school (against an average for all cities of 6·9 per cent).

CHAPTER 14

THE SEX FACTOR IN SCHOOL ATTENDANCE[1]

The sex element in school attendance is especially important in view of the fact that non-attendance at school is more closely connected with the illiteracy of females than of males. As will be seen in later chapters 15 and 16 the correlation of non-attendance of both sexes with illiteracy of females is greater than with illiteracy of males; it will also be seen that generally the occupation of females has some connection with school attendance. There are good and bad aspects of this tendency. The good comes in as a compensating factor to the connection between illiteracy and school non-attendance, in that the percentage of illiteracy among females is slightly lower than that among males. The bad aspect consists of the fact that the superiority of females on point of illiteracy is true only of the Canadian and British born. Incidentally this fact is true only of certain provinces. In the case of the foreign born in rural centres in Canada as a whole the percentage illiterate of males was 11·44; of females, 15·74. In urban parts the females were somewhat better, percentage males, 11·07, females 10·71. The British born, on the other hand, showed a slightly higher percentage among females than among males in urban centres, but the percentage among either sex was negligible as compared with the other classes (0·67 per cent males, 0·72 per cent females). Twenty-two out of the 31 specified races showed a higher percentage of illiteracy among females than among males, while only nine showed the opposite tendency, namely the English, Irish, Scotch, Welsh, French, Belgians, Danes, Dutch and Negroes. These of course formed the great majority of the population, namely 5,747,760 out of 6,595,040 over the age of 10 years, or 2,816,295 out of 3,172,906 females over the age of 10 years. Thus the races showing a higher percentage of illiteracy among females than among males formed 13 per cent of the total population, while the females of these races form only 8 per cent of the female population. At the same time the latter included the races containing the highest percentages of illiteracy. There were in all 46,586 foreign born illiterate females or 13·28 per cent of the foreign born females over 10 years and 56,137, or 11·28 per cent of the foreign born males over 10 years of age.

In the matter of school attendance, the percentage at school in Canada as a whole at the ages of 7 to 14 was slightly higher among boys than among girls (89·19 as against 89·01). This was true of all provinces except one. It was also true as a whole of the ages 10 to 14, though there were three exceptions in this case, Prince Edward Island, Nova Scotia and New Brunswick. The difference at these ages, however, as indeed at all the ages between 7 and 14, was negligible. When it came to attendance between the ages of 15 and 19 the difference was considerable and in favour of the females (males 23·00; females 26·78). The percentages at each age not attending school are compared by sexes as follows:—

	Males	Female
5	86·2	85·4
6	48·8	47·5
7	17·3	17·6
8	8·6	8·8
9	6·3	6·4
10	5·2	5·4
11	5·2	5·4
12	6·6	6·9
13	11·3	11·8
14	26·6	26·0
15	48·5	46·6
16	70·6	63·9
17	82·9	77·8
18	89·9	87·5
19	93·1	93·1
6–9	20·5	20·6
10–14	10·8	10·9
15–19	77·0	73·2
20–24	96·8	98·5

According to the reasoning in the last chapter, about the same number per thousand of boys and girls attend school at some time in their life but somewhat more boys than girls are handicapped by beginning late and still more by leaving school early. However it is neither in beginning early or remaining until 14 that the girls gain so much on the boys. Unfortunately,

[1] Ref. especially Census 1921, vol. II, p. 696.

comparative data by sex have not been given by single years of age for the number of months attended during the year between the ages of 7 and 14. However, during the full period between 7 and 14 the girls attending over 7 months formed a slightly larger percentage of the girls attending for any period than the boys formed. It would seem, however, that the chief advantage on point of time gained by girls is between the ages of 14 and 18. Presumably this is because of the large proportion of girls as compared with boys who go on to high school work. There is no evidence of any very great difference between the two sexes up till the age of 14. The same facts come out in data on school standing. The average grade of boys at certain age is slightly lower than that of girls, but not at all ages. More girls, however, go on to secondary work, presumably because the boys leave school to go to work.

As already mentioned, the fact that girls thus tend to remain longer at school than boys has not necessarily a bad significance, especially as the tendency of boys also to go on to high school work has been growing rapidly during the last five years. It would seem since the school attendance of the population is more closely connected with the educational status of females than of males, that it augurs well for the future of education in Canada that the sex which in recent years has been enabled to remain longer at school happens to be the sex which has the more direct influence upon school attendance. The importance of this question can hardly be over emphasized. The situation at the close of the War was gloomy for the educational future of the male sex. While males were still leading in numbers in higher educational institutions it seemed clear that this was because they had had all the advantages of an early start and traditions, both of which advantages might have a tendency to lose their influence as time went on. The secondary educational institutions, however, seemed to be in process of monopolization by the female sex, and these institutions are, of course, the source of supply for the higher institutions. Statistics of secondary school enrolment by sex have been available for all provinces only since 1921. In the year 1904 the comparative number of boys and girls in secondary institutions in three provinces were 15,595 for boys and 20,090 for girls, or 1 to 1·29; in 1913 in four provinces it was 23,153 boys and 29,807 girls—still 1 to 1·29. In 1918 there were 21,108 boys and 31,534 girls or 1 to 1·50. In 1919 there were 22,421 boys and 33,012 girls or 1 to 1·47. In 1923 there were 38,988 boys and 49,275 girls or 1 to 1·27. It is true that the last two years saw the highest proportion of boys in the whole record. In 8 provinces in 1923 the comparative numbers were 52,635 boys and 66,505 girls or 1 to 1·26. In the 9 provinces including preparatory university courses, there were 63,292 boys and 69,883 girls or 1 to 1·10. The private schools would decrease this ratio slightly. The aggregate of a number of provinces does not show the tendency in this matter so well as the record of each province separately. In one province the proportion of boys and girls in secondary grades in 1904 was 1 to 1·80; in 1910, 1 to 1·70; in 1913, 1 to 1·70; in 1914, 1 to 1·80; in 1915, 1 to 1·80; in 1917, 1 to 1·98; in 1918, 1 to 1·99; in 1919, 1 to 2·02; in 1920, 1 to 1·87; in 1921, 1 to 1·83; in 1922, 1 to 1·65; in 1923, 1 to 1·57.

During the war years, then, it looked as if there might be a tendency towards a monopoly of secondary education by the female sex. The reasons both during the war and during the years leading up to the war were easy enough to see. From the time secondary education ceased to be a special class privilege, up till recent years, the high school course was regarded in the light of a vocational course, not as a continuation of general education. The vocation to which it chiefly led was teaching, and when it is remembered that the normal school course added to this high school course is, in all provinces except one, of only 9 months duration for First Class Certificate, and when in the case of the majority of teachers in one province an extra year of high school work was accepted in lieu of a normal school course for certain classes of certificates, it will be seen that the high school was directly a vocational school. Since teaching attracted more women than men, the high school became a vocational school for girls. Naturally, then, the girls in secondary schools were in the majority. This situation was intensified during the war. During recent years the high school is becoming also a continuation school, that is, a continuation of general education. To this is added the secondary technical schools. The result seems to be an increase in the proportion of boys. When it is considered, then, that this proportion is increasing, and that the large proportion of girls in high school work during the last twenty years has been incidentally promoting their general as well as their vocational educational interests, and that educated females exert such a healthy influence upon the education of the community; it will be seen that the juxtaposition of circumstances which led to this process of increasing the number of females in secondary work was in all probability a happy one.

THE INFLUENCE ON SCHOOL ATTENDANCE OF PHYSICAL ENVIRONMENT AS COMPARED WITH THAT OF SOCIAL FACTORS [1]

The outstanding facts in connection with school attendance, as influenced by geographical and other physical conditions, might be expected to be revealed by the difference between the aggregate figures for rural and urban areas in all Canada. Whatever may be the fallacies of conclusions based on these results, such conclusions are not unusual.

The danger of conclusions from aggregated rural and urban statistics of school attendance arises from the truth that factors influencing school attendance, over and above such factors as are essentially inseparable from rural and urban conditions, are apt not only to mask the effects of rural and urban conditions, but also to cancel one another in the sum total of a large country, which is not a single unit but consists of eleven political divisions, a great variety of climatic conditions, races, etc. For example, suppose that school attendance is strongly influenced by climatic conditions on the one hand and racial characteristics on the other. If, province A has a severe climate but a small proportion of certain races in rural areas, while province B has a mild climate, and a large proportion of these races in rural areas; then the difference between rural areas and urban areas might be the same in province A as in province B, but clearly for different reasons. It is also clear that the totals for provinces A and B would not lead the student to accurate inferences as to the intrinsic difference between rural and urban conditions.

The main facts in the gross totals may be given in the following tables:—

TABLE 63.—PERCENTAGES OF PERSONS FROM 5 TO 19 YEARS OF AGE NOT ATTENDING SCHOOL BY SINGLE YEARS OF AGE, IN RURAL AREAS AND URBAN AREAS, WITH TOTALS FOR 7-14 YEARS DIVIDED AS CANADIAN BORN, BRITISH BORN AND FOREIGN BORN, 1921 (INDIANS EXCLUDED)

Age	All classes		Canadian born		British born		Foreign born	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
5–19..............................	41·35	34·83	40·44	33·10	52·68	49·13	48·10	41·54
5..............................	86·63	84·89	86·57	84·95	87·82	82·54	89·01	84·25
6..............................	50·84	44·13	50·70	44·13	52·83	42·76	56·11	45·13
7..............................	20·97	13·45	20·88	13·37	21·43	15·17	23·78	15·39
8..............................	11·15	5·94	11·02	5·81	9·76	7·56	15·44	8·41
9..............................	8·25	4·17	8·11	4·04	8·87	5·17	11·14	5·91
6–9..............................	23·33	17·44	23·38	17·61	18·62	13·55	23·44	15·84
10..............................	7·01	3·34	6·80	3·16	7·25	4·57	10·53	5·04
11..............................	7·04	3·28	6·95	3·14	7·64	3·75	8·65	4·81
12..............................	9·12	4·03	9·16	3·91	6·73	4·51	9·88	5·03
13..............................	15·48	6·96	15·84	7·00	10·99	6·94	13·57	7·82
14..............................	32·49	19·12	33·18	18·30	31·20	25·19	26·23	19·48
10–14..............................	14·00	7·19	13·98	6·84	13·67	9·60	14·60	8·89
15..............................	56·06	39·87	56·55	37·65	58·75	54·24	49·55	39·69
16..............................	74·60	59·19	74·70	56·55	78·34	75·33	71·40	58·04
17..............................	85·80	74·54	85·50	72·23	89·49	87·59	85·99	74·14
18..............................	92·27	85·02	91·86	84·43	95·24	92·71	93·41	84·77
19..............................	95·39	90·79	95·10	89·66	97·28	96·15	96·17	91·33
15–19..............................	80·13	69·74	79·76	68·34	84·60	82·21	80·49	71·28
7–14..............................	13·85	7·51	13·80	7·31	13·34	9·29	14·79	8·96

The ages which would naturally be taken as representing the general status of school attendance are the ages from 7 to 14 years. These are the common or elementary school ages. They are also the usual ages of compulsory attendance, and a glance at the table will show that they

[1] Ref. especially Census 1921, vol. II, pp. 596 and 692.

are the normal ages for school attendance; that is, they are the ages between the first and the last of which there are no extreme cases of non-attendance. The aggregate percentage not at school at these ages is 7·51 in urban and 13·85, or almost twice as large in rural communities.[1]

What is understood here as essentially rural conditions may be listed as follows:—

1. New or recent settlements, or thinly populated settlements, finding it difficult or impossible to provide school accommodation.

2. Distance from school.

3. Climatic conditions, variations in which would naturally be more felt in rural than in urban communities.

4. Some might add: non-attendance at school owing to the pupils' time being needed on the farm. This, however, is a doubtful item, inasmuch as the pupil's time might also be needed in urban areas. Indeed, in rural centres, while occasional or periodic absence from school at certain periods of the agricultural year might be expected, it is difficult to conceive a necessity for absence throughout the year.

The last item might therefore, be more properly included among the non-essential conditions of rural life. The essential conditions might be classed as *physical*, and any others as non-physical conditions. Among these latter might conceivably be included: illiteracy of parent or of district; propensity to disobey or evade the laws; a greater proportion of ill health in rural than in urban communities[2] (a non-essential condition most assuredly) Etc. etc.

Going back to the table it is remarkable that:

1. at the ages of 5 and 6 there is not much difference between the attendance in rural and urban children. Out of the total population at the ages of 5 and 6, 31·7 per cent attended school for some period in rural as compared with 35·8 per cent in urban areas—a very slight difference. It would seem that while rural conditions affect regularity of attendance at these early ages, they do not affect the age of beginning school or attendance during the summer months. Yet it was reasonable to expect that distance from school would tend towards raising the age of beginning school in rural areas.

2. The average (mean) age of those attending school at the ages of 5 to 19 was 10·45 years in rural areas and 10·84 years in urban areas. The average age of the population 5 to 19 in rural areas was 11·43 and in urban areas 11·57, so that the slightly greater average age of the urban school children was partly due to the fact that the urban population at these ages are somewhat older than the rural. When this is considered in conjunction with the fact that 58·65 per cent of the population at the ages of 5 to 19 were at school in rural areas as compared with 65·17 in urban areas, and that practically the same percentage of rural and of urban children attended ot the ages of 5 and 6 so that the urban children were not unduly weighted by the younger ages, it is clear that the superiority of urban areas was due, not so much to an earlier start which would be favoured by urban residence, or to remaining longer at school, as to better enrolment at the compulsory attendance ages, and especially at the ages of 10 to 12— ages which should be affected least of all by rural conditions.

3. The difference between rural and urban areas is less in the case of the British born than of the foreign and less in the case of the foreign born than of the Canadian born. That this is true, of practically all ages may be shown by the following table:—

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[1] It is important to mention at the outset that the age of 14 was responsible for a considerable amount of this difference. At the ages of 7 to 13 the percentage not at school was 11·4 in rural and 6·4 in urban communities, a difference between rural and urban of 5·0, whereas the difference in the case of the ages of 7–14 was 6·34. Absence from school at the age of 14 can not be attributed to the physical element in rural conditions or to essentially rural conditions except in so far as they prevent the institution of high schools. Less than half of the rural and urban pupils combined are in high school grade at the age of 14, while in rural schools at the age 13 about one-fourth are in Grade VIII or above, i.e., less than this proportion are ready for high school at the age of 14. This is the upper limit of the proportion at this age affected by rural environment through the difficulties in the way of instituting high schools. From this proportion should be deducted those who actually attend high school from rural communities, those who are in high school grades in rural schools and the large proportion who would not go to high school in any case. The proportion of the age of 14 not at schools in rural areas was 32·5 and in urban 19·1. Only a part of the difference between these two proportions could have been due to the non-institution of high schools.

[2] The suggestion of a possibility of a greater prevalence of ill health in rural than in urban communities (among school children) may be somewhat startling, yet it seems to be by no means contrary to experience in school medical inspection. Colds, gland and similar troubles are probably to be expected to prevail more among rural than among urban children, but it would hardly be expected that the prevalence of malnutrition should be greater in rural communities. Yet this seems to be the case.

TABLE 64.—PERCENTAGE NOT AT SCHOOL AT EACH AGE OF THE CANADIAN, BRITISH AND FOREIGN BORN POPULATION IN URBAN AREAS EXPRESSED AS FRACTION OF THE PERCENTAGE NOT AT SCHOOL OF THE SAME AGES AND CLASSES IN RURAL AREAS

Ages	Canadian born	British born	Foreign born
5–19	0·80	0·93	0·86
5	0·98	0·94	0·95
6	0·87	0·81	0·80
7	0·64	0·70	0·65
8	0·53	0·77	0·54
9	0·50	0·57	0·53
10	0·46	0·64	0·48
11	0·45	0·50	0·56
12	0·43	0·67	0·51
13	0·44	0·63	0·57
14	0·55	0·81	0·74
15	0·67	0·92	0·80
16	0·76	0·96	0·81
17	0·84	0·98	0·88
18	0·92	0·97	0·95
19	0·94	0·99	0·95
7–14	0·53	0·69	0·60

Since the British and foreign born are immigrants, the above figures would seem to indicate that the attendance of the immigrants was affected to a great extent by the fact that many of them arrived in Canada in 1921 too late to attend school. If the supposition that they were more likely than the ·Canadian born to have settled in sparsely settled districts which lacked school accommodation is taken into consideration, it might have been expected that rural conditions would have affected the immigrants to a greater extent than the native born, whereas the contrary was true.

4. Taking now the comparative rural and urban attendance by provinces, the following percentages of all classes of the population at the ages of 7 to 14 were not at school during the year:—

—	Urban	Rural
Prince Edward Island	8·72	12·70
Nova Scotia	8·25	15·82
New Brunswick	8·95	19·82
Quebec	10·29	16·47
Ontario	6·35	10·34
Manitoba	4·20	13·25
Saskatchewan	4·92	13·46
Alberta	5·16	13·12
British Columbia	5·11	10·06
Mean of the percentages	6·88	13·83
Standard deviation	2·08	2·89
True mean	7·51	13·85

The true mean and the mean of the percentages are practically identical in the rural areas' showing that the weights of relative populations have practically no influence, and thus suggesting that density of population is not all important, while in urban areas the provinces aggregating the smaller urban population have, on the whole, a smaller proportion of children out of school than the other provinces.

5. Taking now the attendance by sexes, the following percentages of boys and girls at each age from 5 to 24 were not at school during the year:— .

(INDIANS EXCLUDED)

Age	Rural		Urban	
	Male	Female	Male	Female
5	87·26	85·97	85·01	84·77
6	51·05	50·62	44·23	44·03
7–9	13·35	13·89	7·94	8·03
10–14	14·35	13·63	6·53	7·85
15–19	83·22	72·59	69·38	70·05
20–24	98·33	98·88	95·21	98·28
7–14	13·95	13·70	7·13	7·92

The differences in these figures are very slight, but it is remarkable that at the ages of 7 to 14 the relative positions of male and female are reversed as between rural and urban, and that a larger proportion of boys than of girls are out of school in rural areas, and a larger proportion of girls   than   of boys in urban areas. On examining the tables it is seen that this happens at the ages 10 to 14; also that in rural areas relatively fewer boys than girls are at school at the ages of 5 and 6; while the contrary is true of the ages of 7 to 9. Now of all ages, one would least expect those of 10 to 14 to be more favourable for the attendance of girls than of boys in rural parts, if the non - attendance were due to climatic or geographical conditions.

6.   Sixteen rural divisions out of the 219 census divisions were found in which the percentages of children not at school were less than in the adjoining urban areas. The aggregate populations of the 16 centres were as follows:—

—	Rural	Urban
Population 7 to 14	44,872	16,596
Number 7 to 14 at school	39,792	14,625
Percentages not at school	11·31	11·88

An analysis of each of these areas for the purpose of ascertaining the causes of this remarkable phenomenon will be made further on. It may be mentioned here that they represent six out of the nine provinces of Canada.

The six foregoing illustrations would seem to suggest that the superiority of urban over rural areas in school attendance is not wholly due to the superior physical advantages of the former. In other words, it would seem that the poorer school attendance in rural communities is not wholly due to conditions which are necessarily rural. The psychological, or perhaps more correctly the human, element would seem to play a large part. The remainder of this chapter will be devoted to investigating the comparative magnitudes of the physical and human elements.

It is assumed that if all parents were equally willing to send their children to school in both urban and rural communities the sole advantage of the urban over the rural would be the following:—

1.   The operation of schools throughout the year. In some new or thinly settled rural communities it is conceivable that the settlers have not been long enough in the community to establish a school or that the number of children is so small that a school has not been built or operated. It is also conceivable that the settlement is so remote as to be unattractive to teachers, so that such a rural community is either unable to procure a teacher or is compelled to pay more for the services of one than an urban community would have to pay. Thus there is a greater difficulty in providing school accommodations in rural areas, and for this reason rural children are sent to school at a greater financial sacrifice than urban children.

2.   The urban children have ready access to school; the rural children may have to walk or drive a long distance, involving greater physical exertion than the urban children. Crippled and sickly urban children may attend for the whole or part of the day; such children resident in rural parts, at a distance of a mile or two from school, can attend only at a financial sacrifice perhaps beyond the means of the parents. Further, attendance for a part of the day would be more difficult to arrange in a rural area.

3.   Climatic changes should play but a negligible part in the non - attendance of urban children; whereas they might be expected to play a very large part in that of rural children. However, this should not prevent children from attending during some part of the year, although it might affect regularity of attendance.

Other "excusable" elements entering into non - attendance give the urban areas no necessary advantages. Occasional illness and poverty should be at least as prevalent in the urban as in the the rural centres. If rural children fail to attend during a year because no school was provided or no teacher employed for other reasons than those already mentioned, this is not a necessary or valid reason for the children failing to attend.

Two elements remain which are purely psychological; the will to attend, and the facilities for enforcing laws requiring attendance.

Now if the will and compulsion factors, also such other factors as are common to both rural and urban areas, were to be ignored and only the physical factors taken into consideration it might be expected:—

1.   That thickly populated rural areas would show very little difference in school attendance from the adjoining urban areas, while the difference would increase with the decrease

in density of population, so that very thinly settled rural areas would show a great difference from their adjoining urban areas;

2. That new rural settlements would show greater differences from their adjoining urban areas than older settlements;

3. That rural areas subject to extremes of climate would show greater differences than areas in mild climates;

4. That prosperous rural settlements would approach nearer to their neighbouring urban areas than poor rural settlements.

Least of all was it to be expected that the illiteracy of a community would show any con-nection with the school attendance of the year 1920 - 21, either in urban areas, or in rural areas. Illiteracy is the result of past school non - attendance; the fact that an illiterate community would show poorer attendance in a given year than a less illiterate community would indicate either that poor attendance had been characteristic of that community for some years, or else, as is much more likely in a new country like Canada, that the people who had moved into that community were illiterate and consequently were too poor to or did not see the necessity for providing school accommodations or sending their children to school. In either case, illiteracy would not be caused by the non - attendance of 1920 - 21; rather, school non - attendance would be either an effect or a close companion of previously existing illiteracy.

In order to test the connection between illiteracy and school non - attendance the census divisions of Canada were taken one by one, excluding one whole province and such divisions in the other provinces as contained one or more per cent of Indians. The reason for excluding the latter was that the census data on school attendance do not include Indians, who are included in the data on illiteracy. The reasons for excluding the province mentioned are that, while the percentage of illiteracy in this province is a little higher than the average for Canada, school attendance is very good, as is also the literacy of the younger population. This province alone has no statute laws for compulsory attendance, but the rural parts of this province are practically free from the racial problems which complicate the situation in other provinces and render compulsory attendance laws so necessary.

The remaining divisions contained 96 rural areas and 90 urban areas (six of the divisions having no urban population). The percentage of illiteracy of the Canadian born in each rural area was compared with the percentage of Canadian born children 7 to 14 not at school in that area, while the same was done with each urban area. The results are so interesting that although the figures of each area cannot be given for want of space, it would seem advisable to give a summary of them. For the following table the rural divisions have been arranged in descending order of percentage of illiteracy. The summary contains five groups, with the number of children 7 to 14 and the number of these at school given side by side with the figures for illiteracy in each group.

TABLE 64A.—ILLITERACY AND SCHOOL ATTENDANCE IN 96 RURAL CENSUS DIVISIONS, 1921

Groups[1]	Population over 10 years of age	Number illiterate	Percentage illiterate	Population 7 to 14	Number at school	Percentage not at school
Per cent illiteracy 23·70 to 17·55..........	59,523	12,550	21·09	21,163	14,841	29·87
" " 11·65 " 7·63..........	170,682	17,542	10·28	42,901	35,748	15·07
" " 6·94 " 2·21..........	365,985	14,338	3·90	102,496	88,697	13·46
" " 2·18 " 1·22..........	256,552	4,172	1·63	67,104	61,280	8·98
" " 1·21 " 0·40..........	342,188	2,901	0·85	97,263	88,793	8·71
Total in the 96 divisions................	1,194,930	51,503	4·31	330,117	289,359	12·44
Total rural Canadian born 7-14 in all the divisions in Canada excluding Indians...	2,386,410	129,990	5·45	806,991	695,257	13·85
Means of the unweighted percentages in all 96 divisions................	–	–	4·15	–	–	12·25

[1] The 96 divisions were first arranged in order of illiteracy, the division with the highest percentage illiterate being taken as number one and so on to the division with the lowest. As might be expected it did not happen in every case that the division showing greater illiteracy than the one immediately following also showed greater school non-attendance—due mention is made of exceptions further on. To ensure a progression of school non-attendance according to illiteracy the 96 divisions arranged as above were then divided into five groups of different sizes, the group containing the greatest number of divisions being group 3, groups 2 and 4 containing each approximately the same number of divisions, but fewer than group 3, groups 1 and 5 also containing the same number of divisions. The number of divisions in each group is in the same proportions as the arrangement later shown on page 107. This arrangement without in any way falsifying the figures, enabled a progression of school non-attendance with illiteracy to be shown for illustration only. The true progression is of course shown in the coefficient of correlation and regressions (see page 102).

It is clear that the percentage not at school varies remarkably closely with the illiteracy of the community. It is further noticeable that the unweighted averages of the percentages of both illiteracy and school non-attendance are below the true averages (that is, the percentages which the total number illiterate and not at school form of the total population at the ages in question). This goes to show that the less populous rural divisions are superior both in literacy and school attendance to the more populous divisions. This is contrary to expectation.

In passing it may be interesting to note that the group with from 17·55 to 23·70 per cent of illiterates has a much larger proportion of children than the average of the 96 divisions, the proportion of children 7 to 14 to the population 10 years and over being 35·6 per cent as compared with 27·6 for all the divisions considered and 32·7 for all Canada.

CORRELATION BETWEEN ILLITERACY AND SCHOOL ATTENDANCE

The exact connection between percentage illiterate and percentage not at school in each division may be expressed by the Pearsonian co-efficient of correlation. It was found to be almost perfect in rural areas (0·92) and very strong in urban areas (0·75).

The value of the above results should now be explained, in which connection it must be remembered that the smallest rural area available for the investigation was the census division, varying in population from three or four thousand to forty or fifty thousand, and varying still more in land area. It would have been preferable to obtain the data for smaller areas, although this also would have had its disadvantages, since it would be unwise to arrive at conclusions derived from the study of a small number of persons.

The chief objection that will arise, in the mind of the general reader at least, to conclusions based upon the above comparison is that they are mere inferences—that the evidence is indirect. When it is found that within a certain area a large proportion of the children are out of school and at the same time a large proportion of the adults are illiterate, it might be said that this is very little evidence that the two phenomena are necessarily connected. Although non-attendance and illiteracy may co-exist in a comparatively large area, it is possible that those who are out of school are not the children of the illiterate people. Indeed the bearing of illiteracy upon school attendance might take many forms, among them the condition of the area in respect of school accommodations. Even apart from this, there is no intention to convey the idea that because school attendance is poor in an isolated case and illiteracy at the same time worse than the average, the two are necessarily connected. They may either have no connection, or they may both be due to a common cause, such as a very sparse population, etc. Where, however, it is found that in nearly all cases where the community has a greater proportion of illiterates than the average, the proportion not at school is also greater, then the evidence of a connection between them, while still indirect, is too strong to be ignored. But when in nearly all of a large number of cases that are examined, if a community has a *certain proportion* of illiterates above or below the average, it has also a *corresponding proportion* above or below the average of children out of school in spite of physical conditions, then the evidence is so strong that to ignore it would be unreasonable. Where the few exceptions to the agreement between the two are easily traceable to a definite cause, the evidence becomes still stronger.

It might also be objected that whereas the number of children in a community varies roughly as the number of married couples, the illiterates include older children and unmarried or childless persons as well as parents of children, and therefore the connection between illiteracy and school non-attendance, however real, is too involved to come out in statistics of this nature, in anything like definite proportions. This objection is not valid. The definite proportion in which the connection appears is not a ratio but another sort of function which is only partly connected with the relative number of illiterate parents and of other illiterates. The non-school attendance might be the cumulative results of illiteracy, of which the relation of illiterate parents to illiterate children is only one form. Further, in spite of the many reasons which might be given as to why the connection between illiteracy and school non-attendance should be masked to too great an extent by other causes to show up in census statistics, the connection actually does appear, showing how strong the connection must be. Thus, instead of there being many important factors accounting for the proportion of children not attending school, there are only a few very important causes and perhaps thousands of very minor causes, but the few important causes stand out clearly and are easily traceable.

The superior value of direct evidence can be overrated. For example, it might be contended that to determine the connection between illiteracy and school attendance, it is necessary to know directly that illiterate people keep their children out of school. Suppose it were possible to obtain the information which this knowledge would seem to require. Suppose statistics of the number of children of illiterate parents or guardians at school and not at school, also the number of children of "literate" persons at school and not at school, were available. In area A there are (suppose) 60 children of illiterate parents and 6 of them did not attend school in a certain year, while in the same area there are 600 children of "literate" parents, and 30 of them did not attend school. In area B there are 80 children of illiterate parents and 20 children of "literate" parents and in the case of each class the proportion out of school was the same, say, 20 per cent. It is clear that these figures in themselves would mean nothing. Suppose that similar data for all the areas in Canada were available. It is clear that to make use of the contradictory figures which would doubtless be obtained, it would be necessary to call in the aid of several other items of evidence, some of which would be indirect, so that after all the conclusions would be partly based upon indirect evidence. On the other hand, if results are obtained and interpreted by indirect evidence and it is then found that they are corroborated by direct evidence, wherever this is obtainable, this evidence may be considered conclusive.

Another advantage of indirect evidence lies in the fact that it gives the true emphasis to the underlying causes, which causes might attract no attention if they came under direct observation.

The indices of correlation which have been obtained mean that not only do the areas with very high percentages of illiteracy show poorer school attendance than areas with very low illiteracy, but that the one intimately accompanies the other.

This direct evidence has been obtained since the above was written and is to be found on page 125. It is more strongly conclusive than was expected. A compilation from the census of 1921 was made of 1,322,937 children 7-14 years of age illiterate and not at school whose parents were: (1) both illiterate; (2) father only illiterate; (3) mother only illiterate; (4) both "literate". The results leave no doubt upon the question that illiteracy has a casual connection with school attendance—not, be it noticed, the converse, which would of course be obvious. It is important to remember that the direct evidence was obtained later than and independently of the indirect. The fact that the effects of illiteracy upon school non-attendance should be so strong as to be traceable back to this cause in spite of the numerous other possible causes of non-attendance shows what a potent factor illiteracy is. It also shows that the census data on illiteracy are probably of greater value than was anticipated. The nature of the correspondence of the illiteracy of and school non-attendance of children with the illiteracy of parents may here be summarized as follows:—

	Rural and urban areas		Rural areas	
	Not at school	Illiterate	Not at school	Illiterate
Both parents literate	11·0	2·8	16·0	3·4
Father only illiterate	19·0	10·0	22·0	11·9
Mother only illiterate	20·0	14·0	23·0	18·0
Both parents illiterate	25·0	22·0	30·0	26·0

It may be further mentioned here that this point has a tremendous influence upon the difference between rural and urban illiteracy. In rural areas there were 22,538 children between 7 and 14 years whose mothers only were illiterate as compared with 12,493 in urban areas; 40,604 whose fathers only were illiterate in rural areas as compared with 15,449 in urban areas; and 33,404 both of whose parents were illiterate in rural areas as compared with 12,741 in urban areas. Thus, there were in all 96,546 children one or both of whose parents were illiterate in rural areas as compared with 40,683 in urban areas. It will be readily seen that this disadvantage is a serious handicap to rural areas over and above the handicaps they suffer from physical conditions. It will equally be seen that the disadvantage is not necessarily a rural condition, inasmuch as when the same conditions prevail in urban areas the same results follow. The above points are brought out much more clearly when Canadian born are taken instead of the total population and still more strongly when the figures of one province are omitted. While the British and United States born are affected in the same manner as the Canadian born by illiteracy of parents the European born are not affected to nearly the same extent. This is partly explainable by arrivals in Canada in 1921 too late to attend school before the census was taken, also by settlement in frontier localities in both which cases literate and illiterate parents alike would be unable to send their children to school. It would also point to a nativity element in school non-attendance. The only reasonable explanation of such a nativity element would be in the case of certain religious sects who are unwilling to send their children to the ordinary schools. A case in point is that of the Mennonites who are (or were) not illiterate but who were unwilling to send their children to school. It is also conceivable that there might be at first a national fear of sending children to the schools of an adopted country.

The method of correlation in this and subsequent measurements except where otherwise stated was the Pearsonian product moments

$$r = \frac{\Sigma \, x \, y}{N \sigma x \, \sigma y}$$

y here refers to school-non-attendance and x to illiteracy. The percentage of illiteracy includes that of children 10 to 14 as well as later ages, so that the data for illiteracy and school attendance are not entirely mutually exclusive, but the percentages illiterate of children 10 to 14 are so very small that they affect only the second decimal places of the percentages of illiteracy of the total population over 10 years of age and are therefore negligible when only one decimal place is used. Further, even the illiteracy of the children 10 to 14 was not entirely due to their non-attendance in 1920–1921, but also to non-attendance in previous years, so that their inclusion in the figures of illiteracy cannot be said to give a causal aspect to the school attendance of that year. The data for illiteracy of the population 21 years and over have been compiled by census divisions, but not by rural areas and urban areas of these divisions. Taking the correlation between the illiteracy of the population 21 years and over and of the percentage not at school at the ages of 7 to 14, for 49 rural areas and urban areas combined, the coefficient was practically as high as that between the illiteracy of the population 10 years and over and school non-attendance in the same centres. It may therefore be safely assumed that illiteracy is the independent variable in the above correlation.

The coefficients, etc., for rural and urban areas were as follows:—

	Rural	Urban
Mean of the percentages illiterate	4·15	2·43
Standard deviation (σx) illiterate	4·80	3·47
Mean of the percentages not at school	12·25	6·79
Standard deviation (σy) not at school	5·72	4·69
Coefficient of correlation (r x y)	0·923	0·748
Probable error $\left(0\cdot67449\ \sqrt{\dfrac{1-r^2}{N}}\ \right)$	0·0152	0·0461

The equations of the lines of regression were:—

Rural, $Y = 1\cdot1X + 7\cdot68$
Urban, $Y = 1\cdot01X + 4\cdot34$

Needless to say, these relationships are not necessarily true of other data than those of the 96 divisions tested, or other years than 1921. However, their area forms a large portion of the Dominion and the results may therefore be said to be generally true of the Dominion as a whole in 1921. Further, as will be seen later, the same test was applied to most of the remaining divisions with the same general results. The fit of the lines is satisfactorily close. As an illustration the estimate of the percentage not at school obtained from the regression upon the percentages of illiteracy in each of the above rural groups may be compared with the actual percentages not at school as follows:—

	Percentage illiterate	Percentage not at school (actual figures)	Percentage not at school (plotted from Y=1·1x+7·68)
Group 1	21·09	29·87	29·87
" 2	10·28	15·07	18·99
" 3	3·90	13·46	12·97
" 4	1·63	8·98	8·92
" 5	0·85	8·71	8·62
Total 96 divisions	4·31	12·44	12·43
Total rural Canada (excluding Indians)	5·45	13·80	13·68

With the exception of the second group the fit is practically perfect. It is remarkable that the total for Canada should show such a good fit, considering that one whole province and 56 other divisions were not included in the calculation. It may be interesting to see the fit in the case of each province (excluding Indians, in the case of illiteracy). One of the provinces specified below was not included in calculating the correlation.

Provinces	Actual percentage not at school	Percentage not at school, as predicted from percentage illiterate	Error
Prince Edward Island	12·8	11·4	−1·4
Nova Scotia	15·9	15·0	−0·9
New Brunswick	19·8	19·0	−0·8
Quebec	16·4	17·0	0·6
Ontario	10·0	10·9	0·9
British Columbia	9·9	9·1	−0·8
All Canada	13·8	13·7	−0·1

The fact that there are four underestimates and only two overestimates is compensated by the superior weight of the provinces overestimated, so that there is a good balance between the plus and minus errors. The percentage out of school, as estimated from the percentage illiterate, would seem to be close enough

to the actual figures for all practical purposes. The three prairie provinces did not show a good fit, although some divisions in these were used in calculating the equation. This was because the extremely thinly settled divisions—unorganized parts, etc.—were excluded incidentally to excluding the Indians. These divisions naturally showed a very high percentage out of school (some as high as 36 per cent) and thus raised the averages for the provinces above their normal level.

Although it may be unwise to press the actual figures given by the equations for rural and urban areas too much into service, it is difficult to refrain from doing so, in view of the sensitiveness which school attendance seems to show to illiteracy. The strict interpretation of the two equations

$$Y = 1 \cdot 1 \ X + 7 \cdot 68 \text{ (rural)}$$
$$\text{and } Y = 1 \cdot 01 \ X + 4 \cdot 34 \text{ (urban)}$$

(where X refers to percentage illiterate and Y to percentage out of school) would seem to be that $7 \cdot 68$ per cent of the children in rural areas and $4 \cdot 34$ per cent in urban areas are out of school independently of the illiteracy of the communities in question. The mean percentage not at school, it will be remembered, was $12 \cdot 25$ in rural and $6 \cdot 79$ in urban areas, so that according to these figures $4 \cdot 57$ per cent of the children 7 to 14 in rural communities and $2 \cdot 45$ per cent in urban communities were kept out of school by the illiteracy of the community. It may be merely accidental that the proportion kept out of school by illiteracy to the total out of school is practically the same for both communities $\frac{4 \cdot 57}{12 \cdot 25} = \frac{2 \cdot 45}{6 \cdot 79}$. To stress the figures still further, it would seem that the true comparative rural and urban figures were $7 \cdot 68$ and $4 \cdot 34$ respectively and that the non-school attendance caused by purely rural conditions were $3 \cdot 34$ $(7 \cdot 68 - 4 \cdot 34)$ while $4 \cdot 57$ per cent was connected with illiteracy. These two figures are in the ratio of 42:58. The reason for stressing this fact so far is not because any reliance is placed in these proportions for the present, but because of their remarkable resemblance to results which will later be arrived at independently.[1]

It will be noticed that the agreement between illiteracy and school non-attendance is better in rural communities than in urban. This may be because illiterate persons have a tendency to be in the most thinly settled communities, and in the most recent settlements, so that the connection between school non-attendance and illiteracy is reinforced by physical conditions. On common sense grounds there should be some truth in this point of view, and the extent to which it is true will be investigated presently. At the same time, it may also be that the illiterate person, having less of a will to send his children to school or provide school accommodations, may yield more easily than the literate person to the physical difficulties existing in the rural community; also he may have a better opportunity to evade the law in the rural district than in the urban areas.

The conclusion reached so far, then, is that persons who did not send their children to school in 1920-1921 probably did not send their older children to school in previous years, and did not go to school themselves wherever they happened to live when at school age. In other words, illiterate communities would seem to have a tendency to remain illiterate. The close agreement already mentioned shows that, as a rule, even under physical difficulties, literate persons send their children to school; while, even under favourable conditions, the illiterate persons keep their children out.

Of the figures shown so far, the least that can be said is that they *indicate* that the differentiation between rural areas and urban areas in point of school non-attendance is not entirely due to physical conditions.

It should be possible to ascertain at least approximately what factors enter into this very close correlation between the illiteracy of the community and the non-attendance at school of children between the ages of 7 and 14, and also what factors are peculiar to rural non-attendance.

It is reasonable to suppose that in a new rural settlement, a very thinly settled one, and in an extremely cold climate, school attendance is poor independently of the illiteracy of the adult population. The question, however, is whether as the settlement becomes older and more thickly settled, the school attendance improves approximately pro rata. If it were found to do so, it would be easy to ascertain the influence of physical conditions upon school attendance. It is reasonable to expect that it would do so if no new element entered into the conditions of such nature as to counterbalance the influence of increasing conveniences. It is also reasonable to suppose, that, other things being equal, the increasing prosperity of the settlement would increase the conveniences and consequently improve attendance.

In connection with the census of illiteracy of 1911 an attempt was made to ascertain how far illiteracy was connected with density (or rather sparsity) of population. All the 218 electoral districts were arranged in descending order of percentage of illiteracy of the population 5 years and over, and the figures for illiteracy were set down side by side with the area of the

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[1] See especially the appendix to this chapter which shows that direct evidence of the influence of illiteracy upon school non-attendance confirms these figures.

district, the total rural population, and the number of rural persons per square mile. It was clear at once that the most illiterate populations were in the very sparsely peopled districts and the least illiterate were in the very most densely peopled districts. That is, 20 districts at each extreme showed a very decided connection between illiteracy and sparsity of population. The remaining 178 districts, however, showed no such close connection, and even the extremes contained explanatory features apart from physical conditions. The most illiterate districts were inhabited largely by Indians, while the very least illiterate were inhabited almost exclusively by English-speaking people. On rearranging the districts in order of density of population it was seen that up to a density of 20 to 25 to a square mile illiteracy decreased as density increased. After that, there seemed to be very little connection. A coefficient of correlation of ·79 was found in districts with less than 25 persons to a square mile, while hardly any was found after that point. However it was found that there was also a strong correlation in the first group between the density and the percentage in district of certain races whose existence also correlated with illiteracy, while there was the opposite form of correlation between density and percentage of these races in the second group. This at once suggested that the influence of physical conditions was obscured by the presence of these races.

It would seem, however, that an attempt to find a connection between illiteracy and school attendance and density of population would be very difficult—not because of the presence of factors such as the one mentioned, the influence of which could be rendered constant by the method of partial correlation—but because one district might appear to be thinly populated —to have only a small number of people to the square mile—if it happened to be a very large district, with most of its area without any inhabitants while the remainder consisted of rather densely populated settlements. On the other hand, another district which appears to be rather thickly populated, may have this population scattered over its entire area, so that in reality it is not so densely populated as the first district. For this reason, the attempt to correlate illiteracy or school attendance with number of persons per square mile was abandoned in the case of the census of 1921. The census of Agriculture supplies us with much more relevant data for each census division, namely, the following: (1) total land area; (2) area occupied by farms; (3) area under improved farms; (4) number of farms; (5) number of farm holdings of stated sizes; (6) value of land and farm property; (7) value of different farm products and (8) nature of holdings etc. etc. The total population of each division is also given. Here the p.c. of land occupied might be used as a rough index of the density of the population of the settlement; the per cent of the occupied land improved might be taken as a rough index of the age of the settlement. The value of the property and of farm products would seem to indicate two phases of the prosperity of the settlement.

To find the connection between these data and school non-attendance or illiteracy, it is necessary first to find a sufficient number of divisions where farming is practically the only industry in rural parts; where at the same time other conditions are similar, such as the nature and methods of farming, the nature of the land, the age of the settlement, the school laws etc. It was also desirable, though not essential, that the racial distribution should be as homogeneous as possible.

In all it was found possible to obtain 49 divisions very similar in farming conditions and school attendance laws. In these divisions very little else than farming is done in the rural parts, so that the per cent of land area occupied (as farms) is a fair index of density. The racial element, however, is heterogeneous in the extreme, but this, as already mentioned, does not create an insuperable difficulty. There were also found another 64 divisions where farming conditions varied more than in the first group, but not very greatly. The racial question in these 64 divisions is practically nil; that is, nearly all of the rural population belong to the same race.

The following tables contain several data regarding the first group. The 49 divisions arranged in descending order of percentage of illiteracy are numbered from 1 to 49. The school attendance and other data in each division are given side by side.

TABLE 65.—SCHOOL ATTENDANCE AND RURAL CONDITIONS IN FORTY-NINE SELECTED RURAL DISTRICTS, CENSUS OF 1921

Name of divisions	Total rural population	Rural population over 10 years of age		Rural population 7-14 years of age		Total land area (acres)	Area occupied farms (acres)	Area not improved (acres)	Total value occupied farms, 1921	Value of products, 1921	Rural population N.L. races	Rural population females over 10 years	
		Number	Number illiterate	Number	Number at school							Number	Number illiterate
1	18,544	12,834	4,657	2,028	1,358	120,857,749	303,591	269,711	$ 6,899,744	$ 1,236,044	13,218	5,909	2,510
2	44,561	29,706	7,462	10,248	8,349	3,206,400	2,205,541	1,296,330	76,346,593	17,735,069	29,099	13,212	4,303
3	5,003	3,720	816	626	423	14,620,714	215,514	182,640	4,075,305	699,969	1,757	1,408	396
4	15,419	10,246	2,021	2,769	1,833	5,185,586	651,696	527,420	12,958,719	2,550,131	6,232	4,343	1,011
5	28,390	19,251	3,506	6,295	5,422	3,364,056	437,015	268,225	22,133,654	4,352,355	14,038	8,681	1,849
6	20,143	13,895	2,451	4,168	3,501	2,327,148	1,012,203	552,609	40,997,849	8,697,234	10,111	6,067	1,284
7	39,746	27,372	4,585	8,475	6,961	3,954,948	2,278,806	1,435,107	70,318,76	15,445,508	20,160	11,838	2,549
8	21,306	14,867	2,348	4,653	3,876	2,127,193	853,55?	598,331	27,890,132	5,596,549	10,031	6,484	1,228
9	27,133	18,523	2,795	6,147	4,933	2,073,424	961,044	853,699	19,958,032	4,005,76?	11,032	8,300	1,556
10	24,006	16,702	2,263	4,512	3,767	5,588,025	1,288,219	1,036,205	27,583,482	4,777,500	7,724	6,719	1,122
11	20,009	13,375	1,696	4,545	3,715	2,739,767	568,814	402,299	15,231,073	3,641,550	8,468	6,058	893
12	26,260	18,228	2,233	5,199	4,442	5,703,963	1,610,288	883,422	49,443,55?	10,016,149	8,114	7,725	1,185
13	30,29?	20,603	2,131	6,01?	5,121	3,110,570	2,062,274	1,114,117	75,401,445	12,380,553	8,468	8,842	1,134
14	48,626	33,571	3,169	10,738	8,823	5,172,172	2,783,211	1,609,021	93,901,468	18,585,013	12,307	14,930	1,679
15	20,863	14,809	1,196	3,664	2,926	8,588,114	1,218,988	878,984	39,693,133	6,304,311	3,847	5,920	598
16	36,582	26,093	2,038	7,276	6,433	3,686,277	2,832,924	1,458,829	113,476,561	20,066,723	9,532	11,244	1,090
17	31,159	22,459	1,736	6,196	5,420	3,042,193	1,437,988	926,691	60,571,039	11,312,031	6,660	9,674	911
18	16,786	12,155	898	3,178	2,828	1,521,228	844,884	348,640	36,200,804	8,686,575	3,196	5,233	428
19	15,655	11,206	792	2,638	2,247	4,424,214	1,211,08?	807,200	34,057,090	7,094,075	2,075	4,588	386
20	7,953	5,797	409	1,518	1,305	1,474,389	331,787	202,608	15,035,453	2,957,026	528	2,436	185
21	22,112	16,243	1,147	3,620	3,350	4,058,666	2,189,244	1,276,472	73,127,069	14,350,240	4,390	6,389	568
22	10,730	8,216	567	1,394	1,146	7,104,255	879,945	636,375	20,551,529	2,850,396	1,491	2,798	271
23	22,864	16,944	1,124	3,998	3,628	1,864,902	1,470,233	690,611	63,563,792	12,271,517	3,670	7,207	541
24	42,227	30,074	1,665	7,737	6,874	4,343,840	3,416,856	878,160	206,012,296	32,898,341	10,067	12,481	804
25	32,642	22,801	1,052	6,696	5,663	1,484,973	1,261,058	271,131	65,412,239	16,094,710	5,330	10,521	488
26	27,757	20,415	852	4,972	4,476	1,559,395	1,140,184	283,46?	85,580,751	15,342,05?	2,163	8,901	358
27	40,735	30,886	1,246	6,110	5,614	6,780,995	3,241,779	1,658,476	153,899,065	26,969,293	6,309	12,168	683
28	28,077	20,042	783	4,821	4,370	3,828,624	2,612,329	758,390	110,733,643	21,597,492	2,828	8,221	380
29	34,476	24,977	983	6,511	6,061	778,638	531,297	266,044	47,092,06?	5,359,747	4,468	11,742	498
30	32,671	22,274	814	5,750	5,020	4,893,458	3,380,580	1,457,255	106,593,411	18,023,467	3,537	9,172	416
31	36,592	24,982	914	6,605	5,554	5,888,240	3,880,333	1,604,732	126,181,900	25,008,559	5,120	10,353	509
32	17,663	12,595	435	3,239	2,839	4,654,080	2,248,681	1,292,729	56,422,345	9,875,567	3,216	5,100	226
33	28,583	20,069	666	4,908	4,350	4,382,779	2,647,049	994,523	95,694,293	19,756,666	3,757	8,069	320
34	32,599	23,189	757	5,880	5,331	3,826,289	3,013,832	786,072	137,692,935	21,868,199	3,992	9,548	387
35	13,915	10,123	293	2,336	2,074	4,491,527	1,776,112	1,032,286	44,823,724	7,612,557	1,963	3,819	137
36	40,457	29,868	849	7,350	6,706	4,166,637	3,065,857	2,012,792	117,541,289	19,982,855	3,601	12,698	432
37	7,393	5,837	150	993	844	8,373,412	377,06	317,795	6,579,510	1,314,188	1,048	1,845	64
38	27,796	19,696	498	5,446	4,916	4,279,218	2,711,300	948,514	101,258,441	14,345,449	2,445	8,144	238
39	26,851	19,536	492	5,199	4,724	3,804,125	2,495,396	838,295	85,078,094	15,691,060	1,917	8,405	237
40	22,070	16,750	426	3,925	3,674	1,649,731	1,366,75?	492,646	57,415,285	14,528,069	584	7,408	162
41	14,701	11,341	285	2,413	2,189	1,383,400	1,177,233	410,699	41,785,21?	8,270,588	860	4,854	120
42	27,496	20,212	475	4,216	3,670	4,915,886	3,290,450	1,685,478	94,815,537	19,375,816	2,434	7,760	217
43	16,085	12,140	259	2,791	2,431	9,225,282	906,574	649,155	25,417,765	4,320,640	1,168	4,805	108
44	35,559	25,010	504	6,429	5,798	4,781,665	3,407,529	1,176,144	137,119,206	26,242,105	5,053	10,358	246
45	19,313	13,722	255	3,264	2,828	4,892,154	2,531,761	1,493,914	61,349,737	12,813,609	1,914	5,508	139
46	30,26?	21,749	318	5,271	4,783	4,277,808	2,856,039	1,558,160	92,027,587	23,455,000	2,341	8,932	159
47	14,180	10,848	153	2,506	2,312	1,577,994	1,241,427	297,255	53,845,983	10,905,448	718	4,613	52
48	19,548	15,106	198	3,293	3,046	1,649,721	1,110,366	350,045	51,595,974	13,260,660	699	6,517	59
49	18,447	13,863	101	2,995	2,782	3,916,171	2,581,005	1,201,171	107,441,694	20,661,619	529	5,555	34
Total	1,243,337	884,914	67,403	231,555	200,736	321,600,995	87,922,739	43,060,899	3,268,826,294	621,191,042	274,219	373,497	35,095

TABLE 66.—SCHOOL ATTENDANCE AND RURAL CONDITIONS IN FORTY-NINE SELECTED RURAL DISTRICTS, CENSUS OF 1921

Name of division	Percentage illiterate	Percentage 7-14 not at school	Percentage land unoccupied	Percentage occupied land not improved	Value of occupied land per acre	Average size of farms (acres)	Value of products per capita of population	Percentage N.L. races	Percentage illiterate rural females	Percentage not at school at 7 years	Percentage not at school at 14 years	Percentage not at school 8-13 years
					$ cts.		$					
1	36·5	33·0	99·7	89·0	22 70	193	67	71·3	42·5	50·0	35·7	28·9
2	25·1	18·5	31·2	58·0	34 60	270	398	65·3	32·6	37·1	34·8	12·2
3	21·9	32·4	85·1	85·0	18 90	230	140	35·1	28·2	43·8	41·3	26·3
4	19·7	13·8	87·4	80·0	19 80	193	166	40·4	23·3	51·9	37·1	29·1
5	18·2	13·9	87·0	62·0	50 60	125	153	49·4	21·3	31·4	30·7	7·8
6	17·6	16·0	56·5	55·0	45 00	255	432	50·2	21·1	28·3	30·1	11·3
7	16·8	17·9	42·1	65·0	30 80	277	389	50·8	21·6	39·7	21·3	13·3
8	15·8	16·7	59·6	70·0	32 40	209	263	47·1	18·9	35·3	27·1	11·6
9	15·1	19·8	53·7	89·0	27 60	180	148	40·7	18·7	41·3	32·9	13·3
10	13·6	16·5	76·9	80·0	21 40	203	199	32·2	16·7	35·3	24·2	11·7
11	12·7	18·3	79·3	70·0	26 70	179	182	42·3	14·7	38·7	34·2	11·9
12	12·3	14·6	71·8	54·0	30 70	292	381	30·9	15·4	26·5	29·1	10·0
13	10·3	14·8	33·7	54·0	36 50	313	409	28·0	12·8	31·5	28·3	9·4
14	9·4	17·8	46·2	57·0	34 00	278	382	24·7	11·3	34·7	37·2	11·5
15	8·1	20·1	86·8	72·0	32 50	239	302	18·5	10·1	40·9	25·8	15·4
16	7·8	11·6	23·1	51·0	40 00	391	549	25·5	9·7	23·2	28·3	6·6
17	7·7	12·5	52·7	64·0	42 10	227	360	21·4	9·4	30·9	13·0	8·9
18	7·4	11·0	44·4	42·0	42 80	270	518	19·0	8·1	24·5	22·1	6·8
19	7·1	14·8	72·5	66·0	28 10	311	453	13·2	8·4	27·6	26·6	10·6
20	7·1	14·0	77·5	61·0	45 30	230	372	52·8	7·7	23·7	23·1	10·6
21	7·1	7·5	46·0	58·0	33 40	529	647	19·9	8·9	17·5	8·6	5·2
22	6·9	17·8	87·6	72·0	23 30	245	275	14·0	9·7	37·0	16·7	13·7
23	6·6	9·3	21·3	40·0	43 20	361	537	16·1	7·5	19·1	20·2	5·7
24	5·3	11·1	21·3	25·0	60 20	456	779	23·9	6·4	19·8	26·9	7·0
25	4·6	15·4	14·7	22·0	52 80	274	493	16·3	4·6	20·9	40·6	10·0
26	4·2	10·0	26·9	25·0	75 50	320	553	7·7	4·0	17·9	21·9	6·6
27	4·0	8·1	52·2	51·0	47 40	464	662	15·5	5·0	18·5	11·2	5·5
28	3·9	9·4	31·7	30·0	42 30	390	770	10·1	4·6	18·8	19·0	5·9
29	3·9	6·9	31·8	50·0	88 60	210	156	13·0	4·2	16·1	16·6	3·7
30	3·7	12·7	31·0	43·0	31 50	394	552	10·8	4·5	23·2	23·4	9·2
31	3·7	15·9	34·1	41·0	32 20	420	684	14·0	4·9	22·4	31·1	12·3
32	3·5	12·4	52·6	53·0	25 00	510	560	18·2	4·4	19·9	17·2	10·0
33	3·3	11·4	39·5	36·0	36 90	541	691	13·2	4·0	19·6	28·3	7·0
34	3·3	9·3	21·0	26·0	45 60	408	671	12·3	4·2	17·1	19·6	6·4
35	2·9	11·2	60·0	57·0	25 20	452	547	14·1	3·6	22·6	17·7	7·7
36	2·8	8·7	26·3	67·0	38 30	344	494	8·9	3·4	19·8	10·1	6·6
37	2·6	15·0	95·4	84·0	14 70	191	178	14·2	3·5	28·7	18·1	12·5
38	2·5	9·7	36·2	35·0	37 30	420	516	8·8	2·9	18·3	18·5	6·7
39	2·5	9·1	34·5	34·0	34 00	440	584	7·1	2·8	16·2	21·3	5·9
40	2·5	6·4	17·0	36·0	42 00	370	658	2·7	2·2	12·8	15·3	3·8
41	2·5	9·3	14·8	34·0	35 40	443	570	5·9	2·5	19·0	15·5	6·6
42	2·4	13·0	32·9	51·0	28 10	406	705	8·9	2·8	28·4	13·7	9·5
43	2·1	12·9	90·2	.70·0	28 00	263	268	7·3	2·2	28·6	12·8	9·8
44	2·0	9·8	28·5	34·0	40 20	381	738	14·2	2·4	16·8	24·4	6·2
45	1·9	13·4	48·3	59·0	24 20	437	664	9·9	2·5	19·8	27·3	10·1
46	1·5	9·3	33·0	55·0	32 20	365	775	7·7	1·8	18·6	14·7	•6·0
47	1·4	10·0	22·3	24·0	43 30	442	769	5·1	1·1	17·0	11·2	5·7
48	1·3	7·5	32·7	32·0	46 40	356	678	3·6	0·9	12·5	16·4	5·2
49	0·7	7·1	33·8	46·0	41 60	570	1,120	2·8	0·6	18·1	6·5	5·2
49 divisions	7·9	13·3	72·6	49·0	37 30	-	500	22·5	9·4	28·9	24·1	9·2

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It is, of course, difficult to take in at a glance how far the figures correspond in such a comparatively large number of cases, especially where, as in the case of any complex matter investigated, exceptions obscure the real trend of the columns. It is easy to see, however, that generally speaking, there is progressive decrease or increase in the case of nearly all the items compared as they run down in the scale of illiteracy. The trend will be more easily distinguished if, instead of having to look at each district separately, a judicious grouping is made of them. In the following five groups the order and the data are identical with those given for the 49 divisions, except that the central groups contain a larger number of divisions than the extreme groups, in order to show the trend more clearly.

TABLE 66A.—THE DATA OF FORTY-NINE DIVISIONS OF TABLES 65 AND 66—SUMMARIZED IN FIVE GROUPS, THE ORDER OF TABLE 65 BEING STRICTLY MAINTAINED. GROUP 1 CONTAINS THE FIRST FIVE DIVISIONS; GROUP II THE NEXT TWELVE; GROUP III THE NEXT FOURTEEN; GROUP IV THE NEXT TWELVE AND GROUP V THE NEXT SIX DIVISIONS

	Groups					
	1	2	3	4	5	Total
Per cent illiterate	20·3	12·9	4·8	2·3	1·2	7·9
" not at school	20·9	16·3	11·3	10·0	9·1	13·3
" land area not occupied	97·4	60·5	47·6	53·6	36·7	72·6
" occupied land not improved	65·4	63·9	42·7	43·4	47·5	49·0
Value occupied land per acre	32.1	33.6	418.0	36.0	35.5	37.3
Value of products per capita of the population	238·00	348·00	564·00	590·00	787·00	50·0
Per cent N.L. races	57·5	33·6	15·0	9·8	6·1	22·5

Chart 2 (actual percentages) illustrating the trend shown in the preceeding table ...

(For Chart II see page 108)

It is clear that school non-attendance varies closely with illiteracy. The other items which vary in the same way are: (1) value of farm products per capita of the population; (2) average size of farms and (3) [very decidedly] the percentage of the total population consisting of 8 certain races. These races are responsible for 88[1] per cent of the illiteracy of these 49 divisions, so that it is not unfair to term them for convenience the non-literate or "N. L." races of these divisions.

When we come to the percentages of not occupied and not-improved land we notice a different form of variation.

The percentage of land unoccupied or unimproved decreases with the decrease in the percentage of illiteracy and school non-attendance up to a certain point, after which it increases. For a better examination, the 49 divisions will now be arranged not in descending order of illiteracy but in descending order of the percentage of occupied land not improved. The following five groups summarize the data according to this order.

TABLE 67

	Groups				
	1	2	3	4	5
Percentage occupied land not improved	84·5	68·1	54·0	37·1	24·3
" not attending school	20·1	15·9	13·0	10·5	11·3
" N.L. races[2]	42·3	29·2	24·4	10·7	14·9
Average size of farms (acres)	19·4	25·1	37·6	39·3	38·6
Percentage children 7–14 of total population	17·4	19·5	19·0	18·0	18·1
Number of children 7–14 per farm	0·9	0·9	0·91	0·8	1·07
Percentage farms over 200 acres	18·6	37·1	62·7	67·4	73·8
" of farms occupied by tenants	11·6	16·5	20·0	26·1	29·0
" of farms 100 acres and under	4·5	7·3	3·4	1·5	5·2

These figures show some surprising results. Both illiteracy and school non-attendance show direct relationship with land occupation and land conditions, but the linear correlation between school non-attendance is highest with percentage of total land area, next with percentage land
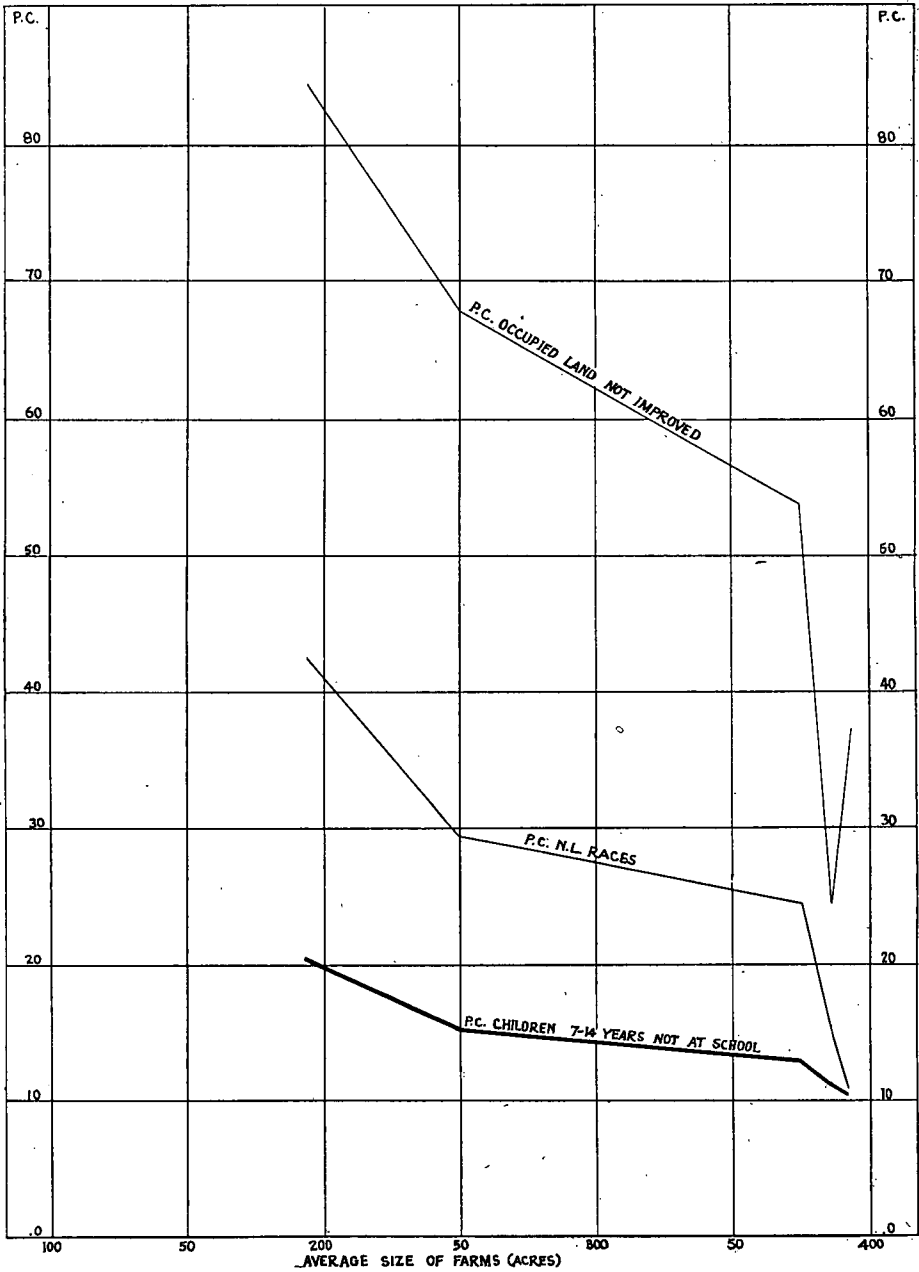
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[1] At the same time the population over 10 belonging to these races formed only about 17 per cent of the total population over 10.
[2] N.L.=Non literate. See page 112.

CHART II

VARIATION IN P.C. NOT AT SCHOOL ACCORDING TO THE VARIATION IN SIZE OF FARMS.

RURAL POPULATION OF CANADA 1921.

P.C. OCCUPIED LAND NOT IMPROVED

P.C. N.L. RACES

P.C. CHILDREN 7-14 YEARS NOT AT SCHOOL

_AVERAGE SIZE OF FARMS (ACRES)

area unoccupied; and lowest with percentage area unimproved, while illiteracy follows the reverse order. Further, the correlation with land conditions is slightly better in the case of school non-attendance than in the case of illiteracy, indicating that there is some connection between school attendance and land conditions, over and above what is due to illiteracy.

It is interesting to see how closely school non-attendance follows the order of improved land up to a certain point and then takes the reverse order. This point is somewhere near the centre, so that it looks as if school attendance improved with improvement in land conditions up to the point where the amount of land improvement is near the average, after which school attendance would seem to be adversely influenced by land improvement.

NOTE.—There is a linear correlation between percentage not at school and percentage of occupied land not improved, but the real correlation is clearly non-linear. The "correlation ratio" is $0 \cdot 85$, but as this coefficient does not give the form of equation of regression, use was made of a method developed by Professor Frederick C. Mills of Columbia University in the issue for September 1924 of the Journal of the American Statistical Association. This method consisted of fitting a curve to the data by the method of least squares and determining the "index" of correlation by means of the difference between the points plotted upon this line and the true figures.

Y, the dependent variable in this case, represents the percentage of children not at school and X the corresponding percentage of total occupied land area unimproved. From the trend indicated by the data of the five groups it would seem that a good fit might be obtained from a curve of the form $y = a - bx + cx^2$.

This equation gives Y a minimum value, namely at $2cx - b = 0$. When $bx = cx^2$, that is when $x = \dfrac{b}{c}$, Y will be back to the same height as it was when $X = 0$; that is school non-attendance will be the same at this point as it was when no land is unoccupied. The limits of X, of course are 0 and 1; for $2cx - b = 0$, and $x = \dfrac{b}{c}$ have no meaning if $\dfrac{b}{2c}$ or $\dfrac{b}{c}$ is less than 0 or greater than 1. The percentages in the equation are expressed not as integrals but as decimal fractions, so that e.g. $x = \cdot 1$ means that 10 per cent of the land was unimproved at this point, etc.

This curve when fitted gave an equation $Y = 0 \cdot 3095 - 1 \cdot 016X + 1 \cdot 16X^2$.

The index of correlation in this case is $0 \cdot 702$. The fact that it is less than η shows that the equation was by no means the best possible.

The mean square error is $0 \cdot 0007$. The minimum value of Y is seen to be when X is $\cdot 44$ or 44 per cent. The value of X at which Y is the same as it was when $X = 0$ is $\cdot 88$. There were only two divisions of which this was strictly true, but as too rigid an adherence to the exact figures in a calculation of this kind would be absurd, it may be noticed that there were 6 divisions where 80 per cent or more occupied land was unimproved. Even if no significance be attached to the actual figures, the trend shown by the equation is interesting. The values from $X = 1$ back to $X = \dfrac{b}{c}$ show the extreme status of school non-attendance in extremely new settlements or in divisions with extreme climates up to the point where physical conditions are no longer the predominant element. After this, other factors gain in importance until after the point $X = \dfrac{b}{2c}$ they completely mask or neutralize the physical conditions.

The five groups already described give data roughly for the deciding points of the curve. The first group, consisting of five divisions, with from 80 to 89 per cent of occupied farms unimproved, answers roughly to the part from $X = \dfrac{b}{c}$ to $X = 1$, or the position where extreme physical conditions combined with other extreme conditions bring about very poor school attendance. The next group, consisting of 12 divisions ranging from those with 80 per cent to 61 per cent of the occupied land unimproved, and the next group consisting of 15 divisions ranging from 61 per cent to 46 per cent unimproved land answer roughly to the portion of the curve from $X = \dfrac{b}{c}$ back to $X = \dfrac{b}{2c}$. The next group consisting of 12 divisions ranging from 43 per cent to 30 per cent of land and the 5th group consisting of 5 divisions ranging from 26 to 22 per cent of the land unimproved answer roughly to the portion from $X = \dfrac{b}{2c}$, the minimum point, to $X = 0$. The following figures for these five groups seem to be suggestive.

—	Group 1	Group 2	Group 3	Group 4	Group 5
Percentage occupied land not improved	84·5	68·1	54·0	37·1	24·3
" not attending school	20·1	15·9	13·0	10·5	11·3
Average size of farms	194·0	251·0	376·0	393·0	386·0
Percentage N.L. races	42·3	29·2	24·4	10·7	14·9
Number children 7-14 per farm	0·9	0·95	0·9	0·8	1·07

The rather unexpected form of the relationship between school attendance and the percentage of occupied land unimproved is none the less significant because the explanation is fairly simple, as will be shown presently. The curve on page 108 and the percentages in table 66 show that the percentage not at school decreases as the percentage of occupied land unimproved decreases down to a certain point, which point is a little below the percentage unimproved in the average of the 49 divisions, namely 43 per cent (the average divisions being 53 per cent). After this point, as school non - attendance decreases, the percentage of unimproved land increases. It would seem then that the optimal physical condition for school attendance is the average condition. Needless to say this phase is misleading, but it is none the less real. The first explanation suggesting itself is that where physical conditions are very bad, school attendance is poor for the reason that school accommodations are necessarily lacking and distances from school are too great. The phase of physical conditions indicated by the percentage of occupied land unimproved is the age of the settlement, although naturally it might also indicate the enterprise of the population. Where a very small proportion of the land is improved the probabilities are that the settlement is very young and that adequate school accommodations have not been provided. As the proportion of improved land increases there is an indication of the increased age of the settlement and consequently of better opportunity for improving school accommodation and better attendance. By the time roughly half of the occupied land is improved, conditions must be said to have reached a normal level. The explanation up to this point is no doubt, accurate, although the rate of improvement in school attendance will be shown to have been retarded by other than physical conditions. Beyond this point, however, the explanation becomes difficult. Why should the average proportion of improved land — indicating a reasonable age for the settlement and the absence of extremes in the matter of density of population and climate — be the optimal condition for school attendance, and why should the latter become worse as the proportion of improvement increases? There is a temptation here to suspect that it is because the improvement is taking place at the expense of the school attendance of the children. No doubt this is true in a sense — that is, many of those who do keep their children from school use them to improve their land. It is, however, not true in a general sense, and the real explanation is fairly simple.

After "normal" conditions have been reached, improvement is not the question of the age of the settlement, but one between large and small holdings. The occupant of a very large farm naturally has a large part of that farm unimproved. The occupant of a very small farm, naturally, has a larger proportion of that land improved than the large holder. His improvement may not be so productive as that of the large holder but none the less it is called an "improvement". The relevancy of this point to school attendance lies in the suggestion that, as a rule, the occupants of large holdings are a different class from the occupants of small holdings, the former attending school and the others not. That this is the actual situation may be seen from the following comparative figures taken from the group summarized in table 65. The areas are arranged in descending order of percentage occupied land not improved.

		Group				
		1	2	3	4	5
Percentage occupied and not improved		84·5	68·1	54·0	37·1	24·3
" not at school		20·1	15·9	13·0	10·5	11·3
Average size of farms (acres)		194·0	251·0	376·0	393·0	386·0
Percentage farms 100 acres and under		4·5	7·3	3·4	1·5	5·2

That the juxtaposition of the figures for " average size of farm" in the group is not accidental is shown by the size of the coefficient of the correlation between percentage not at school and average size of farm. This coefficient was found to be −·59. There was a still higher correlation between average size of farm and percentage illiterate, namely −·68. Both of these are high correlations, considering the nature of the items correlated.

Attention should be called to the paradoxical aspect of the situation. In the areas in question large farms mean a comparatively sparse population and small farms a comparatively dense population. It follows that unless the large holder has a bigger family than the small holder, there must be fewer children to a given area, and consequently provision of school accommodations

must be later or more difficult, where the average size of farms is greater. Further, a child living on a section or more of land (640 acres) has a long way to travel even off his home farm, and in all probability is much farther from a school than the child on a farm of 100 acres or less. In spite of this, the percentage out of school decreases as the size of the holdings increases, and vice versa.

It may be objected that, whereas the attendance at school improves with the increase in the size of farm holdings, this in some way may be due to a connection between school attendance and the prosperity of the settlement, and not to the class of occupants of the holdings. An attempt was made to connect school non - attendance with the prosperity of the settlement, two criteria of prosperity being used; 1. the value of land per acre as indicating permanent prosperity and 2. the value of farm products in 1920 per capita of the population as indicating what might be termed ephemeral prosperity. It is admitted that these are not the best criteria of prosperity for rural Canada as a whole but they are fairly good for the areas under examination, namely the organized parts of the Prairie provinces. A correlation was found in the case of both phases of prosperity, but not of the kind that might be expected, being inverse where it might be expected to be direct and vice versa. On further investigation it was found that these correlations were spurious resolving themselves into the question of size of holdings which in turn resolves itself into the class of the holders as will presently be seen. The partial correlations between the value of products per capita and percentage not attending school when average size of farms was rendered constant was only $-\cdot 17$ which may be considered negligible. Similarly the partial correlation between percentage not at school and value of land per acre with size of farm constant was negligible.

The connection between school attendance and value of farm products per capita population was as follows:—

—	Group				
	1	2	3	4	5
Percentage not at school...	20·9	16·3	11·3	10·0	9·1
Value of farm products per capita production........................	$238	$348	$564	$590	$787

The relationship here is direct. The correlation between the two in the 49 areas was $-\cdot 60$. There was a still better correlation between value of farm products per capita and illiteracy, namely $-\cdot 66$. The reason for this will be seen at once from the following correlations. The correlation between:—

2. Value of farm products per capita and percentage not attending school $= -\cdot 60$; and percentage illiterate $= -\cdot 66$.

2. Average size of farm and percentage not attending school $= -\cdot 594$; and percentage illiteracy $= -\cdot 68$.

3. Value of farm products per capita and average size of farm $= \cdot 90$.

It is clear, therefore, that the relationship between school attendance and features indicating prosperity is spurious and misleading. The value of farm products per capita increases with the average size of farm because the larger the farms the fewer persons per unit of area; hence the greater value per capita. Even if the value of products per acre of a large farm is less than on a small farm, the total output of the former is greater than of the latter and hence the value per capita will be greater.

It would seem, therefore, necessary to explain the connection between land values, average size of farms, percentage land occupied improved after a certain point, etc., and school attendance and illiteracy not by the prosperity of the community, but by the class of people who as a rule occupy the large farm as compared with the class who as a rule occupy the small farm. In other words, it is contended that after reaching average conditions the condition of the settlement has little or nothing to do with the school attendance and that the class of the inhabitants is all important. Of course this is true to a certain degree under all conditions, but once the average is passed it becomes conspicuously predominant. If the psychological or social influences are removed, the influences of physical condition shrink within a very small compass. If illiteracy be accepted as an index of the class of the population the following summary may be interesting.

The correlation between

Percentage not at school and percentage illiterate $=0\cdot71$.

Value of farm products per capita and percentage not at school $=-0\cdot60$; and percentage illiterate $=-0\cdot66$.

Average size of farm and percentage not at school $=-0\cdot594$ and percentage illiterate $=-0\cdot68$.

Value of farm products per capita and average size of farms $=0\cdot90$.

Partial correlation between

Percentage illiterate and percentage not attending school where the value of farm products per capita is constant $=0\cdot52$.

Value of products per capita and percentage not attending school where illiteracy is constant $=-0\cdot25$.

Average size of farms and school non-attendance where illiteracy is constant $=-0\cdot22$.

This would indicate that there is an independent connection between illiteracy (which is used as an index of the class of inhabitants) and school non-attendance which is quite strong; on the other hand, the independent connection between school non-attendance and land connection is very small or negligible. It should be remembered that what connection there is between school attendance and value of farm products per capita is due to the average size of farm.

It might also be mentioned that there is an apparent connection between percentage not at school and the number of children 7-14 per farm, and also the number of children 7-14 per 100 of the population. It will readily be seen that this also is a spurious connection explainable by the connection between school attendance and the average size of the farm.

There would seem to be little doubt of the independent connection between illiteracy and school non-attendance; that is, independent of land conditions. This was more than emphasized by the strong correlation between them when 96 cases were taken instead of 49. A few exceptions (five in all) reduced the size of the correlation in the case of a comparatively small number like 49 whereas the exceptions had not the same relative importance in the case of a large number like 96. Consequently it may be assumed that the real independent connection between illiteracy and school non-attendance is larger in the 49 than indicated by the above figures.

When illiteracy was mentioned above as an index of the class of the inhabitants it was only provisionally so mentioned; instead of being an index of the class of inhabitants it might more properly be taken as an index of the social factors as distinguished from the physical factors. It may be objected that this is not altogether true, since illiteracy, being the result of school non-attendance in the past, might itself in turn be a result of physical conditions in the same area. It should be remembered, however, that the term "independent" connection is used advisedly; that the connection between illiteracy and physical conditions was eliminated at the same time as the connection between school attendance and physical conditions. The objection would hold true only of the extent to which illiteracy was caused by more severe past conditions than those existing in 1921. At the same time it is recognized that illiteracy might consist of various elements apart from the class of inhabitants. That it does not so consist in the case of the 49 divisions under discussion will now be seen.

In the large table on page 105 it will be noticed that one of the columns is headed "N.L." races. These columns give the number of persons in each division belonging to eight non-Canadian races and Indians who were found to be responsible for 88 per cent of the total number of illiterates in the 49 divisions and may therefore be properly termed "non-literate" races.

Their distribution among the different divisions already grouped will now be given.

A. GROUPS IN WHICH THE DIVISIONS ARE ARRANGED IN DESCENDING ORDER OF ILLITERACY

—	1	2	3	4	5
Percentage children 7-14 not at school	20·9	16·3	11·3	10·0	9·1
" N.L. races	57·5	33·6	15·0	9·8	6·1
Value of products per capita	$238	$348	$564	$590	$787

B. GROUPS IN WHICH THE DIVISIONS WERE ARRANGED IN DESCENDING ORDER OF PERCENT.
AGE OCCUPIED LAND NOT IMPROVED

—	1	2	3	4	5
Percentage children 7-14 not .t school	20·1	15·9	13·0	10·5	11·3
" N.L. races	42·3	29·2	24·4	10·7	14·9
" land occupied not improved	84·5	68·1	54·0	37·1	24·3
Average size of farm (acres)	194·0	251·0	376·0	393·0	386·0

The following chart will make it easier to grasp the relationship of the above figures.

CHART III

VARIATION IN P.C. NOT AT SCHOOL ACCORDING TO VARIATION IN P.C. ILLITERATE AND TO CONDITIONS OF LAND SETTLEMENT.

RURAL POPULATION OF CANADA 1921.
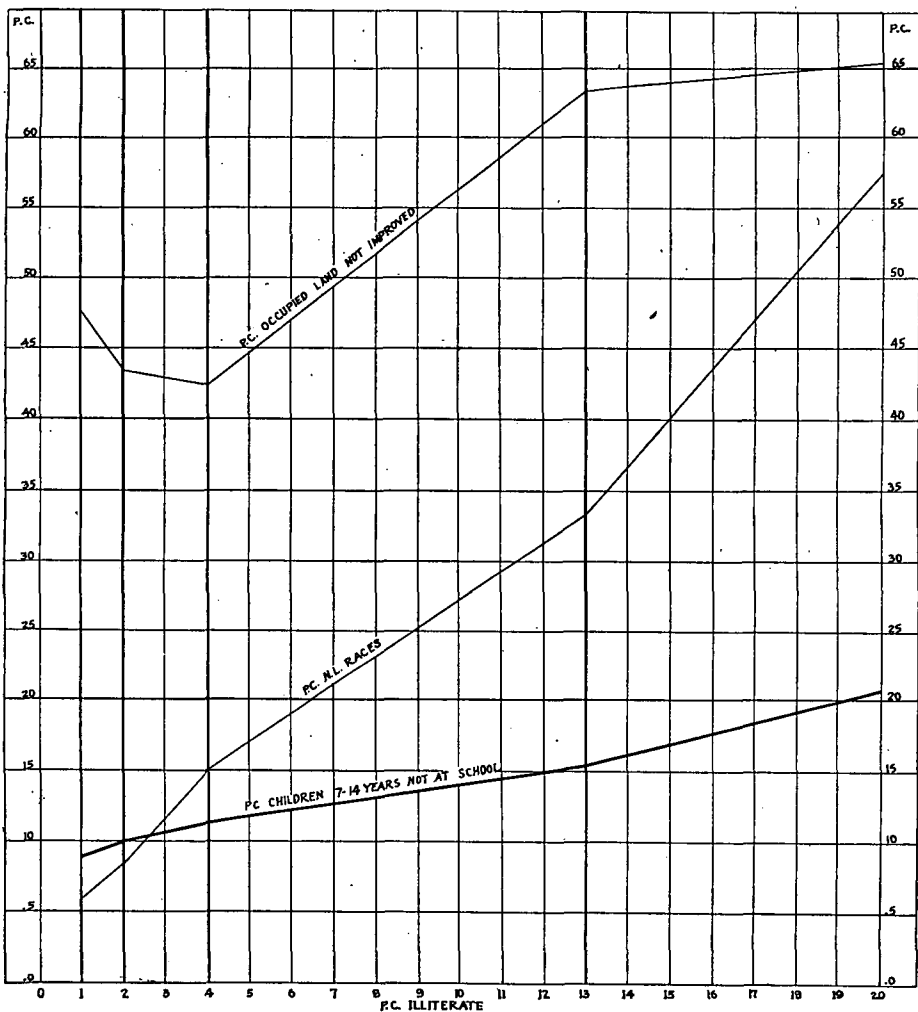
The above figures illustrate the nature of the connection between the different items compared. Notice particularly how the percentage of these races is lowest: (1) where the average size of farms is greatest, (2) where the value of products is greatest; also the manner in which it follows the course of the percentage of occupied land not improved. The correlation between the percentage of these races and illiteracy was found to be 0·98; that is, it might be said that illiteracy and the presence of these races was practically an identity. It is not necessary to resort to statistical measurement to show that this is virtually true. Definite statistics of these races have been given in the census of 1921, the relevant portion of which may be summarized for the 49 divisions in question as follows:—

—	N.L. races 49 divisions	All classes 49 divisions	All classes except N.L. races, 49 divisions
Population 10 years and over	253,386	1,431,974	1,178,588
Number illiterate	67,127	76,359	9,232
Percentage illiterate	26·5	5·3	0·79

The "N.L." races enumerated above represented only 8 different races. If several odds and ends of other races designated "various" and including certain Asiatics, etc., had been included among the "N.L." races it would be seen that the illiteracy of the rest of the population was negligible. As it is, it is near enough to negligible to show that the almost perfect coefficient of correlation shown above is due to what may be termed identity of items correlated.

The correlation between the percentage of these races and the percentage of children 7-14 not at school is 0·68.

The nature of the interrelationship between illiteracy, school non-attendance and the unexpected situation observed in the case of land conditions is clearly due to the existence of these races. The small holdings occupied by these races make it appear that small holdings have an adverse influence upon school attendance. In the case, however, of certain small holdings occupied almost exclusively by other races, the school attendance is very good. Similarly, large holdings are given the appearance of being favourable to school attendance in spite of their physical disadvantages. Similarly, there is found to be a false relationship between school attendance and prosperity as indicated by value of products per capita. It is seen that the existence of these "non-literate" races is sufficient to neutrailze, or at least disguise, the influence of geographical position. It should also be remembered that in these divisions under consideration there are strict laws requiring the school attendance of children 7 to 14 years of age. As certain exemptions are provided for in these laws, it is impossible to ascertain the extent to which they are evaded by the non-attendance for which figures have been given, so that the lawless aspects of the connection between these races and school non-attendance must be left to conjecture. It is enough, however, if these races under favourable physical conditions show poor attendance, while the remaining races and the bulk of the population show good attendance even under unfavourable conditions.

Although the influence of these races makes it difficult to determine what the influence of physical conditions upon school attendance really is, it may be useful to give certain deductions, which if not so sound as they would have been if the correlation between physical conditions and school attendance were exactly linear, will yet have some degree of soundness, while the direction in which their elements of unsoundness lie is known. For example, it is known that the relationship between school attendance and percentage of occupied land improved is approximately linear up to a certain point, this point covering the greater part of the ground. If the number of divisions were greater it might be interesting to work out the linear correlation up to this point, but the number of divisions for this purpose would be only 32, which is too small to give a reliable correlation.

It has been seen that apart from the influence of illiteracy or, in other words, of illiterate races, there was found to be but a trifling relationship between school attendance and average size of farms or of value of farm products, and that from this source there is not sufficient evidence of a connection between school attendance and material prosperity. On the other hand there is a connection found between school attendance and percentage of total land occupied, which

is not due to illiteracy.   The following figures, if accepted with the limitations mentioned above, may be interesting.

—	and percentage children 7–14 not at school	and percentage illiterate
Correlation between percentage of total land area unoccupied	0·64	0·56
Correlation between percentage total land area not improved	0·61	0·58
Correlation between percentage occupied land not improved	0·58	0·61

Strangely enough the relationship between school attendance and land condition decreases slightly with improvement, while the reverse is true of illiteracy.   The decrease in the one and increase in the other are so slight, however, that it may be considered negligible, and the conclusion would be that the *improvement* element in the land seems to have no connection with either illiteracy or school attendance.   The reason for the slight decrease in the case of school attendance is obvious.   The races already mentioned occupying smaller holdings would have a tendency to have a greater proportion of these holdings "improved" than in the case of those occupying the larger holdings.   The increases in the case of illiteracy may be explained by the influence of the Indians, who are excluded from the figures of school attendance.

The fact that Indians are excluded from the one and included in the other is unfortunate, as it makes an accurate partial correlation impossible.   However, it has already been seen that in the case of 96 divisions in which there were no Indians the correlation between illiteracy and school attendance was very high, so that the correlation of ·71 in this case is likely to understate rather than overstate the real connection.   Further, a linear equation developed by means of this ·71 is found to fit the facts fairly closely.[1] The error, therefore, in deducing the independent correlation between school attendance and illiteracy due to the exclusion and inclusion of Indians is small, known, and non-cumulative.   The following figures, therefore, may be of interest:—

Correlation between school non-attendance and illiteracy, with land condition varying . . . . . . = ·71

Partial correlation between school non-attendance and illiteracy — Per cent total land area unoccupied constant . . . . . . = ·56

Partial correlation between school non-attendance and illiteracy — Per cent total land area unimproved constant . . . . . . = ·56

Partial correlation between school non-attendance and illiteracy — Per cent occupied land unimproved constant . . . . . . = ·56

Partial correlation between school non-attendance and per cent total land area unoccupied — illiteracy constant . . . . . . = ·41

Partial correlation between school non-attendance and per cent total land area unimproved — illiteracy constant . . . . . . = ·34

Partial correlation between school non-attendance and per cent occupied land unimproved — illiteracy constant . . . . . . ·26

[1] The equation is $Y = ·57X + 89$ where Y represents percentage 7–14 not at school and X the percentage illiterate.   Actual figures for the provinces containing these divisions and the predicted figures of school attendance from the line of regression are as follows:—

Province	Percentage illiterate	Actual percentage not at school	Predicted percentage not attending school
1	9·54	13·2	14·3
2	7·47	13·5	13·3
3	7·18	13·1	13·0

This would give the impression that the unbalanced influence of illiteracy upon school non-attendance is about double that of physical conditions. While these figures must be regarded with caution, it is reasonable to conclude that the actual influence of illiteracy upon school attendance was greater than the influence of physical conditions in the 49 divisions in question and during the years in question. This conclusion is certainly important enough, even without further refinement.

In the urban centres of the divisions in question the connection between illiteracy and the races already mentioned was found to be practically as strong as in the rural centres (·81 urban; ·98 rural). The correlation between these non-literate races and school non-attendance was found to be present certainly. (·40) but rather weaker than in rural centres (·68).[1] The connection between school non-attendance and illiteracy was found to be still weaker (·25). A few extremely exceptional cases, however, reduced this last correlation and there is no doubt that it was decidedly present as it was in the case of the 90 divisions elsewhere correlated (·75). The correlation of ·25 is unreliable and no conclusion can be reached as to why the connection between school non-attendance and illiteracy was so much weaker in urban areas than in rural. That it is not much weaker elsewhere has already been shown when the comparatively large number of cases was taken.

It is important to mention that in both urban and rural areas the correlation of the percentage not at school with the percentage of illiterate females was stronger (·81) than with males and females.

It is also rather remarkable that there seemed to be less connection either in the case of illiteracy or physical conditions with the non-attendance of children 7 to 9 months than with their attendance for any period. It is difficult to see why this should be so unless it was because the compulsory attendance laws are more difficult to evade by children whose names are once entered upon the school register than by those who stay away altogether.

It was not to be expected that in the foregoing data the items compared should agree in every particular. For example, in comparing school attendance and illiteracy in the 49 divisions it was not to be expected that in all the divisions without exception the percentage not at school would correspond with the percentage illiterate. That this should happen would be contrary to all experience with comparative data, even in exact sciences. Often, however, the exceptions are more suggestive than the rule. Accordingly, it may be worth while to list below such pairs of items correlated as showed marked lack of correspondence. By "marked" lack is meant that when one item was found to be above the average the other was found to be below and vice versa.

(NOTE.—In the three following lists the division is named by letter, the same letter referring to the same division throughout).

(1) FIVE RURAL DIVISIONS IN WHICH PERCENTAGE ILLITERATE AND PERCENTAGE NOT AT SCHOOL DO NOT CORRESPOND

Division	Percentage not at school	Percentage illiterate	Percentage land not occupied	Percentage occupied land not improved	Percentage N.L. races	Remarks
A..	15·4	4·6	15·0	22·0	15·9	A certain religious sect opposed to the regular schools.
B..	14·0	7·1	77·0	61·0	6·5	Clearly new and sparsely settled.
C..	15·9	3·7	34·0	40·0	14·0	See below.
D..	15·0	2·6	95·0	84·0	12·5	New and sparsely settled.
E..	17·8	6·9	88·0	72·0	6·0	" "
Average of the 49 divisions............	13·4	7·9	49·0	53·0	18·4	

[1] Among the explanations suggested are: (1) These races are new-comers. (2) Enforcement of attendance law better; also more single illiterates in urban centres.

(2) TEN RURAL DIVISIONS IN WHICH PERCENTAGE NOT AT SCHOOL AND PERCENTAGE N.L. RACES DO NOT CORRESPOND

Division	Percentage not at school	Percentage N.L. races over and above Indians	Percentage land not occupied	Percentage occupied land not improved	Remarks
F....................................	32·4	3·1	99·5	85·0	Clearly sparsity of population and new settlement.
D....................................	15·0	12·5	95·0	84·0	" "
S....................................	20·1	15·8	86·0	72·0	" "
E....................................	17·8	6·0	88·0	72·0	" "
H....................................	14·8	4·9	72·0	66·0	" "
B....................................	14·0	6·5	77·0	61·0	" "
I.....................................	11·6	23·9	23·0	51·0	Fairly old settlement; densely populated.
C....................................	15·9	14·0	34·0	41·0	See below.
J.....................................	11·1	21·6	21·0	25·0	Older settlement; densely populated.
A....................................	15·4	15·9	15·0	22·0	See (1).
Average 49 divisions..............	13·4	18·4	49·0	53·0	

(3) TEN RURAL DIVISIONS IN WHICH PERCENTAGE NOT AT SCHOOL AND PERCENTAGE OCCUPIED LAND NOT IMPROVED DO NOT CORRESPOND

Division	Percentage not at school	Percentage occupied land not improved	Percentage land not occupied	Percentage N.L. races over and above Indians	Percentage illiterate	Remarks
A...........................	15·4	22	15	15·9	4·6	See (1)—religious sect (a) the same religious sect; (b) large amount of grazing territory; (c) average conditions.
C...........................	15·9	40	34	14·0	3·7	
K...........................	14·8	51	34	26·0	10·3	Clearly N.L. races.
L...........................	12·4	56	52	18·2	3·5	Generally average conditions.
M...........................	7·5	55	50	13·9	7·1	N.L. races.
N...........................	11·2	67	60	13·9	2·9	" lower than
O...........................	9·3	56	32	7·6	1·5	" average also
P...........................	8·7	67	30	6·7	2·8	" illiteracy.
Q...........................	12·9	70	90	7·1	2·1	" (very partial
R...........................	12·5	64	53	18·2	7·7	" explanation).
Average 49 divisions........	13·4	53	49	18·4	7·9	

The three lists illustrate in a striking manner what has already been suggested, namely that school non-attendance is due to a few very important factors or causes and probably a very large number of minor causes. The two factors which have appeared prominently throughout the 49 divisions under consideration have been land conditions and N. L. races. In the three lists of exception, it is remarkable; (a) that with the exception of division M, when one is conspicuously low the other is conspicuously high; (b) that the combined effects when both are near the average would seem to be the same as when one is high and the other low. It is also remarkable that there were only two divisions namely A and C for which it was necessary to seek explanation outside these two factors.

We now turn to the case of 64 divisions where the rural conditions are perhaps not so homogeneous as in the case of the 49 divisions just discussed, but where the complexities due to race are almost completely avoided. It will not be necessary to enter into all the details in the case of this group that have been given in the case of the other group, but it may be stated that the following points were investigated:—

(a) Number and percentage of children 7-14 of age not at school, 1920-21 separately for rural areas and urban areas.

(b) Number and percentage of the population over ten years illiterate in rural and urban areas.

(c) Percentage of total land area not occupied farms.

(d) Percentage of total land area not improved farms.

(e) Percentage of occupied farms not improved.

(f) Percentage of rural children 7-14 not at school 7-9 months in 1920-21.

(g) Number of persons per square mile total land area.

The results of the analysis of these 64 divisions are strikingly similar to those obtained in the case of the 49 divisions already discussed. A few of the most relevant to the question of school attendance and physical conditions will now be given:—

—	Percentage 7–14 not at school	Percentage illiterate	Percentage 7–14 not at school 7–9 months
Correlation between percentage of total land area not occupied and................	0·49	0·55	0·69
Correlation between percentage of total land area not improved and................	0·61	0·50	0·60
Correlation between percentage occupied land not improved and....................	0·65	0·50	0·67
Correlation between number of rural persons to square mile total land area and.....	−0·57	−0·45	–
Correlation between percentage illiterate and....................................	0·60	–	–

In the case of these 64 divisions, it would seem fairly safe to accept the connection between land conditions, school attendance and illiteracy roughly at their face values, inasmuch as they are not complicated to any appreciable extent by the racial differences and the inclusion or exclusion of Indians. The connection between illiteracy and school non-attendance is not a differentiation between races, as in the case of the 49 divisions, but a differentiation of individuals of the same race; neither is the linear correlation between these and land condition destroyed by the fact that certain racial elements in the more favourably situated divisions counterbalance their physical advantages. It is reasonable to suppose, therefore, that it is possible here to separate the psychological and the physical factors in school non-attendance. Since the crude correlation between school attendance and illiteracy may be, and likely is, reinforced by the physical elements; and since the correlation between school non-attendance and the land condition is likely reinforced by the illiteracy elements, it will be necessary to find the net correlation of pairs while a third is rendered constant. What is meant by this is that illiteracy and school non-attendance may seem to be connected just because both illiteracy and school non-attendance are at their worst in the most thinly settled and at their best in thickly settled communities; conversely the connection between school non-attendance and percentage of land not occupied may be merely due to the fact that illiterate people live in thinly settled communities and because of their illiteracy do not send their children to school. If, however, there is a free correlation between any two when the influence of the third is removed it will be shown by partial correlation as follows:—

Partial correlation between illiteracy and school non-attendance when percentage land area not occupied is constant....................................... = ·40

Partial correlation between illiteracy and school non-attendance when percentage land area not improved is constant....................................... = ·43

Partial correlation between illiteracy and school non-attendance when percentage occupied farms not improved is constant................................. = ·40

Correlation between illiteracy and school non-attendance in urban areas........... = ·50

It is noticeable that the partial correlation between illiteracy and school non-attendance is virtually the same in all four cases. That is, the connection between illiteracy and school attendance is the same in rural districts after the influence of rural conditions have been removed as it is in urban areas. It is also remarkable that this partial correlation is the same as it was in the 49 divisions. This would seem to lend to the results at least the appearance of reliability.

Conversely the free connection between school attendance and land conditions may be stated as follows:—

Partial correlation between school non-attendnace and percentage land area un- occupied — illiteracy constant... = ·24

Partial correlation between school non-attendance and percentage land area not improved — illiteracy constant... = ·45

Partial correlation between school non-attendance and percentage occupied farms not improved — illiteracy constant................................... = ·50

The comparative sizes of these three correlations the last two which are practically identical with the sizes of the free correlation between illiteracy and school non-attendance should give a rough idea of the comparative influence of essentially rural conditions and of the human or

psychological elements upon school attendance. The results also agree with the deduction from the equation of the line of regression in the case of the 96 divisions correlated. It would therefore seem safe to draw from all this certain conclusions which will be summed up at the end of the chapter.

The free connection between the other elements and school non-attendance from 7 to 9 months during the year was as follows:—

Partial correlation between school non-attendance for 7-9 months and illiteracy—
percentage land unoccupied constant..................................... $=0 \cdot 56$

Partial correlation between school non-attendance for 7-9 months and illiteracy—
percentage land unimproved constant.................................... $=0 \cdot 57$

Partial correlation between school non-attendance for 7-9 months and illiteracy—
percentage occupied farms unimproved constant......................... $=0 \cdot 53$

It would seem that the connection between illiteracy and school non-attendance for 7-9 months or practically the whole year—that is between illiteracy and irregularity of attendance— is somewhat stronger than in the case of non-attendance for any period. This result is slightly different from that obtained in the case of the 49 divisions, although the difference is so small that it is unsafe to draw conclusions from it. It it were larger it might possibly be explained by the existence of compulsory school attendance laws in the 49 divisions, while there are no such statute laws in the 64 divisions. It is easier for the law to track children whose names are in the school register and their ages thus known and keep them at school throughout the year, than it is to track children who have not put in an appearance at all during the year. This explanation should, however, not be accepted without further evidence.

It is important to know what stages of the child's school career are most seriously affected by the illiteracy of the community. For example, it might be suspected that children are kept out of school principally for the value of their service at home or in some useful employment. If this were the case it would be expected that the ages between 7 and 14 are less seriously affected by the illiteracy of the community than the later ages and especially the age of 14, when the child's services would be of some value. That need for the child's services is not the exclusive or even the main factor in absence from school is indicated by the data on occupations compiled from the census of 1911. This will be discussed more fully in the next chapter, but according to this census there was a very large discrepancy between the number of children between 10 and 14 years of age gainfully employed and the number at these ages or even at 14 years not at school. On consulting large samples of the original 1921 census returns it was found that a good proportion of children out of school at the age of 14 were not employed at any gainful occupation.

A separate investigation was, accordingly, made of the connection between the illiteracy of the community and school attendance in the case of three age groups, viz., 7, 8-13 and 14. Absence from school at the age of 7 would as a rule indicate that the child had not yet begun school attendance. This was found to be by no means universally true, as cases were found in the original returns of children of 7 years of age who were not at school in 1921 and yet were able to read. This would indicate either that they had been to school in former years or had been taught at home. On the whole, however, the chances are strong that children not at school at the age of 7 in 1921 had not yet begun school. Absence from school at the ages of 8 to 13 years would indicate that the children had been kept from school for other reasons than value of their services—either want of school accommodation in the community or want of supervision of their school attendance, or such want of realization on the part of their parents of the value of school attendance that the small value of their services at home at these ages was estimated above the value of education at school. The 96 rural communities already mentioned were considered a good field of investigation for the reasons already mentioned, namely, that they contained a negligible percentage of Indians and, incidentally, did not include areas handicapped by extreme physical conditions (e.g. the Northwest Territories and unorganized parts of certain provinces). The percentages not at school at the ages of 7, 8 to 13 and 14 years of the Canadian born were here correlated with the percentage of the population 10 years and over unable to read or write. The following results of this investigation would seem to be significant.

TABLE 67A.—SCHOOL ATTENDANCE OF RURAL CHILDREN AT 7, 14 AND 8-13 YEARS OF AGE IN 96 CENSUS DIVISIONS OF CANADA, 1921 (EXCLUDING ONE PROVINCE AND DIVISIONS WITH ONE OR MORE PERCENTAGE OF INDIANS)

Number	7			14			8-13			Percentage illiterate 10 years and over
	Population at 7 years	Number not at school	Percentage not at school	Population at 14 years	Number not at school	Percentage not at school	Population at 8-13 years	Number not at school	Percentage not at school	
1	517	161	31·0	374	210	59·8	2,529	617	24·4	23·7
2	1,062	503	47·3	855	447	52·2	5,738	1,414	24·6	23·4
3	337	151	44·8	295	78	26·4	1,662	313	18·8	18·3
4	597	221	37·0	520	230	44·2	3,397	625	18·4	17·7
5	468	254	54·2	363	203	55·9	2,449	786	32·0	17·6
6	385	100	25·9	378	119	31·4	2,443	318	13·0	11·7
7	472	105	22·2	487	140	28·7	2,625	176	6·6	11·3
8	301	81	26·8	233	79	33·9	1,546	227	14·6	11·0
9	326	91	27·9	314	97	30·8	1,855	275	14·8	10·3
10	206	60	29·1	200	41	20·5	1,229	106	8·6	11·1
11	658	206	31·3	622	234	33·7	3,885	602	15·4	10·0
12	497	43	8·6	373	116	42·4	2,676	172	6·4	9·9
13	472	47	9·9	430	166	38·3	2,862	211	7·6	9·9
14	411	97	23·6	404	131	32·4	2,184	185	8·4	9·6
15	326	73	22·3	312	94	30·1	1,839	192	10·4	9·5
16	186	65	34·9	197	67	34·0	1,082	226	20·8	9·5
17	753	175	22·5	667	181	27·1	4,216	377	8·9	8·7
18	581	180	30·9	472	116	24·5	2,988	322	10·7	7·6
19	611	189	30·9	600	239	39·8	3,597	697	19·3	6·9
20	198	55	23·7	147	34	23·1	986	86	8·7	6·8
21	378	66	17·5	330	82	24·8	2,186	124	5·6	6·5
22	165	58	35·1	154	52	33·7	846	166	19·6	6·0
23	701	223	31·8	677	212	31·3	4,005	638	15·9	5·9
24	350	105	30·0	235	109	46·3	1,935	497	25·6	5·6
25	1,224	486	39·7	933	199	21·3	5,365	682	12·7	5·4
26	280	56	20·0	258	58	22·4	1,583	160	10·1	5·3
27	265	47	17·7	244	40	16·3	1,573	117	7·4	4·8
28	656	185	28·2	617	154	24·9	3,656	432	11·8	4·6
29	740	113	15·2	591	149	25·2	3,925	301	7·6	4·6
30	136	30	22·0	139	31	22·3	785	73	9·6	4·3
31	653	253	38·7	519	177	34·2	3,071	326	10·6	4·2
32	154	23	14·8	145	46	31·7	879	84	9·5	4·0
33	149	43	28·7	88	16	18·1	323	37	11·4	4·0
34	916	143	15·6	875	200	22·8	5,472	313	5·7	3·4
35	377	99	26·2	388	110	28·3	2,231	191	8·5	3·3
36	830	116	13·9	609	122	20·0	4,259	194	4·5	3·3
37	996	232	23·2	903	256	28·3	4,805	256	5·3	3·3
38	234	67	28·6	243	72	29·6	1,336	123	9·2	3·0
39	419	51	12·1	393	78	19·8	2,405	109	4·5	2·9
40	170	25	14·7	211	38	18·0	1,124	104	9·2	2·8
41	423	96	22·6	336	68	20·2	3,054	374	12·2	2·7
42	925	194	20·9	814	331	40·6	4,672	443	9·4	2·6
43	453	88	19·4	451	80	17·7	2,533	184	7·2	2·5
44	406	47	11·5	349	90	25·7	2,173	62	2·8	2·4
45	241	53	21·9	222	53	23·8	1,350	116	8·5	2·4
46	498	83	16·6	445	89	20·0	2,652	175	6·5	2·2
47	341	77	22·5	302	43	14·2	1,858	108	5·8	2·2
48	325	51	15·6	319	49	15·3	1,809	102	5·6	2·2
49	319	45	14·1	329	100	30·3	1,837	109	5·9	2·2
50	185	18	9·7	187	24	12·8	1,197	60	5·0	2·1
51	352	42	11·9	347	82	23·6	2,125	93	4·3	2·1
52	256	41	16·0	241	55	22·8	1,539	114	7·4	2·0
53	482	77	15·9	493	98	19·8	2,838	157	5·5	2·0
54	364	68	18·6	338	58	17·1	2,012	122	6·0	1·9
55	331	60	18·1	331	70	21·1	1,990	104	5·2	1·8
56	404	92	22·7	322	63	19·5	2,087	151	7·2	1·8
57	310	56	18·0	278	49	17·6	1,713	144	8·4	1·6
58	398	90	22·6	231	41	17·7	624	8	1·2	1·6
59	492	98	19·9	365	63	17·2	1,330	138	10·4	1·6
60	539	69	12·8	469	72	15·3	2,592	74	2·8	1·6
61	415	52	12·5	338	82	24·2	2,223	58	2·6	1·5
62	223	21	9·4	200	44	22·0	1,322	76	5·7	1·5
63	138	16	11·5	135	29	21·4	912	107	11·7	1·5
64	224	23	10·2	213	60	28·1	1,303	67	5·1	1·4
65	350	78	22·2	348	58	16·6	1,991	158	7·9	1·4
66	578	126	21·8	329	74	22·4	2,450	77	3·1	1·4
67	484	96	19·8	344	94	27·3	1,349	121	8·9	1·4
68	994	161	16·1	650	108	16·6	3,799	101	2·6	1·3
69	564	108	19·1	460	93	20·2	3,851	234	6·0	1·3
70	535	89	16·6	481	81	16·8	2,950	160	5·4	1·3
71	707	93	13·1	329	33	10·3	3,030	97	3·2	1·3
72	397	60	15·1	285	64	22·4	1,956	119	6·0	1·2
73	673	58	8·7	752	191	25·3	4,230	158	3·7	1·2
74	1,006	226	22·4	733	228	31·1	2,497	210	8·4	1·2
75	318	32	10·0	342	51	14·9	2,058	87	4·2	1·2
76	479	42	8·7	489	94	19·2	2,929	94	3·2	1·0
77	280	23	8·2	256	60	23·4	1,654	52	3·1	0·9
78	593	43	7·2	640	146	22·8	3,684	126	3·4	0·9
79	477	52	10·8	411	183	44·5	2,769	198	7·1	0·9
80	384	52	13·5	389	78	20·0	2,444	111	4·5	0·9
81	245	55	22·4	211	42	19·9	1,308	95	7·2	0·9
82	412	118	28·6	296	38	12·8	1,219	85	6·9	0·9

TABLE 67A.—SCHOOL ATTENDANCE OF RURAL CHILDREN AT 7, 14 AND 8–13 YEARS OF AGE IN 96 CENSUS DIVISIONS OF CANADA, 1921 (EXCLUDING ONE PROVINCE AND DIVISIONS WITH ONE OR MORE PERCENTAGE OF INDIANS)—*Concluded*

Number	7			14			8–13			Percentage illiterate 10 years and over
	Population at 7 years	Number not at school	Percentage not at school	Population at 14 years	Number not at school	Percentage not at school	Population at 8–13 years	Number not at school	Percentage not at school	
83	736	83	11·2	425	95	22·3	3,330	132	3·9	0·8
84	311	53	17·0	303	34	11·2	1,662	65	3·9	0·8
85	797	146	18·3	598	111	18·5	2,959	156	5·2	0·8
86	473	59	12·4	484	186	38·4	2,919	155	5·3	0·8
87	841	157	18·6	510	75	14·7	2,547	135	5·3	0·8
88	1,017	171	16·8	676	166	24·4	3,404	170	4·9	0·8
89	2,583	339	13·1	1,319	273	20·6	10,702	616	5·7	0·7
90	517	51	9·8	479	120	25·0	3,016	187	6·2	0·7
91	662	189	28·4	437	60	13·7	1,808	169	9·3	0·7
92	518	47	9·0	477	98	20·5	2,865	159	5·5	0·6
93	1,109	104	9·3	432	35	8·1	4,489	139	3·0	0·6
94	335	68	20·2	279	63	22·5	1,645	191	11·6	0·6
95	437	55	12·5	390	64	16·4	2,278	99	4·3	0·6
96	425	77	18·1	304	20	6·5	1,587	69	4·3	0·4
Totals and means	47,921	9,985	20·8	39,708	10,132	25·5	242,676	20,725	8·5	4·4

TABLE 67B.—SCHOOL ATTENDANCE OF CHILDREN AT 7, 14 AND 8–13 YEARS OF AGE IN 49 CENSUS DIVISIONS OF CANADA, 1921

Name of division	Population at 7 years			Population at 14 years			Population 8–13 years		
	Number	Not at school Number	Per cent	Number	Not at school Number	Per cent	Number	Not at school Number	Per cent
1	336	168	50·0	188	67	35·7	1,504	435	28·9
2	1,496	556	37·1	1,203	419	34·8	7,549	924	12·2
3	98	43	43·8	75	31	41·3	453	119	26·3
4	477	248	51·9	253	94	37·1	2,039	594	29·1
5	958	301	31·4	683	211	30·7	4,654	361	7·8
6	603	171	28·3	495	149	39·1	3,070	347	11·3
7	1,224	486	39·7	933	199	21·3	6,318	829	13·3
8	633	224	35·3	556	151	27·1	3,464	404	11·6
9	957	396	41·3	661	218	32·9	4,529	600	13·3
10	676	240	35·5	433	105	24·2	3,403	400	11·7
11	653	253	38·7	519	177	34·2	3,373	400	11·9
12	756	206	26·5	562	164	29·1	3,881	387	10·0
13	927	292	31·5	646	183	28·3	4,439	416	9·4
14	1,492	518	34·7	1,284	478	37·2	7,962	919	11·5
15	552	216	40·9	390	102	25·8	2,722	420	15·4
16	996	232	23·2	903	256	28·3	5,377	355	6·6
17	879	272	30·9	711	93	13·0	4,606	411	8·9
18	457	112	24·5	352	78	22·1	2,369	160	6·8
19	409	113	27·6	263	70	26·6	1,966	208	10·6
20	198	55	23·7	147	34	23·1	1,173	124	10·6
21	560	98	17·5	383	33	8·6	2,677	139	5·2
22	227	84	37·0	131	22	16·7	1,036	142	13·7
23	564	108	19·1	460	93	20·2	2,974	169	5·7
24	1,131	224	19·8	880	237	26·9	5,726	402	7·0
25	925	194	20·9	814	331	40·6	4,957	508	10·0
26	725	130	17·9	546	120	21·9	3,701	246	6·6
27	936	174	18·5	631	71	11·2	4,543	251	5·5
28	780	147	18·8	504	96	19·0	3,537	208	5·9
29	994	161	16·1	650	108	16·6	4,867	181	3·7
30	939	218	23·2	602	141	23·4	4,109	371	9·2
31	1,006	226	22·4	733	228	31·1	4,866	597	12·3
32	492	98	19·9	365	63	17·2	2,382	239	10·0
33	798	157	19·6	479	136	28·3	3,631	255	7·0
34	864	148	17·1	595	117	19·6	4,421	284	6·4
35	398	90	22·6	231	41	17·7	1,707	131	7·7
36	986	196	19·8	836	85	10·1	5,528	363	6·6
37	149	43	28·7	88	16	18·1	761	95	12·5
38	797	146	18·3	598	111	18·5	4,051	273	6·7
39	730	119	16·2	589	126	21·3	3,880	230	5·9
40	539	69	12·8	469	72	15·3	2,917	110	3·8
41	315	60	19·0	289	45	15·5	1,809	119	6·6
42	662	189	28·4	437	60	13·7	3,117	297	9·5
43	412	118	28·6	296	38	12·8	2,083	204	9·8
44	1,017	171	16·8	676	166	24·4	4,736	294	6·2
45	484	96	19·8	344	94	27·3	2,436	246	10·1
46	841	157	18·6	510	75	14·7	3,920	236	6·0
47	311	53	17·0	303	34	11·2	1,892	107	5·7
48	437	55	12·5	390	64	16·4	2,466	128	5·2
49	425	77	18·1	304	20	6·5	2,267	117	5·2
Total	34,221	8,908	28·9	25,390	6,122	24·1	171,944	15,789	9·9

(1) A strong connection (0·68) between illiteracy and school non-attendance was found at the age of 7 years. That is, in illiterate communities the tendency is strong to postpone the opening of the child's school career till a late age. While it is believed that there is not much gained by sending children to school before the age of 7 years, it is also believed that it is very important that they begin then. In the next chapter an estimate is made of the consequences of late commencement upon the chances of children completing the elementary school course at the age of fourteen.

(2) A very strong connection (0·76) exists between the illiteracy of the community and the non-attendance of children 8 to 13 years..

(3) A somewhat stronger connection (0·81) between illiteracy and the non-attendance of children at the age of 14 years,[1] but the difference from the correlation in (2) is hardly significant. That is, the tendency in an illiterate community to keep children of 14 years out of school is not stronger than the tendency to keep them out at earlier ages. This result was unexpected. The value of the services of a child of 14—on the farm for example—is much greater than in the case of earlier ages. It would seem, either that the important factor in school non-attendance is not the need for the child's services, or that this need is felt by literate and illiterate communities alike. Why should an illiterate community keep children from school to a much greater extent than literate communities at a time when the child's services are not very valuable, and not to the same extent at an age when some boys, for instance, can do the work of some men?

There is one explanation for this which is fairly plausible. The aspects of children of 14 years of age being out of school are not all bad. From data on the school standing of 1,247,707 Canadian pupils it is found that at the age of 14 years nearly one-fourth are in high school grades, while about half are either in high school or the last grade of the elementary course. There is an even chance, then, that the child of 14 who is not at school has either completed the elementary school course or has done some high school work. Such a child may be living in a rural community with no high school accommodation near at hand. In any case, if he (or she) has completed the elementary course he is not as a rule under further obligations to attend school. In a literate community, where the attendance has been better throughout the child's school career than in an illiterate community, the chances are correspondingly greater that the child has completed the elementary school course. This would explain partly at least why the correlation between illiteracy and school non-attendance at 14 is not stronger than in the case of the earlier ages.

(4) What seems to be the most important result of all is that where school attendance is poor at the age of 7 it is poor also at the ages of 8 to 13 and also at the age of 14. In other words, the differentiation between one community and another in the matter of school attendance is thorough. The child's chances of obtaining an education in one community are poorer at every stage of his school career than in another; otherwise, if he were an unusually bright child, he could make up partly at least at one age what he had lost at another. This once more emphasizes the point that an illiterate community tends to remain illiterate.

An illustration of the manner in which illiteracy and school non-attendance are connected at the different ages is afforded by the following figures. The 96 rural communities, arranged in descending order of percentage illiterate, are divided into four groups of 24 counties (or divisions) each and the percentage not at school at each age group is shown for each quarter.

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[1] An examination of the regression equations may be interesting. If Y represents the percentage illiterate, U the percentage not at school at 7, X the percentage not at school at 14 and Z the percentage not at school at 8–13, then

$$U = 1 \cdot 26Y + 14 \cdot 8$$
$$X = 1 \cdot 59Y + 17 \cdot 3$$
$$Z = \cdot 85Y + 4 \cdot 0$$

These three equations would seem to show a larger residuum of school non-attendance (independent of illiteracy) at 14 than at 7 and at 7 than at 8–13. This is quite reasonable on the supposition that at the age of 7 educated parents might consider the children too young to go to school or might be educating them at home, while at the age of 14 years a larger proportion of children of literate than illiterate parents would have completed the elementary school course.

TABLE 68

	7 years			14 years			8–13 years		
	Popula-tion	Not at school		Popula-tion	Not at school		Popula-tion	Not at school	
		Number	Per cent		Number	Per cent		Number	Per cent
1st quarter—24 divisions showing the highest percentage illiterate...	10,958	3,309	30·2	9,639	3,477	36·1	60,760	9,352	15·4
2nd quarter—24 divisions showing the second highest percentage illiterate.............	11,811	2,658	22·5	10,394	2,549	24·6	62,893	5,066	8·0
3rd quarter—24 divisions showing the third highest percentage illiterate..........	10,041	1,679	16·7	8,043	1,595	19·9	49,023	2,649	5·4
4th quarter—24 divisions showing the lowest percentage illiterate.................	15,111	2,249	14·9	11,632	2,511	21·7	70,003	3,658	5·2
Total 96 divisions...	47,921	9,895	26·5	39,708	10,132	25·5	242,676	20,725	8·6

The knowledge that the school attendance of the age of 14 is not more strongly affected by illiteracy than the younger ages is important when considering the total effect of the age of 14 upon the difference between school non-attendance in rural and urban communities. Since the figures of Canadian born are the most free from ambiguity in this connection attention will be confined to these. In the nine provinces there were in rural areas 740,434 Canadian born children 7-14 of whom 102,207 or 13·8 per cent were not at school; 81,221 of these were at the age of 14 of whom 26,946 were not at school, so that at the ages of 7 to 13 there were 659,213 of whom 75,261 or 11·4 per cent not at school. Thus the age of 14 raised the school non-attendance from 11·4 to 13·8 or 2·4 points. In urban areas there were 623,438 Canadian born at 7-14 of whom 45,564 or 7·3 per cent were not at school,; at 7-13 there were 557,478 of whom 33,492 or 6·0 were not at school, so that the age of 14 raised the non-attendance from 6·0 to 7·3 or 1·3 points. The difference between rural and urban at the age of 7 to 13 was 5·4, while at the age of 7-14 it was 6·5, so that the difference was increased more than one fifth by the inclusion of the age of 14 which as a rule is not included in the compulsory school age in rural areas. The difference at the ages of 7 to 13 is as closely connected with the illiteracy of the community as the difference at the age of 14. In the appendix to this chapter it will be shown that the illiteracy of parents (not including widows and widowers) raised the difference between rural and urban at the ages of 7 to 14 by 52 p.c. which process would affect the ages of 7 to 13 to as great extent as the age of 14. Without taking into consideration the influence of other illiterate adults and children upon the school non-attendance of children of literate parents, it is clear that the illiteracy of parents upon their own children alone has as great an influence upon school non-attendance at the compulsory ages as the aggregate of physical influences.

CONCLUSIONS

The conclusions which will be stated presently are based upon the foregoing data and analyses. They are stated, however, strictly subject to the following provisions regarding their limitations. The appendix, however, furnishes direct data which seem to prove that these conclusions, founded on deductions only, are sound.

It must not be understood, that because definite mathematical measurements have been used, and definite relationships have been expressed, there is any intention to convey the idea that phenomena of this kind are definitely measurable or show *exact* mathematical relationships. That the occurrence of one social phenomenon should be in an exact ratio to the occurrence of another and entirely different phenomenon is unlikely. The exact relationships expressed above are merely descriptions of a trend of relationship.

If it is understood that the following conclusions are strictly subject to the foregoing limitations and also to such other limitations as are usual in investigations of this kind, it is believed that they are a correct interpretation of the data analyzed:—

1. Under present conditions in Canada there is a decided connection between the illiteracy of a community and the school attendance of children 7 to 14 years of age. This connection cannot be said to be that of mere identity; it was not merely that the person was illiterate because he was out of school during the year 1920 - 21; the illiterate persons are those who have not been at school in the past, whether their past was in that community or elsewhere. If it was in that community the connection shows a tendency on the part of an illiterate community to remain so; if it was elsewhere it shows a greater tendency among illiterate persons than among other persons either to fail to provide school accommodation for their children, or to fail to send them to school where accommodation has been provided.

2. There is a certain connection, as might be expected, between essentially rural conditions and school non - attendance. By essentially rural conditions are meant physical conditions such as climate, sparsity of settlement, etc. This connection is, however, mainly true of extreme conditions. In other words, in an extremely cold or thinly settled rural community the school attendance will be decidedly poorer *ipso facto* than in the adjoining urban areas or in the most favoured rural communities. The exact loss to school attendance in Canada owing to these extreme physical conditions cannot be determined because of the existence of other foes to school attendance in the same communities.

3. A different interpretation must be given of the difference between rural and urban areas on the point of school attendance in the case of rural communities which are not situated under extreme conditions. Moreover, these rural areas form at least a majority if not a very large majority of the rural areas of Canada. In these areas the following facts are noticeable:

(a) There is a certain connection between school attendance and physical conditions which causes school attendance to be necessarily worse in rural than in adjoining urban areas. This connection is neither very large nor very certain, and it is masked by other factors which tend to neutralize the physical influence. Where these factors are present in an urban area and not in the adjoining rural area, the urban school attendance is not so good as the rural. This was found in 16 urban areas in Canada, these centres having a population of 61,468 at 7 to 14 years of age. Further, where these factors are present in a favourably situated, and absent in an unfavourably situated rural community, the school attendance of the latter is better than that of the former. In other words, there are psychological or social factors strong enough to offset the advantages of physical conditions for school attendance.

(b) The main social factor discovered has been illiteracy, which in certain samples chosen has been found to be practically identified with the presence of certain non - Canadian racial elements.

(c) Where these races are settled under unfavourable physical conditions, the results are of course the combined effects of race and physical conditions, and appear as a very large percentage out of school. Where, however, they are settled either in urban areas or in favourable rural areas their existence is sufficient to neutralize the physical advantages, so that these areas show poorer school attendance than more umfavourably situated rural communities where the races do not exist. More important still, school non-attendance increases in a definite relationship with their existence, regardless of physical conditions.

(d) The tendency of these races to occupy smaller farm holdings than other races gives to small holdings the appearance of being unfavourable to school attendance while large holdings are given the appearance of being favourable. Further, as the average size of a farm increases, the school attendance appears to improve. Further, since a denser population is naturally associated with smaller holdings, density of population is given the appearance of being unfavourable to school attendance. Needless to say these appearances are misleading.

(e) Further, the existence of these races causes a spurious connection between values of farm products per capita of the population and school attendance which is entirely misleading.

4. The conclusion would seem to be justified that in Canada, under the conditions of 1921, the total influence of physical conditions upon school attendance was somewhat less than the influence of the psychological or social factors. In other words, illiteracy and other mental, social or racial factors, kept more children out of school in 1921 than climate, thin and new settlements, etc., combined. This would seem to be a startling conclusion, but it would seem to follow from the data.

On page 102 an attempt was made to show quantitatively the relationship between the illiteracy and school non-attendance of the Canadian born. Without quoting the actual figures this relationship might be expressed again as follows: (1) first of all there is in both rural and urban areas a certain residuum of school non-attendance which is independent of illiteracy. (2) Over and above this residuum, for every per cent illiterate of persons over the age of 10 years (which in the case of Canadian born are more than three times the number of children 7 to 14) there is about one per cent of children 7 to 14 in rural and fewer in urban communities not attending school. These of course include the illiterate children 10 to 14 years of age who are not at school.[1] (3) The total amount of school non-attendance thus associated with illiteracy in rural areas is at least as great as, and probably much greater than, the intrinsic difference between rural and urban areas; i.e., than the difference caused by purely physical conditions including climate, geographical position, sparsity of population, etc.

While these conclusions seemed to be borne out by the evidence there was a natural hesitation to express them quantitatively in view of the fact that the evidence was indirect and that there were then no means of checking the results by direct data. Since the time this material was analysed as above the desired direct data have been compiled. They seem to confirm the conclusions in every particular, even to the quantitative measurements. They also confirm other conclusions such as the greater connection between school non-attendance and illiteracy in the case of females than of males; of Canadian born than of foreign born; in rural than in urban areas, etc., etc.

It is important to remember that the conclusions on the basis of indirect evidence were reached before the direct evidence was available and consequently without suggestions from the latter. This brings out a significant point which would be difficult to prove otherwise, namely that certain causes operating were so strong that they were traceable through their results. It will bear out another point which will be developed presently with the aid of direct data, namely that illiteracy is not a merely negative phenomenon but what might be termed an active germ. To borrow an illustration from medicine it would seem that it is not an anaemia, which is not contagious and which can be remedied by transfusion of good blood, but a contagious disease, also more or less a hereditary disease. It will presently be shown that one illiterate person is probably a more potent factor than one literate person in determining school attendance, in spite of the fact that the laws of the land are backing the latter and controlling the former.

To make the significance of the following data clearer it will be necessary to formulate the *a priori* items which enter into school non-attendance between the ages of 7 and 14.

1. The residuum already mentioned and which is common to rural and urban areas alike, namely a variety of causes—sickness, changes in residence, home training at the earlier ages, especially the age of 7, the fact that certain people believe that it is advisable to delay school attendance, especially in the case of delicate children, until somewhat later than 7, the fact that in Ontario compulsory regulations are not operative until the age of 8, the fact that many children have finished their elementary course by the time they reach 14 and that compulsory regulations are no longer operative in most provinces after the 14th birthday; the fact that the arrival at the age of 7 may not,and usually does not, coincide with the date of school opening or a convenient date for admission to classes. For example many children would have arrived at the age of 7 shortly before the taking of the census in June. Many of these would not begin school till the beginning of the school year in September.[2] Many more minor causes of school non-attendance might be mentioned as making up this residuum.

2. The intrinsic difference between rural and urban conditions, a quantity to be determined.

3. The influence of the illiteracy of parents upon the school non-attendance of their own children.

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[1] N.B.—This does not mean that for every three or four persons illiterate there is one child out of school. As will be seen later the total amount of school non-attendance associated with illiteracy is something over 4 per cent of the total number of 7-14 year old children in rural areas. Deducting the illiterate children 7-14 this would mean that for about every 18 or 20 illiterate persons over 14 years of age one child 7-14 is not at school.

[2] At the age of 7 years 17·4 per cent were not at school in the nine provinces; 21 per cent in rural areas and 13·5 per cent in urban areas as compared with 8·7 per cent, 11·2 per cent and 5·98 per cent respectively at the age of 8. At the age of 14 years, 26·3 per cent total, 32·5 rural and 19·1 urban were not at school as compared with 11·5 per cent, 15·5 and 7·0 at the age of 13.

4. The influence of the illiteracy of parents, other adults and juveniles over 14 years upon the children of literate parents—in short the illiteracy of the community as a whole (over and above the illiteracy of parents upon their own children) upon the school attendance of children. This influence would operate through non-provision of school accomodations, example, etc.

5. Other possible psychological or social influences such as nativity, unwillingness on the part of foreigners to allow their identity to be lost through the schools of this country, conscientious scruples on the part of religious sects, etc.

To analyse indirect evidence on the subject of items 3 and 4 and compare it with the crude material of census data it will be necessary to remember that the correlation between illiteracy of persons over 10 years of age and school non-attendance of children 7 to 14 years takes two forms: 1. the illiterate children 10 to 14 years who are not at school and who (if the rather safe assumption is made that the number illiterate 10 to 14 years are also out of school) will be seen to form a greater number of the children not at school in rural than in urban areas in Canada. The connection between illiteracy and the actual per cent of school non-attendance is in this case not so much a causal one but rather one of identical items. The connection over and above this proportion is due either to the influence of illiterate parents and others upon the children or to the fact that children out of school in 1921 were being brought up in the same environment as other illiterates.

It is now possible to re-examine the foregoing items in the light of direct data. The point upon which the main emphasis will be laid however, is the influence of illiteracy upon school non-attendance as compared with the influence of intrinsically physical conditions.

As was expected (see page 101) the direct evidence is not altogether free from ambiguity and needs careful analysis. As was also expected the connection which applies to Canada in general does not apply to the same extent in the case of one province. This province, for this and other reasons already explained, was not included with the others in the samples used in the rest of the chapter to investigate the connection between illiteracy and school non-attendance. It was, however, examined separately and found to show this connection but in a lesser degree. As was also seen (see page 103) the connection between illiteracy and school non-attendance was not so marked in urban as in rural areas; also it was more marked in the case of females than of males. As was also foreshadowed (see page 97) the connection between illiteracy and school non-attendance was not so marked in the case of the foreign born as in the case of the Canadian born. The connection is quite strong in the case of British and United State.s born, but the number of illiterates in these two cases was so small as to be negligible, while the school non-attendance was so small as to be easily confinable to the residua already discussed. Attention will, therefore, be confined to the Canadian born. The figures of the province already mentioned are excluded.

Data were compiled showing the illiteracy and school attendance of children 7 to 14 of living parents, widowers and widows whose parents were: (1) both literate; (2) mother illiterate, father literate; (3) father illiterate, mother literate; (4) both parents illiterate; (5) widower father literate; (6) widow mother literate; (7) widower father illiterate; (8) widow mother illiterate. The following are the data for eight provinces:—

TABLE 69.—SCHOOL ATTENDANCE OF CHILDREN 7-14 OF CANADIAN BORN PARENTS IN EIGHT PROVINCES ACCORDING TO THE LITERACY OF THEIR PARENTS, 1921

	Rural				Urban				Number per 100 families not at school	
—	Number of families	Number of children 7-14	Number at school	Per cent not at school	Number of families	Number of children 7-14	Number at school	Per cent not at school	Rural	Urban
Both parents literate.....	270,987	286,676	254,064	11·4	236,136	211,765	202,011	4·6	12·0	7·4
Mother illiterate........	3,715	5,154	3,689	28·4	1,425	1,821	1,578	13·3	39·5	11·7
Father illiterate.........	10,408	14,741	11,361	22·9	3,235	4,205	3,735	11·2	32·5	14·5
Both parents illiterate....	6,190	8,224	4,834	41·2	1,679	2,173	1,784	17·9	54·8	23·2
Widowers literate........	11,602	8,876	7,799	12·1	8,420	5,217	4,968	4·8	9·3	2·9
Widows literate..........	17,258	11,225	10,073	10·3	29,551	14,249	13,541	·4·9	6·7	2·4
Widowers illiterate......	936	784	476	39·3	187	115	97	15·7	32·9	10·0
Widows illiterate.........	992	621	342	44·9	548	284	232	18·3	28·2	9·5
Total...............	322,088	336,301	292,638	13·0	281,181	239,829	227,946	5·0	13·5	6·9
Total literate.......	299,847	306,777	271,936	11·3	274,107	231,231	220,520	4·6	11·3	6·7
Total illiterate.......	22,241	29,524	20,702	29·9	7,074	8,598	7,426	13·6	40·0	15·5

that a community influence upon the children of literate parents also prevails. In chapter 10 it was shown that in rural areas in Canada illiteracy was not evenly spread, but rather it was rare or absent in most communities, while very prevalent in a few communities. The children of literate parents in the latter type of community would often form the minority. If illiterate parents will not send their children to school when school accommodations are provided, much less will they sacrifice to provide accommodations for others. It is reasonable to believe, therefore, that a considerable part of the 11·4 out of school in the case of children of literate parents was due to the influence of illiteracy.

4. It was mentioned on page 91 that the larger the number of children 7-14 in proportion to the adult population the poorer the school attendance. This was not accepted as a general principle or as being due to the greater difficulties in the way of sending to school a larger than a smaller number of children, although this influence would seem reasonable. On page 112 it was hinted that the cause was the type of persons to whom the larger number of children belonged. The figures in table 69 will show that this inference was correct. It would be misleading to include with these the children of widowers and widows since in all probability the families of these are older on the average than where both parents are living. .

	Children 7-14 per 100 families	
	Rural	Urban
Both parents literate...	106	89
Father only illiterate..	142	130
Mother only illiterate...	139	122
Both parents illiterate..	133	130
All four classes...	108	90
All illiterate parents..	138	128

Illiterate parents in both rural and urban areas have one-third again as many children 7-14 per family as literate parents. The question is, are the latter not at school because there are more of them per family, or are there more of them per family because their parents are illiterate, or better, under the same conditions as their parents are illiterate? The fact that there is only a very small correlation between the number of children 7-14 in proportion to the adult population and school non-attendance when the data are taken for a large number of communities, while there is a very high correlation between school non - attendance and illiteracy in the same communities would seem, if not to prove, at least to force conviction that the answer to the above question must be in favour of the second assumption, although the first assumed condition may actually operate in the case of the class of parents who have these children but not necessarily in the case of other parents. The conviction becomes still stronger when it is known that in certain areas where the proportion of children 7-14 to the adult population is the highest in Canada but where there is a negligible amount of illiteracy, the school attendance is unusually good.

5. It is also evident that illiteracy of parents has not the same influence in urban as in rural areas. This came out clearly in the correlations already discussed (see page 103). The inferences are that compulsory school attendance laws are more effective in urban areas, also that the overwhelming majority of literates in urban areas tend to neutralize the influence of illiterate parents; also that one of the forms which the influence of illiteracy takes is that of succumbing to environment more readily than literacy.

6. To obtain the total effects of illiteracy and other social conditions as compared with purely physical conditions in raising the school non-attendance in rural areas above that in urban areas more data are needed. It is not conclusive that of the children of literate parents in rural areas 11·3 per cent are not at school while 7·9 per cent of the children of literate parents in urban areas are not at school. In the first place the effects of compulsory regulations are operative in the case of urban areas to a greater extent than in the case of rural areas and these are social not physical agencies. In the next place the age of 14 years was responsible for a certain portion of the difference between school non-attendance in rural and urban areas, and non-attendance at this age can not be attributed to purely physical conditions except in so far as rural conditions hinder the institution of high schools. The importance of the last mentioned aspect is minimized by the

facts that only a portion of the children at 14 are ready for high school or would go on to high school in any case, while high school work is actually taught in practically all rural schools while a large number of rural children actually attend high schools in neighbouring or other urban centres. Further, the connection between rural non-attendance and illiteracy was found to be not stronger in the case of the age of 14 than in the case of the ages of 8 to 13. In the next place the 11·3 includes the influence of illiterates other than their own parents upon the school non-attendance of the children of literate parents. That this influence must be large is shown by the nature of the effects of illiteracy of parents upon the non-attendance of children. Illiteracy is clearly a stronger agent in preventing attendance than literacy is in procuring it in spite of the fact that the latter has the laws of the land behind it. Literate parents in an illiterate rural community can send their children to school only in spite of example and sometimes at a financial sacrifice, by sending them to school in another community. Again the 11·3 include the effects of certain prejudices, especially sectarian prejudices, against sending children to school. That this influence is considerable is shown in the case of such a sect as the Mennonites who were a literate people and yet would not send their children to Canadian public schools. All these and other social factors must be taken into consideration when comparing the 11·3 per cent of the children of literate parents not at school in rural areas with 7·9 of the same class of parents in urban areas, a difference of 3·4 points. At the same time the illiteracy of their own parents alone raised the non-attendance in rural areas from 11·3 to 13·0 or 1·7 points. It is reasonable to suppose that the influence of other illiterates than parents and all other social factors combined together with the influence of the age of 14 would account for at least another 1·7 points and probably much more. When, therefore, it was deduced that illiteracy and other social agencies had at least as great a part in the difference between school non-attendance in rural and urban areas as purely physical conditions it is clear that this was not an overstatement. It would seem that illiteracy alone accounted for more than physical conditions.

This aspect of the situation will be shown more clearly by comparing the *illiteracy* (instead of school non-attendance) of children 7-14 with the illiteracy of parents. The illiterate children 7-14 were in most cases not at school and never were at school. They, therefore, form a more certain index of the effects of illiteracy inasmuch as the school non-attendance of a single year like 1921 might have been in some cases due to unavoidable accidents.

TABLE 70.—ILLITERACY OF CHILDREN 7-14 YEARS OF AGE OF CANADIAN BORN PARENTS ACCORDING TO THE ILLITERACY OF THEIR PARENTS IN RURAL AND URBAN AREAS FOR EIGHT PROVINCES, 1921

	Rural			Urban		
	Number of children	Number illiterate	Percentage illiterate	Number of children	Number illiterate	Percentage illiterate
Both parents literate........................	286,676	9,960	3·5	211,765	4,024	1·9
Mother only illiterate........................	5,154	1,248	24·2	1,821	220	12·1
Father only illiterate........................	14,741	2,574	17·5	4,205	368	8·8
Both parents illiterate........................	8,224	3,530	42·9	2,173	396	18·4
Widowers literate...........................	8,876	345	3·9	5,217	90	1·7
Widows literate.............................	11,225	425	3·8	14,249	219	1·5
Widowers illiterate..........................	784	228	29·1	115	14	12·2
Widows illiterate...........................	621	225	36·2	284	45	15·9
Total...............................	336,301	18,535	5·5	239,829	5,376	2·2
Total literate.....................	306,777	10,730	3·5	231,231	4,333	1·9
Total illiterate....................	29,524	7,805	26·4	8,598	1,043	12·1

The above figures are much more conclusive than the figures of school non-attendance. Literate parents have 3·5 per cent of their children illiterate in rural as compared with 1·9 per cent in urban communities, a difference of 1·6 points. All parents in rural areas have 5·5 per cent of their children illiterate thus raising the percentage in the case of children of literate parents from 3·5 to 5·5 or 2·0 points. Thus the illiteracy of parents alone is responsible for a greater portion of the difference between the illiteracy in rural and in urban areas than all other causes combined. As said, these figures are a more permanent and reliable index of school non-attendance than the figures of school attendance since the children illiterate at these ages show not only non-attendance in 1921 but also non-attendance in other years. They are also more

CHART IV

RURAL AREAS IN CANADA.

P.C NOT AT SCHOOL OF CHILDREN 7-14 YEARS
ACCORDING TO LITERACY OF PARENTS. CENSUS 1921.
(CANADIAN BORN PARENTS ONLY)
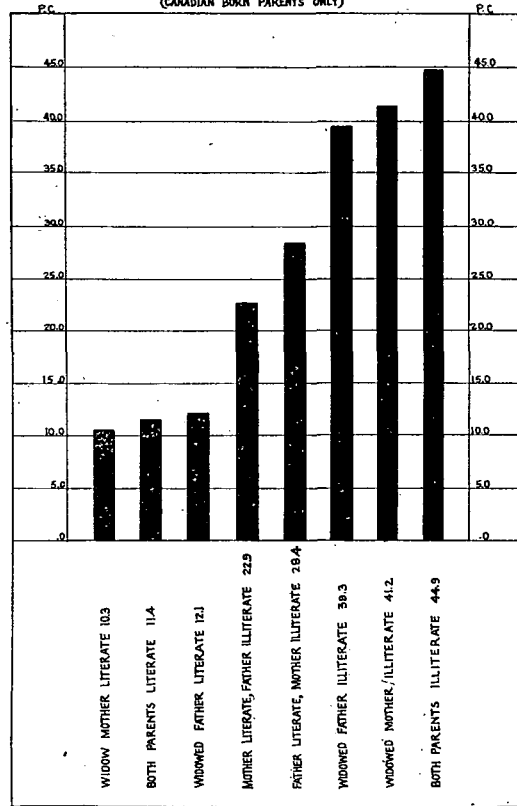
RURAL AREAS IN CANADA.

P.C ILLITERATE OF CHILDREN 7-14 YEARS
ACCORDING TO LITERACY OF PARENTS. CENSUS 1921.
(CANADIAN BORN PARENTS ONLY)

significant since besides eliminating accidental causes which might have been peculiar to the year 1921 they indicate that the connection between illiteracy and school non-attendance is a permanent or fundamental connection. That illiteracy reproduces illiteracy 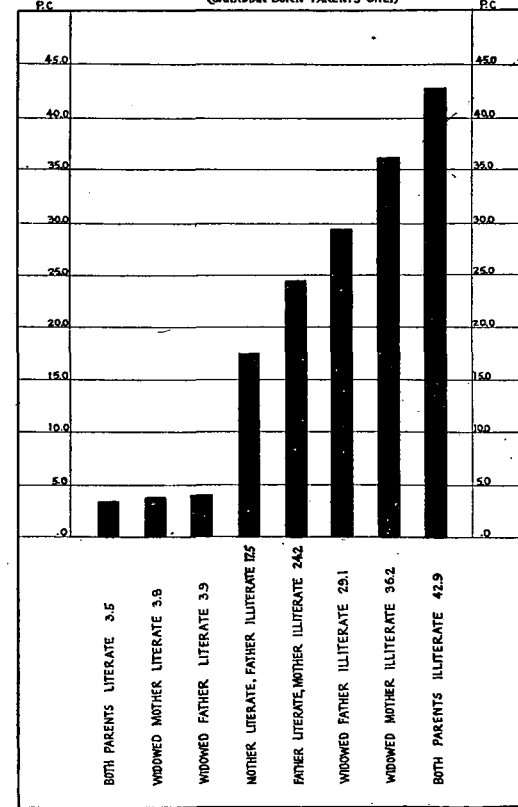would seem obvious. The mental status indicated by illiteracy is of course not to be ignored but it has already been repeatedly shown that "illiteracy" in the case of children is practically identical with school non-attendance.

The conclusion from the above two tables and chart IV and from the data and calculations in the rest of the chapter are so important and startling that every possible precaution should be taken to avoid or eliminate irrelevant or accidental elements which might have entered into them, also other causes of misinterpretation. It is difficult to conceive of elements of this kind which have not already been examined in full. The great danger underlying aggregate figures of a country was that in consideration of the fact that the figure of both illiteracy and school non-attendance were small in comparison with those of literary and school attendance there was a possibility that the former figures were the results of accidental conditions; such as congregation of the illiterates and those not attending school under conditions conducive to illiteracy, and school non-attendance. Many such conditions could be mentioned: e.g. a city might have more illiterates than another because it had an institution for feeble-minded persons. Rural areas might have more illiterates and more out of school because there were fewer settlements without the means of erecting schools. School non-attendance would also follow immigration during 1921, etc., etc. In the first place it must be remembered that the figures of Canadian born only have been used in establishing the connection between illiteracy and school non-attendance. Next it will be remembered that the same connections which are observable in the above two tables were deduced independently from the very fact that illiteracy and school non-attendance were not confined to accidental or unusual physical conditions but varying with one another under practically all conditions. It is here that the significance of the correlation co-efficients enters. On page 102 it was shown that in 96 rural areas selected at random in every respect but that of excluding Indians, and, incidentally extreme physical conditions and thus excluding relevant data there was a correlation of 0·91 between illiteracy and school non-attendance, while in the adjoining urban areas the correlation was 0·75. This correlation exists under 96 different conditions out of 155 (one province being excluded). There is hardly any doubt that it would be true of the whole 155 if it had been possible to exclude the number of Indians from the remaining 59. It is not often that a correlation can be obtained where the number of cases bears such a large proportion to the total and which consequently, is so valid as the above. With the direct evidence to check the results it would seem, therefore, no longer necessary to hesitate to express the relationship between illiteracy and school non-attendance on the basis of the regressions obtained from these the correlations in the 96 areas. This definite expression although a mere estimate will have the advantage of showing the probable relationship more clearly than would be possible by means of statistical tables.

If y represents the deviation from the mean percentage of Canadian born of children 7-14 not at school, and x the deviation from mean percentage illiterate of the Canadian born population 10 years and over in eight provinces in Canada, then (see page 102).

In rural areas $y = 1 \cdot 1x$.

In urban areas $y = 1 \cdot 01x$.

The percentage rural 7-14 not at school in eight provinces excluding Indians was 12·8; urban 5·8; the percentage illiterate excluding Indians was rural 4·0; urban 1·5.

If Y represent the percentage not at school in any community and X the percentage illiterate in any community, then

(1) In rural areas $Y = 1 \cdot 1X + 8 \cdot 4$.
(2) In urban areas $Y = 1 \cdot 01X + 4 \cdot 3$.

This would mean that 8·4 per cent not at school in rural areas were independent of illiteracy, and 4·3 per cent in urban areas. The total percentage not at school was 12·8 rural and 5·8 urban so that 4·4 per cent in rural and 1·5 per cent in urban areas were not at school by virtue of illiteracy which include a certain identity, viz., the children 10-14 who were at the same time illiterate and out of school. The balance of the 4·4 was caused or conditioned by the illiteracy of adults and juveniles. The residua 8·4 and 4·3 which are assumed to be due to other causes than illiteracy include, however, other social causes which have already been discussed, so that

the difference between 8·4 not at school in rural areas and 4·3 in urban areas; i.e. 4·1 is not entirely a difference in physical conditions. It also includes most of the difference caused by the age of 14 being out of school to a greater extent in rural than in urban areas. The data on school attendance shows that one-third of the difference between rural and urban attendance was caused by the connection between the illiteracy of parents and the school non-attendance of their children. The above estimate indicates that one-half of the difference was caused by illiteracy of all persons including that of the children 10 to 14 who were illiterate and not at school. This leaves only one-sixth of the difference as being due to the illiteracy other than illiteracy of parents. This does not seem at all unreasonable.

The following table on the basis of both actual figures and the above estimates summarizes the constituents entering into school non-attendance in rural and urban areas. It represents only a probability but a coherent one and there are cases when a good probability is more reliable than unanalyzed direct data.

It shows the constituents entering into school non-attendance of Canadian born children 7-14 as

—	Rural	Urban
1. A variety of minor conditions probably common to both rural and urban areas alike........	3·3	3·3
2. Non-relevant material such as the identity formed by illiterate children 7–14 and those not at school at these ages also material relating to the post-compulsory age of 14.............	2·9	2·0
3. Illiteracy of parents..	2·0	0·3
4. Illiteracy of others than parents...	1·3	0·2
5. All other conditions such as other social conditions than illiteracy probably prevailing in rural areas alone or to a greater extent plus the pure influence of physical environment..........	3·3	–
All conditions...	12·8	5·8

It is to be noted that the above table shows only the children not at school in 1921. It may be thought that it only describes 1921 conditions and that it can not be used with validity for the purpose of inferring conditions of other years or general conditions in Canada. The fact that it has been shown true under a large variety of conditions in 1921, however, is some evidence that it is generally true. The following chart analyses the number of *illiterate* children 7-14 years of age in the same eight provinces and on the basis of the actual figures of table 70. The illiteracy of children shows a more permanent situation than their non-attendance in 1921. Most of the illiterate children have probably never been to school and those who have been to school have either attended irregularly or have not been mentally capable of learning to read. This brings in the idea of hereditary illiteracy. The chart has, therefore, the advantage of showing a more permanent tendency and of being entirely based on actual figures. It lacks, however, the great advantage of being shown to be true under a large variety of conditions. It is a mere aggregate for 8 provinces and has not been capable of analysis for the purpose of eliminating the possibility that it is true only under peculiar circumstances or crowded into one or two provinces or localities influenced by conditions irrelevant to the points which it is intended to illustrate. This, by the way, exemplifies one of the defects of direct evidence.

The figures (see table 70) are as follows:—

NUMBER PER 100 CHILDREN OF CANADIAN BORN PARENTS 7-14 YEARS OF AGE ILLITERATE IN EIGHT PROVINCES IN CANADA, 1921. (336,301 RURAL AND 239,829 URBAN CHILDREN REPRESENTED)

—	Rural	Urban
Both parents literate...	3·5	1·9
Widow mother literate...	3·8	1·5
Widower father literate...	3·9	1·7
Father illiterate, mother literate...	17·5	8·8
Mother illiterate, father literate...	24·2	12·1
Widower father illiterate...	29·1	12·2
Widow mother illiterate...	36·2	15·9
Both parents illiterate...	42·9	18·4
All parents...	5·5	2·9
Literate parents...	3·5	1·9
Illiterate parents...	26·4	12·1

It is to be noticed that the difference between the children of literate parents and all parents in rural areas is 2·0; that is the illiteracy of parents raises the illiteracy of all children from 3·5 to 5·5 or 2·0 points. Similarly in urban areas the children's illiteracy is raised 0·3 points over 1·9 in the case of children of literate parents.

By a similar process the amount by which each type of illiterate parent raises the illiteracy of children and other conditions entering into the illiteracy of the children may be analyzed as follows:—

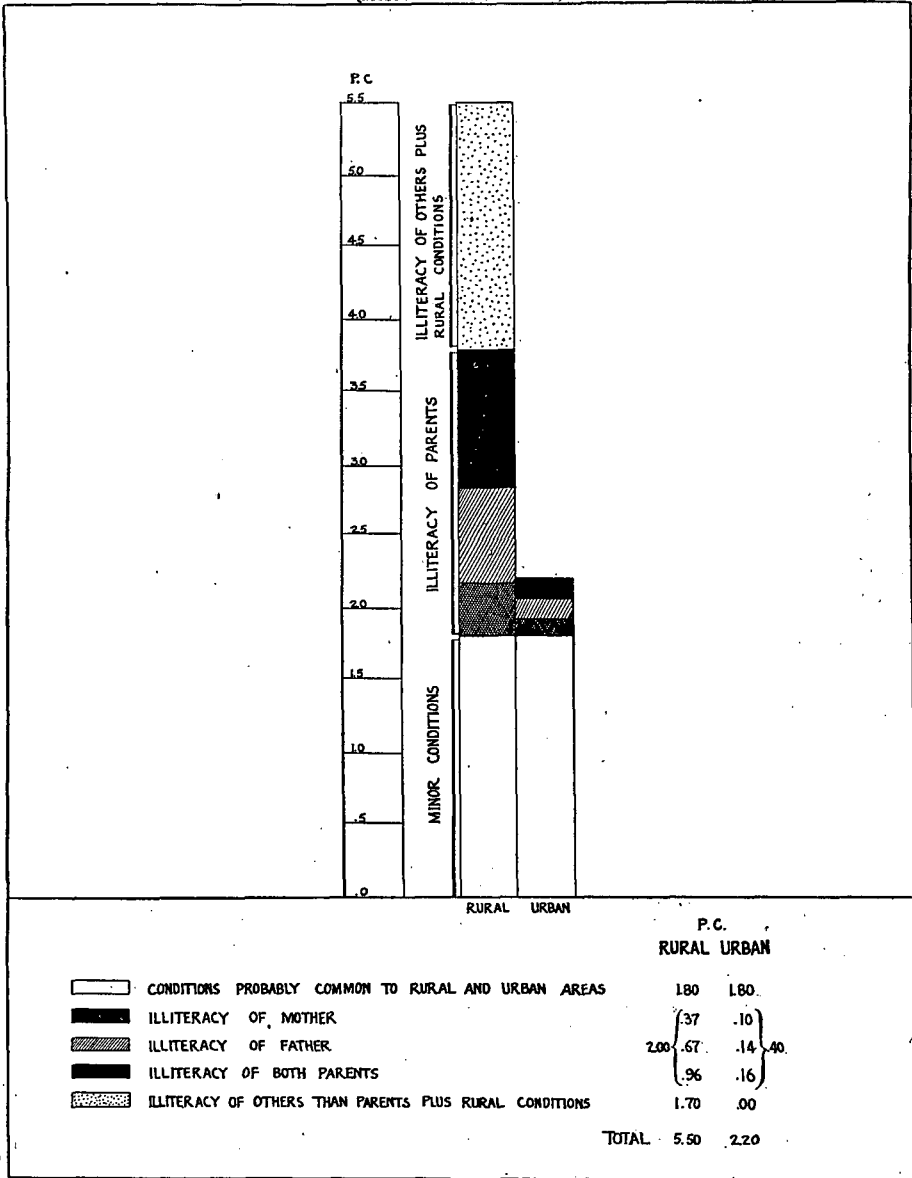| —	Rural	Urban
1. Conditions probably common to rural and urban areas alike	1·90	1·90
2. Conditions probably peculiar to rural conditions plus iliteracy of parents, etc.	1·70	0·00
3. Illiteracy of father	0·67	0·05
4. Illiteracy of mother	0·37	0·09
5. Illiteracy of both parents	0·96	0·16
Percentage illiterate children of all parents	5·60	2·20
Portion of this percentage conditioned by illiteracy of parents	2·00	0·30
Portion due to other causes (including illiteracy of others)	3·60	1·90

One more important point remains to be considered. It is noticeable from tables 69 and 70 that the illiteracy of children 7 - 14 shows the influence of the illiteracy of parents to a far greater extent than the school non - attendance of the same children in 1921. Two opposite views may be advanced in explanation: (1) that since the illiteracy of the children represents a period of eight years (7 - 14), while the school non-attendance represents only one year (1921), the former shows actual conditions more adequately than the latter, not only by eliminating the accidental features of one year, but also by showing such permanent features as hereditary mentality, etc. It must again be pointed out, however, that while the school attendance figures were for only one year, the fact that they were found to have a constant meaning under a great variety of conditions in that year should indicate that this meaning was not due to accidental conditions of a single year. Without ignoring the probability that illiteracy of children represents a more permanent phase than the school non - attendance figures of one year it is reasonable to advance the other view: (2) that the smaller connection with the illiteracy of parents in the case of school non - attendance in 1921 indicates that the influence of the illiteracy of parents is losing its grip. For this more optimistic view there are certain reasonable grounds. The eight provinces represented have all compulsory attendance laws the enforcement of which has been more stringently carried out in late years than formerly. In the case of some provinces the laws themselves have either been practically intiated or armed for the first time with serious means of enforcement only since the beginning of the eight year period represented by the illiteracy of children 7-14. It is also significant that the illiteracy of parents has not the same influence in urban as in rural centres. There is, therefore, ground for hope that the influence of the illiteracy of parents upon the school non - attendance of their children is losing its force.

It is interesting to see that the ninth province does not show the same trend as the other eight. The illiteracy of parents has not the same influence in this as in the other provinces, nor does this influence show the same order of appearance, viz. illiteracy of mother stronger than that of father, etc. There is a connection but it is weaker. The illiteracy of Canadian born children 7 - 14 in this province is practically the same as the average for Canada, although the illiteracy of older persons is considerably higher than in Canada as a whole. Taking now the school attendance in the rural areas, the Canadian born children 6 - 9 years show 81·0 per cent at school in this province as compared with 76.6 in rural Canada as represented by the nine provinces; the age of 10 has 93·9 per cent rural at school in this province as compared with 93·2 in the nine provinces. After this age the percentage falls below that of Canada as a whole. In respect of regularity of attendance as shown by the percentage of those attending for any period who attend 7 - 9 months, this province is one of the very highest in Canada. Again it would seem that the difference in this province between rural and urban areas in school non-attendance has a stronger connection with intrinsically rural conditions than with social factors such as illiteracy etc. This, it will be remembered is otherwise in the rest of Canada.

CHART V

CONSTITUENTS ENTERING INTO THE NUMBER PER 100 CANADIAN BORN CHILDREN
7-14 YEARS OF AGE ILLITERATE IN 8 PROVINCES OF CANADA 1921.

(CHILDREN REPRESENTED 336,301 RURAL AND 238,771 URBAN)
(CANADIAN BORN PARENTS ONLY.)

	P.C. RURAL	URBAN
CONDITIONS PROBABLY COMMON TO RURAL AND URBAN AREAS	1.80	1.80
ILLITERACY OF MOTHER	.37	.10
ILLITERACY OF FATHER	2.00 .67	.14 .40
ILLITERACY OF BOTH PARENTS	.96	.16
ILLITERACY OF OTHERS THAN PARENTS PLUS RURAL CONDITIONS	1.70	.00
TOTAL	5.50	2.20

CHAPTER 16

SCHOOL ATTENDANCE IN CITIES AND TOWNS (7,500 POPULATION AND OVER)[1]

In the last chapter an investigation was made of school attendance in urban communities as compared with their adjoining rural communities. The urban areas were assumed to present no physical obstacles to attendance at school, and the purpose of the comparison was to ascertain the influence of physical obstacles in the rural areas. The general conclusion was that the gross difference between urban and rural areas was only partly due to physical conditions, and was largely due to the same factors as in urban areas, but operating on a larger scale. An investigation will now be made of the elements entering into school non-attendance in cities and towns of over 7,500 population as a means of ascertaining what is really happening in urban communities. For these larger areas more information is available than in the case of smaller urban areas; further, the larger cities, consisting as they do of much greater aggregates of population than the general average of urban areas, have exceptional features which are apt to mislead if they are not separately studied.

A summary of certain outstanding features of school attendance in these cities may be given as follows:—

In all urban areas there was a population of 1,282,245 (excluding Indians) between 5 and 19 years of age, of whom 835,682 or 65·2 per cent attended school during the year, and 791,168 or 61·7 per cent attended from 7 to 9 months during the year. Between the ages of 15 to 19 which may be considered as secondary school ages, 115,498 or 30·3 per cent of the population attended school. If the ages of 5 and 6 at the one end and the age of 19 at the other be excluded, there were 649,114 or 92·5 per cent of those at the ages 7 to 14 in attendance and 108,834 or 35·0 per cent at the ages of 15 to 18. An abrupt drop in attendance occurred at the age of 15 which had only 60·1 per cent at school as compared with 80·9 per cent at the age of 14. There may be a certain amount of significance in the ratio between 92·5 and 35·0, which is 2·6 to 1. It does not give the exact proportion between those who begin elementary school and those who go on to high school, but it does very nearly give the proportion which could be in high school if they had made normal progress in the elementary school. It does not give the exact proportions for several reasons. One reason is that in practically all countries persons do not know or will not give their correct ages to the census enumerators: This source of error would probably affect most seriously the land-marks mentioned above, namely, the ages of 7, 14 and 18. That is, if children whose ages were given as 7 were really 6 or 8 years old, those given as 14 were actually 13 or 15, etc., so that the error would affect the accuracy of the proportion between the 7-14 group and the 15 to 18 group.

In the next place, children are beginning school at all ages, so that some of those at school at 7 to 14 years would begin school at 7, others at 8 and so on. Consequently, the eight years between 7 and 14 would not mean 8 years actually at school. This may be seen at once from the following figures:—

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[1] Ref. Census 1921, vol. II, p. 742.

PERCENTAGE AT SCHOOL 7-18 IN URBAN AREAS (CENSUS OF 1921, INDIANS EXCLUDED)

Age	Percentage at school
7	86·6
8	94·1
9	95·8
10	96·7
11	96·7
12	96·0
13	93·0
14	80·9
15	60·1
16	40·8
17	25·5
18	15·0

Suppose 86·6 per cent of the population at 7 were at school in 1920, and that in that year there was the same proportion as in 1921 between the population at the ages of 7 and 8, namely 98,446 to 96,294 or 100 to 98. If the deaths between 1920 and 1921 occurred in the same proportion among those at school as among those not at school, then the survivors of the 86·6 per cent attending at the age of 7 in 1920 would still be 86·6 of the survivors at the age of 8 in 1921. Consequently, roughly 7·5 (94·1—86·6) out of the 94·1 attending at the age of 8 in 1921 must have begun at 8; similarly 1·7 per cent must have begun at the age of 9 and 0·9 at the age of 10. After 10 years of age the beginners are negligible, as is shown by direct information on the subject derived from returns of teachers of several provinces. It would seem, however, that in all, 10·1 per cent of the children at the age of 10 years must have begun school later than 7 years of age, so that this 10·1 would not have had 8 years of schooling by the time they were 14.[1]

Again, while at the ages between 7 and 14, 91·5 per cent attended school for some period, there were only 89·2 per cent who attended between 7 and 9 months or what might be considered an effective year. That is, 3·4 per cent of those actually at school attended less than an adequate period. Over a third of these attended less than 4 months. At the age of 7, however, 7·7 per cent of those actually at school attended less than 7 months. This reduces the chances of reaching the end of the elementary grades at 14 to 83 per cent (allowing for the 10·1 per cent who did not begin school till later than 7 and the 7·7 per cent of those beginning at 7 who did not attend the full year).

Now to go on further with this calculation it is necessary to assume:—

1. That each grade at school requires at least 7 months to complete. This is quite a safe assumption. Data derived from other sources corroborate the assumption that children who are bright enough to complete a year's work in less than 7 months are apt to be those who also show the most regular attendance and consequently are not apt to be included among those who attend less than 7 months. Of course accidental causes may bring about the inclusion of some of them among the latter, but it is believed that these form only a negligible proportion.

2. That the attendance for less than 7 months is distributed fairly evenly; that is that those who at 9 attended less than 7 months were not exactly the same as those who attended less than 7 months at 8 and so on. This is not quite so safe an assumption, as has been discussed in a former paragraph. The tendency would seem to be for certain pupils to be regular in their attendance throughout their school course and for others to be irregular. The error from this assumption, however, can not be very large.

It has been seen that by the age of 8 the chances of 7-year-old children, who either have begun or are destined to begin to attend school at all, of reaching the end of the elementary course by the time they are 14 has been reduced to 83 per cent on account of loss of time in commencing or short attendance during the year. As this loss in attendance during the year persists throughout the elementary course the following figures may help to clarify the further discussion.

[1] It is to be understood, of course, that the fact that 86·6 per cent attended at 7 and 94·1 per cent attended at 8 does not say directly that 7·5 per cent had begun at 8 years. Conceivably some who had begun at 7 or earlier were not in attendance at 8. The assertions made above are based upon collateral data from teachers' reports showing the proportions beginning "Grade I" at different ages. They agree so closely with the percentage at school at the various ages up to 11 years as given by the census that one is forced to the conclusion that the number of children absent at any age 6 to 11 years who had begun school before that age forms such a small percentage that they do not seriously affect the deductions made above.

PERCENTAGE OF THOSE ACTUALLY AT SCHOOL IN URBAN AREAS IN 1921 ATTENDING 7-9 MONTHS
AND PERCENTAGE ATTENDING LESS THAN 7 MONTHS

Ages	Percentage attending 7–9 months	Percentage attending less than 7 months
5	65·5	34·5
6	79·8	20·2
7	92·9	7·1
8	97·5	2·5
9	97·3	2·7
10	97·5	2·5
11	97·6	2·4
12	97·5	2·5
13	97·4	2·6
14	96·5	3·5

1. Assuming that practically all children have begun school by the time they are 11 years of age, it would seem that out of every 1,000 children in urban areas between 967 and 990 go to school at some time.[1]

2. Assuming for illustration the lower figures, by the time these 967 children are 14 years of age, 298 or 30·8 per cent are retarded because of the accumulated time attended less than 7 months in each year.

3. By the same time 108 or 11·1 per cent are retarded because of beginning school later than the age of 7. This leaves 562 or 58·1 per cent of those who begin school at all who have had time enough at school to complete the elementary course by the age of 14.

This does not, however, take into account the number who do not stay at school until they are 14. The percentage at school dropped from 96·7 per cent at the age of maximum attendance to 80·9 per cent at the age of 14. Practically all this drop took place between 13 and 14, so that of the 967, roughly only 809 are at school at 14. Assuming the same retardation among those who dropped out and those who remained (another unsafe assumption) it would seem that at least 325 or 40·2 per cent are trailing behind the last grade in the elementary course by the time they are 14. This leaves only 484 or 50·0 per cent of the original 967 who have had time to complete the elementary course at the age of 14 years. This calculation is corroborated in a remarkable manner by statistics of ages and grades of 1,247,707 pupils gathered from teachers' returns of 7 provinces. Out of 99,992 pupils at the age of 14 years, 50,018 or 50·0 per cent were below Grade VIII (the last year of the elementary school course)—so close an agreement with the above calculation as to be entirely unexpected. In spite of this close agreement with the facts, a certain margin ought to be allowed to make the results general. Thus, it ought to be safe to conclude that according to the attendance shown by the census of 1921, out of every 1,000 children in urban areas in Canada, from 980 to 990 attend school at some time in their life; about 500 reach the end of the elementary course by the time they are 14 years of age; while about 160 drop out by this time. This leaves some hope for the 300 who are still at school below Grade VIII. In the age grade data already mentioned, the distribution of the pupils below Grade VIII at 14 years of age was as follows:—

Grade VII	17,696
VI	14,374
V	9,275
IV	4,986
III	2,223
II	1,058
I	395
Kindergarten and kindergarten primary	11
	50,018

[1] Illiteracy in urban centres in 1921 of persons over 10 years was 3·11 per cent. Illiteracy of persons 10 to 20 years in urban centres was 0·96 per cent. A few begin after 11 years and some were absent, no doubt, in their 11th year. The margin of error in the above and subsequent deductions would be from 10 to 15 per thousand. The law of averages applies remarkably closely to school attendance figures as ascertained from collateral data so that it may be safely assumed that this margin of error is evenly distributed in any deduction made. It may, therefore, be considered a very small margin when taken as a percentage of the results.

The chances which the retarded pupils have of completing the elementary course may be seen as follows:—

Grade at 14	Probable age for reaching Grade VIII	Percentage surviving at each age from those surviving at 14	Number who would reach Grade VIII with normal progress after 14
VII	15	75	13,272
VI	16	50	7,187
V	17	32	3,000
IV	18	18	897
III	19	11	244
II	20	....	0
I	21	....	0
Kindergarten and Kindergarten primary	22	....	0
			24,600

It is extremely improbable, however, that 24,600 out of the 50,018 below Grade VIII at 14 will ever reach Grade VIII; for the grades of those who remain after 14 are not distributed in the same manner as those under 14. The large majority are high school pupils or pupils in Grade VI and VII, so that to assume 20,000 (or the survivors from Grades VI and VII) as completing the course would be a very generous estimate. This is 40 per cent of those who remain at school and are behind Grade VIII. This is equivalent to 120 out of the 300 per thousand already mentioned as still having some hope. This would mean that out of the 1,000 original children, 980 or 990 begin school and 599 or 60 per cent reach the last grade of the elementary school course. In other words, according to this estimate, nearly two-thirds of those who begin school reach the last year of the elementary school course.

It should be noticed that only the element of time has been taken into consideration in the above calculation, and that mental differentiation has been ignored. The results agree with observed facts so closely that it must be assumed either that the mental factor is balanced by the time factors, or included in them. By "balanced" is meant that the bright child who in a certain year attended less than 7 months and still made his year would balance the case of the slow child who attended more than 7 months and still did not make his grade. By being "included" is meant the possibility that regularity of attendance varied with degree of intelligence, so that the results of the two combined appeared as one. Both assumptions are probably true to a certain extent.

It should further be noticed that no allowance has been made for any waste in the school career of the children except time lost by themselves in beginning school and through irregular attendance while there. This waste of time has been estimated above as making it impossible for something like 41 per cent. of those actually attending school to complete the elementary school course. The importance of the time element is thus seen to be tremendous. It should further be noticed that these are urban areas where physical conditions can not be said to interfere with school attendance. Further, these figures are only the average of all urban areas. This point is important. Total figures, especially relative figures, are only averages in spite of all appearances to the contrary. A country is not and can not be a single unit. It is made up of a very large number of units, each responsible to a great extent for its own welfare, battling with its own problems and influencing the country as a whole in its own way. In the matter of education, for example, it is not the Dominion as a whole or even the province as a whole that educates individual centres, but the centres that educate the Dominion. The 1 or 2 per cent never at school and the 40 per cent not finishing the elementary school course in all urban areas is in a sense meaningless, because it is not all urban areas that have to battle with the conditions revealed by these figures; rather, each single areas has to deal with its own situation

as shown by probably far different figures. In some areas the numbers of poorly educated persons are so small as to be almost negligible; corresponding to these are others with enormous numbers of such persons. The two sets form the total which give the average for all areas.

The foregoing should explain the emphasis laid in previous chapters and in the remainder of this chapter on individual areas. It should also be clear that it is important to investigate the underlying causes of children being out of school. As in the last chapter, attention will be confined to the children not at school between the ages of 7 and 14.

In all urban areas, out of a population of 701,855 between the ages of 7 and 14, 52,741 or 7·5 per cent were not at school in 1920-21. Of those out of school 13,245 were 7 years of age and 15,331 were 14 years of age, leaving 24,165 out of school between the ages of 8 and 13. Most of those out of school at 7 presumably had yet not begun, while most of the 15,331 at 14 presumably had left school. The 24,165 at 8 to 13 formed 4·6 per cent of the population at these ages. Since ample provisions is made, especially in the large urban areas, for the education of children subnormal physically and mentally, it is reasonable to assume that the great majority of the 52,741 were normal children. It should further be mentioned that another 22,190 attended less than 7 months during the year, making 74,391 in all or 12·2 per cent who either did not attend at all or attended less than 7 months.

Of the 701,855 population at 7 to 14 and the 649,114 at school, 473,632 with 439,465 at school were in cities of over 7,500 population. Of the 52,741 not at school, 34,046 were in these cities, making a percentage of 7·1 not at school in these cities as compared with 7·9 per cent in the smaller urban areas in the same counties as these cities, and 7·5 in all urban areas in Canada, or 8·2 per cent in all urban areas with a population of less than 7,500.

Of the population 7 to 14 in the 79 cities 413,483 were Canadian born, 37,013 were British born and 22,956 were foreign born. The Canadian born had 28,640 or 6·9 per cent out of school; the British born 3,339 or 8·2 not at school; and the foreign born 2,067 or 9·0 per cent. Thus of the 34,167 not at school 84·1 per cent were Canadian born, 9·8 per cent were British born and 6·1 were Foreign born. These figures are especially important, not so much as an indication of the comparative educational tendencies of the three classes of people, but as a mean of judging how far the school non-attendance could have been due to arrival in Canada in 1921 too late to attend school before the taking of the census. If the percentages not at school of the two immigrant classes had been much greater than that of the Canadian born, it might have been suspected that this late arrival was largely the cause. It seems to have been partly the cause at least in the case of British born. While migration from another part of Canada to the city in which they were enumerated may have occasioned some loss of time during the year it could hardly have caused the loss of a whole year, for the pupils had the opportunity to attend school either in their original place of residence or in the city in which they were enumerated. The question asked was "How many months at school between September 1,1920 and June 1, 1921?" The place where the school was located was not necessarily that where the enumeration was made.

Attention has just been called to the fact that these total figures are in reality only averages of what took place in several complete, and for educational purposes, practically self-contained, units. The provinces have provincial attendance officers, so that the attendance of each centre is partly the responsibility of the provinces; at the same time the chief responsibility is that of the centre itself. It is therefore most important to see how the school non-attendance is distributed among the 79 cities and the smaller urban areas in their neighborhood. The following table gives a list of the 79 cities in descending order of percentage not at school. As the names of the cities are not relevant to the points under discussion the areas are numbered in order from 1 to 79, so that number 40 is the central city. It will be noticed that the per cent not at school in this city is 6·4 or almost the same as that of the total of the 79 cities. Certain other data are also given for each area, in order to throw some light upon the factors interfering with school attendance. It was seen in the last chapter that illiteracy is one important factor. It would also seem reasonable to expect that the leading industries of the city, that is, the nature of the occupation of the greater part of the population, would be an important factor. It was suspected that the size of the city would have some bearing upon the point and on trial it was found to have a bearing of a certain kind which will be mentioned presently. The absolute size is not given in the table for the same reason that the names are not given. A most important point is the comparative non-attendance and illiteracy of the Canadian, British and Foreign-born for reasons which will be seen presently.

TABLE 70A.—SCHOOL ATTENDANCE AND OTHER DATA OF SEVENTY-NINE CANADIAN CITIES OF OVER 7,500 POPULATION

—	All classes			Canadian born			Index of size	Other urban parts in the same counties as the cities and towns		Percentage population 21 years and over in manufacturing
	Percentage at school for any period	Percentage not at school	Percentage over 10 years illiterate	Percentage at school for any period	Percentage not at school	Percentage over 10 years illiterate	Total population	Percentage not at school	Percentage illiterate	
1.............	83·7	16·3	6·1	84·5	15·5	4·4	1·1	9·2	6·4	0·8
2.............	85·3	14·7	4·8	85·4	14·6	5·0	1·2	8·4	5·8	49·2
3.............	87·8	12·2	1·4	88·6	11·4	1·6	3·3	10·3	2·5	17·5
4.............	88·1	11·9	3·9	88·0	12·0	3·5	2·0	-	-	29·8
5.............	88·4	11·6	3·9	88·6	11·4	4·1	1·0	7·5	9·0	129·3
6.............	88·5	11·5	7·9	88·4	11·6	8·4	1·0	10·1	5·5	78·0
7.............	88·8	11·2	5·1	88·8	11·2	5·4	3·1	11·8	3·9	42·6
8.............	89·1	10·9	9·2	89·1	10·9	9·0	1·2	-	-	24·4
9.............	89·5	10·6	7·0	89·6	10·4	7·3	3·0	7·5	6·9	53·5
10.............	89·6	10·4	8·6	89·6	10·4	8·8	3·1	13·4	8·1	26·0
11.............	89·7	10·3	3·1	89·7	10·3	7·3	1·0	9·2	8·0	24·8
12.............	89·9	10·2	6·2	90·0	10·0	6·1	1·0	11·8	7·9	4·0
13.............	90·0	10·0	3·6	90·4	9·6	3·0	81·8	-	-	32·7
14.............	90·1	9·9	6·9	90·1	9·9	7·1	1·2	14·3	4·6	24·1
15.............	90·2	9·8	3·3	90·3	9·7	3·3	12·6	10·4	1·5	20·4
16.............	90·3	9·7	1·7	.90·3	9·7	0·3	1·9	7·8	2·6	36·6
17.............	90·7	9·4	4·9	90·8	9·2	5·0	1·4	10·0	6·3	35·8
18.............	90·7	9·3	4·8	90·7	9·3	4·8	1·4	9·0	2·9	6·6
19.............	91·3	8·7	3·4	91·5	8·5	1·1	3·2	-	-	25·2
20.............	91·6	8·5	1·0	91·3	8·7	0·8	1·0	11·1	1·2	25·0
21.............	91·6	8·4	5·1	92·2	7·8	4·0	2·2	-	-	1·8
22.............	91·6	8·4	1·7	91·7	8·3	1·6	1·6	-	-	0·9
23.............	91·8	8·2	0·8	91·7	8·3	0·5	1·1	8·9	1·4	18·4
24.............	91·8	8·2	1·4	92·0	8·0	1·0	6·2,	-	-	16·0
25.............	91·9	8·1	2·1	91·7	8·3	1·9	1·2	8·8	1·9	51·0
26.............	91·9	8·1	2·8	92·1	7·9	2·8	1·4	-	-	51·4
27.............	92·5	7·5	2·1	93·5	6·5	0·5	15·1	5·3	2·2	44·6
28.............	92·6	7·4	2·3	92·5	7·5	2·4	2·3	8·5	4·3	30·6
29.............	92·6	7·4	0·8	94·0	6·0	0·5	1·7	6·2	1·1	48·8
30.............	92·6	7·4	5·5	92·8	7·2	5·3	1·0	5·9	4·2	29·0
31.............	92·7	7·3	2·7	92·9	7·1	2·4	14·3	9·4	11·4	17·3
32.............	92·9	7·1	0·8	92·8	7·2	0·5	2·1	7·2	1·2	40·6
33.............	92·9	7·1	1·4	93·7	6·3	0·8	2·6	8·1	1·0	37·4
34.............	93·1	6·9	2·4	93·9	6·1	0·4	1·6	2·7	1·2	58·2
35.............	93·1	6·9	2·1	92·9	7·1	0·6	7·0	4·3	3·9	14·0
36.............	93·2	6·8	4·0	93·2	6·8	4·0	1·3	10·0	3·4	43·1
37.............	93·4	6·6	0·3	94·1	5·9	0·2	2·3	-	-	2·9
38.:...........	93·4	6·6	1·7	94·3	5·7	0·9	2·4	2·9	0·8	34·9
39.............	93·6	6·4	1·0	93·8	6·2	0·9	1·0	-	-	35·6
40.............	93·6	6·4	0·6	94·0	6·0	0·4	1·7	-	-	0·3
41.............	93·9	6·1	0·5	94·4	5·6	0·4	1·3	6·7	0·6	32·6
42.............	93·9	6·1	1·7	94·8	5·2	0·4	69·1	7·8	2·0	32·1
43.............	93·9	6·1	2·7	94·4	5·6	0·8	3·9	7·3	0·7	50·0
44.............	94·0	6·0	3·7	94·5	5·5	2·4	1·4	10·6	10·1	25·3
45.............	94·0	6·0	4·5	94·0	6·0	4·4	1·0	15·7	6·4	-
46.............	94·1	5·9	1·4	95·9	4·1	1·1	2·8	4·5	0·9	49·6
47.............	94·1	5·9	5·7	94·5	5·5	4·2	1·1	10·1	8·1	11·0
48.............	94·2	5·9	1·5	94·4	5·5	0·9	5·1	7·0	4·2	16·5
49.............	94·2	5·8	1·5	94·4	5·6	0·7	1·9	-	-	20·0
50.............	94·3	5·7	2·7	95·3	4·7	0·4	1·1	-	-	72·0
51.............	94·4	5·6	2·0	94·6	5·4	1·7	7·6	-	-	21·0
52.............	94·4	5·6	1·6	94·4	5·6	1·3	1·3	5·0	2·4	18·8
53.............	94·5	5·5	4·9	95·3	4·7	1·6	2·8	8·1	7·5	30·2
54.............	94·6	5·4	3·5	94·9	5·1	0·3	15·5	-	-	31·8
55.............	94·8	5·1	2·0	95·4	4·6	0·6	2·9	-	-	64·4
56.............	94·9	5·1	1·0	95·0	4·6	0·6	8·0	7·4	0·7	28·2
57.............	95·0	5·0	1·7	95·6	4·4	0·3	5·1	-	-	10·7
58.............	95·1	4·9	1·8	96·0	4·0	1·5	1·8	3·9	2·5	27·6
59.............	95·1	4·9	2·3	95·3	4·7	1·7	1·6	8·3	2·6	11·4
60.............	95·1	4·8	1·2	95·2	4·8	0·8	2·9	2·8	8·7	18·1
61.............	95·4	4·6	0·7	96·8	3·2	0·1	1·3	4·8	8·6	7·8
62.............	95·4	4·6	2·2	95·0	5·0	1·5	1·0	4·6	3·9	11·2
63.............	95·5	4·5	10·5	96·0	4·0	0·6	2·7	-	-	15·0
64.............	95·7	4·3	1·4	96·3	3·7	0·6	4·6	5·4	3·4	12·0
65.............	95·8	4·2	2·6	96·1	3·9	2·3	·1·7	-	-	12·1
66.............	95·8	4·2	0·8	96·3	3·7	0·5	2·1	5·1	0·9	26·3
67.............	95·9	4·1	3·2	96·0	4·0	0·3	1·0	-	-	20·8
68.............	95·9	4·1	3·3	96·2	3·8	0·8	2·0	-	-	21·4
69.............	95·9	4·1	1·3	96·0	4·0	0·7	2·0	6·5	1·2	34·9
70.............	96·0	4·0	0·8	96·1	3·9	-	1·0	5·3	4·2	21·9
71.............	96·1	3·9	1·1	96·0	3·5	0·2	3·4	5·2	1·5	10·9
72.............	96·1	3·9	1·0	96·0	4·0	1·5	1·0	3·7	0·7	18·5
73.............	96·2	3·8	10·8	96·5	3·5	5·8	2·0	3·3	-	10·0
74.............	96·5	3·5	1·5	96·9	3·1	0·2	2·6	6·0	1·2	16·5
75.............	96·7	3·3	3·5	97·3	2·7	0·3	23·0	15·9	6·0	22·5
76.............	96·8	3·2	1·6	96·8	3·2	1·3	1·6	4·3	1·2	26·0
77.............	97·4	2·6	1·5	97·4	2·6	0·2	8·4	4·8	1·2	15·0
78.............	97·5	2·5	2·7	97·7	2·3	0·3	1·5	4·1	2·1	10·9
79.............	97·5	2·5	1·0	97·2	2·8	0·5	1·3	8·0	2·0	17·2

Taking first the school non-attendance of the three classes (Canadian, British and foreign) combined, it will be seen that the city which has the same percentage not at school as the average for all the cities (7·2) is between number 31 and 32 so that 48 cities out of the 79 are better than the average. The 31 worse than the average had a population between 7 and 14 of 220,119, with 21,011 or 9·6 per cent not at school; the 48 cities better than the average had a similar population of 253,513 with 13,156 or 5·2 per cent not at school. It may be interesting to mention that over 20 out of 216 rural divisions had a smaller percentage out of school than the average of the cities.

The worst quarter of the cities (Nos. 1 to 20) had a population between 7 and 14 of 164,555, with 16,756 or 10·2 per cent not at school. This quarter contained 34·8 per cent of the total city population of these ages and 49 per cent of the children not at school.

In order to see the full significance of these figures, it should be pointed out that of the 79 cities, 40 had a population (at all ages) of 15,000 or less; 17 had a population from 15,000 to 22,500; 7 had a population between 22,500 and 30,000 and 15 had a population of over 30,000. The following figures will give an idea of the relationship of school non - attendance to the size of the city or town.

—	Number of cities and towns with a population of				
	7,500 to 15,000	15,000 to 22,500	22,500 to 30,000	Over 30,000	Total
First 20 cities (school non-attendance 16·3 to 8·5 per cent)	12	1	5	2	20
Second 20 cities (school non-attendance 8·4 to 6·4 per cent)	10	6	0	4	20
Third 20 cities (school non-attendance 6·1 to 4·8 per cent)	9	4	1	6	20
Last 19 cities (school non-attendance 4·8 to 2·5 per cent)	9	6	1	3	19
Total	40	17	7	15	79

It is clear from these figures that there is some connection between school non - attendance and size, though not what might be expected. The cities with a population of over 30,000 give on the whole more favorable results than the smaller cities and towns. The most favourable size happens to be the cities between 15,000 and 22,500 while the least favourable happens to be the next group or the cities between 22,500 and 30,000. It is doubtful, however, whether this relationship between the two middle groups has anything to do with size. As there are only 7 of these middle - sized cities, it is not safe to conclude that in general, this size is unfavourable for school attendance. Still it must be noticed that in this particular case it is not general principles but actual figures that are being discussed, and that it actually happens that the largest proportion out of school are in middle - sized cities, while no great difference is shown by the other groups, except that the 15 cities over 30,000 seem to be somewhat more favourable to school attendance than the 40 cities and towns under 15,000. Taking the 79 cities one by one it is found that there is a slight non-linear correlation between non-attendance and size.

The following six groups show the attendance of the Canadian born children 7-14 in the cities and towns arranged according to size:—

—	Population 7-14	Number 7-14 not at school	Percentage 7-14 not at school
7 cities with over 90,000	234,752	16,987	7·2
8 cities with more than 30,000 and less than 90,000 population	49,153	2,601	5·3
12 cities with more than 20,000 and less than 30,000 population	41,524	3,026	7·3
10 cities with more than 15,000 and less than 20,000 population	23,757	1,529	6·5
18 cities with more than 10,000 and less than 15,000 population	31,677	1,868	5·9
24 cities and towns with more than 7,500 and less than 10,000 population	32,620	2,629	8·6
79 cities and towns with over 7,500 population	413,483	28,640	6·9

The urban parts (in the same counties as the cities), with less than 7,500 population, have an aggregate population from 7 to 14 of 90,240 with 7,109 or 7·9 per cent not at school, while all smaller urban areas had over 8 per cent not at school.

It is thus clear that in spite of the apparent exception of the 12 cities from 20,000 to 30,000, the central sizes, that is, from 10,000 to 90,000, happen on the whole to have the best attendance, while the very small and the very large show the worst. It was to be expected that the largest cities would come out like this, but it is difficult to see why the small cities and towns should show so many out of school, unless it is assumed that provisions for compulsory attendance are better organized in the middle than in the small sized cities while in the very largest cities these provisions are more difficult to enforce.

The fact that the cities of medium size seem to be the most favourable for school attendance makes it all the more remarkable that the 12 cities between 20,000 and 30,000 make the second worst showing.

Even a cursory study of table 70A will show that there is a decided connection between non-attendance and illiteracy. However, this is particularly true of the Canadian born, who show a correlation of about ·70 or practically the same as in the case of the urban areas of the 90 census divisions discussed in Chapter 15. It would seem to be a significant fact that the connection of school non - attendance with illiteracy is with the illiteracy of the Canadian born. This may be partly because some of the two immigrant classes would have arrived at their destination in 1921 too late to attend school, so that the less illiterate part of them were not able to send their children to school. The number of such children, however, must have formed but a very small proportion of the population. A reasonable explanation would seem to be that the Canadian born, forming as they do the large majority in these cities, are the controlling influence in school attendance, not only in sending their own children to school but also in providing accommodations and enforcing school attendance.

The connection between school non - attendance and the leading industries of the cities is important. A decided correlation exists between the percentage not at school and the ratio of the number engaged in manufacture to the population over 21 years. There are seeming exceptions, but these on investigation turn out not to be exceptions, as will now be seen.

First taking out 7 mining centres the school attendance was as follows:—

City Number	Percentage not at school
1	16·3
12	10·2
19	8·7
21	8·4
47	5·9
61	4·6
Average 79 cities	7·1

The above was the school non - attendance of all classes. In the case of the last two in which school attendance was better than the average, the non - attendance of the immigrant classes was over 10 per cent. Further 60 of the 140 out of school in these two centres were immigrant children. Practically all the illiterates were foreign born. A large part, of the mine labourers would be foreign born. It is thus seen that mining centres seem to be unfavourable to school attendance.

Fifty one out of the remaining 72 cities and towns show a strong correlation between the per cent not at school and the per cent engaged in manufacture. This leaves 21 which are apparently exceptional. That they are not real exceptions may be seen as follows:—

A. TWELVE CITIES IN WHICH THE PERCENTAGE NOT AT SCHOOL IS GREATER, AND THE PERCENTAGE IN MANUFACTURE IS LESS THAN THE AVERAGE

Number	Percentage not at school	Percentage engaged in manufacture	Remarks
3	12·2	17·5	Large manufacturing population working in neighboring city.
8	10·9	24·4	Fishing and lumbering population.
10	10·4	26·0	Large manufacturing population but part working in neighboring city.
11	10·3	24·8	Seaport-dock labourers.
14	9·9	24·1	Shipping centre.
15	9·8	20·4	Large proportion of domestics.
18	9·3	6·6	Ship yards.
20	8·5	25·0	Textile—large proportion female employees.
22	8·4	0·9	Fishing, stevedores, longshoremen, etc.
23	8·2	18·4	Cotton—large proportion female employees.
24	8·2	16·0	Large proportion of domestics. Seaport.
31	7·3	17·3	Large proportion of domestics.
Average for all cities	7·2	29·4	

B. NINE CENTRES IN WHICH THE PERCENTAGE NOT AT SCHOOL IS LESS AND THE PERCENTAGE
ENGAGED IN MANUFACTURE IS GREATER THAN THE AVERAGE

Number	Percentage not at school	Percentage engaged in manufacture	Remarks
39...............................	6·4	35·6	Labourers residing in neighboring city.
41...............................	6·1	32·6	Old industries, etc.—manufactures of such a nature that females and children are not employed.
43...............................	6·1	50·0	Practically all these are children of native born and British born parents.
46...............................	5·9	49·6	
50...............................	5·7	72·0	Labourers residing in neighboring town.
53...............................	5·5	30·2	Steel works—pulp and paper—adult males.
54...............................	5·4	31·8	Labourers, foreigners and adults who have very few children in Canada.
55...............................	5·1	64·4	Part of labourers residing in neighboring city.
69...............................	4·1	34·9	Large part of labourers residing in police village close by.

Naturally, different kinds of manufacturing industries would effect school attendance in different degrees. It is not possible, however, to ascertain these degrees in such a comparatively small number of cases. An illustration is afforded in the case of one city which is decidedly a manufacturing centre and yet shows a very small percentage not at school. The industry in this city has been established for a long period of years and is carried on by its own native stock, so that hardly any foreign labour has been imported. It is also carried on exclusively by adult males, and does not affect the female part of the population. This would seem from the record of the other cities and towns and also of the rural areas to be a most important point. It was seen in the last chapter that school non-attendance has a stronger connection with the illiteracy of females than of males. On examining the list of cities it is seen that textile manufacturing, domestic service and such other occupations as require the employment of female labour are particularly disadvantageous to school attendance. Of course the same holds true of industries which employ child labour. It is believed, however, that a higher percentage of non-attendance at school in an industrial centre is not necessarily due to the employment of children in the industries, although no doubt this may be a factor. About one-fourth of the children not at school are at the age 14, it is true, but it was seen in the last chapter that communities which have a tendency to keep from school children of 14 have also a very strong tendency both to keep children of 7 away, that is, to be late in sending their children to school; also to keep from school children from 8 to 13. This means that the attitude towards school attendance holds at ages when the children cannot be usefully employed as well as at later ages, and that school non-attendance cannot be more than partly due to the need for the services of the children. Partly at least it is due to a want of recognition of the value of school attendance; partly, perhaps, to inability to equip children for school, partly again to inability on the part of the mother to supervise the attendance of the children owing to her being employed in certain classes of industries. The figures for occupations in 1921 are not yet ready, but in 1911 there were in all occupations in Canada 2,358,813 males and 364,821 females. A summary of the nature of these occupations may be useful at this point:—

TABLE 71.—NUMBER ENGAGED IN DIFFERENT OCCUPATIONS IN CANADA, 1911

Class of occupation	Total employees		Nativity of workers				Age period of workers							
			Canadian born		Immigrants		10–14 years		15–24 years		25–64 years		65 years and over	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All occupations	2,358,813	364,821	1,576,453	277,985	782,360	86,838	17,376	7,777	620,972	179,992	1,619,885	168,034	100,580	9,018
Agriculture	917,848	15,887	667,207	11,954	250,641	33,933	5,377	22	250,739	425	603,493	12,239	52,239	3,151
All other occupations	1,440,965	348,934	909,246	266,031	532,719	82,903	11,999	7,755	370,233	179,567	1,016,39	156,795	48,341	5,867
Building	245,990	211	157,274	176	88,716	35	1,258	17	56,638	113	178,390	78	9,704	3
Personal including domestics	75,133	138,879	38,597	90,904	36,536	47,975	1,062	4,354	17,919	64,470	53,97	66,298	2,180	3,757
Municipal government	72,531	4,073	40,356	3,522	32,175	551	340	34	14,773	1,442	53,120	2,470	4,298	126
Fishing and lumbering	34,547	265	31,601	258	2,946	7	381	1	8,529	40	23,830	201	1,807	23
Forestry	42,901	13	31,403	8	11,498	5	193	–	14,301	5	27,771	8	636	–
Manufactures and mechanical industries	392,781	98,561	253,882	81,240	138,899	17,321	4,849	2,760	108,098	54,656	269,675	40,227	10,159	918
Mining, etc	62,706	61	29,890	51	32,816	10	411	~	16,170	27	45,142	34	983	–
Professional	62,781	57,835	43,811	49,862	18,970	7,973	73	83	10,921	25,566	49,183	27,611	2,604	575
Trade and merchandise	240,903	42,184	167,289	34,471	73,614	7,713	2,696	459	66,325	24,265	165,001	17,018	6,881	442
Transportation	210,692	6,852	115,143	5,539	95,549	1,313	736	47	56,559	4,983	150,308	1,799	3,089	23

TABLE 72.—THE FOLLOWING TABLE SHOWS THE PROPORTION OF LABOURERS TO OTHER EMPLOYEES IN THE VARIOUS OCCUPATIONS

—	All classes		Labourers	
	Male	Female	Male	Female
All occupations...	2,358,813	364,812	–	–
Agriculture:...	918,848	15,887	144,014	64
Building..	245,990	211	87,545	–
Domestic and personal......................................	75,133	138,879	27,467[1]	94,984[1]
Civil and municipal...	72,531	4,073	34,758	230
Fishing and lumbering......................................	34,547	265	–	–
Forestry..	49,901	13	–	–
Manufactures—..	392,781	98,561	109,403	–
Clay glass, etc..	5,173	76	–	–
Clothing..	22,420	56,861	–	–
Food..	29,742	7,759	–	–
Gold and silver.......................................	2,294	570	–	–
Iron and steel..	58,976	426	–	–
Leather and rubber....................................	19,347	3,908	–	–
Pulp and paper..	2,806	1,059	–	–
Textiles..	8,247	9,201	–	–
Wood..	35,829	1,593	–	–
Mining...	62,706	61	47,478	–
Professional...	9,114	4,653	?	?
Trade and merchandise......................................	240,903	42,184	18,415	–
Transportation...	210,692	6,852	?	?

[1] Servants.

TABLE 73.—NUMBER AT SCHOOL AND NOT AT SCHOOL, 1911

—	Popula-tion at age	Number of persons attending school				Number not attending school			
		For any period		7-9 months		For any period		7-9 months	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
All classes—7–14...............	1,157,656	922,320	79·7	803,525	69·4	235,336	20·3	354,131	30·6
10–14...............	700,312	557,431	79·6	493,534	70·5	142,881	20·4	206,778	29·5
Canadian born—7–14...............	993,612	810,521	81·6	715,198	72·0	183,091	18·4	278,000	28·0
10–14...............	596,061	486,718	81·7	437,498	73·4	109,343	18·3	158,563	26·6
British born—7–14...............	69,109	50,116	72·5	42,573	61·6	18,993	27·5	26,536	38·4
10–14...............	42,985	30,222	70·3	25,824	80·1	12,763	29·7	17,161	39·9
Foreign born—7–14...............	94,935	61,683	65·0	45,756	48·2	33,252	35·0	49,179	51·8
10–14...............	61,266	40,491	66·1	30,212	49·3	20,775	33·9	31,054	50·7
Rural[2]—7–14...............	748,551	583,121	77·9	479,821	64·1	165,430	22·1	268,730	35·9
Urban[2]—7–14...............	405,756	338,400	83·4	322,982	79·6	67,356	16·6	821,774	20·4
All classes—14 years.............	140,903	89,134	63·3	75,896	53·9	51,769	36·7	65,007	46·1

[1] Includes Yukon and Northwest Territories.   [2] Excludes Yukon and Northwest Territories.

From the two tables it will be seen that in 1911 the number not at school at the ages of 10 to 14 was 142,881, while the number employed at these ages was 19,754. Excluding the Yukon and Northwest Territories, it will be seen that the number not at school in urban centres at 7 - 14 was 67,356. If, say, one - half of these were between the ages of 10 and 14 there would be about 33,500 not at school at these ages. The number employed at 10 to 14 at other occupations than agriculture was 19,774. Over half of the girls employed at these ages were employed in domestic service, and consequently some of them must have been employed in rural communities. Still others of both sexes in the occupations other than agriculture would be employed in other than urban centres. Consequently, at least half of those not at school between the ages of 10 and 14 were not employed in any of the occupations listed. As already mentioned, the number of children not at school and not employed was so large that their non - attendance could not be explained on the ground that these children were subnormal physically or mentally.

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CONCLUSIONS

The evidence of the facts given above would seem to warrant the conclusion that the following conditions are unfavourable for school attendance in urban centres:—

1. First and foremost, illiteracy of the community. Although it may argued that illiteracy is really the effect of school non‑attendance in the community, this argument merely pushes the explanation further back. Why should school non‑attendance in 1921 be prevalent in the urban centres where school non‑attendance was prevalent in past years? Evidently the same or similar conditions have tended to persist, and the fact that the more illiterate centres showed poorer school attendance in 1921 than less illiterate centres certainly goes to show that the force of inertia is peculiarly strong in the case of illiteracy — illiterate communities, whether rural or urban, tend to remain illiterate.

2. Mining, fishing and dock industries.

3. Textiles, domestic service and such other industries as require the employment of females. This does not necessarily mean the employment of female children under 14. It would rather seem to mean the employment of females who have the supervision of children.

4. Industries which require the importation of foreign labour.

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