CANADA

A GRAPHIC PRESENTATION OF CANADIAN EDUCATION

DOMINION BUREAU OF STATISTICS
Education Division

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Fall 1961

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DOMINION BUREAU OF STATISTICS
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A GRAPHIC PRESENTATION OF CANADIAN EDUCATION

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FOREWORD

The D.B.S. is pleased to make this report available in response to a request from the Canadian Conference on Education whose officers wished to have a brief pictorial report highlighting selected features of education in Canada for their second conference in Montreal, March 4 - 8, 1962.

This report has been designed primarily for the intelligent layman who has limited time to study education in the ten provinces and the territories; education in the universities, technical institutes, trade schools and education outside the regular systems. It is composed of 20 pages of diagrams and 21 pages of text. The diagrams have the usual weaknesses inherent in diagrams when many different systems must be pictured in one or at the most two charts. The text shows biases through glossing over the regular education services and emphazing the more unusual. In common with many articles today, it stresses manpower and vocational needs rather than a liberal education, and gives little space to the work of the public schools, their curricula, teaching methods, aims of education, testing, examinations and such. Although Canada has provincial autonomy in education, work of the provincial departments and school boards are similarly slighted, and no note is taken of the contributions of such education organizations as the Canadian Education Association, the Canadian Teachers' Federation, the Canadian Universities Foundation to single out three from among some 140 or more different organizations more or less directly concerned with education. Persons wishing a more definitive treatment should read the more detailed presentations in the professional publications of these organizations.

The report is intended to provide information as background material for those who wish to consider current problems in education. No attempt has been made to provide solutions to the many problems.

This report was prepared in the Education Division of D.B.S. under the direction of F.E. Whitworth who wishes to acknowledge the assistance of his co-workers as well as many others outside D.B.S. Ideas have been adopted from education reports and research publications from Canadian, American, Japanese and other sources.

WALTER E. DUFFETT,

Dominion Statistician.

WHAT IS THE ROLE OF EDUCATION IN THE NEW ERA?

It has become a commonplace to remark that our world has changed and shrunk so much that we must now create new understandings and find new ways and means of managing our society so that we may maintain and improve our level of living and achieve greater freedom, security and satisfactions. But however trite the statement is, it must be repeated until we have accepted the world as a community of near neighbors and have examined and re-defined our problems and found solutions for many of them.

Canada has been changing dramatically during the past fifty years, and the rate of change is accelerating. Many of us grew up in a rural economy with regular chores, dogs, horses and bicycles, free time and wide open spaces. We amused ourselves much of the time, learned from helping our parents and assumed that our adult world would be the same as the one we grew up in. Urbanization, rapid communication and transportation, changes in home organization and in industry have changed all this, and increased the demands on the school, the home and the church. New methods and new means must be devised to meet new needs, and the role of the schools in all this determined.

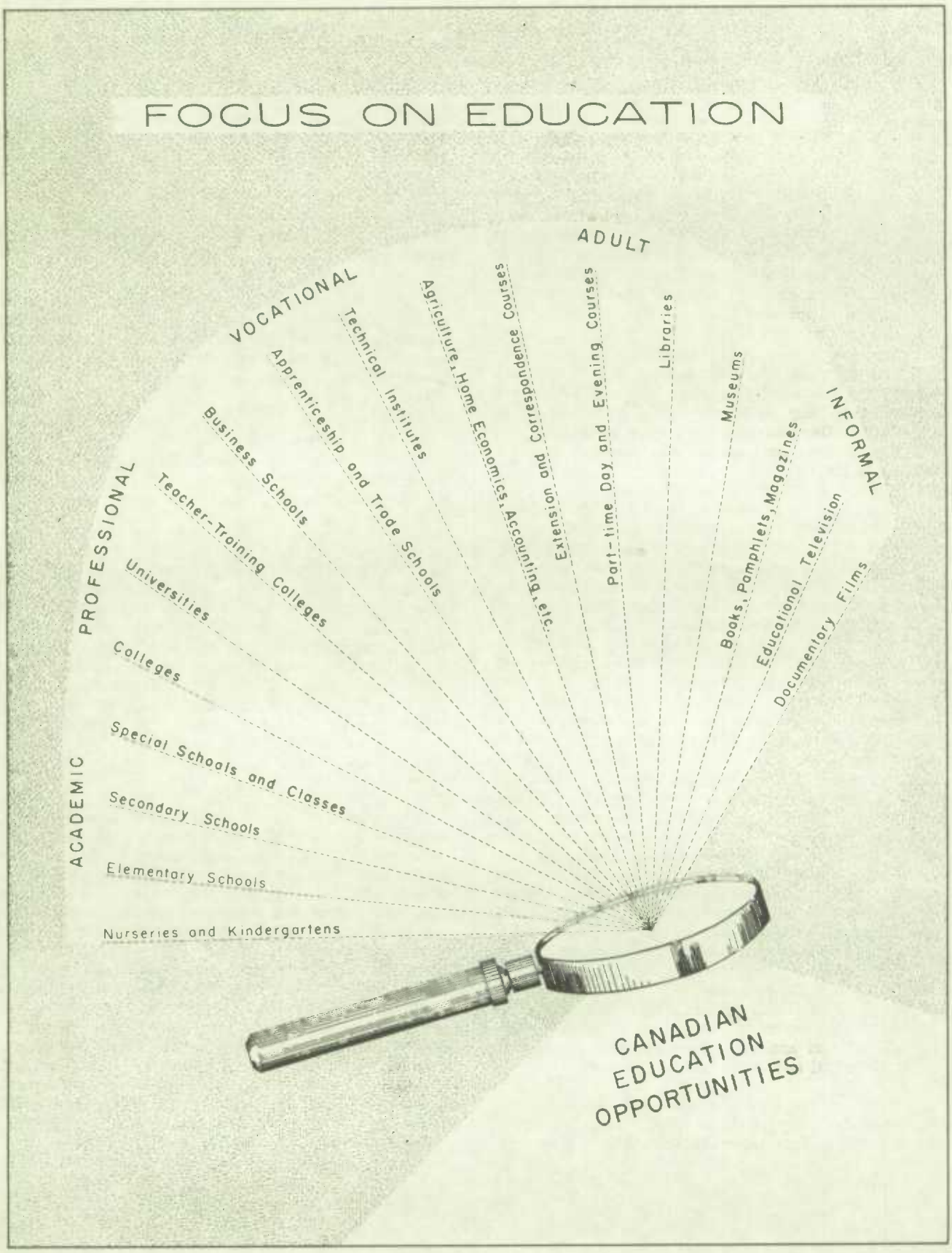
Although it has also become trite to remark that education goes on from the cradle to the grave, the truth in this statement is becoming more evident year by year. The role of continuing education will grow in the years to come. There will be more part-time, special, refresher and summer courses, and correspondence courses in vocational, academic, cultural and other areas. Between these and casual lectures, concerts and demonstrations, there will be a wide range of activities using a variety of media. Magazines, newspapers, radio, television and documentary films will increase their coverage and provide more informal education.

Because our schools, colleges and universities constitute most of the formal part of our nation's endeavour designed to make education available and to develop our manpower, much of this report will attempt to show how they are organized and what they do. Schooling has undergone considerable change over the years. The big question is whether or not it has changed rapidly enough to keep abreast of the times. To judge by the amount of criticism currently heard it has left something to be desired. After discounting nostalgic and frustrated appeals to return to the good old days, the fact remains that we still need solutions for many of our present problems. To be adequate such solutions must consider the needs of the state, of society and of the individual.

Some new demands on the schools include greater emphasis on special education with new groups becoming identified and their needs recognized. Special attention to the most able students in our schools has captured and held the attention and imagination of the public. Many educators believe that the total program must be reorganized to ensure individual guidance. There is considerable demand for more technicians and technologists, and at the university level for more mathematicians and scientists. Some appreciation of problems involved comes from considering what a modern physicist must know to push the frontiers of knowledge back compared with what was needed in 1900. This is also typical of the situation in other faculties.

Today we are on the way to conquering space but lack any appreciation of what this will mean in years to come. New innovations in technology are changing our day to day existence, although we are just on the brink of an automated era. We must adjust ourselves to this and evolve a new society in which the middle-aged and older members will not be Rip Van Winkles lost in the backwash. Life expectancy is now about 70 years. It is impossible to educate youth by age 18 for the world in which they will live at age 70. Education must therefore be longitudinal and latitudinal. Schools utilizing the legacy of the past will enrich the lives of the young while preparing them with modern tools and approaches for adjustment as social beings in work, play, and citizenship. Out-of-school education must then take over, for education is a cradle to grave procedure.

The revolution in education, aimed at producing an educated society, is gaining momentum throughout the world and ranges from an attack in illiteracy to post-doctorate education. Education will become the central capital investment, but we cannot be profligate with our resources if we are to survive.


FOCUS ON EDUCATION
ADULT
VOCATIONAL
PROFESSIONAL
ACADEMIC
INFORMAL
Technical Institutes
Agriculture, Home Economics, Accounting, etc.
Extension and Correspondence Courses
Part-time Day and Evening Courses
Libraries
Museums
Books, Pamphlets, Magazines
Educational Television
Documentary Films
Apprenticeship and Trade Schools
Business Schools
Teacher-Training Colleges
Universities
Colleges
Special Schools and Classes
Secondary Schools
Elementary Schools
Nurseries and Kindergartens
CANADIAN EDUCATION OPPORTUNITIES

HOW ARE OUR SCHOOLS ORGANIZED AND ADMINISTERED?

The chart opposite is intended to show that the provinces of Canada are committed to publicly-supported, publicly-controlled systems of education with compulsory schooling and free elementary and secondary education under school laws. Section 93 of the B.N.A. Act retained for the provincial legislatures responsibility for the organization and administration of public education within their borders. The Federal Government's responsibility in education is for some 136,000 Indians, 10,000 to 12,000 Eskimos, other children in territories outside the provinces, inmates of penitentiaries, and families of members of the armed forces on military stations.

Because of provincial autonomy in education, policies and practices vary somewhat from province to province, although the community of interest is greater than any differences. Each province has organized a Department of Education (Department of Youth in Quebec) and appointed a Minister who is a member of the Cabinet.

Quebec's Department is composed of Catholic and Protestant Committees which sit separately. Each is responsible for organizing and maintaining its schools and normal schools, appointing school inspectors and making recommendations to the Cabinet concerning school grants and specified appointments. Newfoundland has a public denominational system with superintendents heading the schools of their denomination. Outside of Quebec each department is presided over by a Deputy Minister, who is a professional educator and civil servant. He advises the Minister on policy, gives a measure of permanency to the department's education policy, and is responsible for the enforcement of the public school act(s). Officials of the department usually include: a chief inspector, elementary and secondary school superintendents (inspectors), directors or supervisors for the main branches of the work, and technical personnel and clerks. In Newfoundland, there are superintendents for the five denominations accepted under the school act. Each department normally provides for the training and certification of teachers, prescribes courses of study and school textbooks, provides inspection services, assists the schools through grants and services, and makes rules and regulations for the guidance of teachers and trustees. Many have expanded their services to include health, audio-visual aids, art and music, agriculture, correspondence, technical and trade courses.

Each province provides for the establishment and operation of schools by local education authorities which operate under the school act. A majority of boards are elected, a minority appointed. Boards are responsible for establishing and maintaining schools, employing qualified teachers, preparing a budget for the annual meeting and providing transportation. In the beginning, generally local three-man boards were elected, but through reorganization and expansion we now have city, town, village, central and rural boards, to mention the most common types, the membership determined according to statute or regulations.

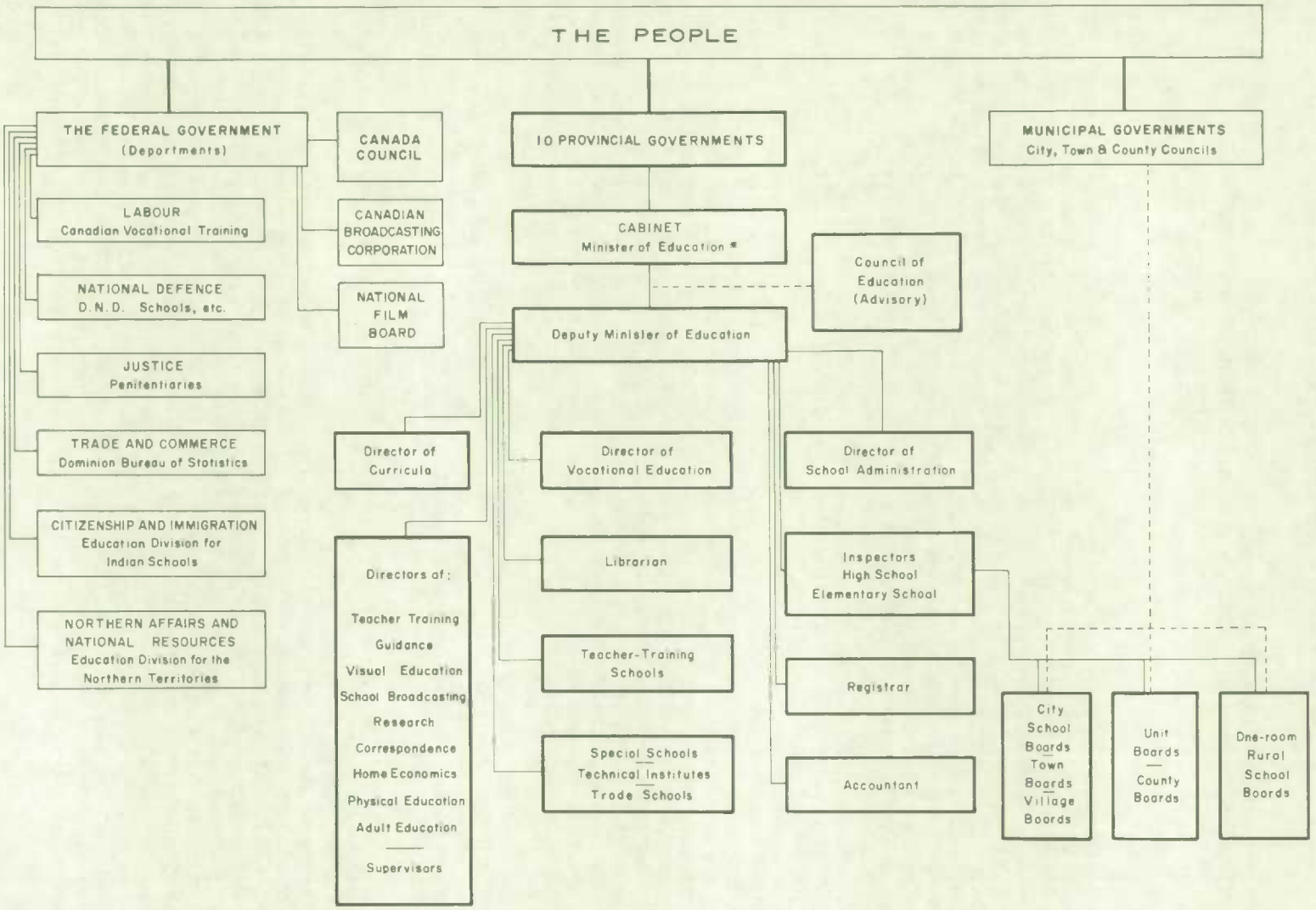
Most municipal governments are required to raise, through local taxes, amounts budgeted by the school boards. In a few areas boards are empowered to levy rates; under county legislation in Alberta some municipal governments are in charge of their division's schools.

The departments may provide provincial schools for the blind and deaf, trade schools and technical institutes. In addition, Labour, Agriculture, Welfare, Lands and Forests, and Mines Departments may operate specialized schools or classes.

In several provinces Roman Catholic or Protestant minorities are permitted by law, or by gentleman's agreement, to organize separate schools under public auspices; and in all provinces religious groups, private organizations and individuals have established private schools. The majority of universities and colleges are privately-controlled but there are also provincial institutions of higher education in most provinces. Other private institutions include business schools, trade schools, and correspondence schools.

Changes in organization of the public school system are brought about through changing the school law. Decisions concerning changes to be made and time of implementation are often made after a study of the situation and after discovering the reaction of the interested public. Royal Commissions are a common method of doing this and during the past decade most provinces have appointed at least one such commission. The commission normally hears briefs from interested groups or individuals throughout the province, surveys present practice, often conducts surveys and research, discovers practices elsewhere and makes recommendations which are acted on more often than not. Otherwise bills may be introduced on the advice of the Deputy Minister, and there is nothing to prevent a private member from introducing a bill concerning education.

ADMINISTRATION OF EDUCATION



* A TYPICAL PROVINCIAL DEPARTMENT – QUEBEC AND NEWFOUNDLAND ARE MOST UNIQUE.

IS THERE VARIETY ENOUGH IN CANADIAN EDUCATION?

This is an intriguing question which has set many men thinking, and caused no end of arguments. It is basic in that it raises the question as to whether or not we are providing enough kinds of schooling to meet the needs of the individual and of society.

Because each province organizes its education as it deems fit within its borders there is variety in the provincial systems. Two diagrams have been prepared because we considered Roman Catholic education in Quebec sufficiently unique to warrant separate treatment. Nevertheless all the familiar types of schools found throughout the rest of Canada are to be found in Quebec, including rural one-room schools, graded urban elementary schools, secondary schools with academic, vocational and home crafts bias, colleges and universities; as well as the same school day, term, year, and examinations, inspectors and school boards. However, there were differences in philosophy including the belief that religion should be an important integral part of education, and the opinion that boys and girls should be educated differently and in different institutions, with homemaking courses for girls and vocational courses for boys not going on to college. However, the Quebec system is being modified. An academic course in the secondary school leading to university parallels the first four years of the classical college which students enter after Grade 7 for eight years. Less emphasis is now placed on the classics and more on science and mathematics.

The Newfoundland system, which we have classed as public-denominational, is also somewhat unique. In it, each leading denomination operates its own schools. However, they all operate under one department, the same school law and the same course of study.

Variations among the other provincial systems are found within the general frameworks of the provincial systems. For example the elementary-secondary system may be organized essentially on an 8-4, 3-3-6, 3-3-3-3, 6-3-3, 3-3-3-4, 7-4-4 or some other combination, which affects figures through the grades. From time to time the idea of having one curriculum for all provinces is mooted, and invariably meets with both support and opposition.

Pre-school children may enter day nurseries, about two-thirds of them operated by public or private welfare agencies; nursery schools, most of which are private; or private kindergartens. Attached to most urban primary schools are kindergartens for five-year olds, with a few enrolling kiddies one year younger.

At age six, children normally enter the elementary school where the programs are similar across Canada, except for emphasis on religion in the Quebec Catholic schools, the early introduction of a second language in some schools and such. These schools are aimed at command of the fundamentals which they supplement with nature study, civics, social studies, etc. Provision for individual differences at this level is effected mainly through ability streaming.

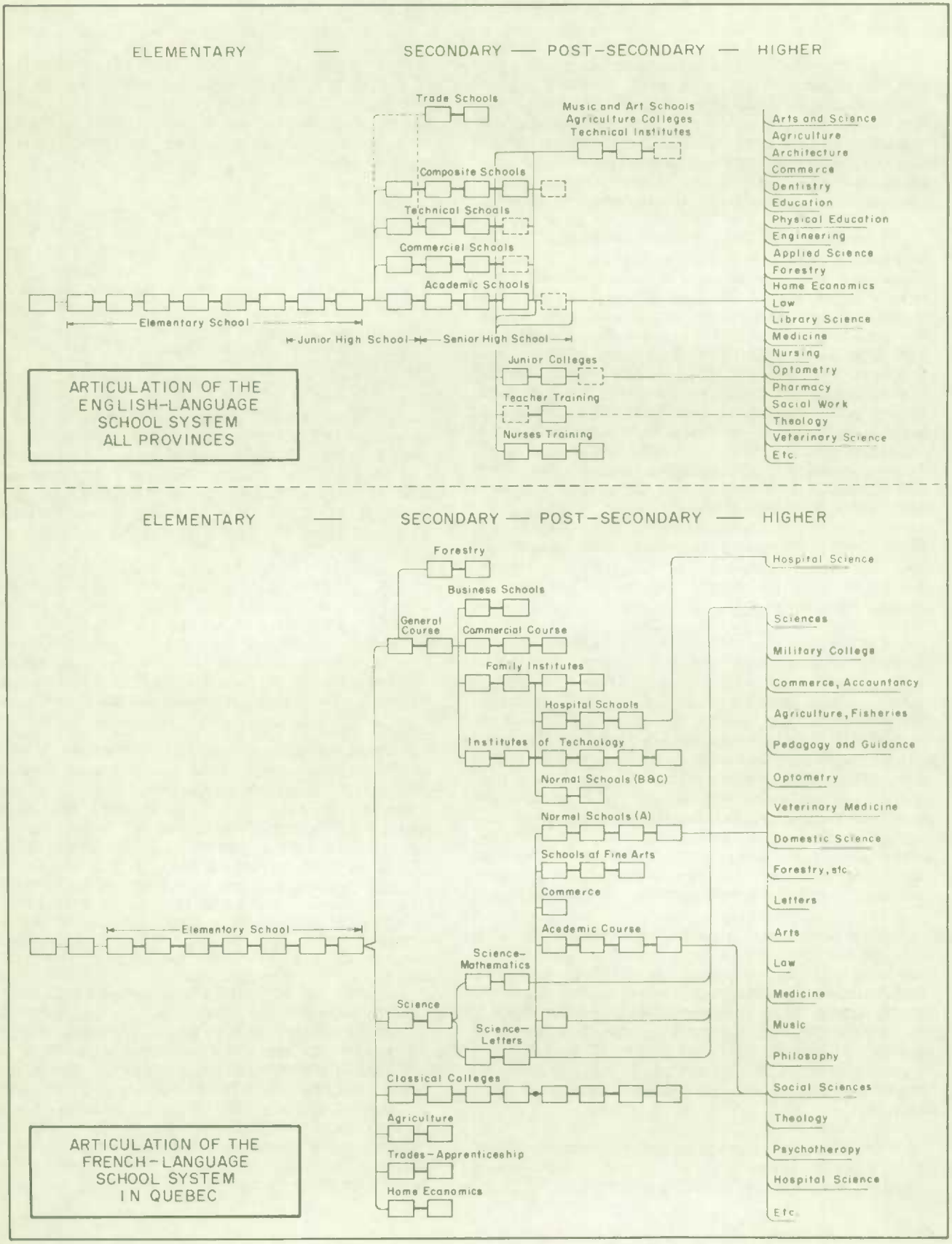
At the secondary level the rural school pupil may find only the regular academic course offered, unless he attends a centralized school of the composite type. In the cities he may choose an academic, technical or commercial course, and the academic may have a variant, general. The secondary course normally requires a specified number of compulsory courses and electives. The number of electives varies rather widely from province to province, with the number limited somewhat for those planning to enter university.

At the post-secondary level the student may select both school and course from those available. Likewise at university level he selects college and course, with arts and science providing by far the widest selection of subject matter.

Opportunities for vocational education include apprenticeship training, trade courses, and technical education. Private trade schools provide a wide variety of courses through attendance and by correspondence. In addition there are many opportunities for part-time and evening courses.

Other students attend private academic schools, some of which stress religious education, music and the other arts, or university preparation. There are also special schools for the blind, deaf, bed-ridden, etc.

Does such variety meet the needs of our society and of the individual? Are there enough of each of these types? If other types are needed, what should they be like? These are problems more or less constantly facing school administration officials from one end of Canada to the other.


ELEMENTARY — SECONDARY — POST-SECONDARY — HIGHER
Trade Schools
Music and Art Schools
Agriculture Colleges
Technical Institutes
Composite Schools
Technical Schools
Commercial Schools
Academic Schools
Elementary School
Junior High School
Senior High School
Junior Colleges
Teacher Training
Nurses Training
Arts and Science
Agriculture
Architecture
Commerce
Dentistry
Education
Physical Education
Engineering
Applied Science
Forestry
Home Economics
Law
Library Science
Medicine
Nursing
Optometry
Pharmacy
Social Work
Theology
Veterinary Science
Etc.
ARTICULATION OF THE ENGLISH-LANGUAGE SCHOOL SYSTEM ALL PROVINCES
ELEMENTARY — SECONDARY — POST-SECONDARY — HIGHER
Forestry
Business Schools
General Course
Commercial Course
Family Institutes
Hospital Schools
Institutes of Technology
Normal Schools (B&C)
Normal Schools (A)
Schools of Fine Arts
Commerce
Academic Course
Science-Mathematics
Science
Science-Letters
Classical Colleges
Agriculture
Trades-Apprenticeship
Home Economics
Elementary School
Hospital Science
Sciences
Military College
Commerce, Accountancy
Agriculture, Fisheries
Pedagogy and Guidance
Optometry
Veterinary Medicine
Domestic Science
Forestry, etc.
Letters
Arts
Law
Medicine
Music
Philosophy
Social Sciences
Theology
Psychotherapy
Hospital Science
Etc.
ARTICULATION OF THE FRENCH-LANGUAGE SCHOOL SYSTEM IN QUEBEC

HOW HAS EDUCATION IN CANADA GROWN?

The story of Canada's schools began in a simple way in pioneer times with small isolated log or frame buildings. Early schooling at the elementary level provided a grounding in reading, writing and numberwork, which was considered adequate for the majority. A limited number of grammar schools prepared selected students for colleges, which in turn prepared them for entry into the learned professions.

Education in Canada has been moulded in accordance with certain principles and practices which are still operative. First, on entering Confederation each province retained responsibility for organizing and controlling formal education within its boundaries except for the Indians, inmates of penitentaries and families of members of the armed forces on location. Second, there has been a division of responsibility from that time on, according to school law, between the provincial departments and local boards. Third, the Canadian people believe in education for all youth, as evidenced by the introduction of compulsory education, family allowances and attempts to equalize the opportunity for both elementary and secondary education. Fourth, it is recognized that a high general education level on a broad front is necessary to safeguard our democratic way of life, to exploit yet maintain our natural resources, and to assume our responsibilities in international areas.

During the nineteenth century, universal elementary education became a reality and the compulsory years ensure that most students spend some time in high school. The concensus is that all students who can benefit should be given both an elementary and secondary school education. Because of individual differences in ability and interest, commercial, trade and technical courses are provided, and many schools use ability streaming. To overcome topographical barriers, railway and bus classrooms, mobile classrooms for the northern wastelands, and correspondence courses are all used. Special services are provided for indigent patients, and training schools for delinquents.

Teachers at all levels, who comprise about 2 p.c. of the work force, instruct about one-fifth of the total population. The majority of those at school fall between the ages of 6 and 16. Two-thirds of youth aged 9 to 19 and over 90 p.c. of those aged 7 to 13 were enrolled in school in 1951. It is interesting to note that in 1951, 4.2 p.c. of all men and 1.9 p.c. of women 20 to 29 years of age (67,100 persons) were enrolled in regular classes, mostly at university.

An historic summary, census by census from 1871 to 1951, shows a steady growth in percentage of those aged 5 to 19 attending school from 50.1 p.c. in 1871 to 53 p.c. in 1911; 65.3 p.c. in 1941 and 66.6 p.c. in 1951. In 1921 the percentage of girls was higher than for boys for ages 13 to 19, but the figures were then reversed for college age. By 1951 only at ages 16 and 17 were the percentages of girls in school higher.

To accommodate those in school there were over 30,000 elementary-secondary publicly-controlled schools, staffed by 148,599 teachers in 1959-60. Enrolment of full-time students in these schools was 3,813,711. Other schools included 14 special schools operated for 2,100 blind and deaf, many schools and classes for those with physical and mental problems, and business and trade schools, etc.

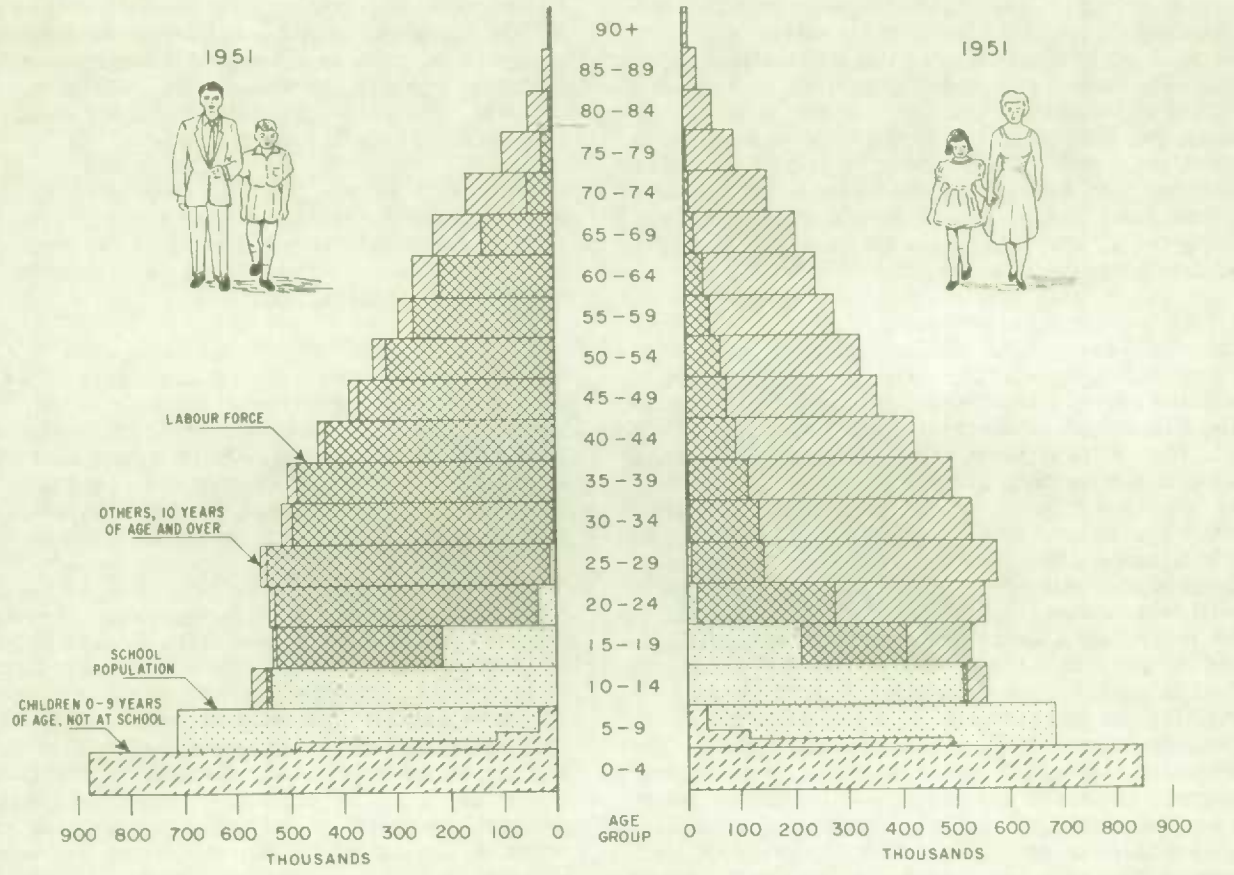
From the figures given we get some idea of the expansion in Canadian education. First the base has been broadened greatly, both through natural increase and through immigration. The live birthrate rose from 21 per 1,000 population in the 1930's to 28 per 1,000 in the 1950's; or in terms of numbers from about 228,800 in the 1930's to 433,800 in the 1950's.

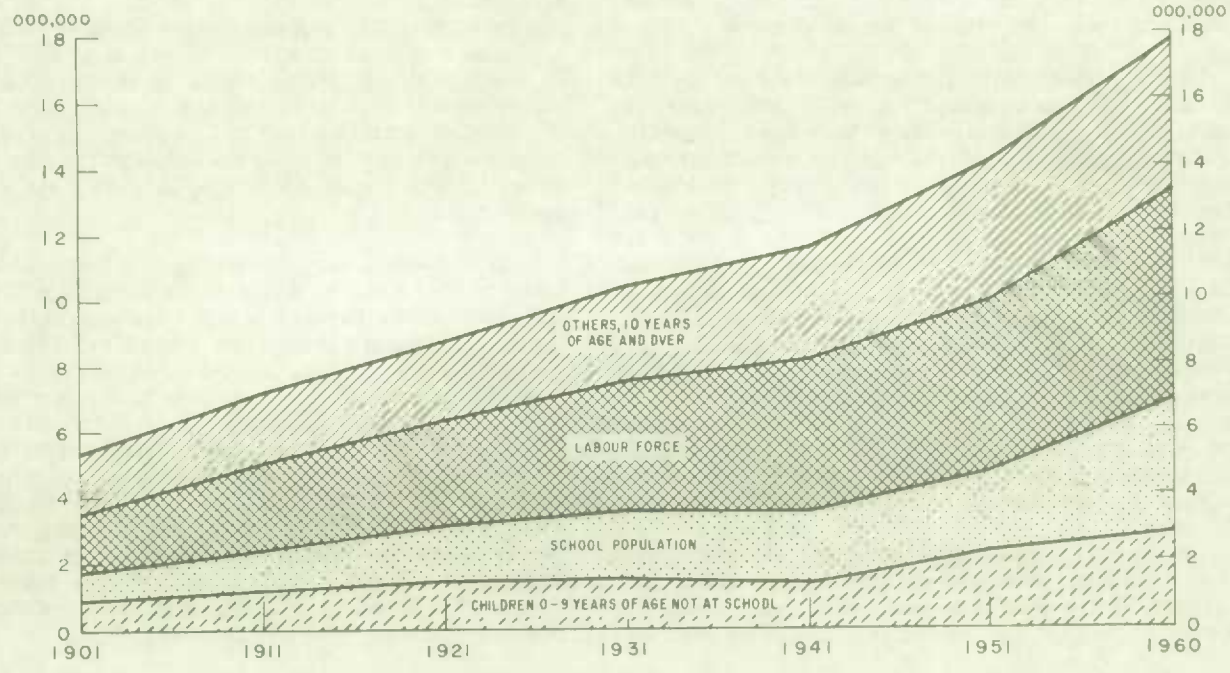
In addition to this basic expansion there has been vertical increase as continually larger proportions of students remain in school. A third increase, which may be considered lateral, is in the variety of schools and courses ranging from special classes for atypical children to trade and technical courses in public and private schools.

Enrolment in all publicly-controlled schools has increased greatly over the years as is to be expected, from 803,000 in 1871 to 1,092,633 in 1901, 2,264,106 in 1931, 2,446,742 in 1951 and an estimated 3,970,216 in 1961. For the same years the number of teachers jumped from 13,559 in 1871 to 27,126 in 1901, 71,246 in 1931, 93,218 in 1951 and 152,235 in 1961. Expenditure on education increased likewise from $11,045,000 in 1901 to $178,702,000 in 1931, $524,033,000 in 1951 and $1,531,200,000 in 1960.

Number of schools, on the other hand, cannot be used as a measure of growth. In colonial days the numbers increased as new schools opened. But over the past thirty years the number of schools at any one time is affected by (i) the number of new schools being built especially in the suburbs, (ii) the number of consolidated schools or larger area schools being erected, and (iii) the number of rural one-room schools being closed whether because of the larger units or because the farmers have moved off the farms into villages and towns.

CANADA'S POPULATION, SCHOOL POPULATION AND LABOUR FORCE





HOW LONG DO STUDENTS REMAIN IN SCHOOL?

Canada, a vast country of fertile plains, forests, mountains, barren wastes and water with a population density of four to the square mile, has her 18,000,000 inhabitants dispersed in urban centres and rural areas, some in scattered dwellings in isolated areas and some nomads in the North. Many of her most persistent education problems relate to her geography, her history, to the exploitation of her natural resources, and to her scattered population. New problems rise faster today than ever before because of economic change, growth, increased urbanization, changes in the occupational structure, changes outside the country, and such.

Census data have shown those areas with a majority having little or no schooling and areas where a large percentage with 9 or more years of schooling dwell. This relates topography and education somewhat. Areas with the highest percentage with four or fewer years of schooling were generally towards the northern parts of the provinces, except for the Peace River district and one or two other settled areas. Areas with 20 p.c. or more having no schooling were found in the sparsely settled northern areas of the Prairie Provinces and Quebec, and parts of Newfoundland. On the other hand almost all of the provinces, usually in the vicinity of the cities, had areas with 60 p.c. or more of the population with 9 years or more of schooling. Care must be exercised in comparing areas as there is an extensive movement of population within Canada and provincial systems of education differ. An interesting example is that of the Northwest Territories where more than half of the out-of-school population over age 10 had no schooling, yet 1.5 p.c. of all such persons 20 years and over had 17 or more years of schooling compared with 1.8 for all Canada.

Our charts show the percentage of the population at school by age groups in 1951, and years of schooling of Canadian adults from ages 20 years up. Decade by decade more people have been staying in school longer. In all cases the average for women was higher than that for men; half a year longer except for ages 25-34, where it was 5 months. However, although the percentage of boys dropping out at the high school level is higher than for girls, of those who stay in school a larger number go on to university. In 1951, 6.5 p.c. of all men aged 20-24 were at school compared with 3.3 p.c. of the women. Comparable figures were 2.0 p.c. and 0.6 p.c. for ages 25-29 and less than 1.0 p.c. for persons older. In addition, percentages of the population aged 10-14, 15-19, 20-24 attending school in rural and urban areas are shown.

Related to these data are many problems met by teachers and administrators, who must search for answers. Some problems are, – How many years of schooling should the Canadian population have on the average? What can we do for the slow learners, the average and the bright? How can we find sufficient well qualified teachers at all levels to care for our growing population? How much use should we make of such new ways of instruction as programmed learning, closed-circuit television, team teaching, language laboratories, and should we introduce more internship for teachers?

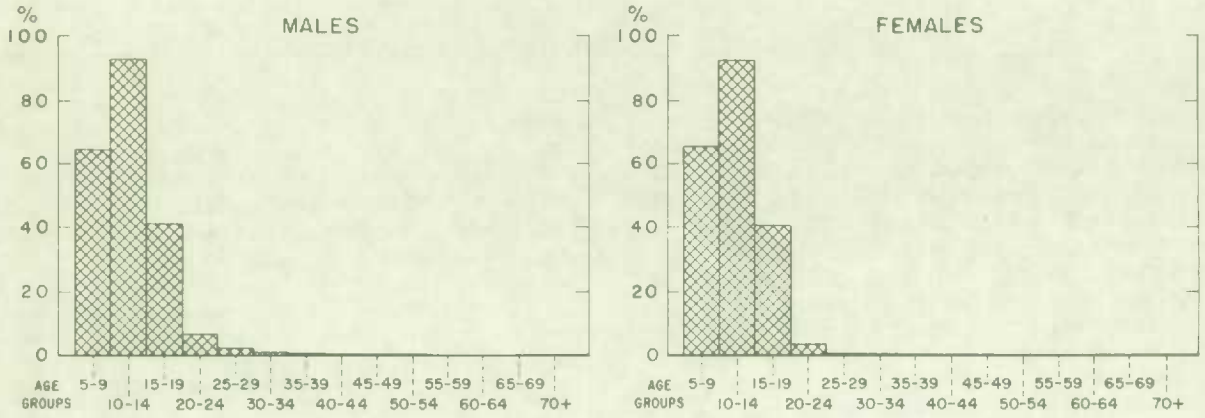
Our data do not go far in helping to solve the many problems facing educators today. At best they give a numerical background for the status quo and indicate areas which should be considered, and may help in assigning priorities.

The organization of our education systems dates back to horse and buggy times when the Canadian economy was essentially rural, with children being needed at home during the busy seasons and to do chores. Similarly, the work of the teacher has changed less over the years than that of most professionals; and teachers, as yet, make less use of as many modern innovations and devices.

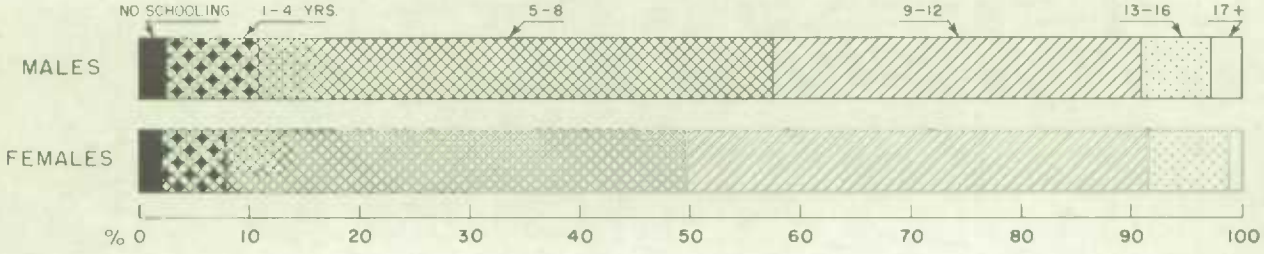
In their 1960 report the Ford Foundation have directed resources toward improving America's schools, colleges and universities through focusing on three main objectives: more effective preparation of teachers for all levels of education; development of new approaches that make better use of teachers' time and skills, and the students' capacity to learn; and increased public understanding of the issues, needs and goals of education. Sponsored programs include: teaching by television; equalizing rural school opportunities; the better utilization of secondary teachers through teaching teams, use of non-professional aids, student internship, and such. In a similar way the Carnegie Corporation of New York in 1960 reported: the fostering of research on the higher mental processes; on the education system; in science, mathematics and reading; on college entrance examinations; on self-instructing devices; strengthening higher education, including the graduate school; and such.

In Canada a good beginning has been made in many of these and in addition the Canadian Education Association has provided for leadership towards improving supervision; the Canadian Teachers' Federation are holding annual conferences on new thinking in school mathematics and other areas; A.C.E.L.F. has instigated experiments in the learning of a second language; and several provinces are interested in the utilization of student potential and the selection of university students. This represents only a small part of educational research as the bulk is undertaken by graduate university students and professors. A Canadian Council on Research in Education has been formed to co-ordinate the effort of member bodies.

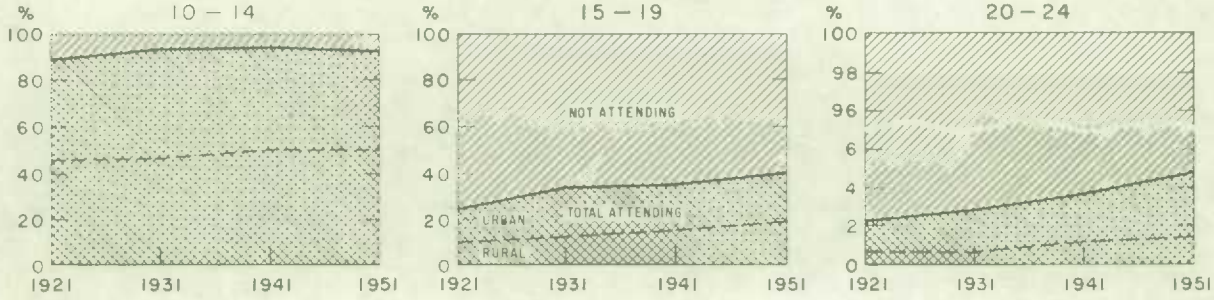
PER CENT OF THE POPULATION AT SCHOOL BY AGE GROUPS, MALE AND FEMALE, 1951



YEARS OF SCHOOLING OF CANADIAN ADULTS 20 YEARS OF AGE AND OVER NOT ATTENDING SCHOOL, 1951



PER CENT OF POPULATION AGED 10-14, 15-19 AND 20-24 AT SCHOOL, RURAL AND URBAN, AND THOSE NOT ATTENDING, CANADA, 1921-51



AVERAGE SCHOOLING OF THE POPULATION, CANADA, 1911-51

HOW WELL ARE WE ACHIEVING IN EDUCATION?

Canada is committed to a publicly-supported, publicly-controlled system of education, with responsibility for the organization and administration within its territories exercised by the provincial Departments of Education and with specified responsibilities delegated to the local boards. During the nineteenth century universal elementary education became a reality, and now there is compulsory education for all pupils including the Indians from ages 6 or 7 to ages 15 or 16 depending on the province. This normally ensures some secondary education for all pupils; the consensus is that all children who are able to benefit from such instruction should be given both an elementary and a secondary education with a fair percentage continuing to university. Recognizing the wide range of individual differences, the academic course is supplemented by a general course or is organized into several streams with pupils grouped according to ability, and there are courses for exceptional children as well as trade and vocational courses.

Policies of promotion vary somewhat from those which apply grade standards fairly rigorously to those which seldom keep a pupil more than two years in a grade even though they fail the examinations, and to some which promote most everyone. As a result age-grade tables for the various provinces show considerable variation in distribution of those at-age, over-age, or under-age for their grade. Some idea of the extent and points of drop-out are shown in the charts.

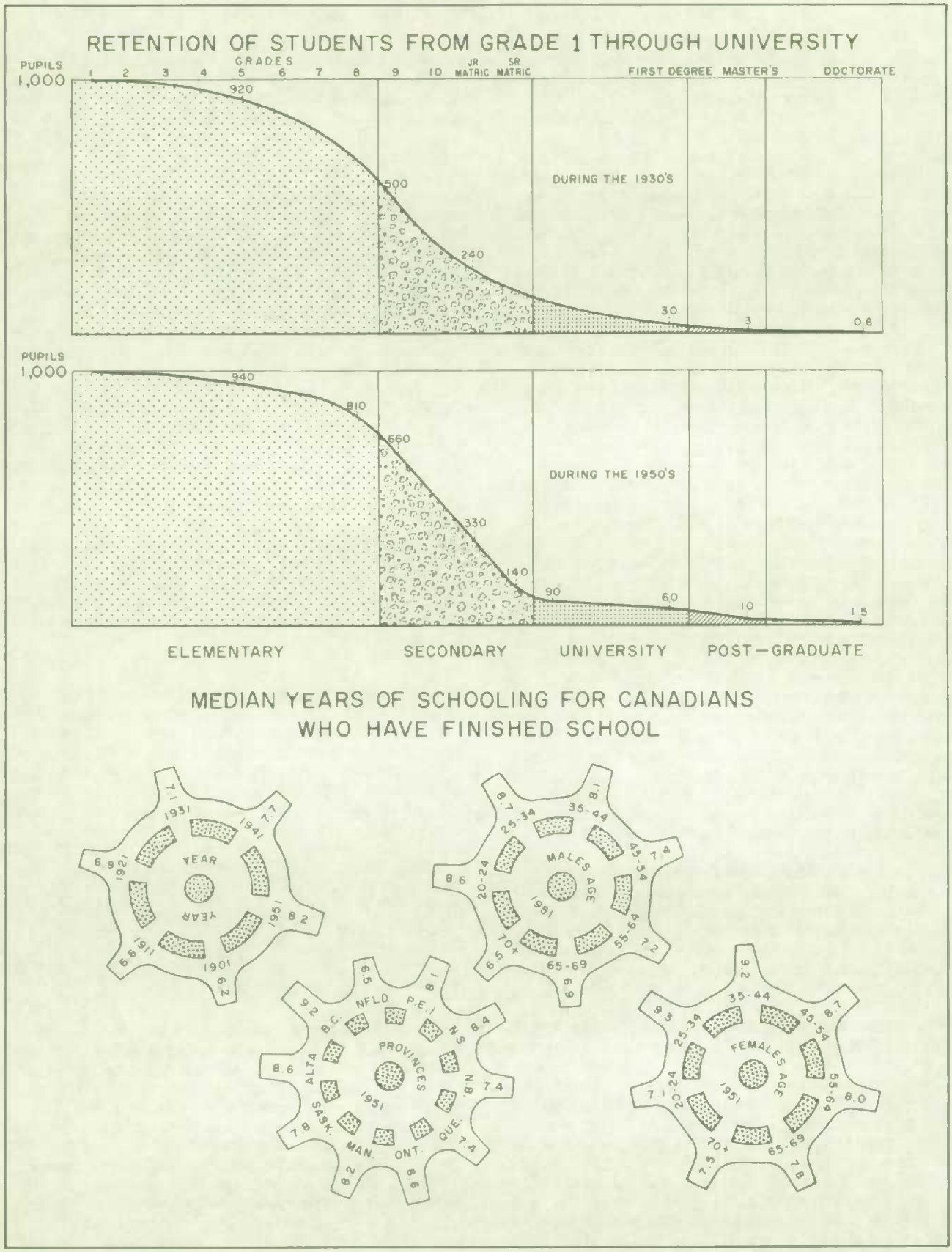
It must be kept in mind that grade standards are influenced by the instruction provided, response of the pupil, and by the examinations which are used as hurdles to determine those students who should progress regularly through the grades. A low or high rate of failure should not be considered apart from the philosophy of promotion and may chiefly indicate the effectiveness in administering the policy adopted. The same is true for the amount of double promotions and retardation.

There is considerable concern about drop-outs at present. It is felt that the proper utilization of student resources would result in considerably larger numbers continuing through high school and university but opinions differ rather widely as to the numbers who should remain in school. It is customary at present to consider as drop-outs all pupils who leave school during, or at the end of, the school year without reference to ability of the pupil or demands of the school.

Data compiled on drop-outs from a number of the provinces shows a difference in occupational level between those who left from the lower and from the higher grades. Those with little education are most likely to enter blind alleys, seasonal jobs, and hard labour. Among the girls, the majority who left from upper school entered clerical and related occupations, whereas those who left with less were more likely to end up in service and related occupations. Native ability and success at school, however, are reasonably closely related, so those who drop out of school at an early age may have had not one but two strikes against them.

The Atkinson Study, which in part was planned to discover why youth stayed in school, found that the social environment affected student plans. Assurance of success by the institution, type and size of school attended, the geographical area and plans of one's friends, economic status of the family, and such traits as reliability, willingness to work at school, and initiative, were positive factors. Contrariwise, lack of money, lack of interest, difficulty with studies, and attractive employment offers tended to discourage continuance.

The second series of diagrams gives for census years, the median years of schooling achieved by Canadians who had left school and for males and females and the different provinces in 1951. The median is the point above and below which 50 p.c. of individuals lie. For example in 1951 half of those who had left school had more than 8.2 years of schooling, and the other half had less. Medians for both males and females have increased decade by decade; more of them are staying in school longer. Of the population 20 years of age and up in 1951, the females had received more schooling than the males, and for both, years at school became less as older age groups were considered.


RETENTION OF STUDENTS FROM GRADE 1 THROUGH UNIVERSITY
PUPILS 1,000
GRADES
1 2 3 4 5 6 7 8 9 10
JR. MATRIC
SR MATRIC
FIRST DEGREE
MASTER'S
DOCTORATE
920
500
240
30
3
0.6
DURING THE 1930'S
PUPILS 1,000
940
810
660
330
140
90
60
10
1.5
DURING THE 1950'S
ELEMENTARY
SECONDARY
UNIVERSITY
POST—GRADUATE
MEDIAN YEARS OF SCHOOLING FOR CANADIANS WHO HAVE FINISHED SCHOOL
YEAR
1931
1941
1951
1901
1911
1921
7.1
7.7
8.2
6.2
6.6
6.9
MALES AGE
1951
25-34
35-44
45-54
55-64
65-69
70+
20-24
8.1
8.7
7.4
7.2
6.9
6.5
8.6
PROVINCES
1951
NFLD.
P.E.I.
N.S.
N.B.
QUE.
ONT.
MAN.
SASK.
ALTA.
B.C.
6.5
8.1
8.4
7.4
7.4
8.6
8.2
7.8
8.6
9.2
FEMALES AGE
1951
25-34
35-44
45-54
55-64
65-69
70+
20-24
9.3
9.2
8.7
8.0
7.8
7.5
7.1

HOW WELL ARE WE UTILIZING STUDENT RESOURCES?

The two diagrams on the page opposite are intended to point up the problems related to the utilization of student potential but not to offer a solution. Some of the questions in this area are as follows: How many pupils can benefit from each of elementary, secondary and higher education? What should we do for those who do not do well academically? Should we require those who are not good in academic courses to take commercial or vocational courses, or should we select the best in commercial and vocational work for such courses? Who should decide on the course each pupil will take? What do ability, motivation, background and such factors contribute to success in school?

The second chart is drawn as if intelligence is a kind of native mental horsepower which people have in varying degrees and which they can use in all situations. After much testing and research most psychologists are of the opinion that intelligence is a combination of several abilities tied together, and that people have different degrees of each ability. If this is true, then two people with the same I.Q. may have this measure made up of quite different proportions of separate abilities. Some of the specific abilities which have been identified are: structural visualization, the ability to see things in space, – a necessary ability for architects, surgeons, etc; a number factor which is necessary for a cashier but does not help in mathematical reasoning; verbal comprehension and word fluency, two abilities which are found in different degrees in any one person; ability to memorize although there appears to be quite a variety of different kinds of memories; and induction which enables persons to discover the logic in school subjects and life situations. Children have various combinations in strengths in these abilities which probably affect the way they learn and how they should be taught. In addition most students have varying degrees of specific abilities used in art, music, social situations, etc.

All of the abilities mentioned can be developed by training, but there are limits beyond which they cannot go and it is thought that these are fixed by heredity. Because of this, equal practice and training will probably increase rather than decrease differences except where mastery of the unit is easy for all.

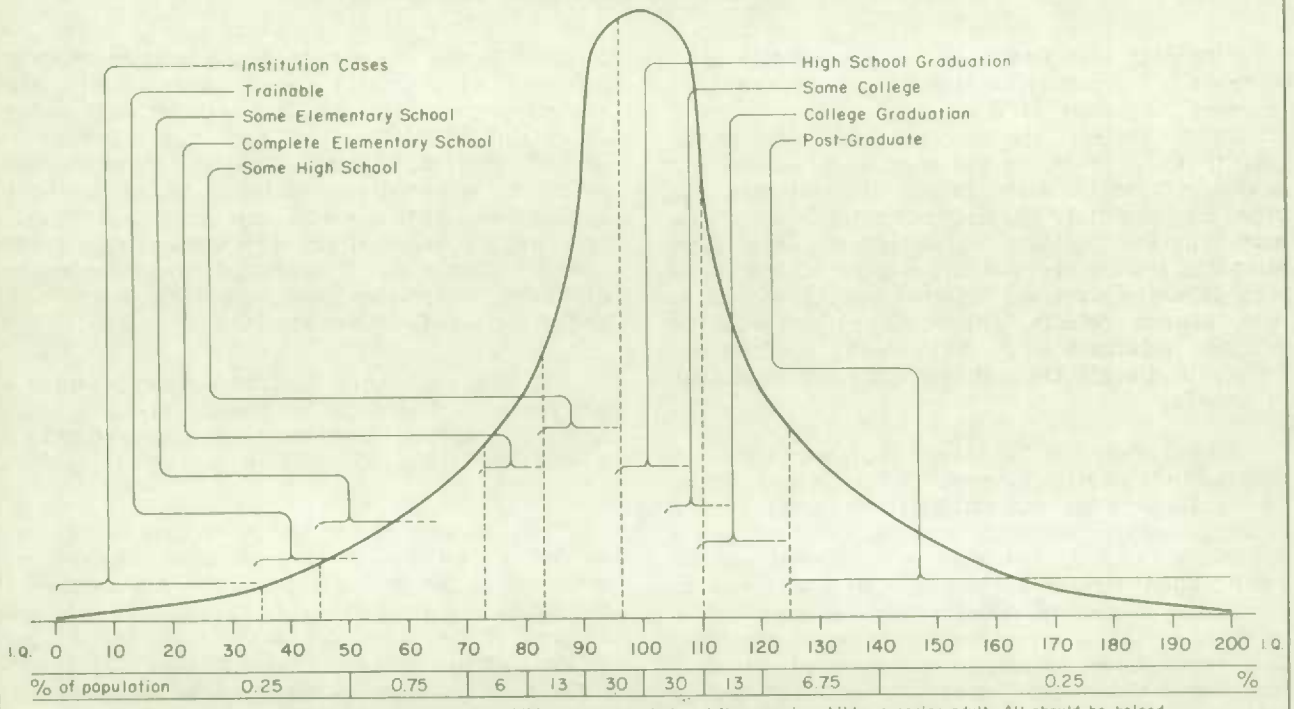
A good deal of interest has been shown lately in creativity or talent but not enough work has been done so that we can be sure of the relationship between intelligence and creative ability. Some think that you cannot be very creative without being intelligent, but that you can be intelligent without being very creative. Some recent research supports the latter by indicating that some students with high intelligence quotients and good school marks rate low on creativity, and other studies have shown a marked degree of relationship between superior mental ability and creativity. Perhaps we shall have to wait for better tests of creative ability and studies which analyze school results to discover more clearly on what they are based. At present we can but be disturbed that the Atkinson Study found such a low correlation between intelligence and school marks.

If the diagrams show anything clearly, it is that varying percentages of the population under ideal conditions can be expected to reach and master the succeeding levels of schooling. At present many are dropping out long before reaching the upper level of their mental ability, and many others are entering divisions above those indicated by their intelligence level. Studies of pupil progress in Ontario, Alberta, Quebec and the Atlantic Provinces all report large numbers dropping out of school with sufficient ability to go much higher. In the foreword to the *Atkinson Study of Utilization of Student Resources, No. 5*, Dr. R.W.B. Jackson states, "We are most intrigued, and also somewhat disturbed, by the occurrence of a substantial number of cases of high aptitude and low achievement, of low aptitude and fairly high achievement, and of many cases with very irregular patterns of achievement and aptitude". In the same report Dr. W.G. Fleming suggests that in both school and college we should scrutinize critically both our examination and our instructional procedures in order to bring "measured achievement and measured aptitude more closely into line".

In Report No. 4's foreword we read: "Painstaking thorough research and penetrating exhaustive analysis have revealed conditions which should give pause to even the most heedless. Of our most able in some aspects of aptitude and achievement, for example, little more than half go on to university; of our less able students, it is embarrassingly evident that too many do go on to university". This information has probably had less effect on our thinking than the realization that totalitarian countries have matched our accomplishments in the fields of science, technology and education in a relatively short time. Nevertheless, now that attention has been focussed on entrance requirements, scholarships, bursaries and loans and on guidance we should see what can be done about it.

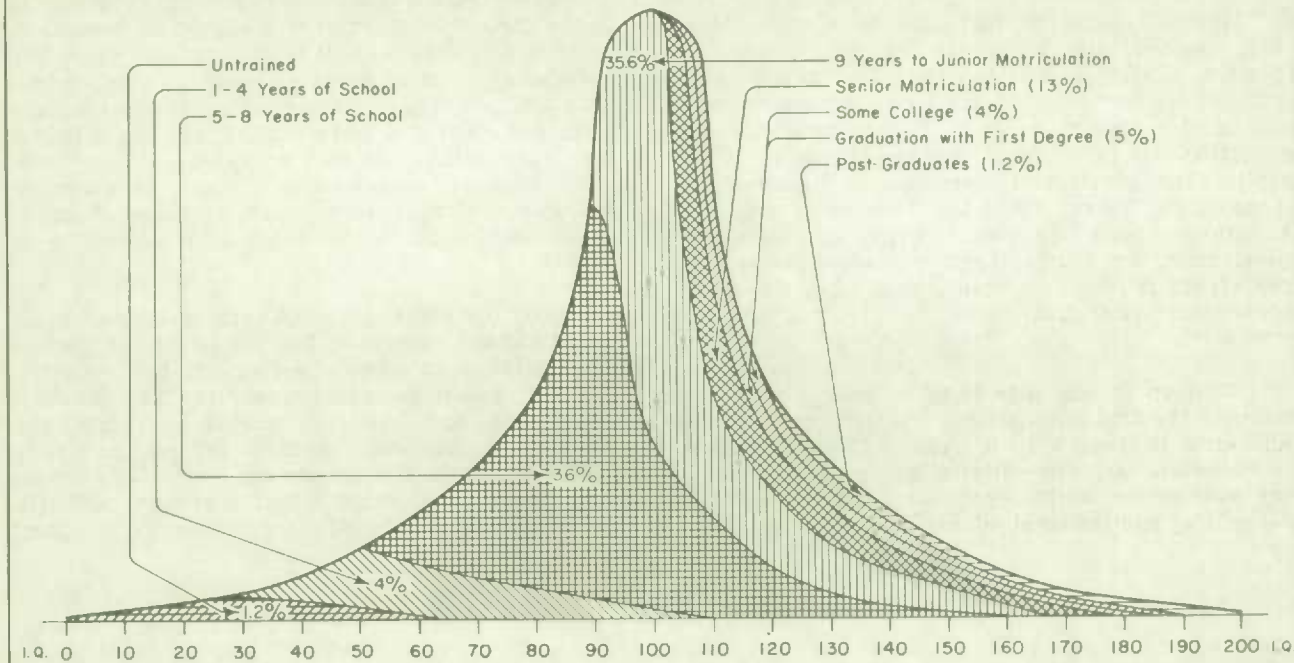
More research needs to be undertaken, not only on entrance requirements and selection, but on instruction and learning as well. As the academic procession goes forward, many able unmatriculated youth remain as discards along the wayside. There are reasons, although we are not sure how they work: lack of desire, fear of failure, frustration, a wish or obligation to do something else, and lack of money. Barriers set up by the colleges to keep out the unfit inadvertently keep out many fit as several follow-up studies have shown. We have but made a beginning on institutional research in Canada.

THEORETICAL LEVEL ATTAINABLE, ACCORDING TO MENTAL ABILITY



The dull child will grow into a dull adult, the average child an average adult, and the superior child a superior adult. All should be helped. Our responsibility is to provide for each so that he can reach up as high as possible.

ESTIMATED LEVEL OF SCHOOLING NOW REACHED BY ADULTS ACCORDING TO ABILITY



Diligence, hard-work, lack of opportunity, lack of interest, dropping out, and other factors are reflected in this chart. Problems related to selection, equalizing opportunity, and scholarships among others are still to be solved.

WHAT ARE WE DOING IN SPECIAL EDUCATION?

"Special Education" is the term widely used to describe courses and classes especially designed to meet the needs of those pupils who, for some reason or another, are unable to take part in, or benefit from, classes in the regular vocational and academic schools. Such classes are presently provided for some of the hospitalized children and those with physical defects which prevent them from attending regular classes, blind and deaf and those with defective sight and impaired hearing, and those with speech defects. Others in special classes include delinquents in correctional institutions, orphans and neglected children, and a limited number of nomads.

The education services provided must be adapted to the particular needs of the child or group. The goals here are essentially those of the regular schools but the methods are adapted and paced according to need, with emphasis on preparing the handicapped insofar as possible to live a normal life in the community. Greater stress in many cases is given to having these students master vocational skills or a trade. In helping the retarded, we must laboriously teach them many of the simple things that children normally pick up by themselves. For some this may be limited to taking care of themselves.

Special education facilities have quite often been created through parents banding themselves together to provide services. As need for and value of these are demonstrated, the provincial government may provide financial aid; and whenever a class of exceptionality becomes of concern to enough of the public, the government may assume financial responsibility for providing the classes or schools. At present there are some facilities provided by government, some subsidized by government grants, and others provided by voluntary groups. Of these, government participation is the greatest by considerable.

Concern in this area is by no means unique to Canada. The 23rd International Conference on Public Education in Geneva, 1960, reported that the problem of educating retarded children was not fully met in any part of the world. Progress in medicine, child psychology and remedial education makes it possible to identify and educate the mentally retarded. Both humane and economic consideration require that society prepare these children, insofar as possible, for useful satisfactory lives. It was recommended that: (i) atypical children should be carefully identified and selected; (ii) education facilities should be provided; (iii) teachers and supervisors should be carefully selected and professionally prepared; and (iv) Ministers of Education should have responsibilities to provide adequate facilities and to gather facts and conduct studies.

In 1953-54 public facilities were provided in 108 special schools and 588 special classes, taught by 1,222 special teachers, and non-governmental bodies reported 130 schools with 679 teachers.

The D.B.S. report indicated that the greater number of facilities were in the urban centres, and were not in proportion to provincial populations. It estimated that about 27 p.c. of the mentally retarded, 26 p.c. of the blind and partially-sighted, 12 p.c. of the hard-of-hearing, 17 p.c. of those with speech defects, 33 p.c. of the crippled, and 41 p.c. of the sick, were in schools or classes especially adapted to meet their needs.

There will always be differences of opinion as to the number of children who should be considered to belong in this area of education. Our chart suggests one out of 10 as an estimate. In this we have included a category for students needing special help, but omitted a large number who might benefit from counselling and may need help or encouragement because of frustration. There is agreement that more should be done, any differences of opinion relate to the extent to which this should be expanded.

Over the years there has been an interest in the bright and near-geniuses, but considerable difference of opinion as to those who fall into this category, how they should be selected, whether they should be segregated, and how they should be taught. It is doubtful if the issues will be solved until better instruments are devised and the weight of evidence from longitudinal studies and carefully controlled experiments provides ample evidence for judgment.

ONE IN TEN OF OUR CHILDREN NEED SPECIAL CONSIDERATION

	1960 PERCENT OF POPULATION 0 1 2	1953-54 SPECIAL SCHOOLS NO.	CLASSES NO.
PHYSICAL DEFECTS			
Deaf and hard-of-hearing		9	26
Blind and partially sighted		6	19
Physically handicapped		59	16
Special health problems		40	17
Speech defects		–	?*
MENTAL AND EMOTIONAL			
Mentally handicapped		15	–
Severely retarded		40	502**
Socially or emotionally disturbed		5	–
Oelinquent		32	–
Under achievers		–	?*
TOTAL	10%	206	580

* NOT KNOWN
** SLOW LEARNERS

IS THERE A SHORTAGE OF QUALIFIED TEACHERS?

This has been a perennial question for some years. The answers given have generally indicated a need for more staff, let alone more qualified staff. Consideration of demand and supply becomes highly involved when as many as possible of the relevant factors are taken into consideration, and precise estimates are impossible.

The situation has shown some improvement during the past few years. Of the 98,236 teachers and principals who reported in the nine provinces, exclusive of Quebec, in 1959-60, over 3,300 lacked both junior matriculation and teacher training. In the Roman Catholic schools of Quebec about 16 p.c. of teachers have less than junior matriculation plus one year of training. University degrees were reported by more than three-quarters of secondary and one-tenth of elementary school teachers. Assuming that qualified elementary teachers should have senior matriculation plus one year of professional training or better, then 15,088 or 23 p.c. were under-qualified. If junior matriculation plus one year of training is adequate then 9 p.c. were below standard. However, if some college or university graduation is deemed necessary then the picture is much blacker.

If size of class is important and classrooms with 40 or more students should be divided, then 7 p.c. of all classes are too large and some 10,000 to 11,000 additional teachers are required.

If we assume that teachers of high school grades should have university graduation or better, then almost 24 p.c. of the teachers, exclusive of vocational teachers, were under-qualified. Some others lacked a year of professional training, but most of this would be made up within a year or two.

During the past five years the number of teachers added each year averaged about 5,720 or from 4 to 5 p.c. per year. Such numbers may be needed for some time. Demand for teachers reflects growth of the school population, and loss of teachers due to retirement, death, and resignation from the profession. It has been estimated that 16 p.c. of elementary and 7 p.c. of secondary teachers leave the profession annually for one year or more.

If the minimum standards above are accepted, from 15,000 to 20,000 of the present teachers require additional instruction; some 3,000 others must be added for new classrooms, and from 17,000 to 19,000 recruited each year to compensate for losses.

Where will new teachers come from?

There were some 158 teachers' colleges, normal schools and faculties of education preparing teacher candidates in 1959-60, of which three-quarters were in Quebec. Sixty-one gave courses leading to a degree. Students may be enrolled for from one to four years in these, but may be permitted to teach after taking one year or a summer or other short course. More than 23,000 full-time students were enrolled, of whom 16,000 were expected to become teachers in the fall of 1960, inclusive of some 2,500 former teachers. Any shortage would have to be made up from ex-teachers returning to active service. In 1959-60 some 34 p.c. of the teachers were married women, many of whom had returned to teaching. The beginning elementary teachers from 8 provinces (Ontario and Quebec excepted) reported as main activity of the previous year: in training 72 p.c., at school 20 p.c., at home 2 p.c., and otherwise occupied 6 p.c.; compared with 36 p.c. in training, 41 p.c. at school, 2 p.c. at home and 21 p.c. otherwise occupied, for secondary teachers.

Demand and Supply at University Level

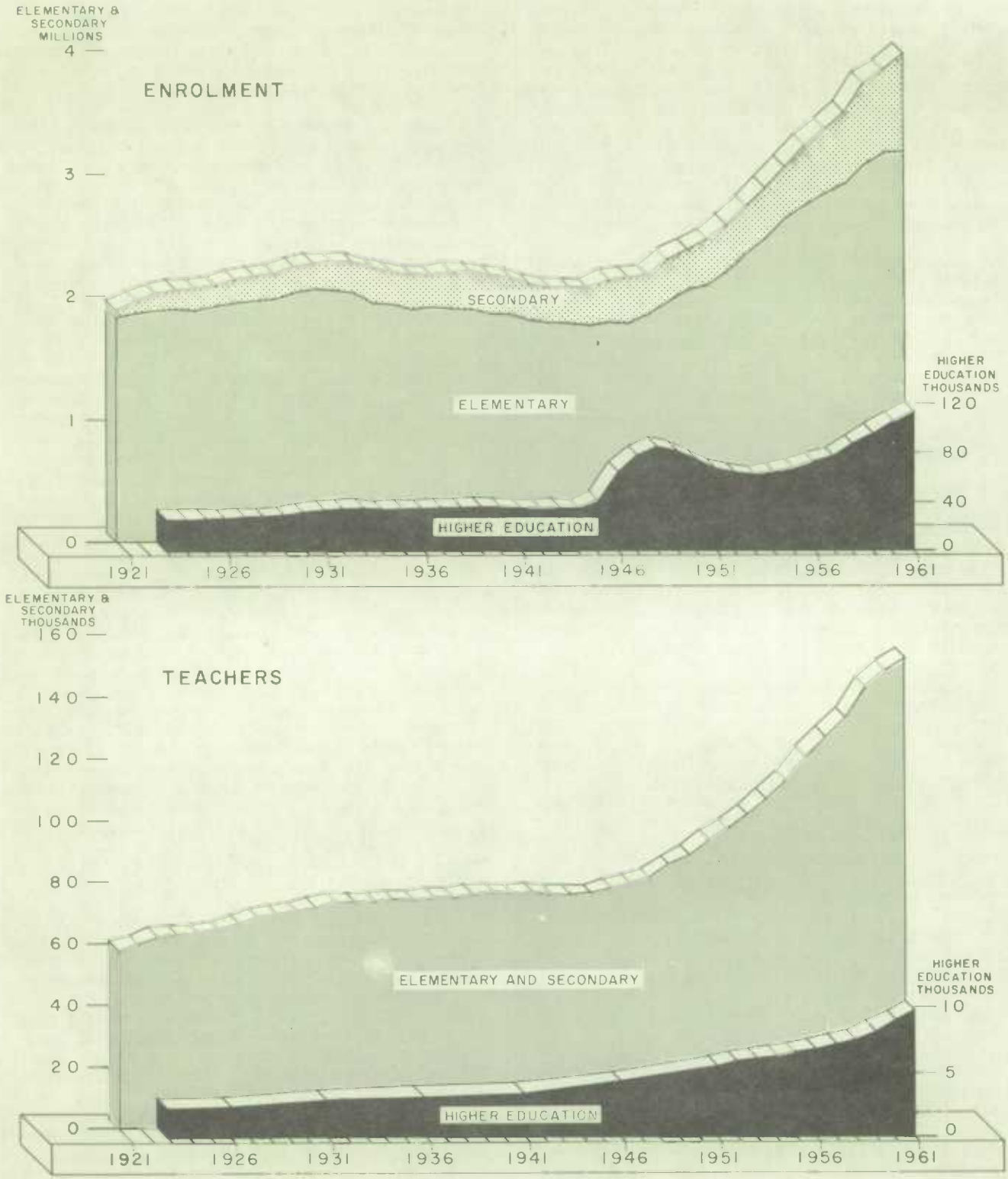
Dr. E.F. Sheffield of the Canadian Universities Foundation has estimated that university staff size will jump from 8,030 in 1959-60 to 18,000 for 1970-71. This figure does not include the transfer of just under 2 p.c. per year from one university to another, but allows for a loss of 4.7 p.c. to 5 p.c. per year from retirement, movement from university teaching or from the country, plus additions, and assumes a constant student-teacher ratio of 12.7 to 1. Any decrease in the student-teacher ratio, increase in the numbers entering university or new junior colleges, increase in research undertaken, the addition of new courses, increase in scholarships, etc., will increase the demand for staff.

At this level it is even more difficult to determine supply. There are no preparatory schools. The majority here are recruited from those with graduate degrees; the remainder may be selected from among graduates with first degrees or from outside. Here the universities must compete with business and industry, governments and government agencies, and the professions.

In 1958-59, 42 p.c. of college teachers had doctorates, 33 p.c. had masters' degrees; 23 p.c. had baccalaureates or equivalent or B.A. plus a first professional degree, and 2 p.c. lacked a degree. It is estimated that the universities will graduate about 20,055 students with first degrees in 1960-61, 2,000 with second degrees, and 325 with earned doctorates. Other Canadians will be graduated from universities outside the country. University teachers may be recruited from any country, although language may be a barrier, and staff members can accept appointments abroad. If the university staff is to be doubled within the next 10 years some 1,000 new members must be recruited each year despite keen competition.

Space has not permitted a discussion of many relevant factors. There is the matter of specialists ranging from vocational teachers to teachers of music, languages, etc. There is also the movement from teaching to administration and inspection. Nor have we mentioned part-time teachers of whom most are at the university level. At the universities, night classes, extension work, short courses, and such, complicate the problem as does the employment of clerical help and teachers' assistants.

FULL-TIME ENROLMENT AND TEACHERS IN PROVINCIAL PUBLIC SCHOOLS AND IN COLLEGES, 1921-61



HOW WELL ARE OUR TEACHERS PREPARED?

A clearer concept of the role of the teacher in society, and a greater realization of the need for more teachers of high quality at all levels of education was expressed as an urgent need by the first Conference on Education. It was asserted that the profession needed more men and women of ambition, fine abilities and a devotion to teaching. How far have we come since that time? There is little factual information presently available upon which either a firm opinion as to the competence of recruits, or an evaluation of the present body of teachers as compared to an ideal selection, could be made.

Limited statistical data related to the teachers indicates, among other things, that, on the average, the school teaching body is aging. From 1921 to 1951 the median age of women teachers rose from 25.0 to 33.7 years; for men it fluctuated up and down and was 37 in 1951. The median for women teachers was about 4 years above that for all women in the labour force; for men it was about average. For college professors the average age had not changed greatly over the decades. It was 39.5 for males and 39.2 for females in 1951.

Based on data for 1959-60 for 9 provinces, about one quarter of all teachers were university graduates. About 9.6 p.c. of the elementary teachers, 39.2 p.c. of the elementary-secondary teachers and 76.3 p.c. of the secondary school teachers had university graduation. Of those with degrees at the secondary level 10.5 p.c. had advanced degrees compared with 12.8 p.c. for elementary-secondary teachers and 5.8 p.c. for elementary teachers.

Although education level reached gives some indication of ability, it is by no means the whole story. There is no objective evidence to show whether or not most candidates for teaching are being recruited from the upper, middle or lower levels of the graduating classes. In addition to above average ability, and competence in the subjects taught, a teacher should have many other attributes, but there is little evidence to indicate whether or not candidates being recruited now are, for example, as bright and well adjusted as those recruited ten years ago.

During a period of acute shortage of adequately trained manpower, are we able to recruit sufficient qualified candidates to provide quality education? The answer to such a question depends largely on both socio-economic conditions and on what we expect from the teachers of our children.

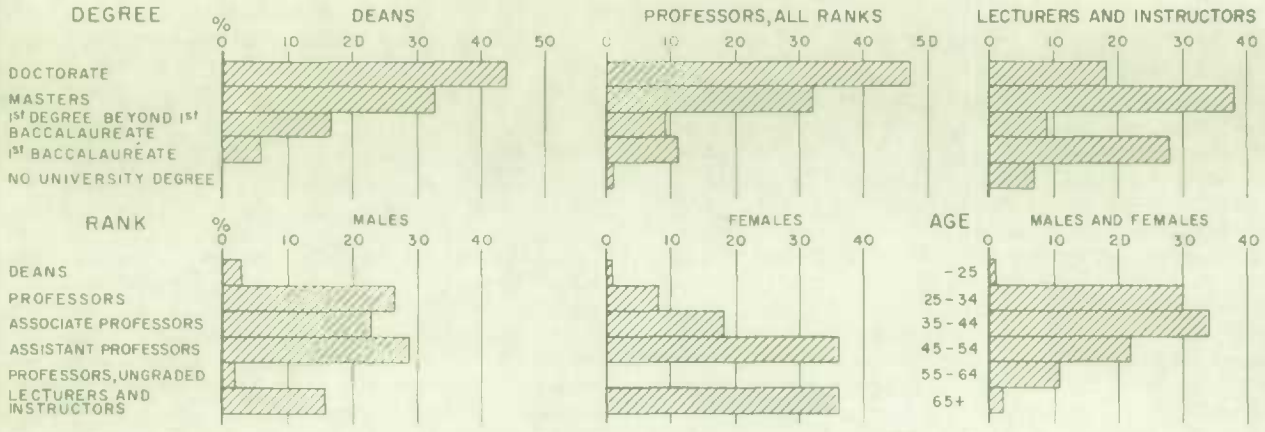
Considerable has been written on the professional aspects of teaching, and much of it has been related to selection, salary scales, and status. A liberal viewpoint has been that the important thing is to man the schools and that the standards required of candidates must be lowered to meet the demand. A professional stand has been that during times of shortage salaries and requirements should be raised and recruits will be forthcoming. There has been no firm answer to the argument because of the difficulty of isolating the factors.

Studies have been directed towards discovering why so many teachers leave the profession. Among the reasons given most frequently, but not in order are: lack of equipment and teaching materials, unhappy teacher relations, too many clerical routines, overcrowded classrooms, heavy teaching loads, theme grading, inadequate supervising assistance, too many supervisory or policing duties, too many meetings, money collections and community projects, discipline problems, bad social weather and rigid requirements. Job dissatisfaction is generally more common in secondary than in elementary school. Teacher opinion indicates that the more they can be relieved of clerical and routine duties, and the more time they have for adequate preparation and attention to individuals, the more satisfying they find teaching.

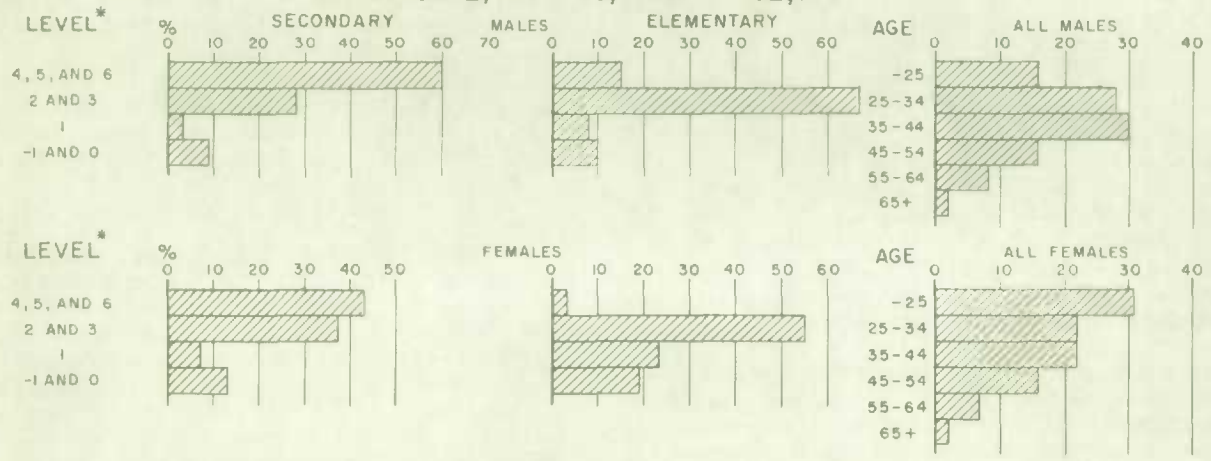
An examination of professional magazines, including research reports, seems to point to changed conceptions of the learning process which, over the years, have come from increased understanding of students as learners, deeper insight concerning the influence of the social climate of the classroom, and related changes concerning the teacher's role in directing learning. These point away from assign-study-recite-test or lecture-assign-question-test procedures and substitute problem-centered teaching and socialized discussion. However, experiments undertaken in the U.S.A., for the most part, have not come up with significant conclusions showing that any one method or procedure produces superior results under all circumstances. It would appear that a good deal more carefully controlled research is needed in this area. At least until more definite results are obtained, it would seem that the responsibility for the selection and implementation of effective teaching procedure will be left to the teacher. The better the teacher and the more knowledgable, the better the results should be.

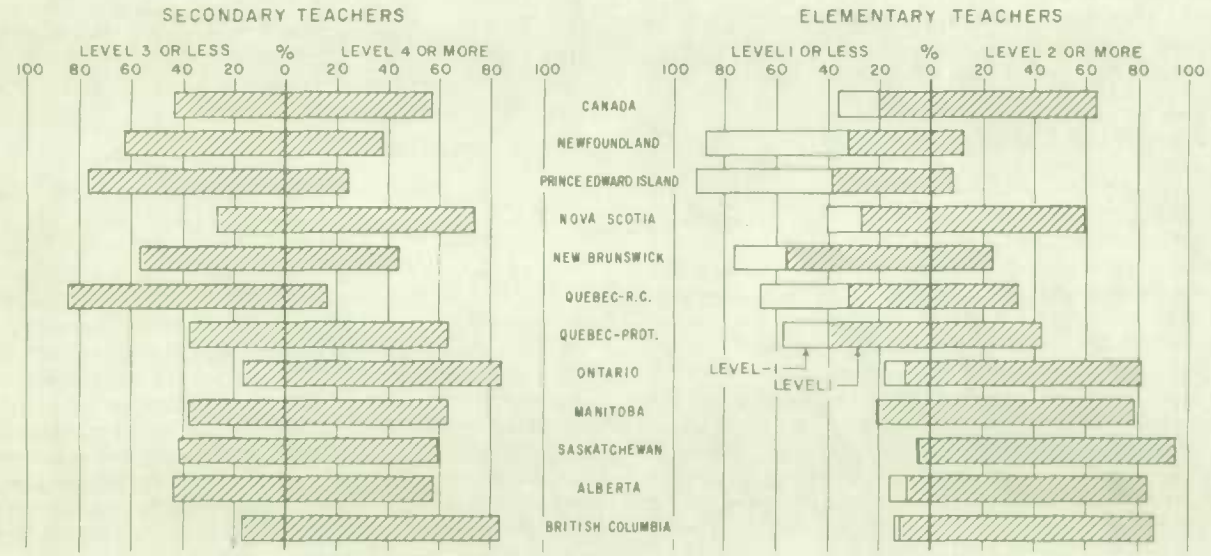
Good lesson planning makes a teacher a technician; communication of logical ideas, overcoming of frustration, and guidance of pupils, comes closer to making a teacher professional. The characteristics of kindness, patience, co-operation and sympathy have been found to be more likely to ensure good discipline than self-confidence, frankness, independence or modesty. When the former are found along with integrity, maturity, ability to communicate, understanding and academic background, teaching at best is a stimulating and satisfying experience. There is a great need for many more sociological and psychological studies on teachers and teaching if we are to answer the many questions asked.

PERCENTAGE DISTRIBUTION OF UNIVERSITY TEACHERS BY DEGREE EARNED, RANK, AND AGE, 1958-59



PERCENTAGE DISTRIBUTION OF ELEMENTARY AND SECONDARY TEACHERS BY LEVEL OF CERTIFICATE, 1959-60, AND BY AGE, 1951





* LEVELS 2, 3, 4, 5, 6 REPRESENT 2 OR MORE YEARS BEYOND JUNIOR MATRICULATION, INCLUSIVE OF ONE YEAR PROFESSIONAL TRAINING.
LEVEL 1 REPRESENTS JUNIOR MATRICULATION PLUS ONE YEAR PROFESSIONAL TRAINING.
LEVELS 0, -1 REPRESENT THOSE NOT MEETING THE ABOVE REQUIREMENTS.

WHAT WILL HAPPEN TO OUR UNIVERSITIES?

The Canadian university today addresses itself to an amazing assortment of students of different ages, interests, intentions, ambitions and degrees of preparation. It offers instruction to increasing numbers of undergraduates in the arts and sciences and in an increasing number of courses or programs of professional and semi-professional study which are essentially vocational. Among those enrolled are talented undergraduates and some with little talent; hard-working plodders and easy-going loafers; dedicated youth and floaters. At the graduate level there are those working for promotion, scholars, prospective professors, and professionals at an advanced level, in addition to increasing numbers of part-time and occasional students.

Beyond the demands of good instructing, counselling and evaluation, most professors undertake research and conduct investigations in fields which are being expanded and deepened to become so complicated, that the former vistas appear restricted, primitive and simple. Probably the biggest change in our universities is not only in the amount of research undertaken but in the nature of it and in its intrinsic goodness. Part of the research undertaken by universities at present is in connection with graduate study, part is undertaken by the professors some of which is inter-faculty, and some is contractual research. In this respect as in many others the university is coming closer to the community. Through night classes, refresher courses, correspondence education, special lectures, etc., the university is reaching out into the community. Contributions of university professors through such mass media as radio and television, whether in conducting classes or through special programs, is on the increase and their participation as consultants, on commissions, etc., is bringing the university and the industrial economy closer together.

The story of Canadian university establishment and growth makes an interesting story with little rationale applicable to the whole, yet today the situation is changing and one recognizes a loosely-knit pattern with the university capping the public school system and offering a wide diversity of courses in the arts, sciences, humanities and professions.

Our universities are English-language, French-language or bilingual. The French-language institutions are mostly church-related and resemble those of some European countries somewhat. Whereas they formerly stressed the classics as preparation for the professions, they are changing, and there is an added emphasis on pure and applied science.

The English-language universities stemmed from a variety of needs and desires on the part of the provincial governments, churches, settlers from England, Scotland and elsewhere who dreamed of establishing institutions similar to those in their native lands, and others with a variety of dreams and convictions.

Although these universities were generally begun by some one religious denomination, and a few showed extreme denominationism, all have mellowed with time. Distinctions based on originating source or body do not seem important to most students who normally select one or another for a variety of other reasons.

A board of governors, sometimes in part appointed by the parent body whether church, government or corporation, and sometimes in part elected by the university convocation, determines basic policy and considers finance. A senate composed mainly of senior staff, which may include governors and lay members, is delegated academic legislative power. Councils and committees may be appointed and given specific duties.

Canada had some 354 institutions of higher education at the beginning of the academic year 1960-61, not counting affiliated schools which prepared students for university entrance. Some 59 of these actively granted degrees in one or more fields. More were added in 1961. Expansion in higher education is the result of: (i) growth and expansion of existing institutions, whether through enlarging present plants or developing new campuses; (ii) raising the status of existing colleges; and (iii) founding of new institutions. A variety of new equipment which includes electronic computers, mass spectrometers, electron miscroscopes, nuclear reactors, cyclotrons, etc., is indicative of expansion in basic research on a large scale.

In the Maritimes, whereas no new colleges have been founded since 1955, indications are that new institutions will appear shortly. In Quebec there has been an increase both in the number of classical colleges and number of universities. In Ontario much has been happening both in the development of new institutions and in the status of some of those established for many years. In the Western Provinces there has been considerable discussion concerning changes in provincial law so that charters may be granted to other than the provincial universities; and legislation has been passed in both British Columbia and Alberta under which junior colleges have been or may be established.

CANADIAN DEGREE-GRANTING[1] UNIVERSITIES AND COLLEGES

UNIVERSITY	LOCATION	POPULATION OF UNIVERSITY 1960-61 [2]	POPULATION OF CENTRE 1956
1-UNIVERSITY OF BRITISH COLUMBIA	VANCOUVER	12,683	365,844
2-UNIVERSITY OF ALBERTA	EDMONTON	6,974	226,002
3-UNIVERSITY OF SASKATCHEWAN	SASKATOON	5,391	72,858
4-UNIVERSITY OF MANITOBA	WINNIPEG	6,178	225,093
5-ASSUMPTION UNIVERSITY	WINDSOR	1,185	121,980
6-LAURENTIAN UNIVERSITY OF SUDBURY	SUDBURY	183	46,482
7-WATERLOO LUTHERAN UNIVERSITY	WATERLOO	600	16,373
8-UNIVERSITY OF WATERLOO	WATERLOO	894	16,373
9-UNIVERSITY OF WESTERN ONTARIO	LONDON	4,258	101,693
10-McMASTER UNIVERSITY	HAMILTON	1,616	239,625
11-UNIVERSITY OF TORONTO	TORONTO	13,599	667,706
12-OSGOODE HALL LAW SCHOOL	TORONTO	461	667,706
13-QUEEN'S UNIVERSITY	KINGSTON	5,101	48,618
14-ROYAL MILITARY COLLEGE	KINGSTON	813	48,618
15-UNIVERSITÉ D'OTTAWA	OTTAWA	3,371	222,129
16-CARLETON UNIVERSITY	OTTAWA	1,141	222,129
17-UNIVERSITÉ DE MONTRÉAL	MONTRÉAL	15,212	1,109,439
18-McGILL UNIVERSITY	MONTRÉAL	7,751	1,109,439
19-SIR GEORGE WILLIAMS UNIVERSITY	MONTRÉAL	1,768	1,109,439
20-BISHOP'S UNIVERSITY	LENNOXVILLE	434	3,149
21-UNIVERSITÉ DE SHERBROOKE	SHERBROOKE	2,315	58,668
22-UNIVERSITÉ LAVAL	QUÉBEC	9,847	170,703
23-UNIVERSITÉ SAINT-LOUIS	EDMUNSTON	206	11,997
24-UNIVERSITÉ DU SACRÉ-COEUR	BATHURST	182	5,267
25-UNIVERSITY OF NEW BRUNSWICK	FREDERICTON	1,837	18,303
26-SAINT THOMAS UNIVERSITY	CHATHAM	115	6,332
27-UNIVERSITÉ SAINT-JOSEPH	MONCTON	563	36,003
28-MOUNT ALLISON UNIVERSITY	SACKVILLE	1,160	2,849
29-COLLÈGE SAINTE-ANNE	CHURCH POINT	97	288
30-ACADIA UNIVERSITY	WOLFVILLE	884	2,497
31-DALHOUSIE UNIVERSITY	HALIFAX	1,757	93,301
32-UNIVERSITY OF KING'S COLLEGE	HALIFAX	182	93,301
33-MOUNT SAINT VINCENT COLLEGE	HALIFAX	377	93,301
34-NOVA SCOTIA TECHNICAL COLLEGE	HALIFAX	313	93,301
35-SAINT MARY'S UNIVERSITY	HALIFAX	475	93,301
36-SAINT FRANCIS XAVIER UNIVERSITY	ANTIGONISH	1,447	3,592
37-SAINT DUNSTAN'S UNIVERSITY	CHARLOTTETOWN	356	16,707
38-MEMORIAL UNIVERSITY	ST. JOHN'S	1,238	57,078

[1] COLLEGES GRANTING DEGREES IN THEOLOGY ONLY ARE OMITTED.

[2] INCLUDES ENROLMENT IN ALL AFFILIATED, FEDERATED AND ASSOCIATED INSTITUTIONS BOTH IN AND OUTSIDE THE PROVINCE IN WHICH THE PARENT INSTITUTION IS SITUATED.

DO WE NEED MORE UNIVERSITY GRADUATES?

The charts on the opposite page indicate the increase in the numbers of university students graduated with first, second and third degrees over the years. The chart at the top of the page shows those faculties in which the numbers have been appreciably large during the past few years. Increases shown are striking but do little to show whether or not our universities are turning out enough graduates, and, what is more important, which faculties are graduating too few, sufficient, or too many students at the several levels. The charts neither indicate the number or percentage of foreign students included, nor report the number of Canadians who earn advanced degrees abroad.

Consideration of supply and demand in one or other of the professions is brought to the fore from time to time, mainly because of an urgent need whether for teachers, engineers, theologians, or scientists, etc. Problems connected with estimating need vary with the professions. Thus in medicine we might first determine the present number of doctors per 1,000 population, their location, their age to determine number needed for replacement year by year, the growth of the population, etc. Next we would decide on the services to be provided and the number of doctors per 1,000 needed to supply these. And finally we could estimate the numbers which should be graduated annually to ensure a full complement.

Estimating the number of engineers needed is a somewhat different problem since engineers are more mobile and are more likely to leave the actual practice of engineering to become administrators, etc., or to leave the country. Another problem relates to the use of technicians to assist engineers, the numbers of these needed and the part of the work they should do. Estimates for the other professions raise unique problems and demand special treatment. If, however, we are to plan ahead, each of these must be dealt with adequately.

In *The Two Cultures and the Scientific Revolution* Sir Charles Snow suggested that we are now in the second stage of the industrial-social revolution, the scientific phase. The industrial revolution was characterized by such changes as the replacement of tools by machines, the transferring of home craft shops into large central factories and the development of a complex organization for the distribution and sale of goods manufactured. The scientific phase, which began possibly thirty or so years ago when atomic particles were first used industrially, is the application of science to industry and the full effect of electronics, atomic energy and automation, of which the impact cannot be grasped as yet.

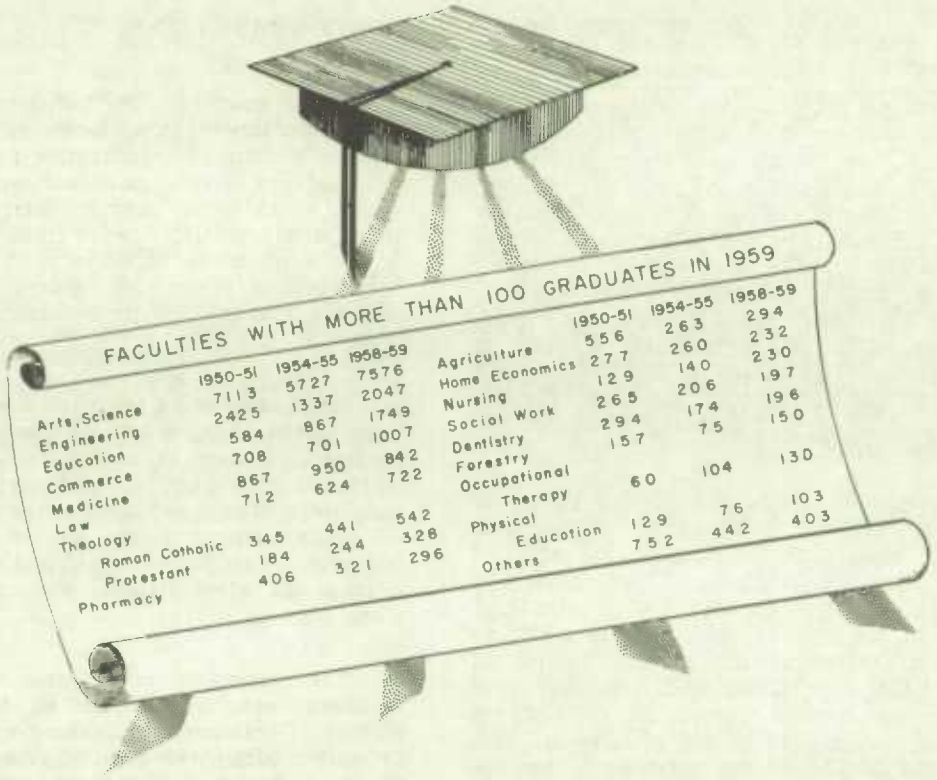
Sir Charles Snow remarked that we will need as many top-flight scientists as can be developed – the number is limited by native ability; a much larger number of able scientists to do supporting research, high class design and development; many more skilled technicians to do the secondary technical jobs and relate them to personnel and society; and politicians and administrators who understand what is going on.

The situation concerning social scientists, teachers, etc., is perhaps as critical. The total number of university professors needed is expected to double within the next 10 years and the need at the supporting levels will increase proportionately.

Our appraisal so far has had a practical bent with a concern for professional training and needs of the state. The university is so complex an institution, however, that it offers a wide variety of courses and has as many objectives. Both cultural and practical factors should be considered in estimating optimum numbers of graduates.

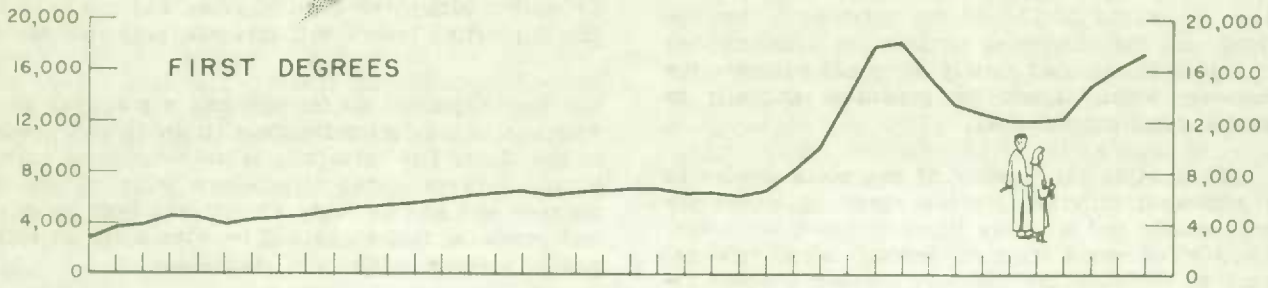
In the 1944-45 academic year, 17 universities provided work at the master's and five at the doctoral levels; by the 1958-59 academic year 28 offered work at the master's and 16 at the doctoral level. The expansion probably reflects the development of well rounded faculties prepared to provide training in breadth and depth. The percentage of the population which continues to take post-graduate work has increased; about 1 p.c. of all who enter Grade 1 are graduated with a master's degree and 0.15 p.c. receive a doctorate in course.

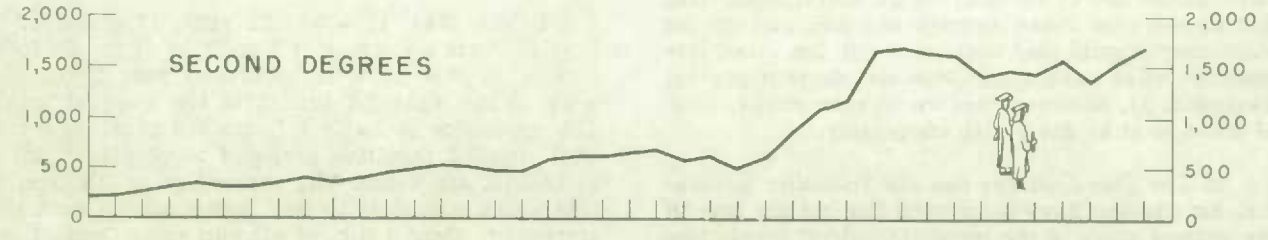
DEGREES GRANTED BY UNIVERSITIES AND COLLEGES

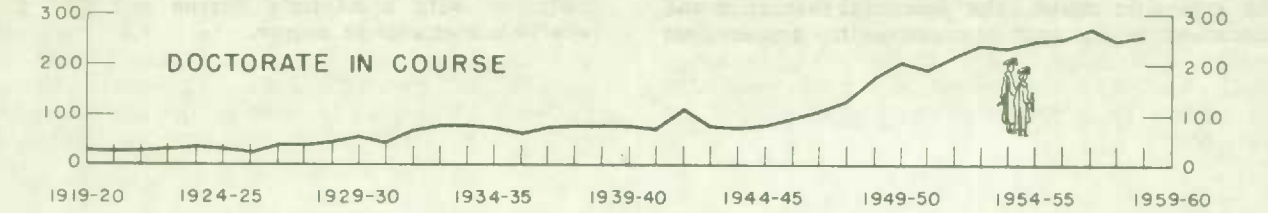


FACULTIES WITH MORE THAN 100 GRADUATES IN 1959

	1950-51	1954-55	1958-59
Arts, Science	7113	5727	7576
Engineering	2425	1337	2047
Education	584	867	1749
Commerce	708	701	1007
Medicine	867	950	842
Law	712	624	722
Theology			
Roman Catholic	345	441	542
Protestant	184	244	328
Pharmacy	406	321	296
Agriculture	556	263	294
Home Economics	277	260	232
Nursing	129	140	230
Social Work	265	206	197
Dentistry	294	174	196
Forestry	157	75	150
Occupational Therapy	60	104	130
Physical Education	129	76	103
Others	752	442	403







DO WE NEED MORE MONEY FOR HIGHER EDUCATION?

University operating costs amounted to some $144,000,000 in 1959-60 or about $8 per capita. They have been increasing at the rate of 15 p.c. per year. Construction and other capital costs are expected to amount to half a billion dollars between 1959 and 1965. The diagram on the opposite page is intended to give some idea of the sources of university revenues and how the money is spent. About 70 p.c. of operating costs, outside ancillary services, goes for instruction. Plant maintenance, apparatus and supplies are significant items of expenditure as are sponsored and assisted research and ancillary services. The life blood of the university is the education of students and the conducting of research but from the viewpoint of finance the greater enrolment and the more research undertaken, the more money the university has to find elsewhere.

From the viewpoint of many a student, paying for a year at college is a major undertaking. The D.B.S. study of 1956-57 showed significant differences of some $300 to $350 between those living at home and those living away from home, although this did not make adequate allowance for the costs of keeping youth at home. Expenses of married students showed wide variation but on the average, apart from fees, were almost double those for single students away from home.

On the average, for single students away from home, girls spent some $100 less than boys, except in the classical colleges. There was considerable range in costs by faculties, from $968 for Education, $1,211 for Arts and Science, $1,386 for Engineering, $1,621 for Law, $1,771 for Medicine; and $1,649 for graduates.

Costs have increased since the survey was undertaken and the median expenditure for all students of $1,225 at that time has now risen. In their report the Industrial Foundation on Education showed a range by regions from $1,212 to $1,613, an average of $1,437 for all Canada in 1960.

An examination of student income in 1956-57 showed that on the average 67 p.c. came from earnings and family help, both of which fluctuate from year to year for many persons, depending on economic conditions. Any serious drop in either family income or summer earnings could mean that the student could not return to college, at least not right away.

Scholarships and bursaries accounted for 6.4p.c. of the student's income in 1956-57. The median scholarships and bursary awards were $317 and $227. The graduates fared best, 29.4 p.c. received scholarships averaging $1,000 or more, and 12.1 p.c. median bursaries of $344.

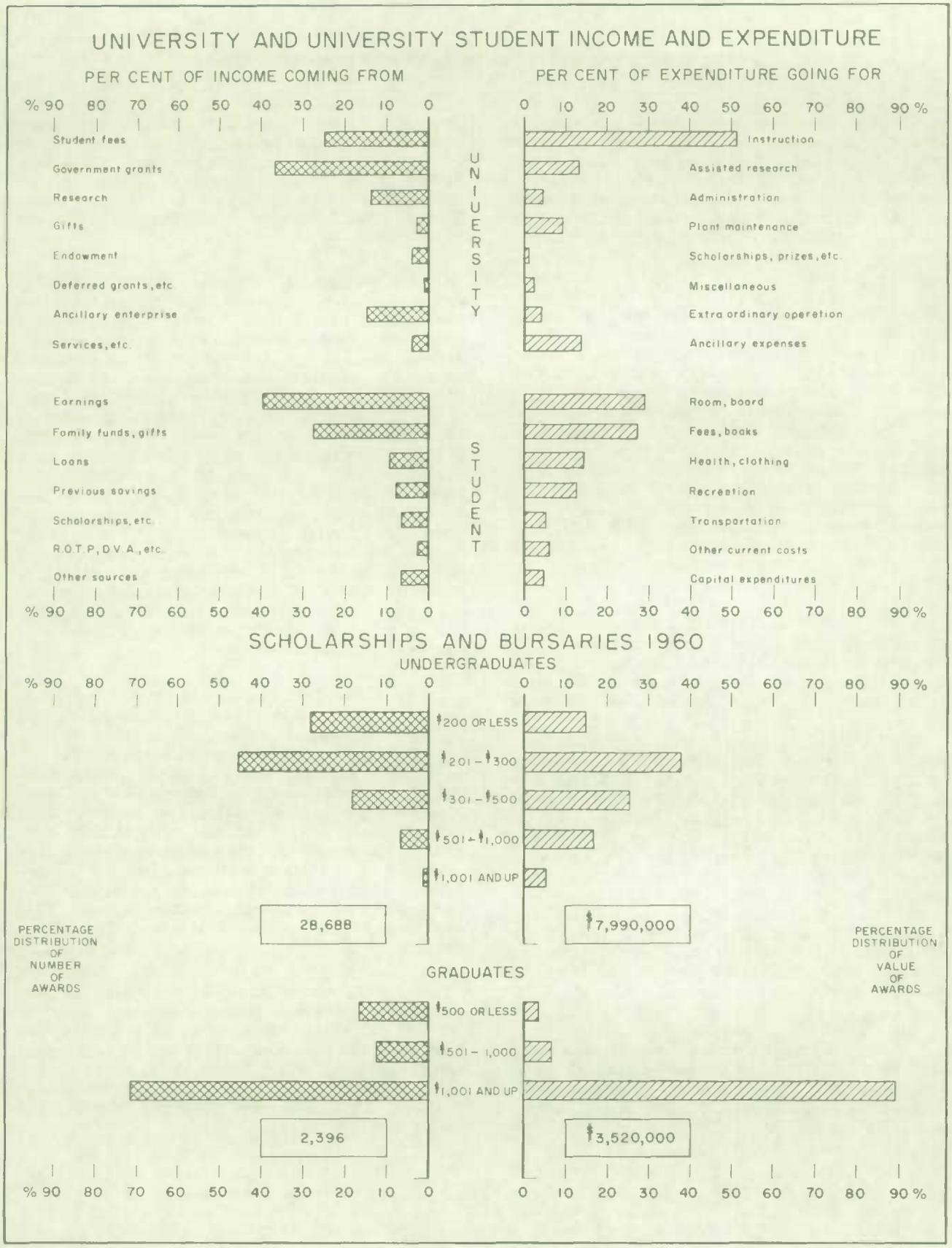
The Industrial Foundation reported over 31,000 scholarships and bursaries valued at approximately $11,500,000 for university students in 1960 exclusive of loans, prizes, assistantships, post-doctoral awards, short term awards, teacher-training awards, awards for less than $100 and a few others. Approximately 92 p.c. of the awards were at the undergraduate level, and accounted for about 70 p.c. of the total value. The provincial governments provided over half the total funds for undergraduate awards, business and industry came next with 11 p.c. of the total. The Federal Government provided more than 50 p.c. of graduate awards, with foundations, business and industry coming next with some 9 p.c. of the total. Almost 75 p.c. of all undergraduate awards were in the range $100 to $300, whereas 84 p.c. of awards for graduates were above $500, the average being $1,470.

Most awards are limited in some way, either to entrants, undergraduates, or graduates but a number also have other restrictions as to faculty or field of study, problem in research, geographical location or religion of the student, etc. The fewer the restrictions, the easier the awards are for the university to administer. In spite of restrictions, however, nearly all are picked up by some student.

As noted before, financial contributions to assist students will not ensure adequate facilities for increased enrolments. Income from fees covers under 30 p.c. of current operating costs let alone money for capital expenditure. Because of this, in addition to government grants and loans, business and industry, foundations, alumni and other possible sources are being approached for more funds. Current operating costs per full-time student have doubled, from $750 in 1957 to about $1,500 in 1961, and capital outlay for building expansion, residences and equipment will increase to keep pace with increase in the number of students enrolled.

Note:

The diagrams were based on D.B.S. materials, a statement of the University Business Officers (C.A.U.B.O. Feb. 23, 1961), *University Affairs*, February 1961, and *The Case for Increasing Student Aid, 1961*, Industrial Foundation on Education.


UNIVERSITY AND UNIVERSITY STUDENT INCOME AND EXPENDITURE
PER CENT OF INCOME COMING FROM
PER CENT OF EXPENDITURE GOING FOR
% 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 %
Student fees
Government grants
Research
Gifts
Endowment
Deferred grants, etc.
Ancillary enterprise
Services, etc.
UNIVERSITY
Instruction
Assisted research
Administration
Plant maintenance
Scholarships, prizes, etc.
Miscellaneous
Extra ordinary operation
Ancillary expenses
Earnings
Family funds, gifts
Loans
Previous savings
Scholarships, etc.
R.O.T.P., D.V.A., etc.
Other sources
STUDENT
Room, board
Fees, books
Health, clothing
Recreation
Transportation
Other current costs
Capital expenditures
SCHOLARSHIPS AND BURSARIES 1960
UNDERGRADUATES
$200 OR LESS
$201 – $300
$301 – $500
$501 – $1,000
$1,001 AND UP
28,688
$7,990,000
PERCENTAGE DISTRIBUTION OF NUMBER OF AWARDS
PERCENTAGE DISTRIBUTION OF VALUE OF AWARDS
GRADUATES
$500 OR LESS
$501 – 1,000
$1,001 AND UP
2,396
$3,520,000

SHOULD WE ATTRACT MORE STUDENTS FROM ABROAD?

Members of the ancient aristocracy often sent their brilliant youth to sit at the feet of famed foreign scholars, or imported famous scholars to instruct their youth. As university centers in mediaeval times grew around professors, they attracted students from all over Europe. Scholarship from an early age recognized little or no territorial, racial or other bounds.

For decades it has been considered most desirable for a student to cap his academic career by spending a year abroad. The aims of students studying abroad vary rather widely but are likely to include the specific knowledge of a certain field, a desire to immerse themselves in the ways and customs of an alien people, or the acquisition of a general understanding of a foreign culture. As such students gain an appreciation of another culture they gain a new perspective from which to view their own socio-economic organization. It is hoped that in addition these students will be exposed to the realities of cultural contrasts which will yield a kind of cross-cultural understanding and provide for the co-ordination and tolerance necessary for co-habitation.

Today opportunities are being increased rapidly for serious forms of overseas experience as well as for the more ephemeral. Included among the former are undergraduate and graduate years abroad, summer sessions, work camps, conferences and such.

Nor is the other side of the picture being neglected, that of bringing students from overseas countries to study in Canada in the hope that they will become familiar with English or French, if necessary, get to know us better, benefit from their courses and discover how we do things so that they can take home information which they can use. Many come on their own; others are aided under the Colombo Plan, the Commonwealth Scholarship Plan, or through scholarships of the Canada Council, National Research Council, etc. (For the decade ending December, 1960, 3,043 students were brought to Canada for training under the Colombo Plan and similar schemes).

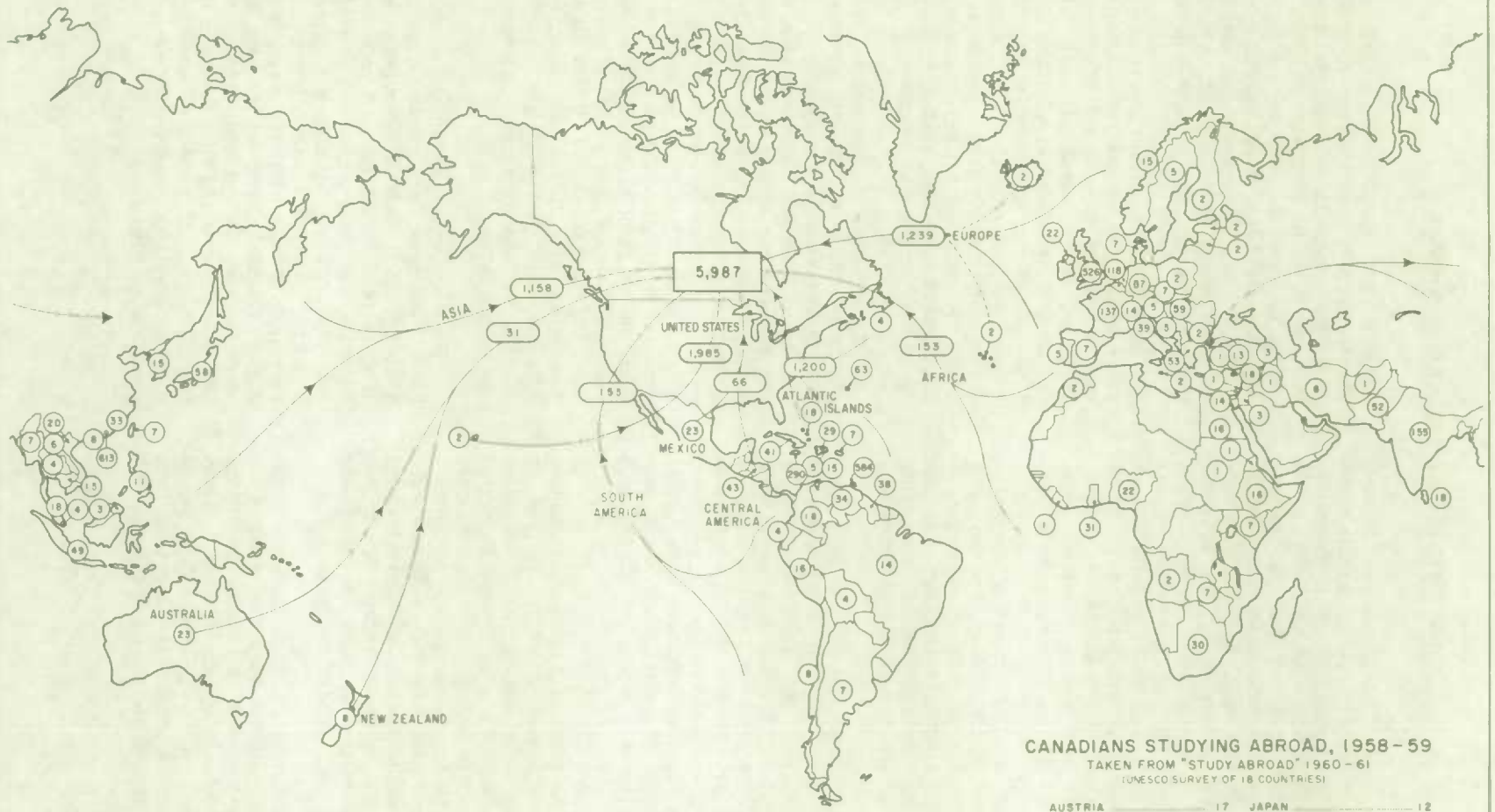
Just under 6,000 non-Canadian students from more than 100 countries and territories attended Canadian universities and colleges during the 1958-59 academic year. They constituted 6.3 p.c. of the full-time enrolment of 94,400. The largest groups were 2,662 from Commonwealth countries and 1,983 from the United States. Considering geographic areas in order of magnitude, there were 1,985 from the United States (including Hawaii), 1,239 from Europe, 1,200 from the "Atlantic Islands", 1,158 from Asia, 155 from South America, 153 from Africa, 66 from Central America and 31 from Australia and New Zealand.

The number of Canadian students studying abroad and foreign students in Canada represent but a small part of all students studying outside their own countries, as reported by Unesco in *Study Abroad*. In 1958-59 enrolment in higher education throughout the world was estimated at 10,500,000 of whom foreign students were 200,000 or 1.9 p.c. Some 7 countries reported foreign enrolments in excess of 40 p.c.; and 10 countries reported 5,000 or more students. Of the 10 reporting 5,000 or more foreign students, six countries, the United States, France, Federal Republic of Germany, United Kingdom, the U.S.S.R. and Argentina each reported more than 10,000 foreign students or over 56 p.c. of the total of all such students. When Austria, Switzerland, Canada and Egypt were added the total represented 70 p.c. of all foreign students and 60 p.c. of all students, However, several of these countries had a relatively small percentage of foreign as compared with native students.

The 1956-57 D.B.S. survey found the average age of foreign students was 26 years, which was average for graduate students. A majority of them maintained their own quarters, followed by those in dormitories and next, those in private homes. Most of them lived within walking distance of the campus. About 80 p.c. worked during the summer, about half of these worked at the university or were employed in work connected with their courses, one-seventh were in skilled employment and the remainder were in miscellaneous occupations. Most of them spent more than the average Canadian student. This was true for all categories of expenditure except clothing.

The 1961 Annual Survey of the *Financial Post* reported the following distribution of foreign students by field of study: one-quarter (25.6 p.c.) in the humanities and education; almost one-fifth (19.4 p.c.) in engineering; 17.4 p.c. in the social sciences and law; 16.1 p.c. in medicine; 12.4 p.c. in the natural sciences; 6.4 p.c. in agriculture and fine arts and 2.7 p.c. not distributed.

FOREIGN STUDENTS IN CANADIAN UNIVERSITIES, 1958-59



CANADIANS STUDYING ABROAD, 1958-59

TAKEN FROM "STUDY ABROAD" 1960-61
(UNESCO SURVEY OF 18 COUNTRIES)

AUSTRIA	17	JAPAN	12
BELGIUM	16	NETHERLANDS	7
FRANCE	203	SWITZERLAND	29
GERMANY	59	UNITED KINGDOM	436
ITALY	3	UNITED STATES	5,432

NOTE: AREA SUBTOTALS INCLUDE SOME STUDENTS NOT SHOWN BY COUNTRY (AFRICA 17, ASIA 13, EUROPE 98, SOUTH AMERICA 12, WEST INDIES, 144)

EDUCATION AND SKILLED MANPOWER

The diagram opposite was designed to give some idea of the institutions which provide vocational preparation from apprenticeship to professional education. This education is carried on in the collegiates, universities, and public and private institutions organized for this purpose. Omitted is the important in-service training provided by industry, which varies widely from plant to plant; training and schools of the armed services which conduct much of the training of their personnel; the large contribution of private trade schools through full-time and part-time attendance and by correspondence; the part played by associations controlling internship and certification; and the large contribution made by incidental training on the job.

The Department of National Defence entered the field of education to provide (i) a well-trained corps of officers, (ii) schooling for children of members of the armed forces in government quarters, and (iii) assistance for education institutions conducting special studies and research needed for defence.

Just under 20,000 were registered as indentured apprentices with the provincial Departments of Labour, September 1960, and 4,004 successfully completed their work in 1959-60. Enrolments were automotive trades, 34 p.c., construction, 29 p.c., electrical and electronic trades, 17 p.c., mechanical and metal trades, 13 p.c., service, 4 p.c., and other, 3 p.c. Much of the class work is done in provincial trade schools, which also enrolled 18,000 in preemployment trade courses ranging in length from 3 weeks to 2 years.

Enrolment in the provincial technical institutes and related courses amounted to 8,304 in 1959-60 with those taking "engineering type" technical courses predominating by 8 to 1. A wide variety of technological post-secondary courses includes engineering, architecture, aeronautics, metallurgy, electronics, medical laboratory work, pulp and paper making, business administration, land surveying, and such. Some technical institutes provide one or two courses only, others provide many; a number are operated along with trade schools.

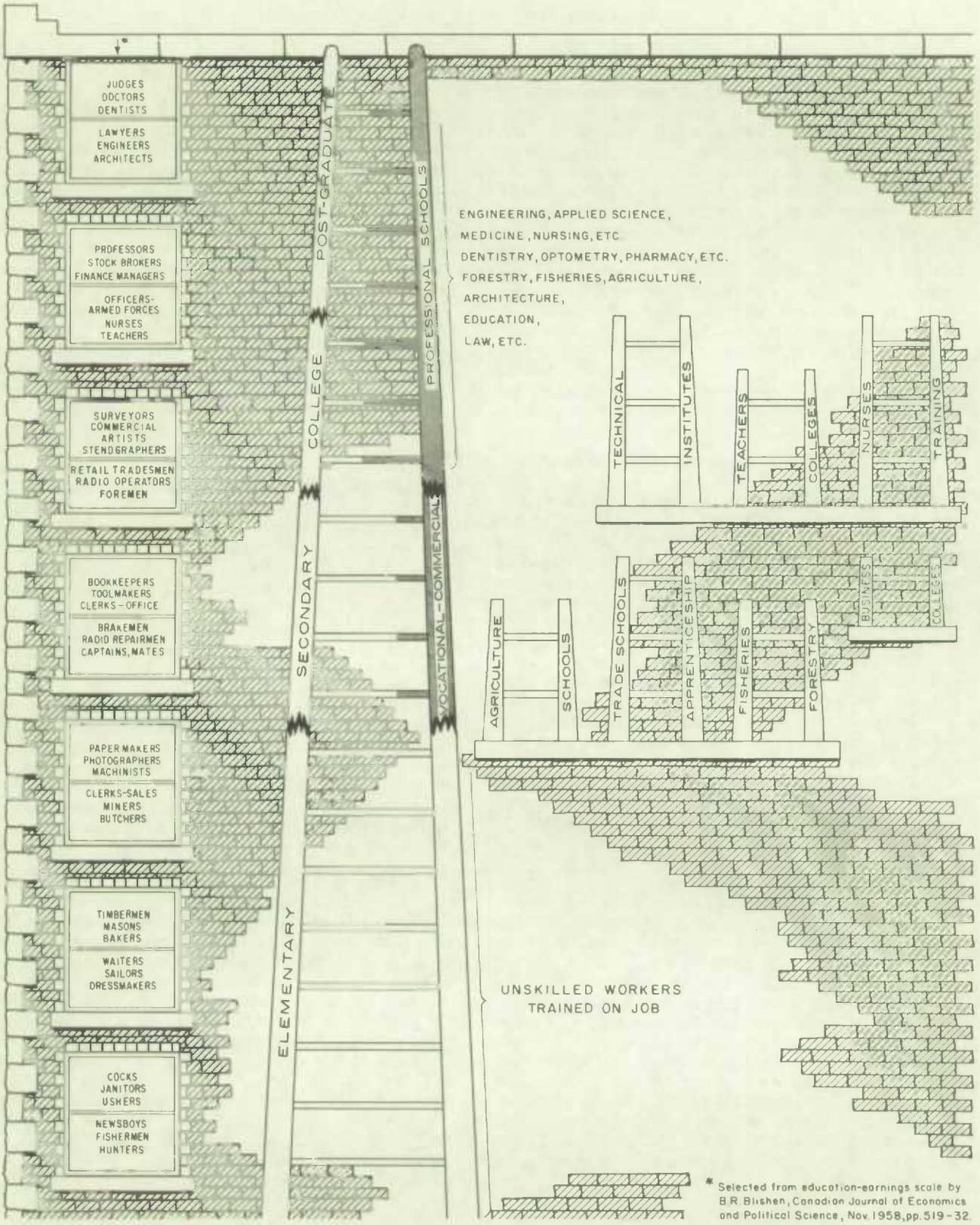
Formal education is the base upon which the development of the nation's manpower resources is constructed. Most boys and increasing proportions of girls will sooner or later enter the labour force. Their choice of jobs will be influenced and limited largely by the education and training they have received. If this were not so it is unlikely that the numbers now enrolled in secondary and higher education would be as they are. Although preparation of youth for entry into the occupational structure is only one of the functions of the schools, and should remain so, none the less its importance has grown tremendously because of scientific and industrial successes achieved elsewhere, and because of a shift in demand from unskilled to skilled labour as machines replace men in repetitive tasks.

Institutions of higher learning which first prepared candidates for the learned professions, have over the years added many other professions and organized more integral colleges. While a division by faculties is somewhat arbitrary, at present more than half of the enrolment is in courses leading more or less directly to occupations. Among these are engineering and applied science, 15 p.c., followed by education, 9 p.c., commerce and business administration, 6 p.c., medicine, 4 p.c., and some 20 others with smaller enrolments.

The Federal Government's participation in vocational education has been a matter of contributing to the economic efficiency of the people in relation to home and foreign markets, through ensuring an adequate supply of skilled workers for the nation's industries. With support of the provinces, a Royal Commission in 1909 recommended a complete system of vocational education at the secondary school level. The Technical Education Act, 1919, provided for grants to the provinces for lands, buildings and equipment, maintenance, and vocational teachers' salaries. Vocational education in all provinces has since grown and present activities include youth training, student aid, supervisory training, apprenticeship, rehabilitation, training of unemployed, vocational schools assistance, promotion and co-ordination.

Because the fast-changing technology of industry and business is increasing demands for trained manpower, the Federal Government in December, 1960, agreed to provide the provinces with more financial and other assistance towards increasing vocational high school programs, technical training programs, trade and other occupational training, training in industry, training programs for the unemployed, disabled, technical teachers, and the armed services, and student aid. Except for the armed forces where it is 100 p.c., the Federal contribution ranges from 50 p.c. to 75 p.c., according to whether it is for operating expenses or capital outlay and according to purpose.

TRADE AND PROFESSIONAL EDUCATION



* Selected from education-earnings scale by B.R. Blishen, Canadian Journal of Economics and Political Science, Nov. 1958, pp. 519-32.

THE TRANSITION FROM SCHOOL TO WORK

Our schools, colleges and vocational training agencies practice a variety of ways of preparing and placing new workers in the labour force. Considerably more interest has been developing recently in the transition from school to work. This has been approached from two viewpoints, from that of the individual job seeker and from the larger viewpoint which considers the character and desirability of the existing distribution of the labour force in the major occupations. The former is interested in discovering the interests, aptitudes and abilities of the individual, doing a job analysis of available positions, and matching men and jobs. The latter approach raises such questions as the socio-economic significance of the various programs of vocational preparation and placement, their effects on the social order and their adequacy to meet changing conditions. Both of these warrant further pursuit.

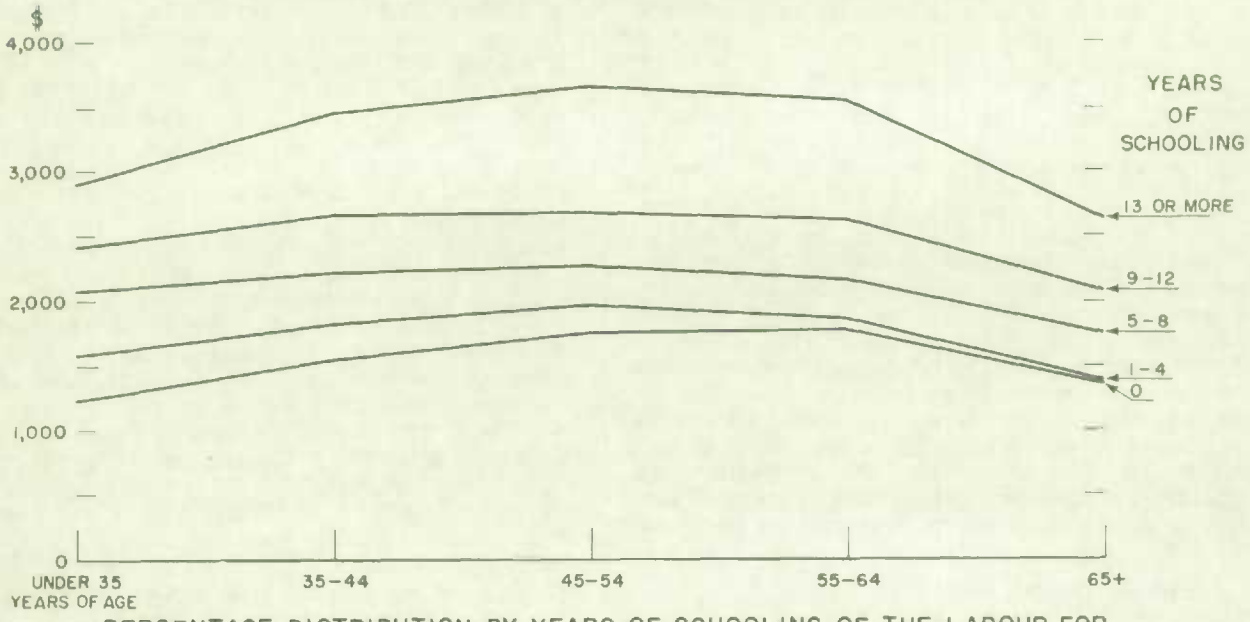
In a democratic society in which demand and supply largely determine the work and wage situation, individual initiative is relied on to ensure ample employment and equitable distribution of the workers among the various occupations. Because the employment situation is dynamic, there is generally an overcrowding in some occupations and a scarcity in others. Changing from some occupations to related ones is relatively easy compared with recruiting for ones which demand long preparation or where specialists with limited but specific skills must be placed. Otherwise an equilibrium is complicated by a number of such considerations as: (i) earnings vary widely among the occupations; (ii) there is a wide range in preparation time; (iii) security and prestige show wide variation and (iv) such factors as age, sex, special aptitudes, etc., may have to be considered. Again, the situation at any one time in addition to all local factors is complicated by national and international implications.

Both short and long-term trends concerning demand have been observable. Some idea of change in occupational distribution in the labour force can be seen from a comparison of the relative size of major groupings in the census data from 1901 to 1951. The number in agriculture remained fairly constant but the percentage dropped from 40 p.c. to about 11 p.c.; blue collar jobs increased in number from about 28 p.c. to almost 31 p.c.; white collar occupations increased from about 15 p.c. to around 37 p.c.; service occupations from about 8 p.c. to 10 p.c.; transportation and communication from 5 p.c. to 8 p.c. and resources from 4 p.c. to 3 p.c. These generally reflect the replacement of manpower by machines, the change from primary to secondary occupations and the increase in service. The annual report of the Federal Department of Labour for 1960 provides some idea of changes during the past decade, basing its estimates on selected occupations in five manufacturing industries. To summarize briefly, service and public utilities rose 4.5 p.c.; finance, insurance and real estate followed with a 4 p.c. increase; next came trade and construction with 3 to 4 p.c., the others were all below 2 p.c., with some such as farm employment, which dropped 4.5 p.c. being negative. Other changes in the work force reflected an increase of 4 p.c. due to women workers and 0.58 p.c. because of immigrants. Whereas the percentage of women at all ages 14 to 65 plus increased, the greatest increase was among married women especially for those over 30 years of age. These facts are important for guidance.

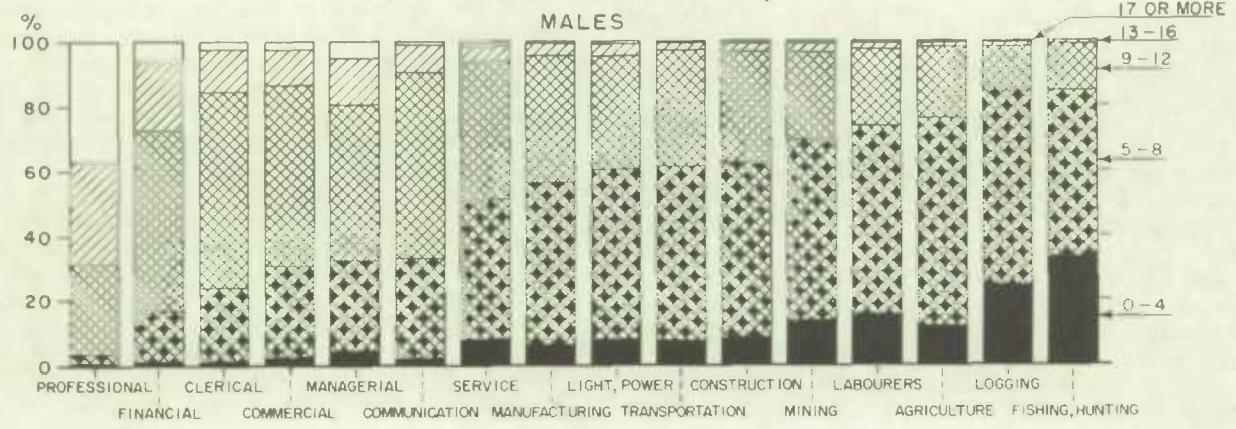
Activities of the school have generally indicated acceptance of considerable responsibility for vocational education. Activities undertaken as a part of vocational guidance include: (i) the diagnosis of each pupil's vocational abilities, aptitudes and interest, (ii) the collection and dissemination of information on occupations, (iii) job placement and follow-up, (iv) pre-job training. In this, attention is generally aimed at matching men and jobs or more particularly on each individual's prospective struggle in the labour market, rather than on efficient distribution of personnel where they are most needed. Among the contributions to the student are: information on the availability of scholarships; social and economic implications of the occupation chosen; information on dead-end jobs, seasonal jobs, and those which will likely be taken over by machines or eliminated; the knowledge that unemployment is related to education and training. Because of individual difference and variety in abilities, there is no simple answer to students' demands.

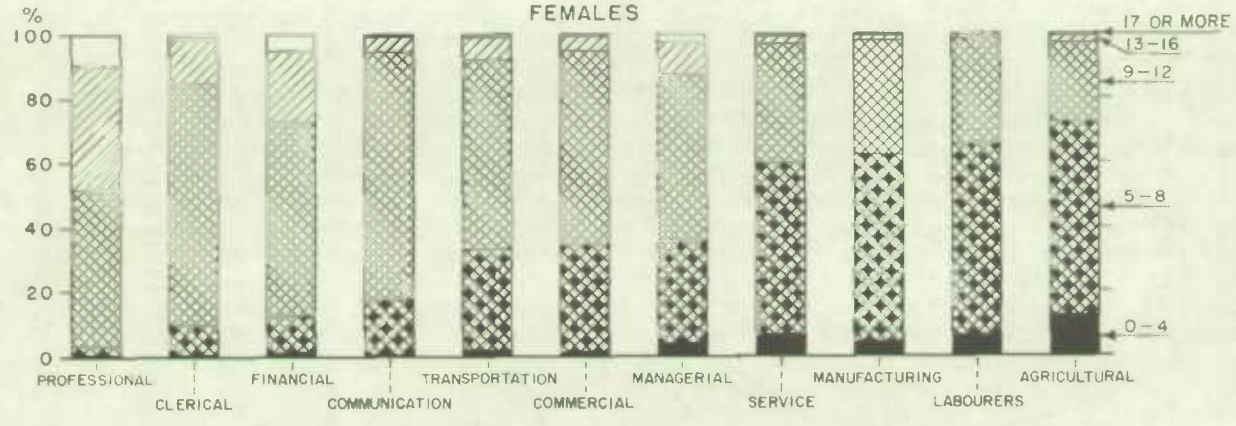
Technological changes have enabled each man, on the average, to do twice as much work. Such changes have reduced the number of unskilled occupations requiring no education to 4 p.c. of the total; have reduced the number of semi-skilled and primary production workers; and have increased demands for technical competence. The place of the school in preparing youth for work, retraining others and providing refresher courses, will require much deep thinking and testing of alternatives, as will training on the job. For the school, however, where the aim is to provide as liberal an education as possible, employment problems stimulated by the present economic demands, must be kept in balance with the other problems.

MEDIAN EARNINGS OF WAGE-EARNER HEADS OF FAMILIES, 1951



PERCENTAGE DISTRIBUTION BY YEARS OF SCHOOLING OF THE LABOUR FOR 14 YEARS OF AGE AND OVER, 1951





WHERE DOES THE MONEY FOR EDUCATION COME FROM?

In 1960 Canada's population of 17,814,000 spent $1,531,200,000 on education and training, or at the rate of $86 for each man, woman and child. On the assumption that school is held 200 days a year expenditure was at the rate of $7,700,000 for each day school was open. This is more than twice what was being spent 6 years previously. Education is big business.

When the 1959 budgets of the provincial governments were examined it was found that on the average they planned to spend 26.4 p.c. of their total budget for school purposes. The municipal governments reported that 43.9 p.c. of money raised through taxation would go for education. Although the Federal Government has limited commitments in education, about 1.75 p.c. of its budget is earmarked directly for education. Expenditure on private education adds considerable to the total spent on education as do fees paid by students.

The total expenditure on education as estimated for 1958, was $1,234,245,000. Of this amount $182,977,000 was for higher education, $996,282,000 for elementary-secondary education, $39,738,000 for vocational education and $11,658,000 for teacher training.

The Federal Government's expenditure on education includes payments or grants for the education of Indians living in the provinces; for Indians, Eskimos and others living in the Territories; for children of armed services personnel and war dead, veterans, and inmates of penitentaries. Grants are provided for the universities, payable through the Canadian Universities Foundation, or as a portion of income tax collected by a province for that purpose. Loans for residences and other buildings on the campus, according to regulations, are made by the Canada Council. Several departments of the Federal Government provide scholarships and grants for research. Assistance, in the form of grants or partial payments for operation and construction, according to schedule is provided for vocational and technical education.

Provincial governments contribute to education at all levels, and often assume a contingent liability in respect to capital expenditure financed from borrowed money. Each provincial government provides an organization to administer education comprised of the department, school inspectors and supervisors. In addition each operates provincial teacher training colleges, trade and technical schools and special schools and classes. Its largest contribution is given in the form of grants for the public and separate elementary and secondary schools, part of which may be raised through a special sales tax.

Municipal councils provide the largest portion of elementary-secondary revenue, except in Newfoundland and Prince Edward Island. Most of this money is raised from a direct tax on land and improvements supplemented by a business tax in urban areas. The school boards strike a budget and the municipal councils levy to collect the money, except in Quebec and Prince Edward Island. The school boards may levy school taxes.

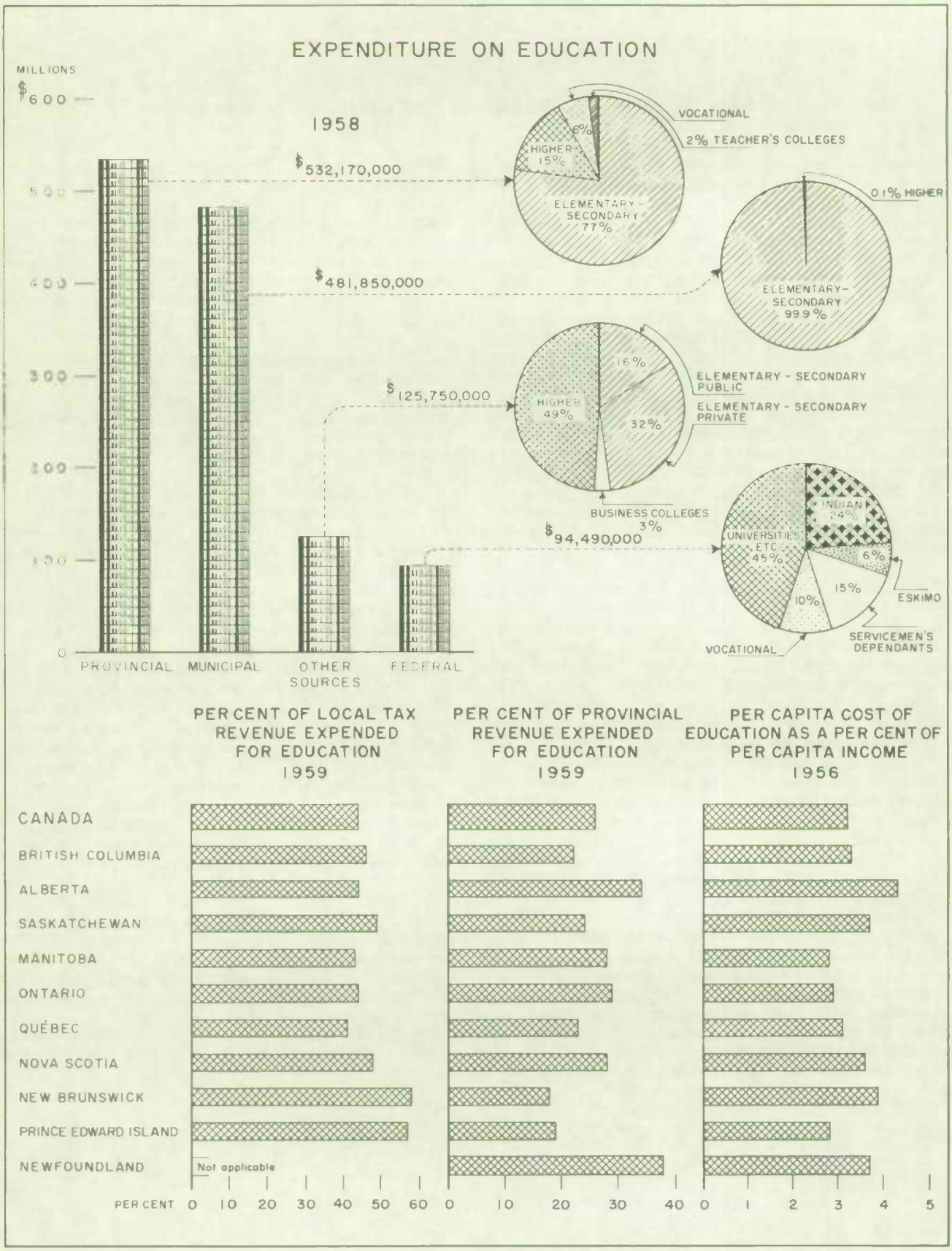
There is considerable variation in the methods used by the provincial departments in determining the grants payable to the school boards. British Columbia, Nova Scotia and Manitoba no longer use general and special grants, but pay operation grants on equalization formulae. In British Columbia and Nova Scotia the cost of the basic program supported by grants is fairly high, in Manitoba somewhat lower. Prince Edward Island and Newfoundland achieve a degree of equalization through the province paying the greater part of teachers' salaries. Ontario, Saskatchewan and Alberta make use of various general and equalization grants. New Brunswick and Quebec use a combination of general and special grants.

The basis of grants for capital expenditure range widely from province to province; they may vary according to the wealth of the district, be an integral part of the basic program or be ad hoc grants. The provinces generally establish loan funds, and guarantee and assist in marketing debentures for school boards.

Colleges and universities are normally financed from grants from the Federal and provincial governments and from student fees, from endowments and gifts, and the proceeds of promotional campaigns. Grants towards research, and even scholarships, bursaries, and other awards account indirectly for money received but generally add to the size of the student body and to the cost of operation.

Private schools usually depend on gifts and fees, and in some instances are generously supported by some church or other organization.

Concerning the problems of school finance Dr. H.P. Moffatt in his Quance Lecture, *Educational Finance in Canada* remarks, "The task of educational finance is not to find the money, or to devise methods of distributing and spending it. The task is to develop in people attitudes and opinions that will lead to effective support for our schools". He goes on to make a plea for more reliable information and for our national educational organizations to conduct thorough, penetrating, objective research on the basic problems – cost and quality, burden of taxation, the size of schools, and many others – so that Canadians can make the best decisions on the raising, distributing and spending of their money.


EXPENDITURE ON EDUCATION
MILLIONS
$600
1958
$532,170,000
$481,850,000
$125,750,000
$94,490,000
PROVINCIAL
MUNICIPAL
OTHER SOURCES
FEDERAL
VOCATIONAL
2% TEACHER'S COLLEGES
HIGHER 15%
6%
ELEMENTARY - SECONDARY 77%
0.1% HIGHER
ELEMENTARY - SECONDARY 99.9%
16%
ELEMENTARY - SECONDARY PUBLIC
HIGHER 49%
32%
ELEMENTARY - SECONDARY PRIVATE
BUSINESS COLLEGES 3%
INDIAN 24%
UNIVERSITIES ETC 45%
6%
15%
ESKIMO
10%
SERVICEMEN'S DEPENDANTS
VOCATIONAL
PER CENT OF LOCAL TAX REVENUE EXPENDED FOR EDUCATION 1959
PER CENT OF PROVINCIAL REVENUE EXPENDED FOR EDUCATION 1959
PER CAPITA COST OF EDUCATION AS A PER CENT OF PER CAPITA INCOME 1956
CANADA
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUÉBEC
NOVA SCOTIA
NEW BRUNSWICK
PRINCE EDWARD ISLAND
NEWFOUNDLAND
Not applicable
PER CENT
0 10 20 30 40 50 60
0 10 20 30 40
0 1 2 3 4 5

WHAT ARE SOME PROBLEMS IN FINANCING OUR SCHOOLS?

Many studies in the field of school finance have started with the hypothesis that there should be "equality of opportunity" in so far as money available for education is concerned, next shown that there are great inequalities in the burden of taxes, and finally recommended that a greater share of the cost of education come from the government. A great deal of careful research is needed in this field to determine whether or not land taxes are out of line and whether some businesses are too hard hit with municipal taxes.

Barring extraordinary and unforeseen circumstances, we are on the threshold of the most dynamic era of growth ever witnessed. We shall find it necessary to double our present housing, stores, offices, schools and other establishments by the year 2,000. The cost of education will rise at least proportionately and the schools will have to compete against all other demands for their fair share of monies available.

The annual expenditure on education has been rising rapidly. The rate of increase in the future will be determined largely by the growth of population, greater holding power of the schools, inflation, improved education services, competition for competent personnel, competition for funds, and school district and school system reorganization. Although all of these factors affect total cost not all of them affect per pupil cost.

Per pupil cost may provide a crude measure of change over the years. It is most valuable in comparing such units as: elementary, secondary, trade and technical education; levels or geographic areas, etc. Total cost of education on the other hand is necessary for budgeting, organizing, planning and administering education.

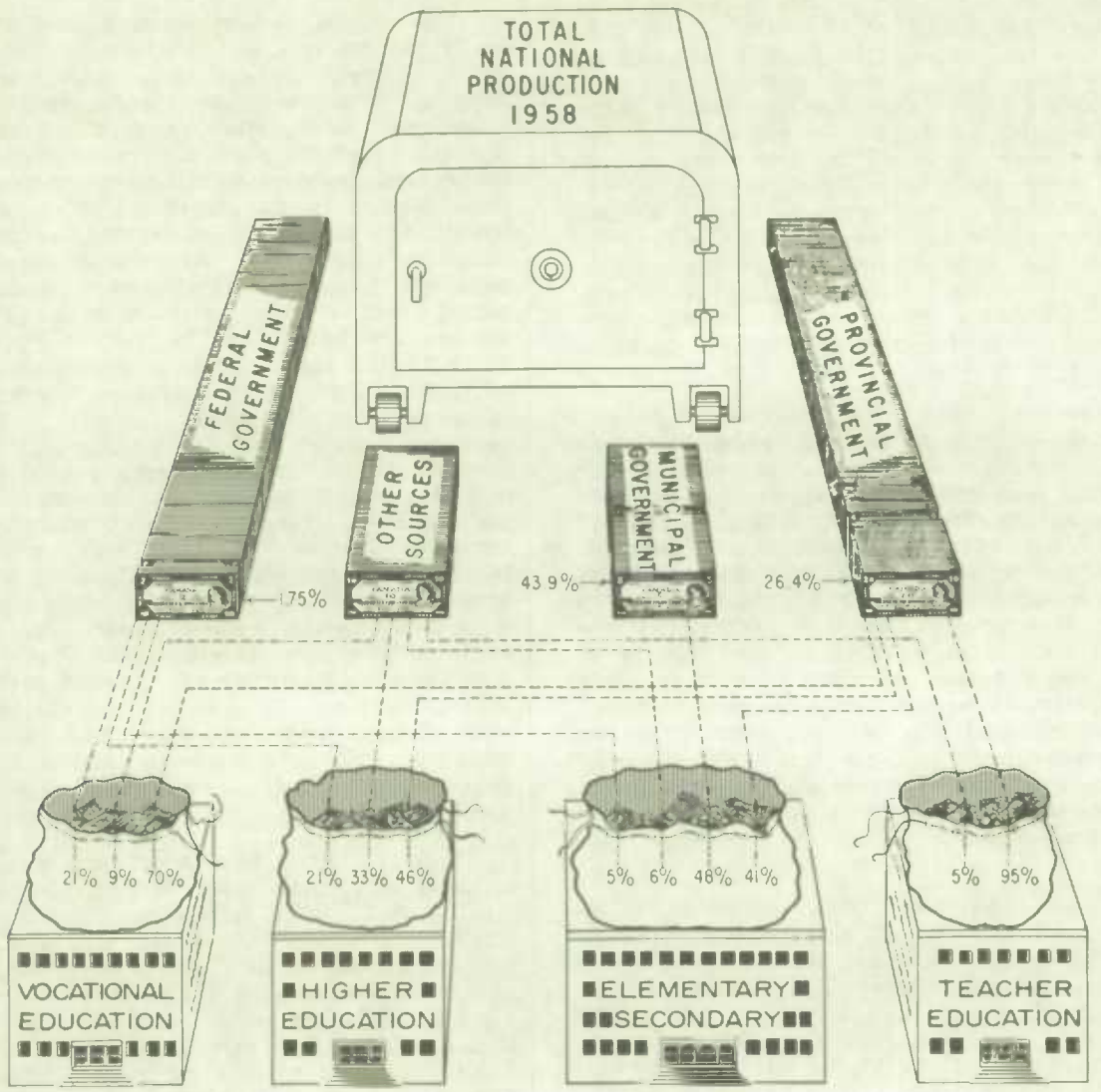
There will be considerable discussion concerning ways and means of maintaining quality education while keeping per pupil cost down, and there is room for studies on expenditure patterns comparing high and low cost districts, cities in various provinces, rural versus urban, the effects of foundation programs, etc. American studies indicate that between 3.5 p.c. and 4.0 p.c. of expenditure goes for administration, 73 p.c. and 84 p.c. for instructional salaries and teaching aids, 7.5 p.c. and 11 p.c. for operation, 2.8 p.c. and 3.9 p.c. for maintenance, 1.7 p.c. and 6.3 p.c. for services and student body activities. Omitted from these figures were: transportation which required an additional 3.9 to 8.6 p.c.; current capital outlay of from 2.6 p.c. to 3.5 p.c.; and debt services of from 7.0 p.c. to 17.0 p.c.

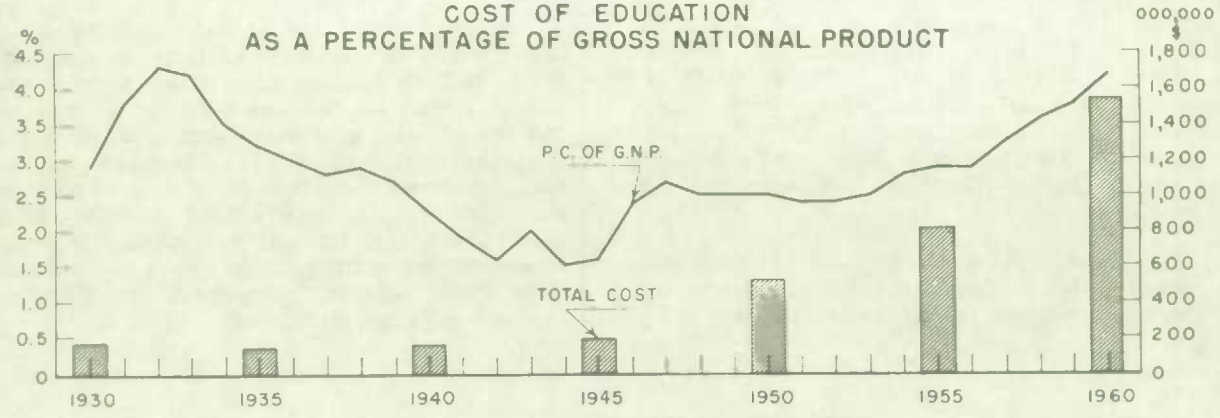
Economies can be attempted through changes in organization, reducing some services or increasing efficiency. Public opinion generally favours increasing rather than decreasing services provided, but might be amenable to various measures to increase efficiency.

There has been considerable discussion of how the money should be raised for education purposes. Dr. H.P. Moffatt said, in the 1957 Quance Lecture (p.43), that "the governments of the provinces have in relation to the Federal Government the exclusive responsibility, and in relation to the local governments the ultimate responsibility, for providing and financing public education". A second principle is "that education should be administered by local authorities, directly or indirectly responsible to the citizens and parents. With the responsibility to administer is associated the duty to bear some share of the cost of education". If we agree that local administration and local taxation provides the best schools, most efficiently and humanly administered, we are still up against the thorny problem of unequal ability to provide funds. "Equally important with a belief in equality of opportunity for all children is the idea of approximate equality of sacrifice in providing a basic program".

For comparative purposes, or the discovery of trends, the ratio of education costs to the Gross National Product is often used. The ratio is affected by such factors as: fluctuations of the G.N.P.; total cost of education changing due to changes in enrolment, teachers' salaries, construction; and changes in the demands of other services, e.g., health, defence, etc. Our chart shows considerable fluctuation with the present trend towards higher proportions.

FINANCING OUR SCHOOLS





TEACHING AIDS AND INFORMAL EDUCATION

Take a child, add a well-trained teacher and a good textbook and you have the traditional basic ingredients for Canadian education at any time during the last century. The basic ingredients remain the same, but the simple basic recipe can be enriched and improved through the use of audio-visual aids and other tools of learning. The textbook has become modern. The better ones are organized in simple reference form with logical sequence of difficulty, well printed and with attractive illustrations. Related instructional materials include reference books, atlases, anthologies, encyclopedias, dictionaries, as well as picture, story and travel books. Benefits from these are limitless and proper use can help greatly towards a sound education.

Audio-visual aids presently available include: electronic learning devices including electronic learning centres for teaching languages, self-instructing machines and such; open and closed circuit television and video tapes; original or taped A.M. and F.M. radio broadcasts; films, filmstrips, slides; pictures and other illustrations; and three-dimension projects prepared by the pupils. American studies have shown that physics, history, psychology and some other subjects at least, can be as readily taught through televised classes as otherwise. Kindergarten-age pupils have been taught to read by typewriter plus program. Evidence so far indicates that much is to be gained through use of the various devices but considerable research needs to be undertaken to show just when and how they can be best used.

A fairly extensive survey on radio conducted by C.T.F. found that 60 p.c. of schools listened to radio broadcasts, 25 p.c. had no equipment, 3 p.c. had damaged equipment and 12 p.c. did not listen. Integration of broadcasts into school work varied from province to province, and was more common in urban than rural schools, except for the elementary grades in rural schools. It was estimated that 43 p.c. of pupils in schools with radios, and 39 p.c. of the total, listened to broadcasts. Schools have made some use of radio broadcasts since the 1920's and C.B.C. National School Broadcasts have become permanently established. Many of the programs are of exceptional quality. Evaluation has been largely conducted through questionnaire surveys. There seems to have been very little formal research aimed at evaluating the programs for the purpose of improving them.

Considerable use has been made of films, filmstrips and slides in Canadian schools, but less use of television programs for class use to date.

Informal Education

Children and adults learn a good deal incidently, vicariously and deliberately from experiences, travel, conversation, reading and other sources. Among such are the documentary films, sometimes shown with feature films at regular theatres; factual radio and television programs sandwiched between entertainment shows; educational features in newspapers and fiction magazines; travel; and meetings. Deliberate participation is found in citizen and farm forums, attendance at travelogues, homemakers' meetings, some conferences, reading clubs, preparation for retirement groups, and many other experiences covering all walks of life. From all this and more, children and adults have become better informed than were those of any previous generation.

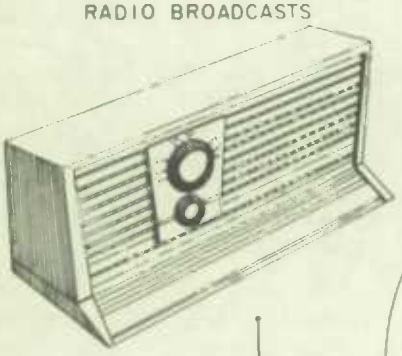
Independent study, though hard to evaluate, has been the largest factor contributing to cultured individuals. Libraries provide a ready means of becoming educated if one reads with discrimination. In 1959 more than 80 p.c. of Canada's population was within reach of some 1,135 public libraries, and more than one-fifth borrowed books. Those without such service lived chiefly in rural areas. Other libraries were located in colleges and universities, schools (36 p.c. of schools in centres of 10,000 and over reported central libraries), Federal and provincial government departments (213 in 1957); and business and industrial firms (168 in 1957 reported 1,003,682 books).

Some 113 daily newspapers (counting morning and evening editions separately) in 1959 reported a circulation close to 4,000,000, – about 81 p.c. in English, 17 p.c. in French, and 2 p.c. other. Weekly newspapers, most widely read in rural areas, to the number of 723 reported a circulation of well over 4,000,000. For the same year some 766 or more magazines reported over 18,000,000 subscribers. These rates for Canada compare favourably with any other country. Data on books purchased are not available.

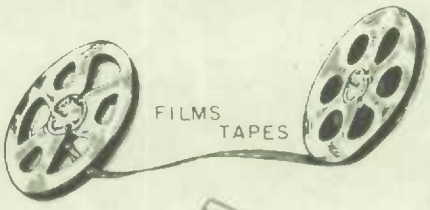
In May, 1960, the C.B.C. operated 29 radio stations and 14 television stations; in addition 227 radio and 45 television stations were privately-owned. Nearly all families have one or more radios and the majority have television sets. An American study by Paul Witty in 1959 found that the weekly hours spent watching television were 21 for elementary and 12.3 for high school students, 20.5 for parents and 11.0 for teachers. Choice of programs was much the same throughout and included Zorro, Bugs Bunny, Father Knows Best, etc. Parents and teachers also included news.

AUDIO-VISUAL AIDS TO INFORMAL EDUCATION

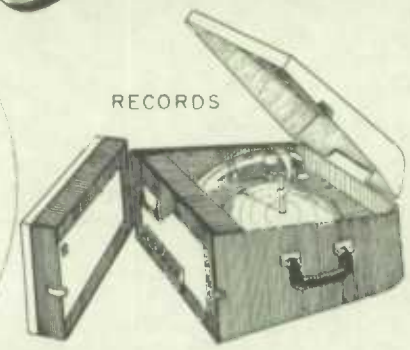
RADIO BROADCASTS



FILMS
TAPES



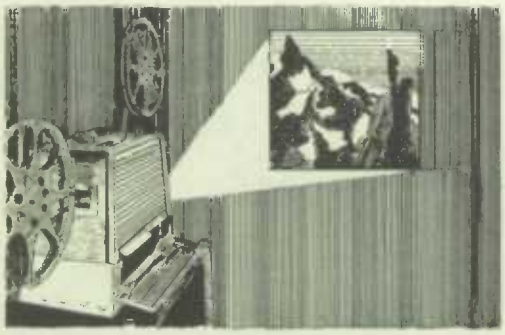
RECORDS



TELEVISION PROGRAMS

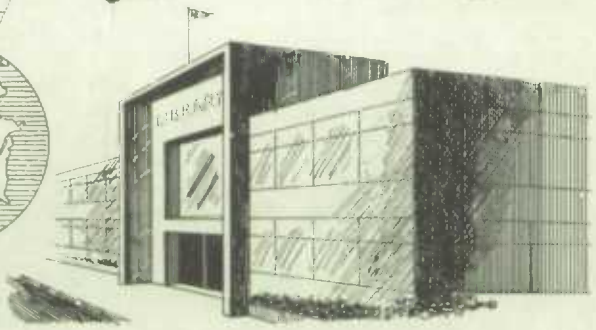
NEWSPAPERS, MAGAZINES

FILMS, FILMSTRIPS AND SLIDES



LIBRARIES, MUSEUMS, ART GALLERIES

ELECTRONIC LEARNING DEVICES



WHAT IS HAPPENING IN ADULT EDUCATION?

Even the adequacy of the term "Adult Education" is questioned. We speak of "continuing education", "out-of-school" or "post-school education", "fundamental education", but none of these seem adequate to express the extent and variety of education provided out of school. Part of our trouble stems from confusing the word education with formal schooling. People remark that they have "completed their education" and "stopped school" as if these were synonymous. If education derives from learning which goes on from the cradle to the grave, then formal schooling is but an intensive application for a more or less specified period, some of which may be taken after adulthood is reached. Adult education is a broad expanse which complements and supplements the regular stream, not just the A-B-C's, literary education, or education of the worker although all or any of these are a part of it.

Again, adult education was introduced to provide a late opportunity for the educationally neglected part of the population who for one reason or another had not attended school when young. Education at that time was considered as the orderly transmission of selected portions of our accumulated tradition. What you learned at school during childhood and youth would serve for all your days. It would provide the learning necessary for conducting your affairs and in addition would set you apart from those not privileged to have been graduated from school. Adult education became a second chance to learn the same things in the same way as you should have learned when young. It has since grown beyond such narrow confines and is now finding its niche in the structure of both formal and informal education.

Occupational and social changes now occur much more rapidly than does normal growth. It is therefore necessary for us to re-think our education designs and procedures to prepare our youth for a dynamic society which we cannot even visualize at present, rather than for the near static society of our childhood.

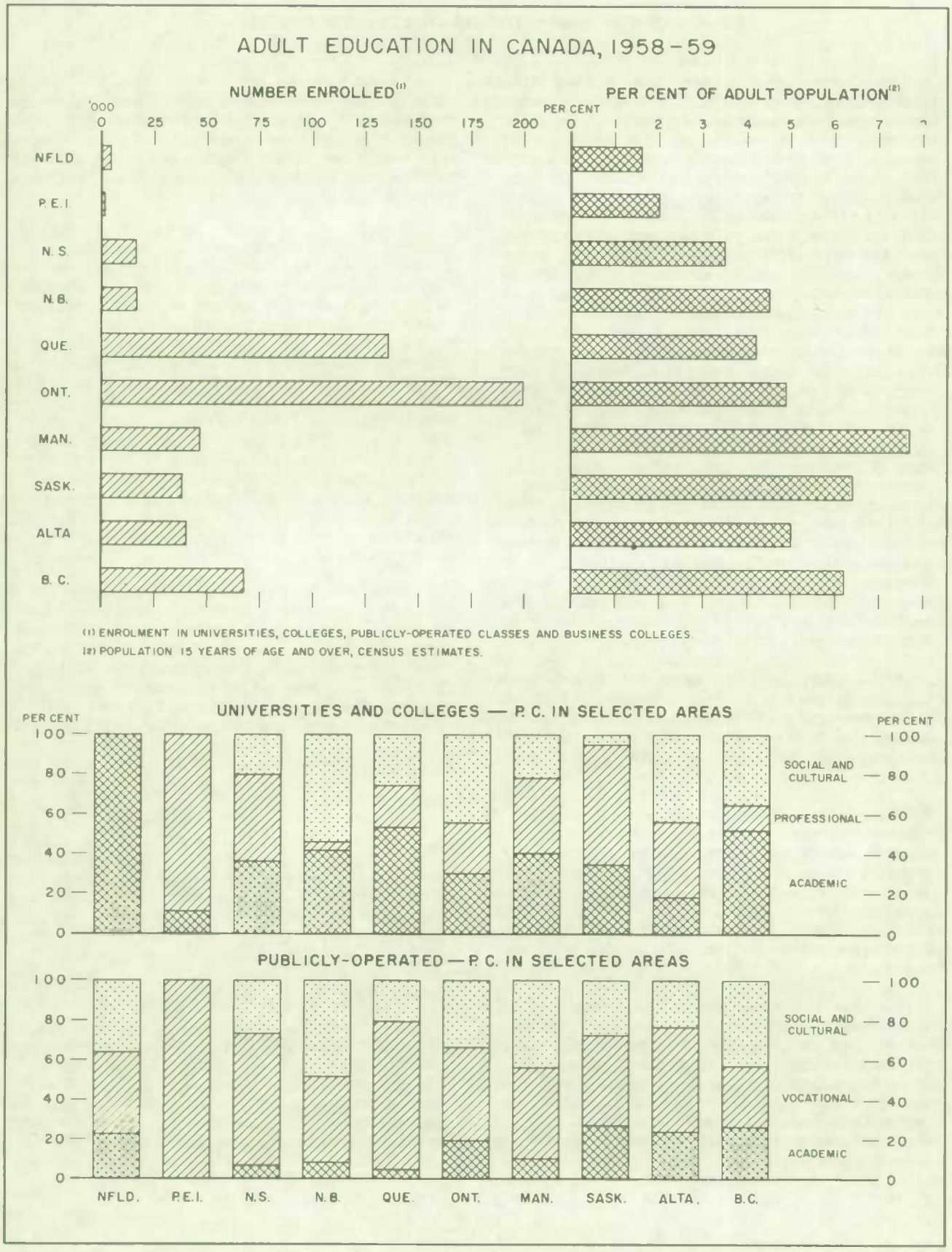
Childhood is no longer a period in which to accumulate a vast body of static information such as the names of things, series of events, and literally a hodge-podge of old and new, considered to be intrinsically good. Knowledge is no longer something established and familiar to cultivated people; the job of the teacher is to stimulate youth to pursue it. This is not to say that the pursuit of the true, the beautiful and the good is not as desirable as ever, but it is to point out that the body of knowledge is expanding so rapidly that what we now know is but a stepping stone to understanding what is to come, and youth must be prepared to make ever new and satisfactory adjustments. Some adults may have to change jobs and be retrained several times during their lifetime because of improved technology and the enroachment of machines on present occupations. Others will return to institutions of higher education and night schools for refresher courses, short courses, evening classes, and such.

The argument that ability to learn is greatly lessened as youth turns into manhood is seldom raised any more. Its grain of truth is probably best forgotten.

Opportunities for adult education are provided in all provinces of Canada. In many cities evening students may choose from a wide variety of academic, vocational, cultural and miscellaneous offerings, but elsewhere choice may be decidedly limited. In 1960 about 40 p.c. of evening students were enrolled in vocational courses and classes offered by school boards, with assistance from the provincial departments, or by universities and colleges. About as many were enrolled in non-credit courses of general cultural value, and the remainder attended classes leading to a high school diploma or university degree. Some 25 government departments (Education, Health, Agriculture, Forestry, Justice, etc.) supported such classes, which enrolled almost 8,000 in elementary and about 70,000 in secondary school subjects; 212,000 were enrolled in vocational courses of whom almost 100,000 were taking home economics or agriculture; and in the general classes 84,000 were enrolled in social education, 28,500 in the fine arts and 20,000 in other related courses.

Public lectures, film shows, exhibits, tours, music and drama of an educative nature sponsored by various bodies and organizations, attracted 600,000. The same sort of programs conducted by public libraries reported an attendance of about 215,000.

Although the Departments of Education support much of the formal adult education endeavour, the Department of National Defence provides such services for its personnel and their dependents on some 70 stations, the National Film Board provides documentary films and reading guides, and the Canadian Broadcasting Corporation assists in providing programs for forums, etc. Other contributing Departments include Citizenship and Immigration, which provided for language and citizenship classes for newcomers to Canada, the Departments of Fisheries, Mines and Technical Surveys, etc.


ADULT EDUCATION IN CANADA, 1958–59
NUMBER ENROLLED(1)
'000
0 25 50 75 100 125 150 175 200
PER CENT OF ADULT POPULATION(2)
PER CENT
0 1 2 3 4 5 6 7
NFLD
P.E.I.
N.S.
N.B.
QUE.
ONT.
MAN.
SASK.
ALTA
B.C.
(1) ENROLMENT IN UNIVERSITIES, COLLEGES, PUBLICLY-OPERATED CLASSES AND BUSINESS COLLEGES.
(2) POPULATION 15 YEARS OF AGE AND OVER, CENSUS ESTIMATES.
UNIVERSITIES AND COLLEGES — P.C. IN SELECTED AREAS
PER CENT
100
80
60
40
20
0
SOCIAL AND CULTURAL
PROFESSIONAL
ACADEMIC
PUBLICLY-OPERATED — P.C. IN SELECTED AREAS
SOCIAL AND CULTURAL
VOCATIONAL
ACADEMIC
NFLD. P.E.I. N.S. N.B. QUE. ONT. MAN. SASK. ALTA. B.C.

WHY ARE MORE PEOPLE TAKING PART-TIME EDUCATION?

Our society is a far cry from the time when cavemen provided food, clothing and shelter by manpower alone. Later came mass production and today each person has several hundred horsepower at his command. Few of the products we now use have been left in their natural state, and many have been changed beyond recognition. The western world has devised a civilization which has given us the highest standard of living ever enjoyed in this world. None the less there are those who feel that the automatic machine age we are entering will become a Frankenstein devouring its master. Although most of us are not plagued by technological nightmares we recognize that machines are taking over repetitive tasks, and changing most remaining occupations, including that of housewife. Before we have solved all of the problems related to the first phase of the industrial revolution, adapting machines to contribute to the commonplace things of life, technological changes in industrial machinery have been improved through the introduction of automatic controls. We are all familiar with thermostats, automatically controlled ovens, player pianos, fire-control systems and such but may be mystified by analog computers, digital computers and the automatic factory. Wherever imaginative thinking can be organized as logical processes of thought, that is thinking continued for a long time in orderly fashion along accepted grooves, there is an opportunity for the machine to take over.

While there is little prospect of workerless factories, there will be less emphasis on brawn, more on brain. The new jobs devised to replace the old are more interesting as a rule but require more knowledge and more ability. Workers must exert themselves to keep ahead of the machine.

Industry's growing demand for skilled and trained personnel will tax our education institutions and the resources of our educators. For some, greater emphasis must be placed on the electrical, mathematical and mechanical sciences at all levels. More and wider research must be undertaken in the universities in pure, applied and social sciences to augment industrial experimentation which must also increase.

Because changes are being introduced so rapidly many adults will have to change jobs from time to time as their jobs disappear while others will need refresher courses to keep up with their profession, and people will generally have more free time which they may devote to useful pursuits. Opportunities in part-time education will be in demand for the following categories of workers: (i) persons replaced by machines who must be retrained for more complex jobs, (ii) rehabilitation cases, (iii) married women or widows entering the work force, (iv) professionals and those wishing refresher courses, (v) employees seeking to be upgraded, and (vi) persons seeking leisure time activities and cultural pursuits.

In addition it is expected that many school dropouts with superior ability who are employed at less demanding jobs will have to be recruited again into the professions after they have mastered what they might have learned in university. Much of this will have to be done through part-time efforts. Some idea of the numbers taking part-time credit courses at university is reported by the D.B.S. for 1958 - 59. At that time 55,723 were enrolled, the greatest number 23,330 taking summer school courses, followed by 19,991 in evening courses, 6,424 in part-time day study, 5,613 taking work through correspondence, and 365 in other part-time study. Many courses such as those conducted by Departments of Education for teachers, in-service training, private correspondence courses, etc., were omitted here as were some 90,000 enrolled in extension and general education courses at university.

A D.B.S. sample survey, June, 1960, found about 4 p.c. of persons 14 years of age and over and not enrolled in regular school classes, had participated in some form of adult education activity during the previous nine months. Of those reporting nearly 60 p.c. were men and about two-thirds were married. Their median age was 31 years, and the majority had completed secondary schooling or better.

The courses were provided by many departments and organizations. More than 26 p.c. of them were offered in publicly-supported schools, an additional 11 p.c. were operated under government departments and agencies. Universities and colleges provided nearly 15 p.c. of all courses, and private schools, an additional 18 p.c. Private organizations, associations and agencies such as employers, churches, women's organizations, professional associations and such accounted for the remaining 29 p.c. Excluding publicly-operated organizations and universities, classed as public, about half of the courses were sponsored by private organizations and individuals.

Vocationally-oriented courses, about 42 p.c. of the total, were almost equally divided between business and technical subjects. Regular academic subjects at the high school and college level accounted for 14 p.c., the rest were cultural and general subjects. About 15 p.c. reported taking their work through correspondence.

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