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New Brunswick High School Course in History, 1920-21

Grade IX. Britain and Greater Britain in the Nineteenth Century—Hughes, University Press, Cambridge; J. M. Dent & Co., Toronto.

Grade X. Public School History of England—Morang Educational Co., Ltd., Toronto.

Grade XI. Outlines of the World's History—Ancient Oriental Monarchies, Greece, and Rome—Sanderson, Blackie & Son, Limited, Glasgow, Scotland. (Renouf Publishing Co., Ltd., Montreal).

(Subject to satisfactory arrangements being made with the Publishers)

W. S. CARTER,

Chief Superintendent of Education.

Education Office, Fredericton, N. B.,

August 2nd, 1920.

New Brunswick School Calendar

1920-1921

1920 FIRST TERM

December 14—French Department Normal School Entrance Examinations begin.

December 14—Third Class License Examinations begin.

December 17—Normal and Public Schools close for Xmas Holidays.

1921 SECOND TERM

January 3—Normal and Public Schools re-open after Xmas Holidays.

March 24—Schools close for Easter Holidays.

March 30—Schools re-open after Easter Holidays.

May 18—Loyalist Day (Holiday, St. John City only).

May 23—Empire Day.

May 24—Last day on which Inspectors are authorized to receive applications for July Examinations.

May 24—Victoria Day (Public Holiday).

May 24—Third Class License Examinations begin (French Department).

June 3—King's Birthday (Public Holiday).

June 10—Normal School closes.

June 14—License Examinations begin.

June 20—High School Entrance Examinations begin.

June 30—Public Schools close.

In the January number we shall present a discussion of Vocational Agriculture by Rev. MacDonald of St. Francis Xavier College. The first of the stories taken from the history of these Provinces will appear at this time, 'The Disaster of the English at Grand Pre', by Mr. W. C. Milner, Canadian Archives Department. Dr. Jost of Halifax will discuss the need of Medical Inspection of School Children. Miss Magee and Professor Cornish will continue the interesting articles which they have been contributing. Miss Proudfoot will suggest some Games for Stormy Days. Miss Cossitt discusses an effective way of teaching Primary Spelling.

Any subscriber who is not receiving the Educational Review regularly will do the management a favor by notifying the Business Manager, Fredericton.

EDUCATIONAL REVIEW.

DEVOTED TO ADVANCED METHODS OF EDUCATION AND GENERAL CULTURE

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MISS JOSEPHINE MacLATCHY, Editor

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EDITORIAL COMMENT.

A Central Vocational School. During the Conference of Vocational Education held in Ottawa the last week in October, resolutions were passed affirming the need of a central school for the training of teachers of Vocational subjects to be employed throughout the Dominion. It was resolved that the accommodation and equipment of such school be provided by the Federal Government; while the maintenance be divided equally between the Federal and Provincial Governments, the proportional share of each Province being determined by the total population living in urban communities of 3,000 or over.

The training of teachers to carry on the work of Vocational Education is a vital need upon which the success of the movement rests. The teacher in such a school needs not only to be expert in his practical work but he must be able to impart his skill to others. There is need of theoretical, as well as, practical training in a Vocational School and the teacher must be able to associate the two in such a way as to supplement the one by the other. The Vocational teacher needs certain social qualifications which will fit him to understand his pupils and their problems, and lead them to appreciate the value of the essentials of a good general education as well as the economic value of skilled proficiency. The demands are so varied that it is difficult to find the needed qualifications in one person; since the average teacher has only the theoretical training while the skilled workman lacks the ability to impart his knowledge to others.

What is Vocational Education? There seems to be considerable confusion as to the meaning of Vocational Education, some persons using the term to include manual training and domestic science. A class of graduates in Harvard University which has been studying Vocational Education for some time formulated the following definition.*

"Vocational education is preparation for work in industry, commerce, agriculture, the professions, or home making. 'Manual Training' is not vocational education but is rather a phase of general experience useful for discovery or cultural purposes. 'Pre-vocational' work likewise is for discovery and try-out purposes rather than for actual vocational preparation; the continuation school for children 14 to 18 is at first for guidance and choice, and later for vocational education because the entering pupils have not yet seriously chosen a vocation nor found themselves in a satisfactory job. Vocational education is

* Brewer, J. M., Summary of Conclusions in Vocational Education, Education September, 1920. pp. 52-57.

not in opposition to general education and should fortify and supplement preparation for civic, moral, family and recreational activities."

To this may well be added their summary of the general characteristics of effective Vocational Education which "should contribute to the ability to become efficient in economic life, so that all may have an opportunity while in school to prepare for occupations which are productive. Vocational Guidance and Industrial Training should tend to produce a more widespread participation and responsibility in economic life bringing about greater personal efficiency and happiness. This may be accomplished by constant application and changes in the Vocational Educational program to fit the economic and sociological needs of the present and immediate future. The means to this end are investigation and surveys, which can be accomplished through the co-operation of employers and workers, including their respective organizations, with the educational administrations. Vocational Education should be broad, relating and applying actual studies to the situation which will be met in life. Trade skill should not be over-emphasized and should be taught in proportion to the related and basic studies. Plans should provide for the schools to co-operate with employers, workers, and their organizations."

The Need for Vocational Training. Throughout Canada and the United States there is an appalling loss of pupils during the last two years of the Elementary School and the High School.

The Canadian Conference passed the following resolution regarding a means of lessening this national wastage of talent:

"Resolved that junior industrial courses should be established for the children who have completed Grade VI., such courses to extend over the period of three years and to have a decided bias toward one or other of the main divisions of industrial activity, viz., commerce, manufacture, trades, agriculture, household."

This need is voiced also by this group of Harvard students:

"We are a nation of sixth-grade graduates with a formalized school program which does not attract the attendance of the masses of our population above the compulsory school age. Therefore Vocational Education can be used on a part-time or full-time basis to hold these children under school influence a little longer."

This resolution of introducing industrially inclined courses after Grade VI. is a timely and interesting suggestion. In certain parts of the United States the so-called Six-Six plan of school organization is being incorporated. The Elementary course, which we are all

agreed is mainly concerned with the mastery of the instruments of learning—reading, writing and arithmetic, is restricted to the first six grades. The pupil then enters the Junior High School, including Grades VII., through IX. Literature, history, geography, civics and other subjects of these grades are continued, while some of the High School subjects are begun in a simple form. One excellent characteristic of these schools is that High School methods of instruction are substituted for the more formal and drill methods used in many Elementary Schools. The High School includes Grades X. through XII.

These schools economize in the time at the pupil's

disposal and introduce him to more interesting fields of knowledge before the expiration of the compulsory school age. This great loss of pupils between Grade I. and Grade XI. may well arouse in the minds of the citizens of this Democracy the question as to whether the outlay for our Public Schools is a good investment. If our present system does not meet our needs adequately, which it manifestly does not, we must search until we find those forms of instruction which will give each prospective Canadian that education which will fit him to be an efficient workman, a contented and public-spirited citizen.

TWO ROADS TO CULTURE

Charles A. Bennett, President and Editor, Manual Arts Press, Peoria, Ill.

There are two roads to culture. One of these is the broad and level highway through the elementary school, the secondary school and the college of liberal arts or science. The other is the longer, narrower but more scenic route up and around and over the hills and through the valleys. At the end of the elementary school or at the work-certificate age, this road branches off from the broad highway into bread-winning with evening vocational classes or continuation school work or into some day vocational course that soon reaches "gainful occupation;" then comes evening technical instruction or university extension work, and, finally, working the way through college, or, in place of it, extensive reading and study under the inspiration or guidance of some wise and friendly spirit. Everybody is acquainted with the first road. Many educators think it is the only safe road, yet some of the finest minds and most highly cultured citizens on the American Continent have travelled by the hilly route and have seemed to be the stronger for the climbing.

The greatest barrier to the development of vocational education as a part of the scheme of public education has been the fear that in some way vocational education is going to harm cultural education. This fear has been the basis of opposition to practical education for the past three hundred years. Each reformer interested in the development of education through or for the practical activities of daily life has denounced the stereotyped methods and dry disciplinary character of instruction in the dead languages which, on the other hand, has caused the classical scholars to retaliate with an air of superiority by pointing to the culture of ancient Greece and to the intellectual glory of the Romans. This very attitude of opposition, based on fear, and accompanied by prejudice, has often prevented both parties to the controversy from seeing the problem in its true

light. It has, therefore, remained for the present generation, under economic pressure, to throw aside prejudice and improve the hilly road to culture, to make an honest effort to solve this greatest problem of public education—to harmonize, and perhaps to unify the cultural and vocational elements in education, and to give to the coming generation a practical, working ideal of education which shall be neither cultural alone nor vocational alone, but shall embody the best in both—to build a new thoroughfare with numerous side roads going out to points of interest, but all leading back to the main highway.

Away back in 1605 Francis Bacon, in his book "On the Advancement of Learning," made it clear that he did not believe that all wisdom had yet been revealed to man, and therefore, it could not all be found in the writings of antiquity. His thinking took him out of the beaten track of the classical scholar. In nature and the arts of daily life he recognized the basis for a new learning. His method of gaining this was by observation, experiment and discovery. Quoting his poetical language, "Be not wrapped up in the past, there is an actual present lying all about you; look up and behold it in its grandeur. Turn away from the broken cistern of traditional science, and quaff the pure waters that flow sparkling and fresh forever from the unfathomable fountain of creation. Go to nature and listen to her many voices, consider her ways and learn her doings; so shall you bend her to your will. For knowledge is power."*

Bacon's philosophy of realism gave to the intellectual life a new impulse and to education a motive force that later developed into our modern schools of science. But, he did not stop with the field of natural science; he included physical science and mechanical science also.

In discussing the importance of history, "natural, civil, ecclesiastical and literary" and the fact that too little history is known and available, he says, "For history of nature, wrought and mechanical, I find some collections made of agriculture, and likewise of manual arts"; and then, revealing the attitude of the scholars of the time, he adds, "but commonly with a rejection of experiments familiar and vulgar. For it is esteemed a kind of dishonor unto learning to descend to inquiry or meditation upon matters mechanical, except they be such as may be thought secrets, rarities and special subtilties." **

Following after Bacon came that remarkable group of men in England who accepted his philosophy and sought to apply it in educational thought and practice. At the centre of this group was Samuel Hartlib, who proposed a plan to elevate farming, or husbandry to the level of an art. He believed that the future prosperity of England required that more attention be given to agriculture and that agriculture itself must be developed by bringing to the solution of its problems the thought of educated men. He therefore outlined a plan for a college of agriculture. John Milton, the poet, was a member of this group. His tractate "Of Education" was an effort to harmonize the radical ideas of Bacon with the conventional educational practice of the classical education of the time. "Things rather than words; the facts of Nature and of life; real science of every possible kind; this together with a persistent training in virtuous and noble sentiment, and a final finish of the highest literary culture, was to compose the new education." ***

Another member of this group, Sir William Petty. In his letter on the "Advancement of Some Particular Parts of Learning," he even went so far as to propose that "literary work-houses be established" where children may be taught as well to do something towards their living as to read and write." One of his hobbies was the publication of a great cyclopedia of the arts and sciences, in the process of compiling which he would have a survey made of all books and mechanical inventions. He said that it would be more profitable for boys to spend ten or twelve years in the study of things and his proposed "Book of Trades" than in "a rabble of words." He added that it would be easier and pleasanter and more in accord with their natural "propensions." Sir William Petty proposed, also, the establishment of a school of medicine with many of the features of our medical colleges of the present day.

But these men were thinking ahead of their time, and the reaction to their ideas was chiefly criticism. Hartlib's College of Agriculture was never opened. Milton's ideas had to wait several generations to gain approval. Sir William Petty's literary work-house and school of medicine were forgotten. The current of classical education of that time was too strong to be changed

except by strong force and by very slow degrees. Nothing so radical as vocational education was to be considered.

Since then science has fought its way and won a place alongside of the classics; modern language and literature have done the same; and social science is rapidly finding a place on the front row of studies. But the aristocratic idea of Bacon's time (which that age had inherited from Ancient Rome) that it was "a kind of dishonor unto learning" to bring the common arts of daily living into the school, has persisted in some quarters even to the breaking out of the Great War, if not to the present day. It is strange, but it is true that educators, instead of using the near at hand and the concrete in the process of learning prefer the remote and the abstract. They still fail to see how to use the common processes of agriculture and industry and of the household as a means of culture, or how the laws of nature may be as worthy of study as the rules of grammar.

Of the roads to culture, the broad highway of general education through the college is by far the most popular one; it is the one generally recommended to American educators. The hilly road has relatively few travellers, but there are many reasons why it should have more.

In 1911 Dr. George Kerschensteiner, director of public education, and originator of the famous industrial continuation schools of Munich, came to the United States, and visited schools in cities as far west as St. Louis. During that time he delivered a lecture on "The Fundamental Principles of Continuation Schools." In this lecture he said, "I have the conviction, even, that education for a calling offers us the very best foundation for the general education of a man."

Since this statement was made, we in America have had reason to denounce some of the fundamentals of the German system of education, but we make a mistake if we ignore Dr. Kerschensteiner's conviction. If we are only willing to admit that education for a calling offers a good foundation for a cultural education, we have sufficient reason for improving the hilly road that hundreds of thousands of children must take if they take any at all. And if our experience should repeat that of the eminent German educator we would then be only a little beyond the vision of the seers of three hundred years ago. If, in the future, we should conclude that the finest culture comes through a process in which earning is intermixed with learning and learning is better in quality because it is kept close to earning; if we should discover that experience in the practical world of labor and of wits gives color and character to culture—we may be glad to build a new best road to culture.

But we need not look so far ahead. What of the immediate future? From the standpoint of modern peda-

gogy (omitting traditions and the training of present teachers) is there any reason why grammar (Latin or French or English) or algebra is a better next step toward culture for a boy of fourteen than learning the trade of a carpenter or a mason? Must we not say that the answer depends upon the interests and of the individual boy? If the boy were to learn his grammar or his algebra and stop his education at that point, as hundreds of boys do, is he any farther along on the road to culture than the boy who has learned the vocabulary and mathematics and science and hand skill that comes in the process of becoming a journeyman carpenter?

The supposition among educators has been that the boy taking the grammar or the algebra will continue the learning process while the boy taking up carpentry or masonry will not. This supposition must be changed; it is being changed by those who believe in vocational education instead of mere vocational training. The moment the educator catches the vision of the boy learning carpentry or masonry as continuing his education on and on, he immediately finds ways of making this possible and then of making it compulsory; he begins to "fix" the hilly road and make it wider, easier and more attractive. He soon concludes that it ought to have even more flowers and shade trees and electric lights along the way. And then he begins to cut new crossroads connecting the hilly road with the level road and puts up guide posts at every corner.

As Dr. Kerchensteiner pointed out in a conference in Chicago, it is not unreasonable to expect the boy in industry to go on with his education and that this vocational education will of itself, if pursued long enough, lead out into the broad fields of culture. It is largely a question of keeping the boy a student, not so much a question of what course he is taking. For instance, to take the trades already mentioned, an interest in carpentry or masonry, if pursued far enough, takes one through a long course in mathematics, into physical science, architecture, art, archeology, history, social science, and several languages. Illustrations are well known where an interest in learning the machinist's trade has led through the college and on beyond.

A boy came to a school that offered a course in machinist's work, and he insisted that he wanted nothing but shopwork. He scorned mathematics and English as a waste of time, but he did consent to take mechanical drawing. He soon found that to be a machinist he must know more mathematics so he added that to his course. Then he found that to understand the laws of the machines and the materials he must take physics and chemistry. Then his vision expanded and he decided that he must become a mechanical engineer instead of merely a machinist. This led to a rush to get the English and modern language necessary to meet

college entrance requirements. He graduated at one of the leading engineering colleges, secured a good position, went to Europe to learn more about his specialty and today is one of America's experts in his field, with headquarters in New York City. Incidentally he paints landscapes as a means of recreation.

It may be that his culture would have been questioned by some educators before the War, but fewer would question it today, yet he has studied neither Latin nor Greek. He can, however, qualify under a more modern, and, in the writer's estimation, a truer definition. Dr. Nathaniel Butler has said, "Culture is a just appreciation of the finer things of life—literature, art, music, courtesy and religion." Under this he can qualify, and he can surely qualify under the dictionary definition which is confined to "mental cultivation."

Modern machinery and the resulting economic conditions have forced upon educators the problem of vocational education. To some it has seemed an evil thing, but they are mistaken. It is disquieting; it means readjusting their thinking; it means training teachers with a new vision, but it means progress toward a more complete realization of the ideal and aim of public education.

If, then, there are two roads to culture, why not keep both in good repair? The hilly road is not used as much as it ought to be. Why not cut down some of the steep grades, pave the road with cement, and apply to it all the art of the landscape architect? This is work for the schoolmen of the present generation.

* Barnards American Journal of Education, Vol. V.

** Bacon's The Advancement of Learning.

*** Massons The Life of John Milton.

The Problem of Technical Education

Col. Gill, Director of Technical Education, Canada.

Technical or Vocational Education has for its objective the progressive advancement of the nation through industrial efficiency. In this connection industry is defined to include all human activity which contributes to an increase of national wealth. To improve the efficiency of the industrial worker three mutually dependent factors must be taken into account—physical health, mental development and manual skill.

Up to a few years ago the health factor was practically ignored by all educational authorities. Today it is receiving considerable attention, but much remains to be done in this respect. A great deal might be said on this phase of educational work, but for the present this may be left in the hands of the medical men who are interested in this side of the work.

With regard to the other two factors, it is claimed

by some that the elementary and high schools provide all the mental and manual training necessary for the young person about to enter employment, and that additional manual training is not necessary unless the intention is to completely train the individual for his chosen vocation. In answer to this it may be said that no attempt should be made in any vocational school to definitely provide any training which is adequately supplied by industry. In general, the definite objective of the vocational school should be to supplement the training which the individual will receive (or is receiving) in his (or her) occupation.

Before proceeding to discuss the character of the instruction to be given in the technical school, it is necessary to survey the field and subdivide it in accordance with the well defined characteristics of the different parts.

Until recent years the principal objective of our educational system has been to train leaders and special-

schools 40 to 50 never complete the work which the average (so called normal) child completes in eight years of school life (6 to 14 years of age.) The records also show that only 15 to 20 (out of 100) enter the high schools, and that only 5 or 6 complete the high school course. Of this number not more than two enter the universities and get their vocation (professional) training there. But what about the 98 who do not enter the university? The majority of these, either by choice or of necessity, enter employment between the ages of 14 and 18. Within these ages the boy begins to feel that he wants to play the part of a man, and the girl begins to think of life as it appears to the woman. These also are the years when reasoning power awakens, when habits and associations are formed, and when the boy or girl begins to break away from the influence of the home. Should they not have some guidance and instruction during this period quite apart from considerations of industrial efficiency? Are they worth training for useful employment? Or are we to allow this great mass (80 or 85 out of every 100 in the elementary schools, and 10 to 15 from the various grades of the high school) to drift into their life work without any further help or guidance beyond the age of 14? Surely not! Just think Mr. Reader, of those who have already landed on the human scrap pile and you will surely become an active supporter of the technical school.

Here then is the field for technical education. It will be noted that it is a field which has not been touched until a few years ago. It is so large that in the past we have failed to see it. It will also be noted that it is entirely distinct from the field of the high school. The technical school will, therefore, not attract pupils in any number from the high schools. The character of the training is quite different, and government (federal and provincial) grants are available to promote work only in the field which is not touched by the high schools and universities. This field has been outlined before.

In proceeding to subdivide the field it must be noted that a certain number of young people do not enter employment before they are 17 or 18 years. The individuals included in this group can attend school full time. For these, full time day courses of instruction should be established. Other individuals must, of necessity, find employment soon after they reach the age of 14. These may be divided into two groups: (1) Those who can spend approximately half of their time in school and half of the time in employment, alternating between the school and occupation on a weekly, fortnightly, monthly or semi-annual basis; and (2) Those who, of necessity, must spend practically all of their time in employment, but by legal enactment or mutual arrangement with the employer, must spend four to eight hours per week in school. The first of these two is known as the "part-time" or "co-operative" system, and the second as the "continuation" system. (The latter term is applied in Ontario to a form of high school). Finally, there are those who, for various rea-



Col. L. W. Gill, M. Sc.,
Director of Technical Education, Department of Labour,
Ottawa.

ists. In this respect the system has had a considerable degree of success, but in the effort of developing the few, a great mass of human material has been neglected. This mass has been allowed to become dwarfed for want of a suitable fertilizer and proper cultivation. The situation may be likened to a farmer who spends most of his time caring for a small patch of tomatoes, and neglects the rest of the crop. He may win the prize for tomatoes at the fall fair, but the total value of his crop will be comparatively small.

Looking at the school statistics of those cities where technical classes have not yet been organized it is found that out of every 100 children who enter the elementary

sons, are in full-time employment. Instruction for these must be provided through evening classes. In this group are included all those who have reached more mature age and wish to improve their occupational efficiency.

Our scheme of technical education must, therefore, provide: (1) full-time day classes; (2) part-time day classes; (3) continuation classes, and (4) evening classes.

Very little has been done in Canada toward the establishment of part-time or continuation classes, for the reason that employers are unwilling to grant their employees the necessary time to attend such classes. A young person who is at work all day cannot very well be expected to attend evening classes. Yet a considerable number do attend such classes. In this connection it is worthy of note that within the past eight years 21 out of the 48 states of the Union have passed laws which compel employers to release all adolescents under 17 (18 in some states) for four or eight hours per week to enable them to attend school. And no employer may engage an adolescent who does not present a certificate to show that he or she is in attendance at school. The Province of Ontario has recently passed a similar law, a section of which will go into force in September, 1921. After this date all adolescents in Ontario, between 14 and 16 years, must attend school full-time or secure either a permit to work at home or an employment certificate to enable him to enter a gainful occupation. All those who obtain a home permit or employment certificate must attend part-time classes (where these are established) for a period aggregating 400 hours per year. All urban municipalities with a population of 5,000 or over must establish the necessary part-time classes. The second section of the Act, relating to adolescents between 16 and 18 will come into force at a later date, probably 1923. It may be taken for granted that the other provinces will follow the lead of Ontario after the smooth working of the Act has been assured.

For the present then, technical education in Canada must be provided through full-time and evening classes. In the larger manufacturing centers, such as Montreal, Toronto, and Hamilton, a little has been done, and more might be done, through part-time classes, organized by co-operation of the school and the employer, but the large mass of adolescents will never be reached except by provincial legislation.

Let us now consider the character of the training to be given in these various classes. Manual skill can be developed only by repeated and varied experiences. As industry provides the quantity or mass of experiences, the school should not attempt to repeat experiences with the object of developing speed and manipulative skill except under exceptional conditions. Even if this were necessary, it would involve the expenditure of much

more money than is available for this work. Apart from this, the pupils' time must be spent in doing the more essential things. It does not follow, however, that the pupil should not get any practical training. Manual exercises should be given to illustrate the principles and methods underlying occupational work, and to assist in establishing these principles firmly in the mind of the pupil. Each exercise should have a definite objective, and should, if possible, involve some kind of planning on the part of the pupil. In doing these exercises a certain amount of manual skill will be developed but this will be incidental. Herein is the great difference between the practical training of the technical school and the manual training of the elementary and high school. The object of the latter is to develop manipulative skill of a general character, and also the faculty of co-ordinating the action of the hand with the eye. In a democratic community, such as ours, everybody has to do more or less for themselves, if not for others. Manual training is helpful in this direction. But there is no well defined objective involved as in industrial training. This is why it is difficult to maintain the interest of the pupil in manual training.

In determining what is essential to ensure mental development, we must recognize the fact that a human being has at least three kinds of brain centers: (1) thinking or intelligence centers, (2) memory centers, and (3) habit centers. Of these three the first is by far the most important, and the main objective of the school should be to develop these. This can be effected only by mental exercise in planning, organizing, and initiating, i.e., by constructive thinking. But this requires concentrated mental effort on the part of the pupil. Now concentrated effort can be most effectively secured through interest. It is, therefore, fundamentally essential that the pupil should be interested in the mental exercises set for him. If he is interested he will not only concentrate but he will remember the details and principles involved, and thus incidentally his memory centers will become organized and developed. If the pupil has chosen a particular line of activity as a life work, his interest will naturally lie in this direction, and consequently his mental development can best be effected by constructive work in his chosen field. In this case he will incidentally store up knowledge which will be of service to him in after life.

From the above it will be clear that the practical training in the technical school should be centered largely around the interest of the pupil. It should be of such a character that it will involve constructive thinking on the part of the pupil. Guided by a competent instructor, the interest of the pupil under these conditions will not only be maintained but it will grow, and his mental development will proceed hand in hand with the growth

of his understanding of the principles on which his chosen vocation is based. If the pupil has not chosen a vocation, constructive exercises along the line of his chief interest will give the best results in the direction of mental development.

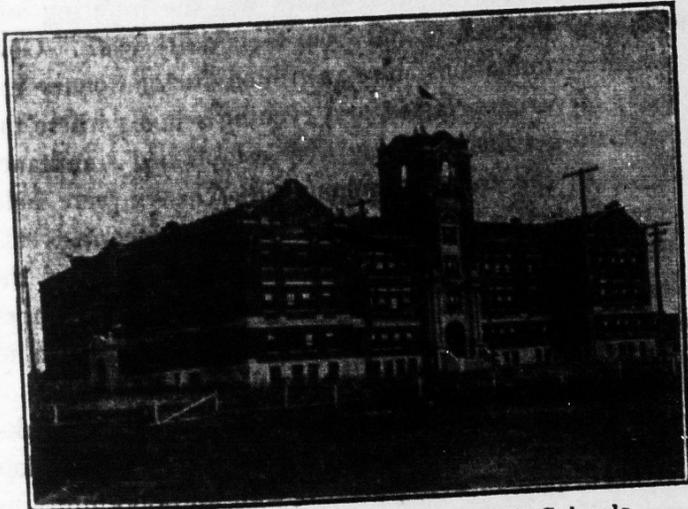
In the technical school the pupil should be guided rather than taught. He or she must not only *know*, by actual experience in employment, the practical side of his vocation, but he must also know how to guide his pupils—how to keep their minds active on constructive problems. Where are these instructors to be found? There are many teachers in the technical schools already started in Canada. But how many have a permanent license? A very small number indeed. There are a few who are no doubt qualified, but until instructors are trained specially for this work, the field of technical education will only be scratched. It is hoped that in the near future steps will be taken to meet this need.

Technical Education in Manitoba

R. B. Vaughan, Director of Technical Education.

In Manitoba the policy of the Department of Education in regard to Vocational Education has been to assist each city, town or school district to meet Vocational problems according to their local conditions.

The problem of providing courses in Home-making, Wood-working and Agriculture for smaller towns is being met by arranging two or more towns in a circuit under the direction of special teachers who make their headquarters at one of these towns and arrange their time-



One of Winnipeg's big Technical High Schools.

table according to the train service so as to suit the other centres. This system provides an opportunity for obtaining specially qualified teachers who can take part in the various communities, conduct evening courses, hold lectures and keep in touch with the Boys' and Girls' Clubs, Home Economic Societies, Agriculture Societies, etc. For this work the Department of Education provides a grant for equipment and a special grant for instruction, to the school boards employing teachers on this basis.

Home-making courses are provided in larger town schools, such as Stonewall, Virden, Dauphin, Selkirk and Brandon and in most cases provision is made for wood-working and drawing for boys. In Brandon, evening classes were provided for work in building trades and home-making courses.

In the city of Winnipeg work in practical arts is carried on throughout all the grades. From grades five to seven boys take wood-working and mechanical drawing and the girls household arts for one half day per week. In Grade VIII. girls are given domestic science and boys take industrial work in the shops of the Technical High Schools. In parts of this city where Junior High Schools have been established, including grades



One of the Machine Shops.

from VII. to IX., time varying from one-half day to one and one-half days per week is given to industrial or home-making courses.

Winnipeg has two large Technical High Schools located to best accommodate all parts of the city. These schools are equipped with rooms for blacksmithing, machine-shop work, wood-turning and pattern-making, wood-working (machine equipment), printing, electricity, auto mechanics, mechanical drawing, cooking, sewing, laundry work, millinery, type writing and commercial courses.

The curriculum provides for instruction in Home-making Courses, Technical and Commercial Courses, Teachers' Courses and Matriculation Courses.

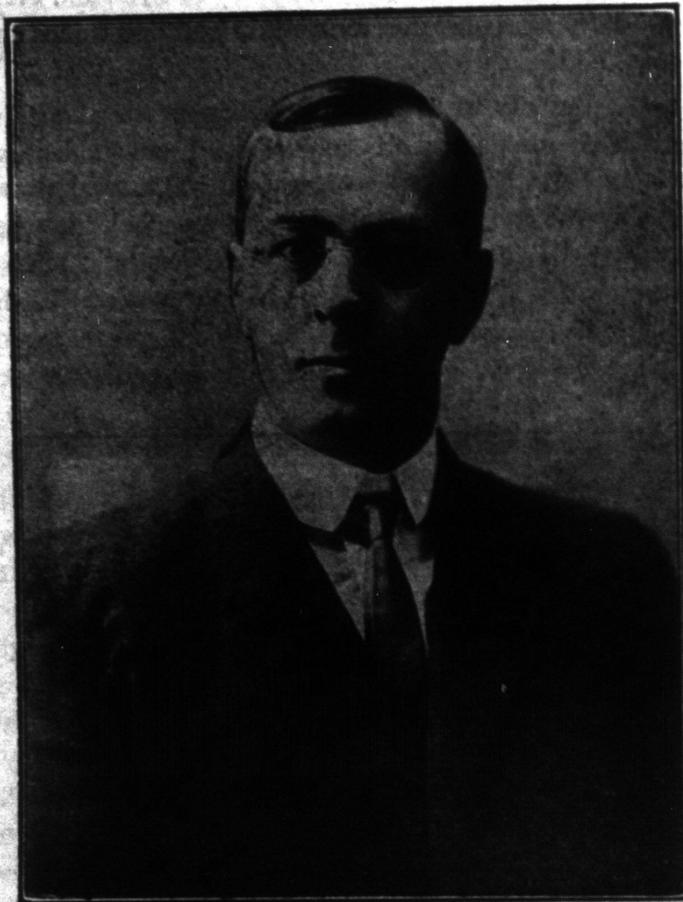
The Technical shops have been specially equipped to accommodate the large demands for evening classes and are fitted up with expensive machinery to enable journeymen mechanics to take up higher work in their respective trades.

Continuation courses have been carried on in Printing, with voluntary co-operation of employers and em-

(Continued on page 165)

Technical Education in Nova Scotia

Dr. Sexton, Director of Technical Education.



F. H. Sexton, D. Sc., L.L.D.
Director of Technical Education, Nova Scotia, and President of Nova Scotia Technical College.

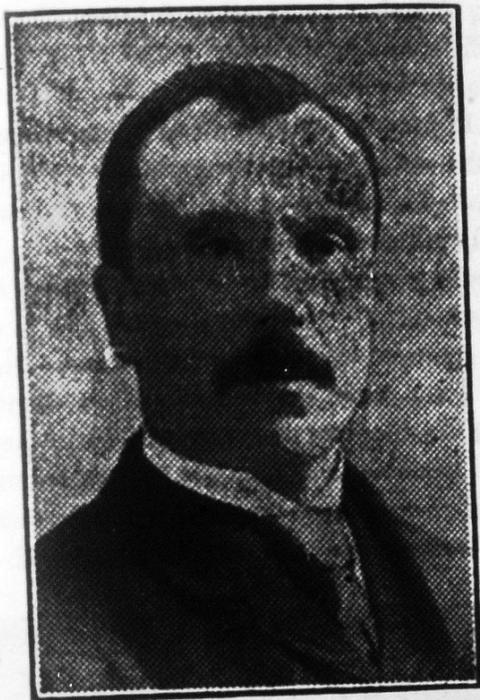
HISTORY OF THIRTY YEARS' DEVELOPMENT OF TECHNICAL EDUCATION IN NOVA SCOTIA.

The first organized effort of the Province of Nova Scotia to supply technical training for industrial workers was in the establishment of special evening schools for coal miners. With the development of the coal mines throughout the central, northern, and eastern part of the Province, it became necessary for the government to provide examinations for colliery officials in order that some guarantee should be given for the competency of the men who directed the arduous and hazardous activities of the miners. In 1888, under the scientific and far-sighted direction of the Inspector of Mines, Dr. H. S. Poole, evening schools were organized where the workers could secure instruction in Mathematics, Mechanics, Ventilation, Methods of Mining, etc. In this way the miners could get the necessary education to qualify for certificated positions without losing any working time. The curriculum and method of conducting classes were modelled closely upon the practice followed in Great Britain at that time. This educational project was carried on under the Provincial Department of Public

Works and Mines. The instructors chosen were usually certificated men and who were acting as colliery officials in the day time and gave the part-time instruction at night. The training was for the most part of the rough and ready type and usually consisted, in great measure, of simply working out problems on former examination papers or similar ones by empirical rules. The instructors were paid after the annual examination on the basis of the number of their students who passed successfully. However, the classes filled a great need and provided a method for the native miners to prepare themselves for the responsible staff positions in the collieries. Nova Scotia was the first Province or State in North America to establish such a series of schools and has maintained them ever since, although she has been followed by only a few others even up to the present time.

This effort to train miners for fuller responsibility in industry, by taking the education to the thresholds of their homes and enabling them to learn without losing an hour's wages, was so successful that the Government was spurred on to extend this kind of work. The colliery plants and equipment grew rapidly with the increase of operations and the mines themselves became deeper and more extensive. It became evident that the stationary engineers who operated the hoisting engines should be thoroughly competent for their positions, especially when part of their duties was the lowering and hoisting of the men to and from their daily work. Government examinations were instituted for stationary engineers of various classes, and evening schools where the men could get their training were established simultaneously. In the colliery communities, classes were held where instruction in mechanics, steam engineering, etc., was provided during the winter months. All of the subjects were treated in a thoroughly practical manner and the way was opened for ambitious young men to prepare themselves for higher certificated positions.

These schools filled a great need among the workers in the collieries. Those men who wished to develop their latent powers were provided with an opportunity to study and advance themselves so that they could earn a more satisfactory wage, fill more responsible positions, and have a longer life of active usefulness than if they depended on their physical power alone. When experts and men for administrative positions were required, the companies had a supply of trained men, natives of the Province, to select from. The youth who entered the coal mining industry for his life work had a path of promotion which he could aspire to climb and the education to assist him was always available without sacri-



DR. A. H. MACKAY,
Superintendent of Education, Nova Scotia.

facing any time from his work and without cost. Practically all of the responsible positions were filled with Nova Scotians trained in these evening schools. The classes also tended to increase the average intelligence of the miners in the Province, because many went part way or fully through the courses, but did not immediately find vacancies in the positions for which they had qualified. The fact that the fatalities per thousand of men engaged in coal mining were less in Nova Scotia than in any other part of North America has been credited to the superior native intelligence and the technical training of her workers.

In 1903 Dalhousie College started an applied science faculty with a four year course in mining engineering and metallurgy. Two years later it added civil engineering. Some of the other colleges provided a two-year uniform course in engineering which led to the final two years of professional training in the affiliated institution of McGill University in Montreal.

About this same time Dalhousie and Kings Colleges organized extension courses in the shape of secondary evening technical schools in industrial centres, giving courses to workers from manufacturing plants. The subjects taught were arithmetic, English, mechanical drafting, etc., but before very long the heavy expenditure necessary to carry them on adequately became clearly evident. These efforts did demonstrate conclusively, however, the great need of secondary technical education of the type called evening continuation schools and the avidity of our industrial workers for more training.

In April, 1906, a group of representatives from all the colleges in Nova Scotia, and Mount Allison in New Brunswick, went to the Premier, Hon. G. H. Murray,

and urged him to establish a technical college which should give professional training for civil, electrical, mechanical, and mining engineers. The Mining Society of Nova Scotia, the Halifax Board of Health, and other organizations had strongly urged the Government to provide a comprehensive system of technical education including all forms of higher and secondary institutions which were needed to develop the resources, the industries, and the people of the Province. The Government was easily convinced of the necessity for action because of their previous experience in their own earlier efforts. In April, 1907, the local legislature passed an Act "Relating to Technical Education," (N. S. Laws, 1907, Chapter 1), which provided a comprehensive system for the whole Province and capable of almost infinite diversification and expansion. Thus Nova Scotia led all the rest of the Provinces of Canada in this important enlargement of public educational policy.

This Act provided for the erection of a central Technical College at Halifax to stand at the head of the system. This institution was to stand in close affiliation to all the rest of the colleges and universities in the Maritime Provinces which desired to carry on a uniform engineering course for the first two years. The Technical College was to provide "facilities for scientific research and instruction and professional training in civil, mining, mechanical, chemical, metallurgical, and electrical engineering or any other departments which may from time to time be added."

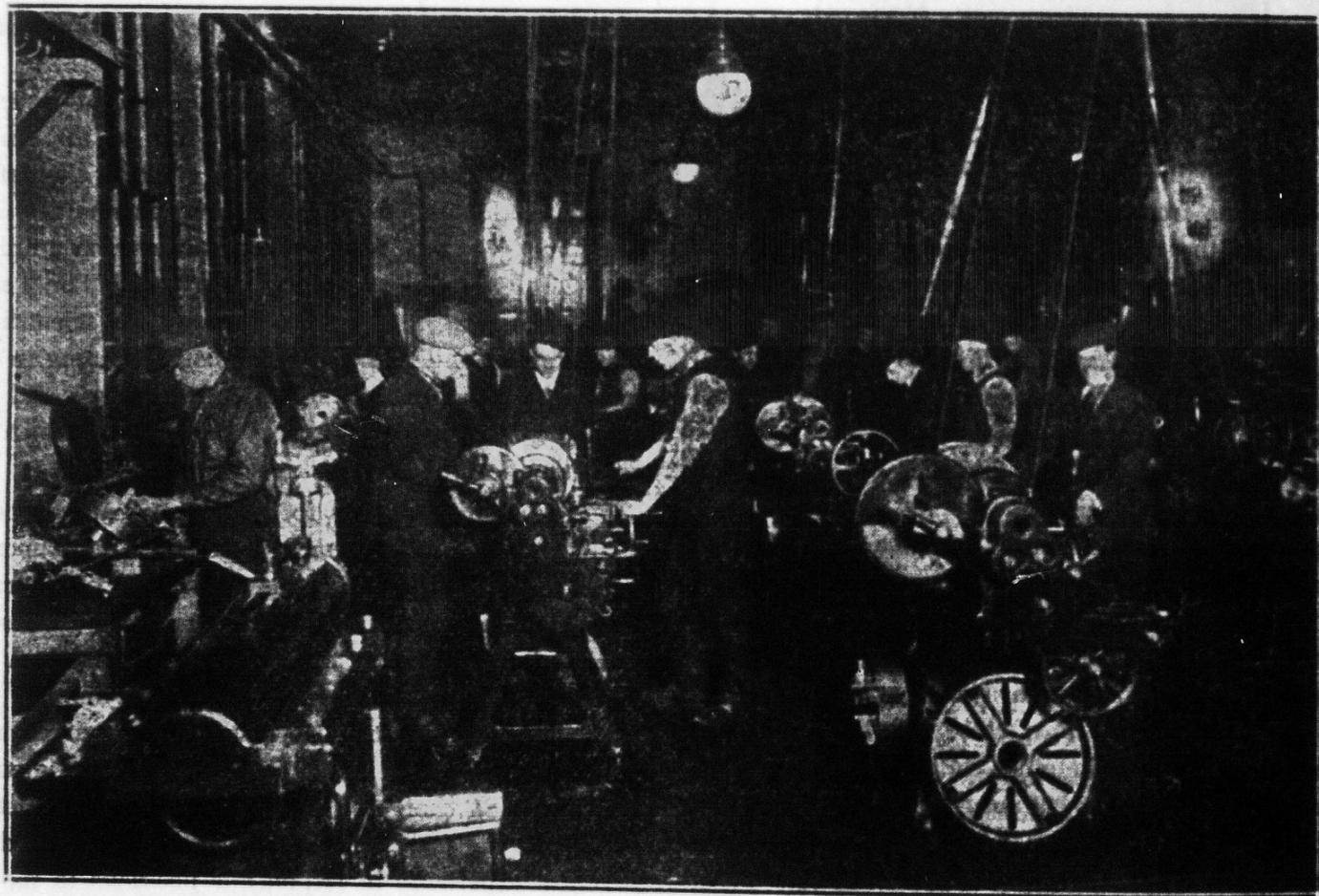
The evening schools for coal miners and stationary engineers were transformed from the department of mines to the new branch of the department of Education. This gave the opportunity to re-organize the classes on a wider basis and along more thorough educational lines. The portions of the Province where coal mining flourished were divided into five districts for convenience in administration, and a permanent full-time instructor was placed in charge of the classes in each district. In every case the men selected as instructors had had long practical experience in responsible positions in the mining industry and also possessed the ability to teach. He usually devoted his time to those students who were preparing to secure certificates for underground managers, also holding some day classes for men who worked continuously on night shift. The district instructor also went into the public schools and conducted an elementary course in mining science, consisting of physics, chemistry, and mechanical drawing to boys in grades seven, eight and nine. Preparatory classes in English and arithmetic were opened in all centres to give the men a thorough grounding or "brush-up" in these subjects so that they could avail themselves better of the purely technical training, thus making the instruction in the vocational classes more effective. Because of the wide ap-

plication of electricity to mining and the installation of elaborate surface plants, special classes in electricity and mechanical drafting were opened in the larger colliery centres. The response of the coal miners was immediate and the attendance increased very rapidly.

By this act relating to technical education, there was created in industrial centres other than coal mining communities, an entirely new set of schools, called "Local Technical Schools." The first schools took the form of groups of evening technical classes suited to the needs of the workers in the dominant local industries. The subjects taught consisted of the mathematics, English, drawing, science, etc., that were needed by apprentices and artisans for true industrial intelligence in their trades, and dressmaking, millinery, and home economics

metic were found to be necessary in most towns to make up for deficiencies in the early education of many applicants before they could properly take up the technical classes. In nearly every subject progressive courses covering the work for three winters was laid out and a diploma was awarded to those who followed the course successfully to the end, provided that they were possessed of the proper general training in mathematics and English in addition.

The question of persistent attendance throughout the winter was a serious consideration. Students flocked into the classes in enthusiastic masses when they opened in October, but tended to drop out in large numbers just after the Christmas vacation. This had been met with generally wherever such classes were organized. There-



Halifax Evening Technical School—Class in Machine Tool Operation.

for women. The subjects were not uniform in all towns and cities. In the larger centres a greater diversity was possible than in the smaller localities. In some instances courses were offered for the benefit of those employed in a particular and peculiar industry (that were not demanded elsewhere in the Province) Thus instruction in metallurgical chemistry was included in the curriculum in the Sydney Evening Technical School because the chief industry is the manufacture of steel; and in New Glasgow, a class in Ship Drafting was given, because of the importance of shipbuilding in that centre. Preparatory classes in English and arith-

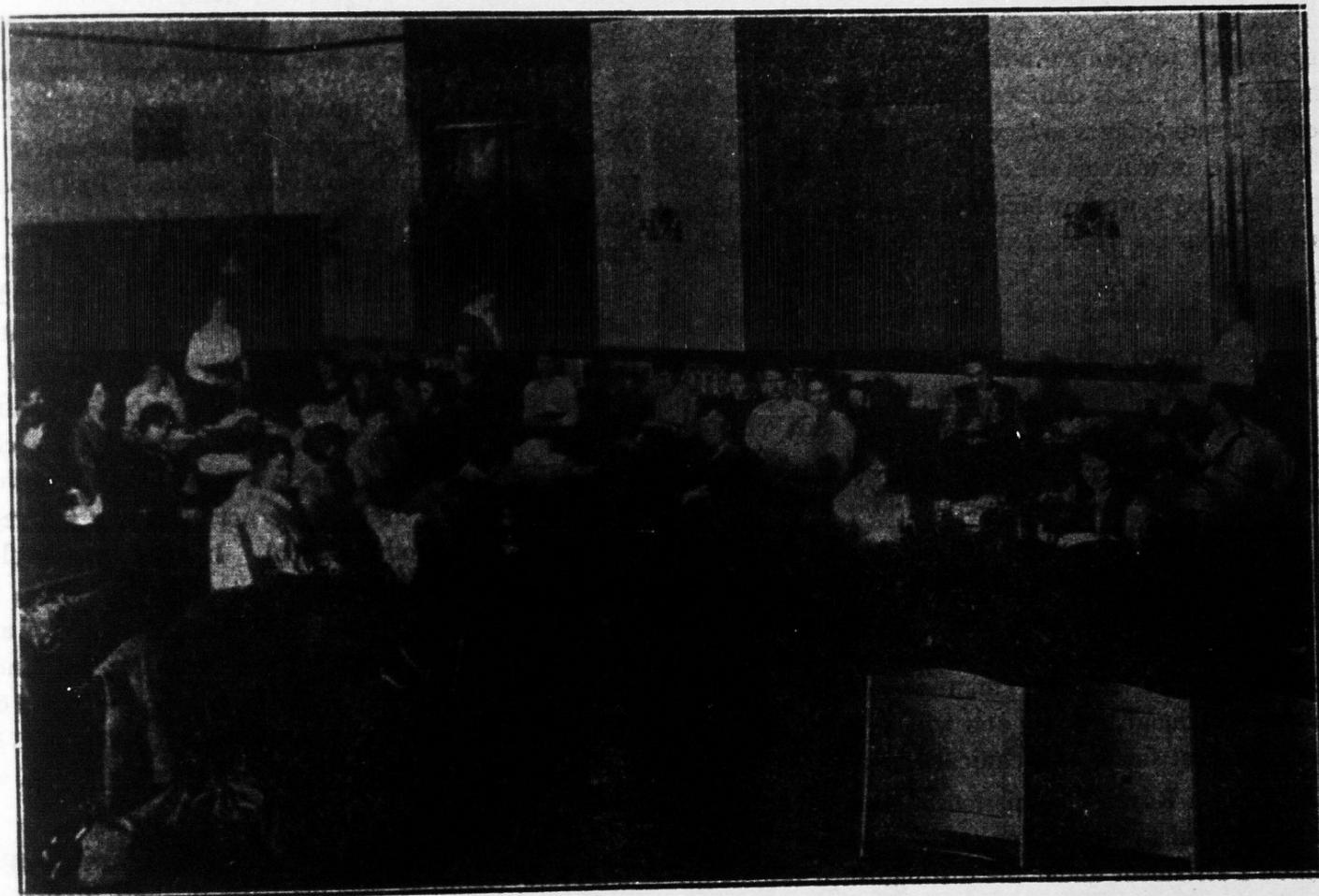
fore a deposit was required from each pupil on entrance which was refunded, on a sliding scale basis, at the end of the session in April. For full attendance the whole amount was given back and nothing was returned if the student's attendance fell below 60 per cent. This had a remarkable beneficent effect and many classes showed an attendance of 90 per cent. or over. The range of subjects covered was as follows:

Practical Arithmetic,
Business English,
Practical Algebra and Geometry,
Single Entry Bookkeeping,

Double Entry Bookkeeping,
 Stenography and Typewriting,
 Mechanical Drawing,
 Machine Drawing,
 Machine Design,
 Architectural Drawing,
 Building Construction Drawing,
 Architectural Design,
 Building Construction Estimating,
 Structural Steel Drafting,
 Railway Car Design,
 Ship Drafting,
 Elements of Electricity,
 Alternating Current Machinery,
 Automobile Running and Repair,

Custom Tailoring,
 Millinery,
 Cooking,
 Home Economics.

In each community where the evening technical schools are established, their welfare and development is placed in the hands of an advisory committee composed of the school board with which are associated representatives of business, manufacturing, employers, and organized labor. The local secretary of this advisory committee is the organizer of the work and principal of the school. He is usually a part-time man, directly responsible to the Technical Education Branch of the Department of Education and paid wholly from Provincial funds. An inspector of technical schools acts as a gen-



Halifax Evening Technical School—A Class in Dressmaking

Automobile Mechanics,
 Elements of Chemistry,
 Technical Chemical Analysis,
 Metallurgical Chemistry,
 Conversational Spanish,
 Commercial Spanish Composition,
 Literary Spanish,
 French Conversation,
 French Composition,
 Plain Sewing,
 Blouse Making,
 Skirt Making,

eral organizer and visits every class two or three times a year.

This form of technical education proved to be very popular. With the advance of industrial organization, the workers became more and more specialized and more and more were only "machine hands." Industry itself became concerned only with production and paid less and less attention to the training of its employees. At the same time the administrative and control staff increased and there evolved more positions of responsibility in proportion to the number of workers than existed formerly. Therefore, the ambitious workers

flocked by hundreds and thousands into the evening technical schools. They could attend the classes in their leisure time, which increased suddenly with the general adoption of the eight hour working day. From the public standpoint the cost of the schools was small. The community put its otherwise idle school buildings to work in the evenings. It had to provide only the rooms, extra heat, light, and janitor care and one half of the remuneration to the teachers. The Provincial Government furnished the other half of the cost of the teachers' salaries and furnished the special equipment necessary. All of the teachers were on a part-time basis and taught for \$1.50 to \$2.00 per hour. Therefore, the total cost per pupil for 45 to 60 sessions during the six winter months was only \$6.00 to \$7.00 each. This form of technical school has the further advantage that every pupil has made his choice of an occupation and is preparing himself for definite advancement in that vocation, or another which he is definitely planning to enter. The principal disadvantages are evident, viz.:

1. The instruction is carried out in the evening after a full day's work which bears hardest on adolescents who have not reached their full physical development.
2. The amount of time available in actual hours is small so that great advancement cannot be made in a short time.
3. The personnel of the teaching staff changes materially from year to year and have to be selected rather for their industrial knowledge and skill than for their teaching ability.

However, the evening technical school, even in countries like Germany, where day industrial schools had been developed to a high state of efficiency, enrolled a higher number of students than any other form of school for vocational training and will be for a long time a most important factor in technical education.

In 1910, a Royal Commission on Industrial Training and Technical Education was appointed by the Dominion Parliament under the distinguished leadership of Dr. James W. Robertson. For two years it investigated all the various phases of these branches in all the leading civilized countries of the world and issued the best report on this subject that has appeared in the English language. The report appeared in 1913. It made definite recommendations for a Dominion-wide organization with an annual grant from the Federal Treasury of \$3,000,000 to the Provinces for a period of ten years. The war closed down on the nation too quickly to put the proposals into force and action had to be delayed until after the Allies emerged triumphantly victorious from the struggle.

In the session succeeding the Armistice, the Dominion Parliament passed an Act for the Promotion of

Technical Education in Canada that was assented to on July 7th, 1919. This provides a sum of \$10,000,000 shall be granted to the various Provinces on the basis of their population in annual grants over a period of ten years based on the amounts actually expended by the Provinces themselves in secondary technical education. This generous policy will doubtless give the necessary impetus to the rapid development of technical education throughout the Dominion.

The majority of the Provinces had evolved systems of technical education on their own initiative before the passage of the Dominion Act. Nova Scotia, Ontario, and Quebec had probably developed further in this direction than the rest. The two latter had probably not been deterred from proceeding normally according to their plans and desires from lack of available funds, because they are the wealthiest and most powerful of all. In Nova Scotia, however, development had been more or less retarded, because financial resources were restricted. The future in this Province now looks rosy and plans long cherished can be put into action. The next forward step will be in the direction of compulsory continuation schools for those adolescents between the ages of 14 and 18 who have left the public school for home, business, or industry. Over one-half of the States in the United States have passed laws within the last three or four years prescribing a certain number of hours attendance for juvenile workers in continuation classes during the day time if they are between the ages of 14 and 16 or 14 and 18 and are not attending the regular sessions of some other school. If they are employed, they must be allowed the proper amount of time away from their business or industry at regular pay to attend classes. Ontario has also passed such an Act and the first portion applying to people between 14 and 16 has been proclaimed to go into effect in September, 1921. Great Britain is applying similar regulations to its whole population under the Education Act of 1918.

It has been clearly brought home to the people of democratic countries that the basis of their progress and security is education. The war revealed some great flaws and gaps in all our educational systems. It came to be fully realized that the great masses who fled from school at the age of 14 at the limit of compulsory attendance had not received enough training either for citizenship or for their livelihoods. Advances in civilization and industrial revolution demanded like progress in education requirements and methods. This means only one thing, and that is, the extension of the period of compulsory attendance at school up to the age of 16 or 18. It is not thought wise or advisable to compel our youth to refrain from their usual tendency to go to work at 14, but to make them give enough further time for two to four years to ensure that they will receive enough gen-

eral education to develop intelligence, training for responsible citizenship, and vocational instruction to fit them adequately for efficiency in honest occupations. Nova Scotia which has honestly gained an enviable reputation for educational leadership will undoubtedly

join the van in extending the period of compulsory school training. This will round out and advance the educational system another great step toward the ideal where there is equality of opportunity for each individual to develop his powers to the fullest measure.



Halifax Evening Technical School—A Class in Dynamo Electric Machinery.

Needs of Secondary Technical Education in Nova Scotia

Gerald A. Boate, B. Sc., Assistant Director of Technical Education for Nova Scotia.

In order to determine the types of secondary educational systems which will best suit the province, city, town or community, a careful analysis should be made, not only of the natural resources, but the dominant types of producing, manufacturing, distributing and trading.

To have a healthy state of industry and trade continue and improve, there must be skillful and conservative utilization of the products of the mines, farms, forests and coastal waters. The natural resources of Nova Scotia are principally mines, forests, farms and fisheries; producing iron ore, coal, gypsum and in smaller quantities, gold, silver, manganese, in the mining group; from the forests are obtained spruce, fir, hemlock, beech and birch. Agriculture is principally mixed farming, exporting apples, potatoes and hay. The fisheries group, from an exporting standpoint, is the second in

importance, sending to Central Canada, United States and the West Indies canned, dried, and salted fish.

In order to improve her condition and increase the status and wealth of the Province, it is not only necessary to produce more, but to produce more economically and efficiently. Coal, iron, timber, fish, and deep harbors abound. Why then is not Nova Scotia more prosperous than she is? Are we too far north or too far out in the ocean, or do we depend upon the rest of a great continent to supply or manufacture our needs and wants? Is our geographical position less favorable than Massachusetts which is almost devoid of natural resources, yet supports a large and prosperous population, principally by importing raw materials and through enterprise and skill, converting them into a marketable product, which usually bears the hall-mark of excellency of workmanship to such a degree that the products are eagerly sought by a world's market. The comparison is made merely for the purpose of deducing if possible the reason of Massachusetts' prosperity and development. The Civil War left this State almost devoid of able-bodied

man power, and as a consequence, brawn gave place to ingenuity and for fifty years after the close of the war there was a period of inventive development which was unparalleled. The invention and development of new devices and machines for the working of metals awoke Boston, Worcester, Fitchburg, Holyoke, Lynn and many other cities to such a state of activity, that their populations multiplied and wealth poured in, yet this State cannot show in its list of natural resources either coal or iron. Lowell and Lawrence are celebrated the world over for their cotton mills, but the State of Massachusetts does not raise a pound of cotton. This State dominates the world market for boots and shoes. The hides from which the leather is made for forming boots and shoes is imported from Australia, India and South America. The arms which gather in the raw materials also carry back to the remote corners of the earth, manufactured goods. How did this condition come about? Ingenuity alone accomplished it. Capital, a vision backed by honest effort, faith, and skillfully trained workers accomplished the miracle. Schemes, dreams and plans were followed by action. From small beginnings mighty organizations were built up.

The demands for constructive effort are greater today than they ever were before. Iron, steel, timber and the fabricated products thereof are needed in unlimited quantities by the civilized world. In order that these materials may be developed into more refined and acceptable state for efficient shipment it is necessary that the minds of the people of Nova Scotia be directed to the desirability of providing intensive training for those who are developing the natural resources of the Province. In doing this it will be well to consider the group of workers who fall outside of the professional class. As a very conservative estimate not over ten per cent. of those who graduate from high schools ever enter professional colleges. We may well pause to consider the vocations of the ninety per cent. who do not attend higher educational institutions and also the vast army who do not attend school beyond grade eight. What becomes of the boys and girls who drop out of school? Why do they drop by the educational wayside? We do know that they drop out of school but they also drop into something else. Business and industry absorb the school discards and immediately places them at work "doing something." Without much further assistance they either again drop out or pick up enough training by imitation to enable them to carry on mechanically, without knowing the cause or reason. When production is low or a period of depression comes, the plants where some of them are employed close down, workers are dismissed and become unemployed. The unpleasant task now confronts them of seeking a new position, which, on being analyzed, is one of the most difficult tasks of modern salesmanship—

to sell one's own services. What has this uneducated boy or girl to sell or offer a prospective employer? Without assistance, the salesmanship is usually so crude that the former experience gained in the previous position is lost in the shuffle and in a majority of cases an entirely new start is made. In this process of drifting from one place of employment to another, without guidance or assistance, on maturity, the worker is classed as a "hand" or common laborer.

Business managements, like political governments, are coming to realize that the basis of any permanent reform must begin and end in education. The tendency to adopt this point of view is indicated by the following examples:

The New York Edison Company, a public utility selling light and power, offers educational facilities through its Educational Bureau and the Educational Committee of the Association of Employers. The committee prepares technical and accounting courses in which the attendance is voluntary. The Educational Bureau prepares the commercial courses as part of the routine work of the commercial department, and instruction is given on the company's time. These courses include hygiene, health and recreation, the basic principles of salesmanship, company organization, the elements of central station business-getting, and the fundamental principles of electricity. The term begins in October and ends in May. The work covers two years. The school staff consists of a manager, several instructors, and a secretary. The technical courses consist of laboratory exercises, preceded by a talk in which the instructor outlines the work briefly. The course lasts fifteen weeks each year, five evenings and one afternoon per week. Beside these courses, the company has lectures given by their officials or by prominent speakers on general and public policy, and on technical subjects.

Special training for the company's work is given by the National Cash Register Company, which has established an agent's school for salesmen, one for advertising men, and one for officers for the study of business management, and others for the general staff. This company has a kindergarten for the children of employees, and cooking, sewing, and millinery classes, as it is realized that any training which benefits the home makes better workers.

The Canadian Pacific Railway provides an Apprentice Training School at their Angus Shops at Montreal. All apprentices are required to attend this school a definite number of hours each week on the Company's time. The subjects taught are English, mathematics, mechanical drawing, and science. Scholarships are offered by the management which are sufficient to provide full tuition fees and maintenance of the winners in engineering courses at McGill University.

These examples are merely typical of the conscientious effort on the part of large employers to better the conditions and environment of their workers, and as a means for merited advancement. Examples of similar educational efforts could be added by the score, but those mentioned are typical of this new movement among the most progressive corporations.

The company continuation school is rapidly working its way into all progressive systems of vocational education. The motto of such schools is "Learn while earning." It is marked by a somewhat broader educational outlook than the company business school. Accordingly, we find classes in English, mathematics, history, civics, geography, spelling, hygiene, typewriting, shorthand, sewing and dressmaking. These are all in addition to a number of other subjects directly related to specific occupations, such as engineering, drafting, machine operating, office work, laboratory testing, telephone operation, and salesmanship.

Of this kind here are two groups; those schools conducting evening classes, and those holding day sessions. The methods of instruction are as varied as the subjects taught, but each type is actuated by the dual aim to make more intelligent and responsible citizens, and more efficient employees. The public or private continuation school, is co-operative in its nature and requires that the instruction involves both study and practice. The studying is done, however, at the public school and under its direction, instead of being done with the company, and the industrial training is carried out according to a definite plan in industry. This method necessitates the closest kind of co-operation between business organizations and the public school. However, the practicability of this educational method is proven by the increase in the number of firms which are using it.

The development of any secondary educational system, like the development of any national, civic or individual enterprise requires the expenditure of large sums of money, and in order that funds may be conserved and made to do the greatest amount of useful work, careful planning is necessary. The need for developing special secondary technical education in Canada was felt prior to 1910. In 1910 at the request of the Minister of Labor, Order-in-Council number 1133 was approved by His Excellency, the Governor General of Canada, on the first of June, an abstract of which is quoted:

"On Memorandum dated May 28th, 1910, from the Minister of Labor, stating that the industrial efficiency is all important to the development of the Dominion and to the promotion of the home and foreign trade in Canada in competition with other nations and can best be promoted by the adoption in Canada of the most advanced systems and methods of industrial training and technical education.

The Minister further states that the Premiers of the several Provinces of the Dominion have expressed on behalf of the Governments of their respective Provinces, approval of the appointment by the Federal authorities of a Royal Commission in Industrial Training and Technical Education."

The Commission after being appointed investigated scientifically and exhaustively, first the educational systems of Canadian provinces, then it proceeded to England, Scotland, Ireland, Denmark, France, Germany, Switzerland and the United States. The report of the Commissioners was printed by order of the Federal Parliament and distributed in 1913. The work of this Commission resulted in the passing of the Technical Education Act in 1919. This Act provides for aid to the Provinces in promoting and assisting technical education in Canada; by annual grants beginning at \$700,000 and aggregating \$10,000,000 within a period of ten years.

If the Federal appropriation for developing secondary technical education, is matched dollar for dollar by the Provincial Government, Nova Scotia will have a fund of \$116,000 to be expended during the fiscal year 1919-1920. The problem confronting the administrators of the fund is how this amount can be best expended to meet the immediate needs of the province, in the advancement of technical and industrial education, at the same time getting the desired maximum of permanency from the investment.

Within the last ten years in the larger cities of Europe and the United States, special Technical High Schools have been built, the buildings and equipment costing from \$2,000,000 in the larger and more elaborately equipped structures, down to \$75,000 in the smaller types usually converted wooden buildings. Usually such schools are designed as a general high school as far as academic rooms are concerned, but, in addition, space is provided for: (1) Mechanical and Architectural Drawing, (2) Machine shop, (3) Sheet Metal and Plumbing Shop, (4) Electrical Testing and Applied Science Laboratory, (5) Chemical Laboratory, (6) Building Construction and Electrical Wiring Rooms, (7) Power and Hand Wood-working Shops, (8) Applied Art and Design Rooms, (9) Painting and Decorating Rooms, (10) Domestic Science Kitchens, (11) Dressmaking Rooms, and (12) Millinery Room.

The special aim of such a school is to serve both day and evening classes. Special emphasis is laid upon the newer aspects of school work and practical subjects are given a generous allotment of time. The elements of a liberal education are, however, by no means neglected, but are made more interesting because enriched and vitalized by a new content and purpose. Syllabi of courses are so arranged by the group method of instruc-

tion that those possessing satisfactory high school entrance certificates may select courses which lead to College matriculation, thus laying a splendid foundation for applied science college courses. Other courses are designed to lay a foundation for entrance into industry or commerce after leaving high school. Usually the work covers a period of four years. Cities always have another group who enter a technical high school with the specific purpose of learning the fundamentals of a trade or occupation which will give them an entrance at an early age into remunerative employment. The educational standard set up, is, usually successfully passing grade eight examinations or sufficient education to profit by the instruction given in the classes, and to be at least fourteen years of age. These groups are given either pre-vocational or vocational courses. The first year they are in the boys' division, routed through the various shops in order to determine their mechanical aptitude. When mechanical skill or fondness for certain commercial work is apparent they are counselled by their instructors regarding the vocation which they might advantageously follow. The girls are likewise routed through the home-making, art and design, cooking, sewing, and commercial rooms.

The courses usually given are: Machine-shop Practice, Automobile Mechanics, Carpentry and Joinery, Sheet Metal Work and Plumbing, Architectural Drafting, Mechanical Drafting, Building Construction, Applied Physics and Chemistry, Applied Mathematics, Grammar, Composition and Spelling, Geography and History, Industrial Art and Design, Household Management, Home Nursing and Hygiene, Domestic Science, Dressmaking and Millinery, Study of Textiles and Materials, Physical Culture, Music and French. In the day school the student program may be general, leading to matriculation, or special, leading to a diploma which states definitely the special work covered. In the evening classes single subjects are usually selected by industrial and commercial workers who avail themselves of evening technical school for improving their training.

The types of secondary schools which have been developed during the last fifteen years in Canada and the United States, include technical high schools, trade schools, industrial art schools, continuation part-time schools, correspondence schools, vestibule schools and up-grading schools in industry, commercial schools, university extension courses, home economy training centers, women's institutions and classes. The underlying motive of attempting to fit people for useful occupations coupled with the laying of the foundations of an adequate education for citizenship has made these types of educational agencies much to be desired by all classes of citizens. The chief difficulty lies not in establishing a school of technical nature but in selecting

from the large array the types and forms of training which will best suit the needs of the entire province. The chief industries of Nova Scotia are: Iron and Coal Mining, the manufacture of Iron and Steel into products of these metals including Machinery, Agriculture, and Fishing. Each division is large and has many subdivisions which are capable of development and expansion in order that the pulses of our trade and commerce may be filled with richer blood of new endeavor.

From a broad viewpoint it seems wise, for the present at least, to defer from expending large sums of money on the erection of secondary industrial school buildings and to devote our untiring energies to the serving of our industries at their doors, by bringing the most desirable training to the workers at their daily tasks. This may be satisfactorily accomplished in several ways:

For the coal mining industry, the development of more advanced instruction in the present coal-mining schools, co-operating with the managers of the industry in providing both evening and part-time day classes.

For steel mills, machine-shops, foundries and factories in the establishing of vestibule schools within the industry, the equipment to be supplied by the manufacturer and suitably trained instructors to be provided by the Province for the more efficient training of junior employees or apprentices, space to be supplied, either attached or detached, for class-rooms in which to give instruction in mathematics, drafting, English, history and civics, either by the manufacturer, the community, or co-operatively.

For business and commerce, the development of business schools, which will fill the needs of part-time day and evening students, so that training will not only be in business correspondence, English, spelling, grammar, penmanship and bookkeeping, but will embrace the fundamentals of salesmanship, factory and office management, commercial law, modern languages, and also the economics of business and sufficient training to give a comprehensive understanding of the laws which govern capital and labor.

Forest conservation and reforestation and educational work which will lead to the economic use of the products of our forest is highly desirable. Also the extended manufacture of lumber into marketable products.

The fishing industry which employs 27,000 Nova Scotians offers a wide opportunity for the advancement of training and skill. This refers to deep-sea fishing. In order to attract a larger market and demand relatively higher prices there must be improvements in the methods of pickling, drying, smoking, canning and distributing the fish product. In this field courses of extremely practical nature can be given to the fishermen in the care, operation, repair and overhauling of gasoline

marine engines, in navigation at the fishing villages during the winter months which will shorten the period necessary at the Government Navigation Schools. In the testing of salt and brine solutions for purity and density, and the sanitary methods of handling the catch while at sea. Short courses in bookkeeping, penmanship and business, spelling, marketing, banking and exchange. Further developments of educational work which will assist the fishing industry will be planned and executed as soon as funds can be provided and co-operation arranged.

Already splendid work is being done at the Provincial Agricultural College at Truro in general and special agricultural subjects. However, much assistance can be given agriculturalists by giving special courses in the care, repair, and overhauling of power apparatus and power driven machinery, as gasoline engines, steam boilers, tractors, pumps, grinders, threshers, sulky-plows, and all mechanical appliances which are rapidly appearing on Nova Scotia farms, the correct handling of which need a working knowledge of mechanics and applied electricity and the correct use of machinist's tools. The training should be in the actual overhauling, taking-down, assembling, testing and adjusting, the renewing of wornout or broken parts, and economic operation. Some practical training in the use of blacksmith's and carpenter's tools and harness repairing are desirable.

Emphasis should be placed on the extension and expansion of the evening technical schools in order that they may serve more fully the needs of the larger communities.

Those in rural districts or so engaged that it is impracticable should have their interests cared for by means of correspondence courses on which such a satisfactory beginning was made by the Nova Scotia Technical College, but had to be suspended during the war. In the preparation of the lessons and the selection of the subject matter, every effort should be made to establish a bureau which will radiate a warm personal relationship and be of the utmost service to the people of the province. The courses should be short and extremely practicable and so prepared that they will assist in their daily work the carpenter, the builder, the mason, the draftsman, the machinist, the plumber, the electrician, the steam engineer, the garage mechanic, the sheet metal worker, etc., and for women dressmaking, millinery, home nursing, household management, and general education for both sexes.

Industrial training and technical education serve to supplement general education with special reference to the requirements of workers in the industries, agriculture, commerce, transportation, mining, housekeeping and other occupations. They are the means whereby the

individual, the family, the community, and the nation seek to develop the powers of the individuals for work, to prepare themselves to meet the conditions of working life, to alter those conditions in directions which seem desirable, and to conserve what is esteemed to be worthy standards and ideals. In order that all might become qualified to the full extent of their capacities to fill their places as individuals, as contributing earners, as citizens, and as members of the race, the present and future development of Technical Education and Industrial Training in the Province of Nova Scotia will be planned and administered to fit the fuller needs of Nova Scotians.

The Nova Scotia Technical College

F. H. Sexton, D. Sc., LL.D.

Director of Technical Education for Nova Scotia.

The Technical College stands as the capping stone, the crowning ornament, of the system of technical education established and maintained by the Province of Nova Scotia. This is the principal effort of the Government for the people as a whole in university training. The Province is blessed with a large number of institutions of higher learning which are supported by voluntary contributions. Practically the only co-operative action, the various colleges and universities unite in, is the uniform engineering course which leads to the Technical College.

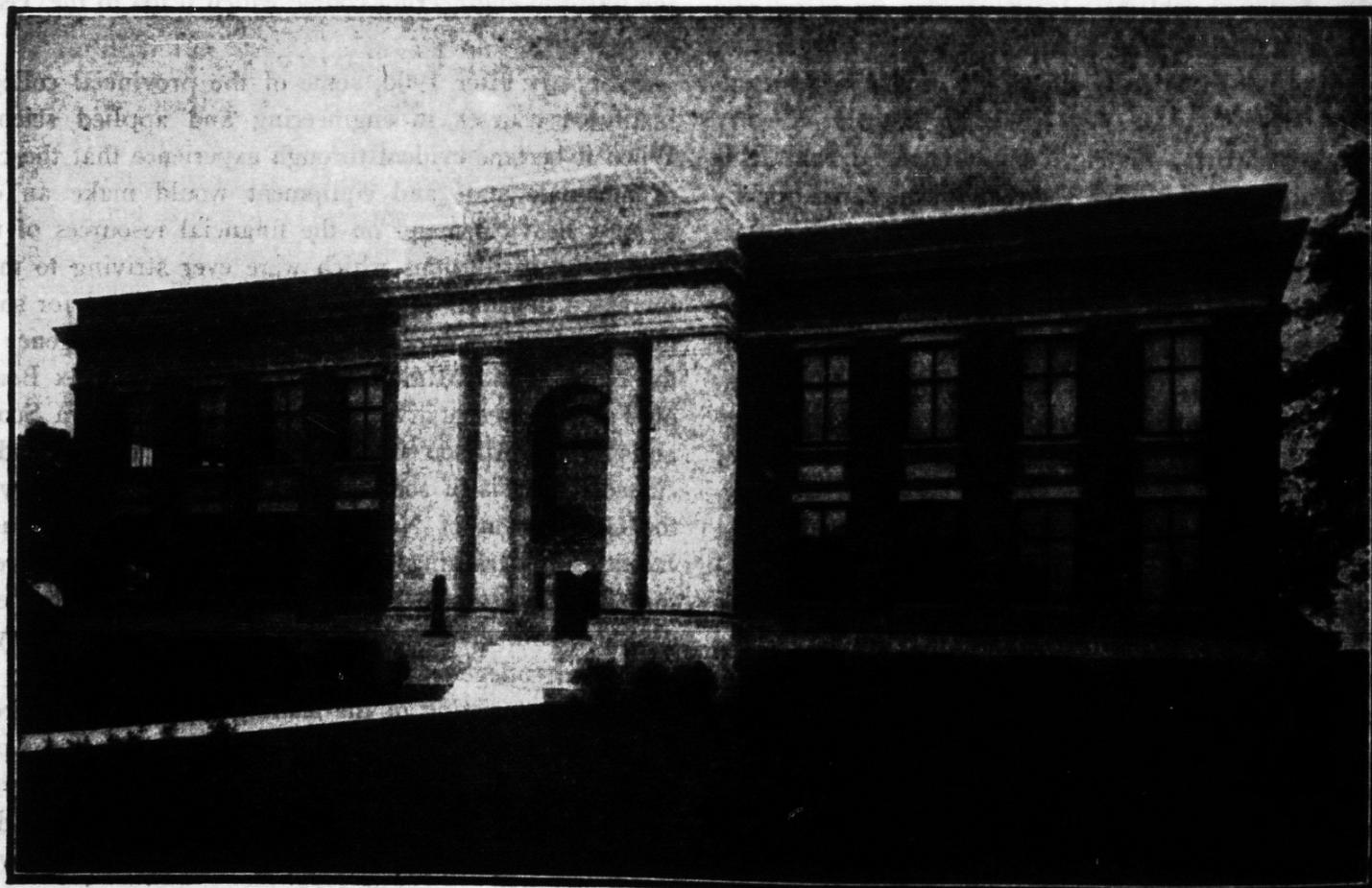
Shortly after 1900, some of the provincial colleges instituted courses in engineering and applied science. When it became evident through experience that the cost of adequate staff and equipment would make an extremely heavy demand on the financial resources of the competing institutions which were ever striving to meet increased demands in other directions, the need for some united action became apparent. Through the agency of the Nova Scotia Mining Society and the Halifax Board of Trade representatives of the colleges in Nova Scotia and Mount Allison in New Brunswick met and discussed the basis of some co-operation on their part with the Government of Nova Scotia in providing adequate facilities for training engineers. It was finally agreed that the Government should be requested to provide a central technical college where students could be given the higher college training for degrees in engineering. A delegation consisting of the leading representatives from each college went to the Provincial Government on April 20th, 1906, with this request and were promised favorable consideration. The delegates stated that the different colleges could and would give the training covering the first two years of a four year engineering course and asked the Government to confine its efforts to the

professional education of the last two years. This proposition represented a unique and praiseworthy co-operative effort to meet a pressing problem in higher education. Prior to this event each college had striven mightily to develop itself to meet the demands of the people in the Maritime Provinces for university training. They were all healthy rivals and had achieved signal success in turning out men who showed their sound and thorough education by rapidly advancing to positions of eminence and responsibility in the professions in business and industry, and in public life. Some attempts had been made to bring about some union or amalgamation of effort among the colleges, but these had been unsuccessful because of the fear by separate institutions that such a move would result in a loss of individual support, achievement and development, and a possible loss to the progress of higher education as a whole.

The Provincial Government were deeply impressed by the united appeal which came from all the colleges and in the succeeding year, 1907, passed an act providing for the establishment and maintenance of a central Technical College in Halifax supported from provincial funds. The Government showed their good faith by prescribing in the Act itself that the new institution should be closely affiliated with the other Maritime colleges and that each should elect a representative on the Board of Governors of the Technical College. In addition it was

also definitely stated that this college should restrict itself to the professional training of the third and fourth year courses in chemical, civil, electrical, mechanical, metallurgical, and mining engineering. The Technical College, therefore, came into being, requested and, in a measure, sponsored by the five colleges in Nova Scotia and Mount Allison in New Brunswick. The details of this early history have been given because it stands as an outstanding example in Canada of co-operation between rival institutions to achieve a desirable advance in the progress of higher learning.

The Provincial Government started immediately to erect and equip an institution for teaching and scientific research. A site on Spring Garden Road in the centre of Halifax was secured from the Dominion Department of Militia and Defence on condition that military instruction should be a compulsory subject in the curriculum. In the autumn of 1907 ground was broken and by the autumn of 1908 the splendid main building with class rooms, provincial science library and scientific laboratories was opened to students. In addition a large building for a power plant and engineering laboratories, 145 feet by 40 feet, was erected and fully equipped. In two years a splendid two-story brick and steel building, 100 feet square, was constructed and fitted with expensive apparatus as a modern laboratory of mining and metallurgy. It would not suit the pur-



Nova Scotia Technical College, Main Building, Halifax, N.S.

pose of this general article to enumerate even the more important and valuable pieces of machinery and apparatus. Over \$400,000 has been spent in buildings and equipment, making the whole institution fully and modernly fitted to adequately train young men for the engineering profession.

The policy of the college has always been to select men for the teaching staff who are highly trained in the leading engineering colleges and who have had several years of responsible experience in industrial life. This means that all of the instruction is modified and vitalized so that it fits the requirements of the practising engineer. It was recognized that the men who voluntarily elect to follow this profession are usually mechanical, constructive, and practical-minded. The constant aim of the instruction was for the lecture and laboratory work to go hand in hand. For all of the theory, experiments in the shop or laboratory were planned so that there would be a concrete illustration to illuminate the principle and help to make it a real part of the students' working knowledge. Since the number of men training in the last two years of engineering has been comparatively small, each one has received the maximum amount of individual attention in the Technical College. All of the staff hold the rank of full professor or assistant professor and the students have the advantages of knowing their teachers personally and of being known on a close personal basis. In all the courses, daily work and problems were highly stressed so that a man could get through the course if he worked persistently and faithfully from day to day. The mid-year and final examination marks were a factor, but a student could not slack off during the two terms and then secure a pass by a prodigious feat of plugging at the end of each semester. This policy was adopted because it made the college life approximate closely the conditions of actual practical living where the conscientious worker who solves each day's problems is more sure of success than the brilliant erratic worker.

The Technical College selected for its motto the Gaelic words "Eolas agus Obair," meaning Science and Work, and has faithfully tried to live up to it. The first class of nine men was graduated in 1910 and all of them have steadily risen to positions of responsibility in their honorable profession. The college was just getting into full swing when the war broke upon our peaceful world. In common with other institutions of higher learning, its students rushed into all ranks and war services and its halls were left echoing and deserted. Few new students from affiliated colleges were forthcoming, but a skeleton organization was maintained and classes were continued for the small number of men who were not eligible for military service.

The college entered into war activities of various

kinds in order to fulfill its mission of usefulness to the greatest extent possible. Early in the war, the Provincial Red Cross established a manufacturing centre for making all sorts of supplies which it furnished so generously. A portion of the space and equipment was devoted to this worthy purpose and everyday, all day long, the busy hands of women toiled indefatigably to make everything that was conceived as needed to minister to the comfort and happiness of our sick and wounded soldiers wherever they might be. There were from fifty to two hundred women working each day and they organized their work on a good piece-work factory basis.

The amount of supplies manufactured was astounding as may be shown by the record of two months' work as follows:

701 Pyjama suits,
225 Hospital suits,
10,870 Bandages,
35,520 Pads, Compresses and Sponges,
201 Scrap Books.

A laboratory and the gymnasium were allotted to the district section of the Canadian Army Dental Corps, which treated thousands of recruits during the period that they worked at this centre. They continued to use the college as a headquarters until adequate facilities were furnished in a new convalescent hospital which was erected in 1917.

When the disastrous explosions occurred in Halifax in December, 1917, the Technical College was employed as a centre for furnishing all medical and hospital supplies for the city. All of the buildings were stuffed with equipment and supplies, a large dispensary worked night and day, and all of the hospital patients were fitted out with clothing at the end of their treatment or convalescent period.

Perhaps the most noteworthy service rendered by the College during the war, however, was in the direction of the vocational training of returned disabled soldiers. Early in 1916, the Principal of the Technical College was asked to help organize this important work. He was appointed Vocational Officer for Quebec and the Maritime Provinces and for four and one-half years has continued to devote two-thirds of his time and energy to this purpose. The College placed itself at the disposal of the Dominion authorities with its equipment, staff, and experience. This was one of the principal retraining centres as long as it could accommodate the numbers of men who were eligible. Courses were first organized for janitors, caretakers, shoemakers, stationary engineers, mechanical and architectural draftsmen, machine tool operators, garage mechanics and oxy-acetylene welders. These were the occupations where it was necessary for the men to get some definite training before they were apprenticed out in industry. The administration

offices of the Vocational Branch were also provided for in the College building until it became too large for the quarters available. The number of soldier students rose and rose until it reached four hundred in October, 1919. Then a new centre had to be opened in an unused demobilization barracks but some of the courses are still being maintained at the College at the present writing. The people of Nova Scotia were highly pleased that the authorities had already provided the extensive buildings and equipment that could be made immediately available for the wounded and crippled heroes when they came back from the battlefields. Many a scarred veteran has the same affection and loyalty for the Technical College that is shared by the students who have pursued their arduous engineering courses there.

The College has also organized an extension department with the idea of reaching out to those who cannot afford the time and money to follow the higher training given to the engineers. This includes at present short courses and correspondence courses.

The short courses are planned to minister to the needs of those men engaged in industry who wish to develop into foremen or technicians. In the middle of the Canadian winter industrial activity is at a minimum in many branches. Ambitious young men who are desirous of advancement can get leave of absence from their positions in most cases where they are employed. They can attend the short courses at the College for a period of three months where they can take up one single technical subject and devote their whole time to it all day every day. The equipment of the College is available for these classes and a special corps of instructors is engaged for this work. These teachers are men who have had training and practical experience in the various subjects in which they give instruction. In the number of hours available the student spends more time on the certain subject than is apportioned in a regular engineering course. The students with a definite industrial background and experience and a decisive plan for advancement make rapid progress, even when their general education is much less than required for college matriculation. The tuition for each course is \$15.00, a purely nominal sum. At the end of the course each student who has fulfilled the required standards of achievement is given a special diploma stating exactly the nature of his training so that his certificate would not be confused with the regular parchment that is issued with the degree of Bachelor of Science to the engineering graduate.

The courses offered are as follows:

Land Surveying,
Architectural Drafting,
Mechanical Drafting,
Structural Steel Drafting,

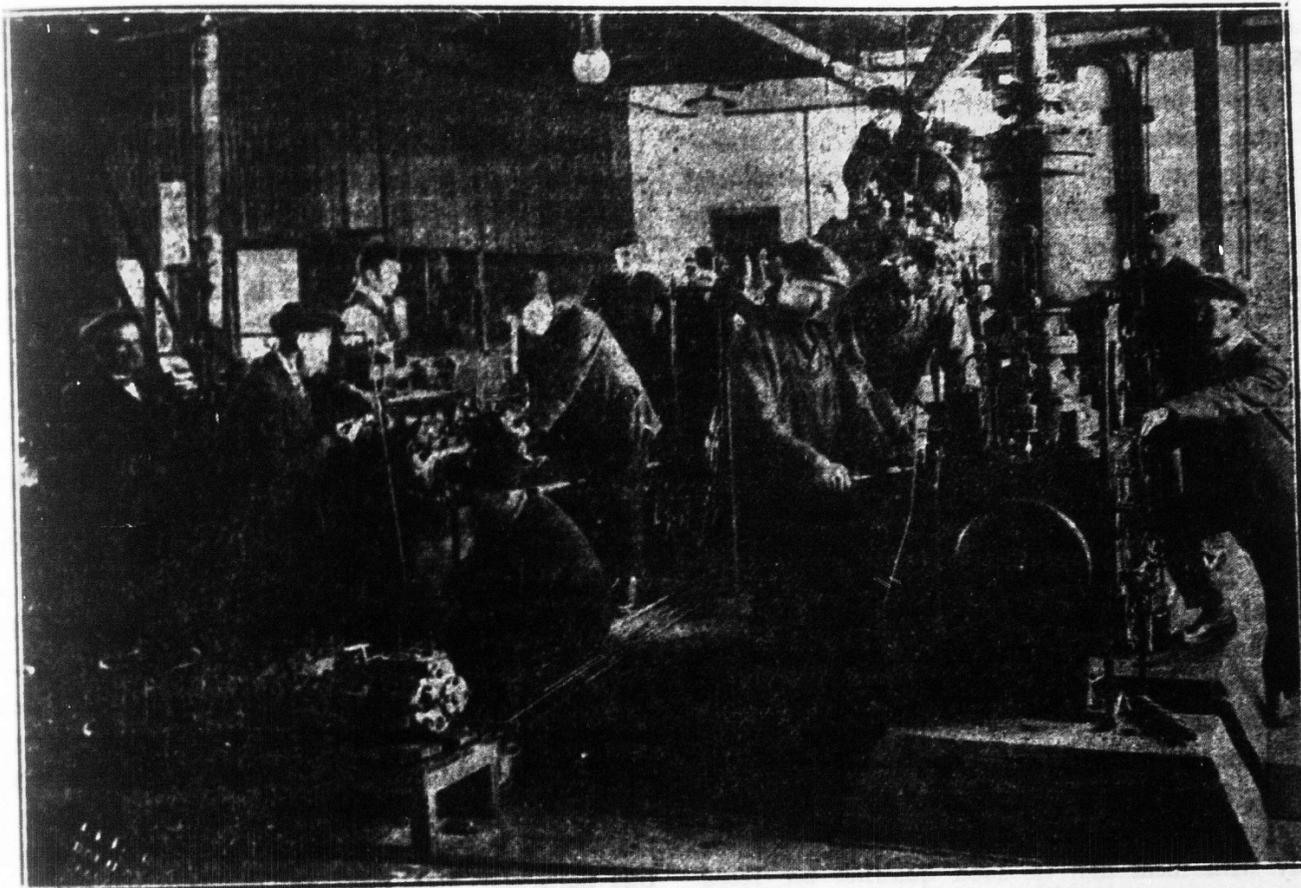
Steam Engineering,
Electrical Machinery,
Coal Mining Engineering,
Metallurgy of Iron and Steel,
Technical Chemical Analysis,
Assaying.

Men who secure a diploma in the Land Surveying course and who have had the requisite practical experience can obtain a Provincial Land Surveyor's License without further examination. The students who presented themselves for these short courses were a splendid type who were keenly ambitious to learn and tireless workers. Those who successfully secured their diplomas have already shown the effect of the training by advancement to more responsible positions and will probably rise higher and higher as the years go by. The courses have been cut off temporarily by the demands on the College for the education of disabled soldiers but will be resumed and extended next year.

A modest beginning was made in 1916 in a certain number of courses of correspondence study. The aim of this effort was to provide a means to carry technical education to the workers in small towns and villages where no other facilities were available for the isolated workers to improve their knowledge. Great private firms and corporations had developed correspondence schools that were well known all over the Province, but they were actuated by money-making motives alone. A large amount of money poured out of the Province every year to other countries for courses from our workingmen who could ill afford to pay the necessarily high cost. The centres to which he sent his answers and drawings for correction were far removed from his home and the replies took considerable time. The service was not swift and personal enough to be most effective. For such reasons the Technical College entered this field. It was felt that the courses should be run without profit. The subjects were divided into short unit courses so that there was an opportunity for the student to choose exactly what he desired. Examiners of training and experience were selected with care and with a view of securing those who would take a real vital personal interest in each student. All of the letters containing answers to problems and questions were answered immediately and no effort was spared to make each correction and explanation fit the individual case. It was possible to return corrected sheets to the pupil two or three days after he had mailed them. This helped immensely because then he was not left in doubt about whether or not he had understood the previous assignment for study.

The courses already provided are as follows:

Shop Arithmetic,
Advanced Shop Arithmetic,
Practical Algebra,



Nova Scotia Technical College—Class of Returned Disabled Soldiers in Steam Engineering.

Practical Geometry,
 Practical Trigonometry,
 Automobile Running,
 Marine Gasoline Engine Running,
 Mechanical Drawing,
 Machine Drawing,
 Steam Engineering (4 courses)

1. Boilers,
2. Heat,
3. Simple Steam Engines,
4. Steam Power Plants.

As with most of the major activities of the Technical College, the continuance of the war interrupted the normal development of correspondence study, but it is planned to resume and enlarge it early in 1921.

Another branch of the work at the College is the School of Navigation. With the co-operation of the Dominion Department of Marine and Fisheries, this school was established in the spring of 1914. Classes were held continuously every day in the day time throughout the year and every evening during the winter months. Any sea-faring man could come into the class at any time and receive individual instruction to fit him for any certificate from master of a tug boat in a harbor to captain of an ocean-going liner. No tuition fee whatsoever was charged and the man could go up for his examination on any day that he felt confident he had

imbibed enough knowledge to pass. During the war there was an enormous demand for certificated men in the mercantile marine. Many men passed through the school to quietly take a responsible position on a merchant vessel that braved the known dangers of the sea with the menace of the lurking submarine in order that the necessary men, munitions, and supplies should reach the fighting Allies.

The Technical College has been developed as an institution of service in a particular sphere. With the financial resources at its disposal it has valiantly striven to develop the people of Nova Scotia to a higher usefulness and skill in their vocations and in citizenship. It has won the appreciation of thousands of men and women in the Province because it has directly helped them to better things. With this insistent call for more and more vocational education, it may be regarded as only an infant on the threshold of a far wider development in educational service.

Technical Education for Fishermen

A. G. McGuire, Statistician, Nova Scotia Technical College.

The Fishery Industry of Canada seems to offer the widest field for development and expansion with the least

effort and capital if demand for the product is increased. The Eastern Fisheries division with its vast, prolific waters affords unexcelled opportunities for exploitation by the large type of fishing vessels, producing as it does from 60 per cent. to 70 per cent. of the whole value of the Canadian fishing industry. To prosecute the calling there is not the need of expensive machinery which development of mining, manufacturing involves, nor long lines of railway to be built, neither is it affected by fire, which at times blasts lumbering operations, nor frost, nor drought, nor flood, which frequently destroys at one sweep, the efforts of the Agriculturist. Food that is plentiful, reasonable in price and nutritive is one of the absolute essentials of the world, and as this unflinching supply of food exists in the sea without aid from man in its propagation, (except in a few cases) every effort should be made to advance this industry to the place it should hold in our national production. No opportunity should be disregarded to encourage greater consumption of fish at home and in foreign markets where, in many instances, fish, particularly the dried salt variety, is practically the national diet.

Fish as a muscle, fat, and food builder compares favorably with meat and its food qualities are recognized by scientists as highly valuable to the diet of normal healthy beings.

The vastness of the export trade with the West Indies and South America, which is actually awaiting Canadian energy to develop it, is really astounding and any lethargy in this direction would mean letting slip one of the biggest factors in Canada's national fortune. In prosecuting his arduous calling the fisherman faces many hardships, but he does it regardless of adverse climatic conditions. He has little patience with strikes, labor agitation, social unrest. The slogan of "More Pay and Shorter Hours" affect him not at all. In nearly every locality where fishing is the principal industry, those actually engaged in it recognize that the present system which guarantees reward for individual effort and opportunity for all, suits him in the same way it does the farmer. He is willing to give his labor, provided that satisfactory return is made for it.

In the past few years the return was so great that wealth, undreamed of, poured in, particularly to the "Bank" fishermen as a result, but today there is a different problem to be faced and its immediate solution is most urgent. During the war, the fisheries were called upon as a source of food supply to a greater extent than ever before, and the industry was speeded up at a rate extravagant that caused a certain amount of carelessness in the handling of pickled and dried salt fish. This is not so noticeable in the fresh, smoked, and canned fish; the latter come under the Government Inspection and the first-named go through the various pro-

cesses of preparation, in such a sanitary and cleanly manner, there can be little, if any, fault to be found except that there is room for a further diversification of products. But with the dry salt fish there seems to be serious trouble at present and the sad part of the affair is that while the effect is decidedly bad, the cause seems to be a matter of argument; hence the need of education of a technical nature which will put this product of the industry above reproach.

It must be remembered, however, that the fishing industry of Great Britain and the other European Countries where schools for fishermen have been established, is conducted along different lines than that in this Province. Consequently many subjects taught in the schools there would be of no great practical value to our fishermen.

A great part of the industry of the Maritime Provinces is the "Bank" fisheries, and the bulk of the exported fish are cured, dry fish. Steam trawlers are not operated to the same extent that they are in other countries; line trawling and hand lining being the methods used. The vessels are sailing schooners of about 100 tons net and upwards, and for the fishermen who man this particular fleet, there are certainly definite educational needs which short courses of a suitable nature would fill.

There are five branches in which instruction is badly needed at the present time:

1. Navigation,
2. Marine Explosion Engine Mechanics,
3. Commercial Subjects,
4. Preparation of Fish Products,
5. First Aid to the Injured.

1. Many of the skippers and mates of the fishing vessels are expert navigators of the rule-of-thumb and sense type. They are as much at home on the portions the Atlantic where they ply their hazardous calling as the ordinary man is in his own cellar. They know the tricky local currents, the difference in the feeling of the air and the sound of the waves on various parts of the inhospitable coasts and develop a super-sense which carries them through fogs and storms in a way that is amazing to even those who are acquainted with the sea. Some of the captains have by arduous toil prepared themselves for examinations and have been successful in obtaining certificates in Navigation. There are many other qualifications for a capable master of a fishing schooner other than the ability to determine his position by the sun, moon, or stars, and the other calculations and training given in a navigation course. However, there is no doubt, but that every captain should benefit by such theoretical training and would feel much safer and more assured if he had scientifically and mathematically checked himself up than if he was compelled

to rely only on his senses, instinct, and judgment. A man with a master's sea-going certificate may well be termed an educated man since he has to handle logarithms, astronomy, and spherical trigonometry in a thoroughly familiar and practical way such as is required in few occupations of men on shore. With all his knowledge picked up in practical life at sea, most sailors take only a short time to achieve a thorough training in a navigation class if taught in the proper way.

2. The shore fishermen depend in great measure today on auxiliary power in the prosecution of their calling and most of the "Bank" schooners have a "kicker" installed. The marine gasoline engine, which is the type of power usually employed, is a very simple and reliable machine. It is so simple that when anything goes wrong it is often difficult to locate the trouble. The ordinary fisherman pays to have his new engine installed in his boat and usually gets instruction in its care and operation for a day or two by the expert from the company which sells it. The new owner usually finds the engine very reliable and it will work perfectly for some time, often for months. By the time something goes wrong, he has forgotten the instructions of the expert and probably has to spend a day or two in taking it to some competent engine repairer, who often fixes it in a short time. For these and other reasons, owners should understand the principles of construction and operation so that he can re-adjust or repair any ordinary trouble. A course to cover the needs of most men need not be long or complicated for practical purposes and would add greatly to the knowledge and resourcefulness of any engine owner. Such a course would include consideration of the following subjects:

- A. Choosing a marine engine for the purpose it is to serve.
- B. Principles of construction and operation of two-cycle and four-cycle marine engines.
- C. Carburetion and carbureters; float-feed principle; mixing valve or vaporizer; types of carbureters in common use.
- D. Ignition; dry cells; wet batteries; magnetic ignition; make and break and jump spark systems; installation, wiring.
- E. Lubrication and cooling systems.
- F. Exhaust devices.
- G. Installation of engines; clutches, reversing gears, and shafts; selection of propellers.
- H. Care and operation of engines.
- I. Location and elimination of troubles.

The hardest part to grasp is the ignition because it is necessary to learn the elementary principles of electricity first. In a class the instructor should have all of the engines, carbureters, etc., in common use as well as

sectionalized apparatus so that everyone may see exactly what the inside looks like. The instruction should be simple and practical and a free discussion of all problems brought up by students.

3. The title of commercial subjects is intended to cover instruction in practical arithmetic and business English as well as elementary bookkeeping. While the larger fishing communities maintain excellent public schools, it is true that the tendency exists for young boys to leave school at an early age and to enter the industry as soon as they can pull an oar in a dory. In their youth they have no need to use the elementary education they have attained. When they come to manhood and have to accept responsibility in the fishing business they regret their lack of knowledge. A short preparatory course in the fundamentals of arithmetic and practice in writing business letters, etc., will give the fisherman the ability to conduct his affairs in a thorough competent way and is quickly overtaken by the adult man with a serious purpose. A little knowledge of bookkeeping is very valuable because it will enable him to work out his business in settling up trips, to find out exactly where he has made his profit or loss, etc.

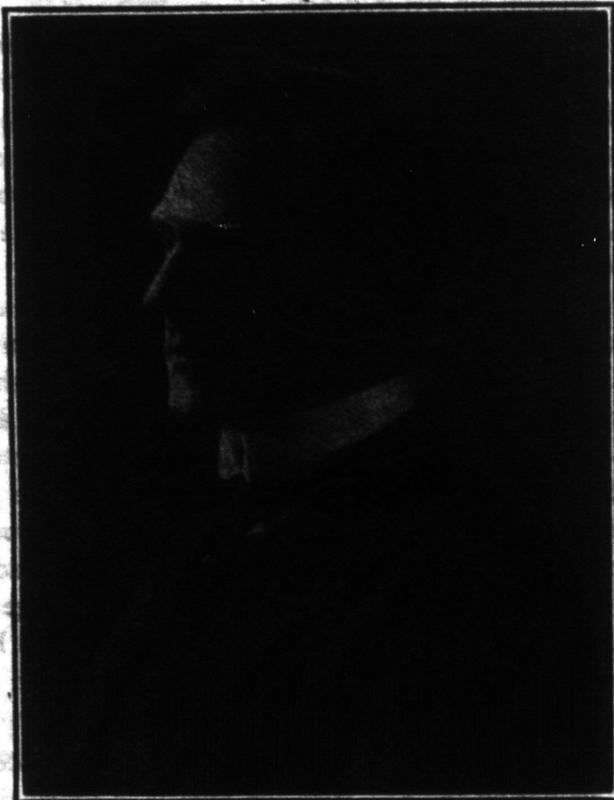
4. Preparation of fish products covers the processes of preparing the fish from the time it is drawn into the boat until it is ready to be sold to the consumer in the many varied forms. Fish is much more difficult to cure and handle than meat products, because it is liable to more rapid deterioration. Some will be quick to say that any instruction in these matters will be almost unnecessary and practically impossible. The fact stares one in the face, however, that the fish products of foreign countries are more varied, more carefully handled, more attractively packed, and more intelligently marketed. This is in spite of the fact that the fish themselves as they are caught from the sea in Canadian waters are the equal, if not superior, to any other. There is a great field for improvement through education and scientific research. Just as the farmers have made such tremendous strides during the last twenty years by means of exhibitions, lectures by experts, short courses, regulation of marking or grading through regular inspectors, practical literature, application of scientific methods, and in multifarious other ways so can the fishermen advance by imitating many of their practices. Harvesters of the sea must get together and bend their united efforts to devising all the workable schemes that may be applied to improve their products and their industry. The assistance of scientists, educators, business men, advertisers, Government officials and the leaders among the fishermen themselves must be impressed into service.

Even in the curing of dried salt fish, our staple pro-

(Continued on page 164)

Vocational Education in New Brunswick

Mr. Fletcher Peacock, A.B., Director of Vocational Training.



MR. FLETCHER PEACOCK, A. B.,
Director of Vocational Training, New Brunswick.

Some Policies of the N. B. Vocational Board

THE INTERPRETATION OF THE LEGISLATION.

The Act defines Vocational Education as that training, the controlling purpose of which is to fit for useful employment. This Board interprets it to include training that will not only increase the productive efficiency of the learner, but also broaden and develop his civic intelligence. It has a social as well as an economic aspect.

Further, the Act prescribes that it is the duty of the Board to aid in the introduction of Vocational Education; providing day classes for those 14-25 years of age, and evening classes for those over 16. As it is to be done at public expense the implication is that it should be made general, as far as is possible, throughout the Province.

This places upon the Board the obligation to devise means which will bring some form of a Vocational Education service within the reach of every citizen over 14 years of age, who is not availing himself of the general education program which has long been provided.

A COMPREHENSIVE PROGRAM NEEDED (See Chart.)

The program to meet the situation must be as varied as the needs and so elastic and adaptable as to have some connected relationship to all the different conditions in which the people are placed. It will have

to do particularly with adolescent boys and girls, but it will offer opportunity to all. The accompanying chart shows something of the lines of advancement the Board hopes to see provided for the people of New Brunswick.

MUST WORK THROUGH LOCAL VOCATIONAL COMMITTEES.

Under the Act all development must take place through co-operation with local school boards working through committees which they appoint. The Vocational Board virtually says to each community: "If you wish to establish a vocational service, we will assist in the organization and pay a large percentage of the cost."

KINDS OF SCHOOLS.

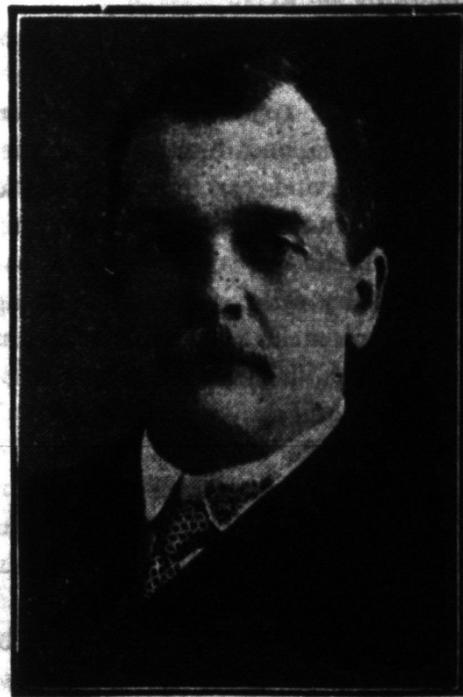
The Vocational Board encourages the establishment of the following: (a) Pre-Vocational Schools; (b) Day Vocational Schools; (c) Part Time Schools; (d) Evening Vocational Schools; (e) Itinerant Schools; (f) A Correspondence School.

a Pre-Vocational Schools.

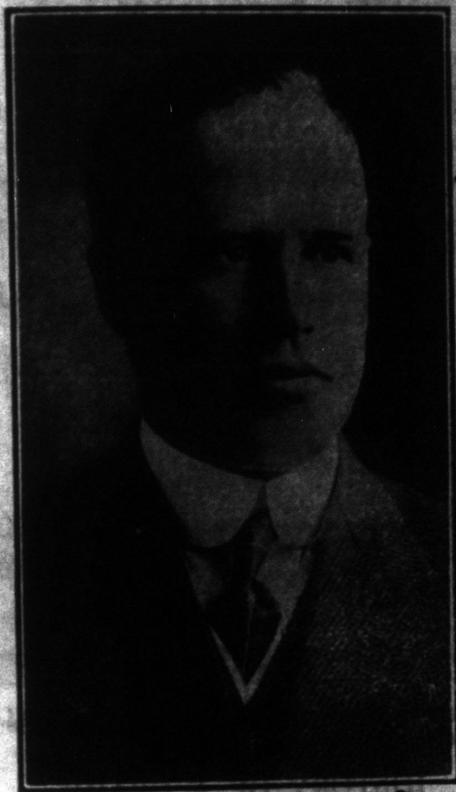
It is well known that boys and girls leave school in alarming numbers between the ages of 12 and 14 years. They are too young to undertake vocational training; therefore pre-vocational work of a practical interesting nature should be given here to hold them in school to give them a useful developmental experience and enable them wisely to select the most suitable vocations.

b Day Vocational Schools.

Legislation may be invoked to compel boys and girls



DR. CARTER
Chief Superintendent of Education, N. B.



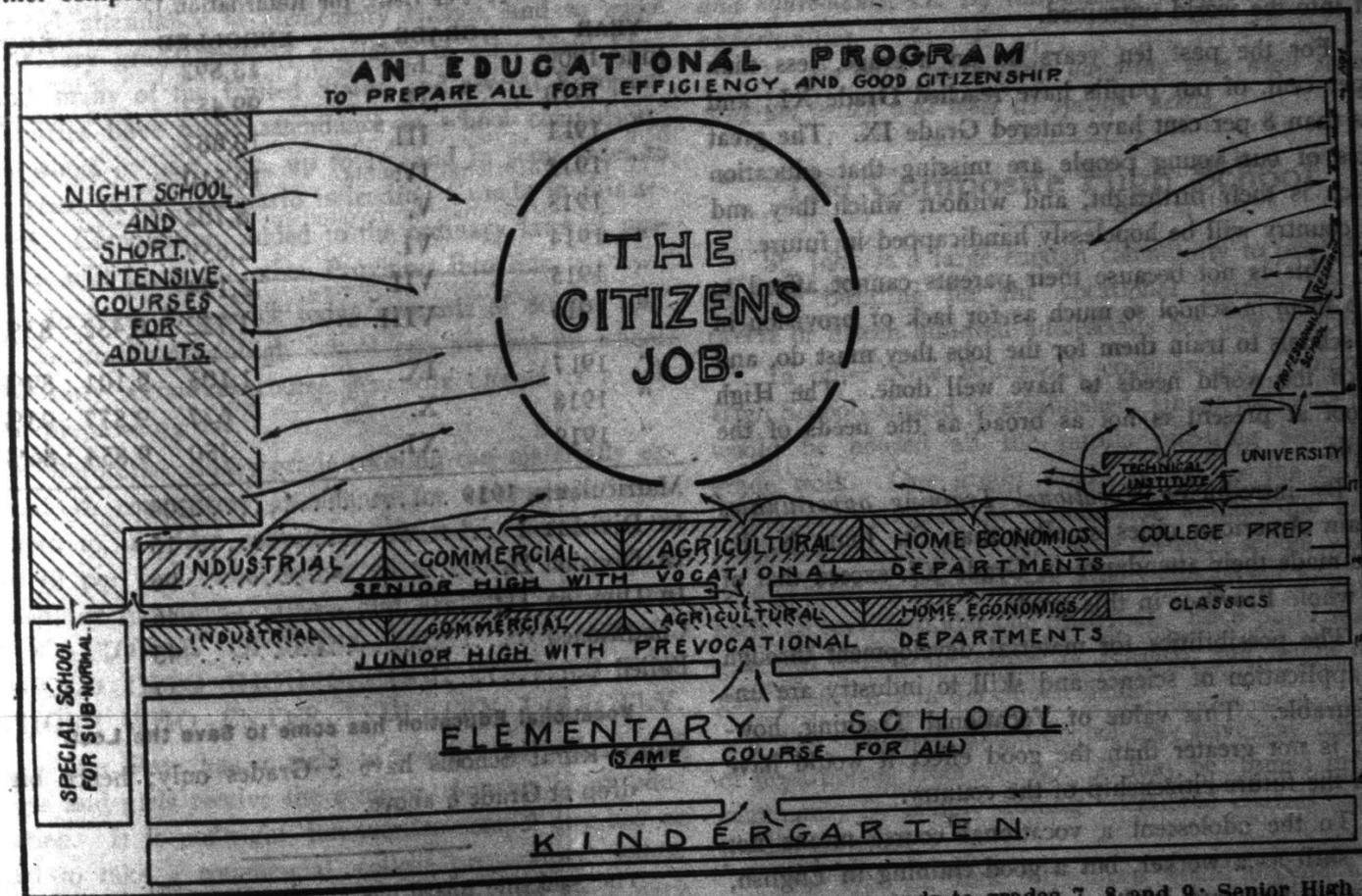
THE HON. FRED MAGEE,
Chairman of Vocational Board, New Brunswick.
in New Brunswick to remain in school till they have either completed Grade VIII., or attained the age of 14

years. Under modern conditions this is not sufficient. At this stage they have neither the physical development to enter industry nor enough general education to bring them to their best as citizens. Their education should be continued.

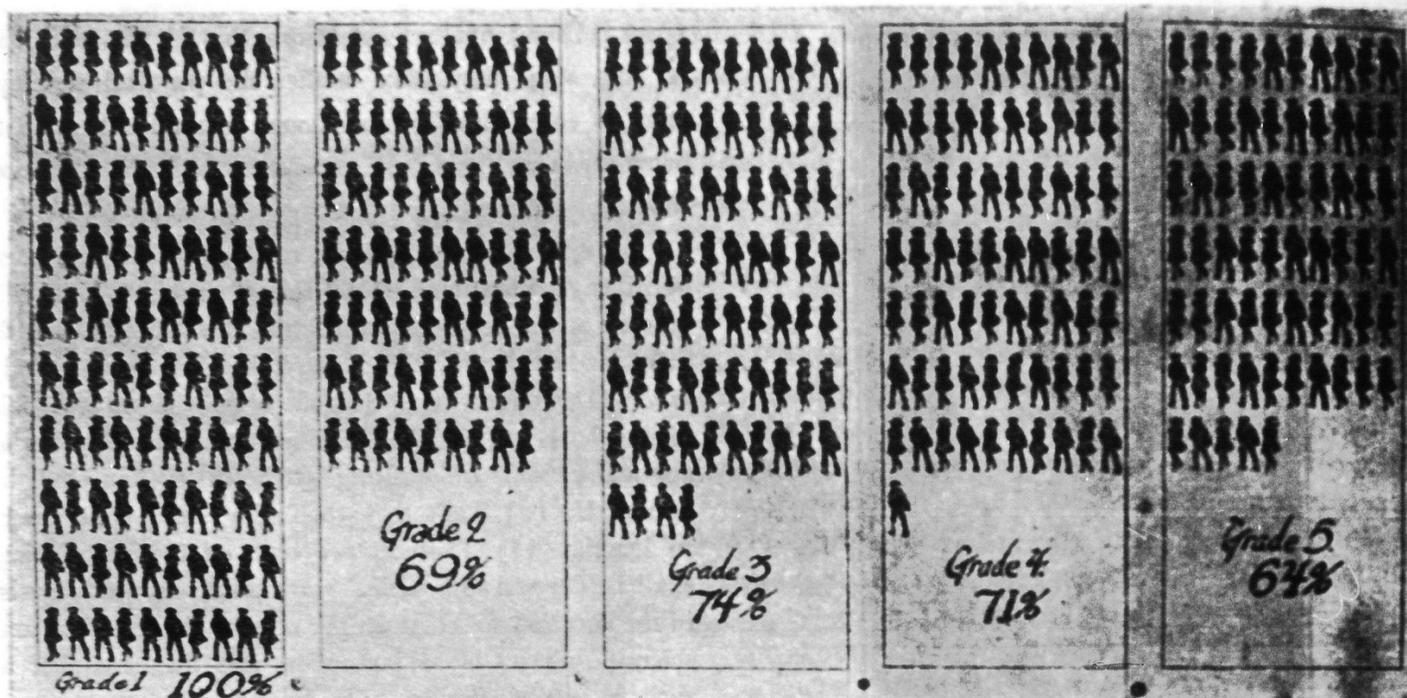
The 90 per cent. who drop out of school here must be given a Vocational High School course. This will give them the required intellectual development and fit them for life's work. The Board therefore very strongly favors Day Vocational Schools organized on the following basis: (1) That all boys and girls 14 years of age and capable of profiting by the instruction shall be admitted. (2) That the school day shall be 6 hours in length. (3) That 50 per cent. of the school time shall be devoted to practical work on a productive basis, in the vocation selected; 25 per cent. to the technical and scientific phases of said vocation, and the remainder to such citizenship subjects as English, French, history, music, civics, health, and the fundamentals of business.

In the larger centres these schools will be organized in separate buildings. In smaller places they will take the form of special departments in existing High Schools. They should form the main feature of a Vocational system.

(Continued on page 162)



Opportunity for each to develop his talent. Junior High corresponds to grades 7, 8 and 9; Senior High to 10, 11 and 12. Note the common basis of citizen subjects in each. Under this program the citizen would be prepared for his job. Then, as a result of the influence of night schools on the one hand and scientific research on the other, he would continue to develop with the progress of the times. Work in the shaded sections of the chart is subsidized under the N. B. Vocational Act.



The above cuts show the average school attendance in percentages for the past 10 years in the Grades of the New Brunswick Public Schools.

VOCATIONAL EDUCATION FOR THE MASSES.

In 1919 there were 350 pupils in Grade XI. of the public schools of New Brunswick. This very grade in 1909 was 13,800 strong. Thus of one year's crop of children many thousands were lost to the school and sent out into the world untrained.

For the past ten years on an average, less than 3 per cent. of our pupils have reached Grade XI., and less than 8 per cent have entered Grade IX. The great mass of our young people are missing that education which is their birthright, and without which they and the country will be hopelessly handicapped in future.

This is not because their parents cannot afford to keep them in school so much as for lack of provision in the schools to train them for the jobs they must do, and which the world needs to have well done. The High School at present is not as broad as the needs of the people.

By introducing *Vocational Training opportunities* certain American cities smaller than St. John, N. B., have made their attendance in Grade XI. exceed that of our whole Province in this grade.

The possibilities for material development through the application of science and skill to industry are unmeasurable. This value of Vocational Training, however, is not greater than the good effect it would have upon the future citizenship of the country.

To the adolescent a vocational course means not only skill as a worker, but a good training in English, history, civics and health. What might such a service not mean if made effective among the great mass now undeveloped, and almost unlettered?

HISTORY OF A GRADE IN NEW BRUNSWICK PUBLIC SCHOOLS.

13,892 in Gr. I. Shrivels to 350 in Gr. XI.

(Taking Average of First 3 Years as Base and Allowing 10 Per Cent. for Retardation.)

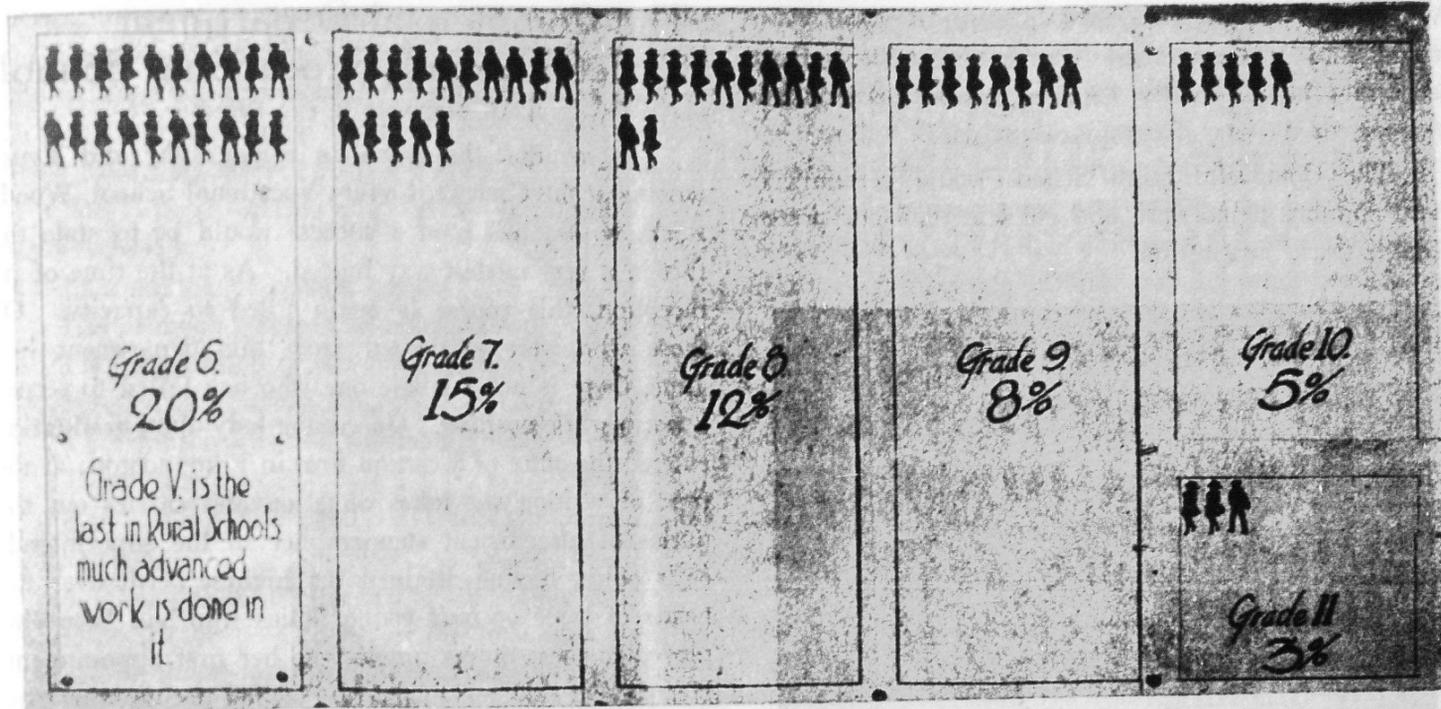
| YEAR | GRADE | ENROLLED | LOST |
|-----------|-------|----------|-------------|
| June 1909 | I. | 13,892 | |
| " 1910 | II. | 99,452 | |
| " 1911 | III. | 10,667 | |
| " 1912 | IV. | 10,510 | |
| " 1913 | V. | 8,702 | |
| " 1914 | VI. | 2,659 | |
| " 1915 | VII. | 2,194 | |
| " 1916 | VIII. | 1,722 | 8,432 : 83% |
| " 1917 | IX. | 1,103 | 9,101 : 89% |
| " 1918 | X. | 627 | 9,577 : 93% |
| " 1919 | XI. | 350 | 9,854 : 86% |

| | |
|--------------------|-----|
| Matriculants, 1919 | 209 |
| In Division I. | 15 |
| In Division II. | 96 |
| In Division III. | 46 |
| Conditioned | 45 |
| Failed | 7 |

Vocational Education has come to Save the Lost.

Note.—Rural Schools have 5 Grades only; hence big drop at Grade 6 above.

The Sackville Board has applied for \$50,000 to assist in building and equipping their proposed new Vocational School. This is the first request for a building grant under the amendment to the Vocational Act making such grants possible.



In N. B. Secondary Grade Training has been "for the few, the very, very few."

WANTED: A MORE ADEQUATE HIGH SCHOOL COURSE.

The history of the Institution called the school reveals an evolution. When free elementary training was provided for all at public expense, a great advance had been made. The next step taken by the State was to compel attendance at elementary classes, and to make secondary grade training available to all. Now England, many of the United States, and several European countries have made attendance at school compulsory, for whole or part time, up to 16, and in some cases to 18 years of age. Ontario is leading Canada in this regard. Competition, added to the ordinary laws of progress, will bring the other Provinces into line.

In New Brunswick today upwards of 80 per cent. of the children of high school age are out of school. The only secondary course generally offered is a college preparatory one.

Before secondary grade training can materially expand, or compulsory attendance for adolescents is resorted to, a wider opportunity must be offered the 80 or 90 per cent. who cannot go to college, to prepare them for success as citizens and workers. THAT IS, VOCATIONAL OPTIONS MUST BE INTRODUCED INTO HIGH SCHOOL COURSES FOR THOSE WHO ENTER INDUSTRY DIRECTLY.

The State has a right to require that all normal boys and girls receive the common elements of an education. It is not right, however, to compel any boy or girl to take a commercial, college preparatory, industrial, or any other specific course, beyond the elementary grades. Adolescents should be required to take SOME course, and should be carefully guided in choosing, but

they must be given a wider range for selection. This range should at least be as extensive as the vocational opportunities of the community. New Brunswick could therefore improve conditions in the secondary education field as follows:

1. By providing an elastic high school course with certain essentials required, and offering many options and equivalents, i.e. By introducing vocational training opportunities.
2. By each community adopting that high school program which will meet its specific needs.

The Composite High School

St. John is a large enough community to provide a separate building for the vocational courses for its twelve or fifteen hundred adolescents not now in school.

In other New Brunswick communities, Composite High Schools should be established. Under the same roof would be housed all the pupils pursuing secondary grade work. One group would be taking the college preparatory, another the commercial, another the home economics course, etc. The work in each school would be organized in departments with a recognized head for each, all serving under one principal. Each pupil would give full time to the course he selected, and would thus gain proficiency in his chosen field.

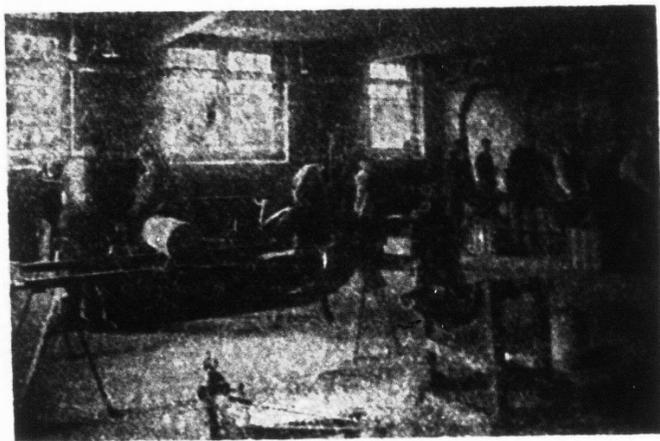
The Composite High School may have any number of departments from two up. It may be formed in any community by simply adding vocational courses to the present program.

The type of work introduced would depend upon the needs of the community.

A consolidated school would naturally organize an

Agricultural High School Department. Most towns would find a commercial course acceptable. Home economics is universally required, while the industrial training needs vary from place to place.

The Composite High School would certainly be more popular, democratic and efficient than our present "Single track" institution.



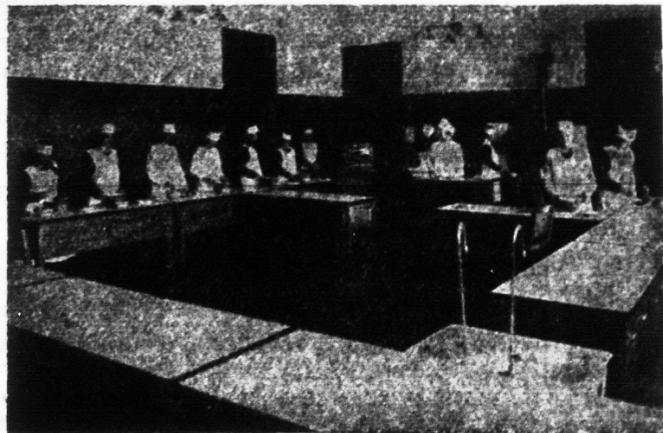
THE FORGE ROOM.

Under the Vocational Act, the New Brunswick government will assist with opening and maintaining Vocational High School departments as follows:

1. By paying from 60 per cent. to 75 per cent. of the salaries required.
2. By paying 50 per cent. of the cost of necessary equipment.
3. By a special grant to help to provide a suitable building.

Such aid makes the local burden very light. e. g. Hillsboro or any town under two thousand could have the services of a \$2,000 a year expert in agriculture for only \$500. Chatham or any town between two and six thousand could have an \$1800 commercial teacher in its high school for only \$600.

Under such terms school boards cannot long deny increased opportunity to our boys and girls of high school age.



HOME ECONOMICS CLASS.

The Commercial Department Carleton County Vocational School

R. W. Maxwell, B. Sc., Director.

To say that the course in Stenography and Typewriting at the Carleton County Vocational School, Woodstock, N. B., has been a success would be to state the fact in a very modest way indeed. As at the time of its inception, this course is again filled to capacity. Of those who were graduated from this department last June, there is not a single one who has failed to secure a worth while position. One young lady upon graduation entered the office of a certain firm in Edmundston; at the time of writing she takes dictation and carries out the duties of an efficient stenographer in the superintendent's office, having attained the highest berth over the heads of three or four young ladies who had been employed in these offices previous to her first appointment. Her present salary is at the rate of \$80 per month. Another Vocational School graduate holds the distinction of being the only qualified public stenographer in Woodstock. She earns about \$4.00 per diem, and has been known to have collected as much as \$40. in one week in professional fees.

The teaching staff engaged at the Carleton County Vocational School for the department of Stenography and Typewriting includes Miss Evelyn Greaney, graduate of Teacher-Training Course, Columbia University, who teaches shorthand and typewriting, and Miss Grace Coughlin, who teaches academic subjects taught in conjunction with the major subjects. Miss Coughlin is not called upon to devote her whole time to the Stenography Course, many of her subjects being common to the three courses offered by the school, Agriculture, Domestic Science and Stenography. Two rooms in the building are used solely for the stenography work, one 35x20, comfortably equipped, is used for shorthand, mimeograph and adding machine work, while the other, 20x15, equipped with twelve typewriting machines, is used for a typewriting room. The equipment for the Stenography Course, including typewriters, an adding machine, a mimeograph and wall charts, was procured at a cost approximating \$1,800.

A brief outline of the course of study in Stenography follows:

Stenography—A thorough study is made of the principles of the Isaac Pitman Shorthand System, special attention being given to phrasing and short cuts. Dictation speed practice includes not only a drill in commercial work, but takes in a variety of other subjects—technical, educational, legal, literary and special. The student acquires the ability to write from ninety to one hundred and twenty-five words per minute.

Typewriting—The scientific method of touch type-

writing as practiced by rapid operators is taught. In addition to a careful presentation of the principles of type-writing, and a thorough explanation of the parts of the typewriter, the course includes the study and practice of the following subjects:

The different parts and various arrangements of business letters.

The making of carbon copies.

The common commercial abbreviations.

The preparation of out-going mail.

Speed drills from plain copy.

The transcription of shorthand notes.

Tabulation.

The cutting of stencils and the operation of the mimeograph.

The operation and use of the adding machine.

Office Practice—Consists of practical work in filing, a study of index systems and general office procedure. In this connection, an endeavor is made to have the students spend a short time, nearing the end of the course, in the different business offices in the town of Woodstock. This insures a practical knowledge on the part of the students which so many commercial graduates lack.

The academic subjects include a thorough study of grammar and composition. Business English receives special attention. Commercial geography and arithmetic are given, as also civics and economics.

The only qualification at present required for admission to the stenography course is that the candidates possess a High School entrance certificate. Those who successfully complete the course, lasting ten months, September until June, receive the diploma of the school.

That Stenography and Typewriting can be studied with great profit in the high school is a matter concerning which little doubt is entertained by the writer. The addition of these subjects to the curriculum of a great many of the high schools of the United States has been received with great favor wherever adopted, and it is surprising that such hesitancy should be evident when the question of their adoption in our high school curricula is raised.

Admitting that of the two subjects, Stenography and Typewriting, the latter is more or less a mechanical art, let us consider for a moment the phases of the former which give to it the great educational values justly claimed for it. The processes through which the shorthand writer goes in reporting an address or in taking dictation are many and well worthy of study and note. First, there is the hearing and the comprehension of the words, and the grasping of the thought of the speaker; second, the translation of these words into sounds; third, the selection of the shorthand material from which they are to be constructed into tangible form; fourth, the

transferring of these impressions to the fingers; fifth, the manual execution of the form. Here are five distinct processes through which each word must be put in the smallest fraction of a second. Surely we can recognize in these steps a form of mental discipline combined with manual execution, which has a value that is worthy the consideration of thoughtful educators. The reading of shorthand affords an important educational advantage, training as it does the judgment, the powers of perception and analyzation, and developing what has been well termed a "logical imagination." The reader of shorthand must analyze the shorthand symbols, give them their sound values, combine the sounds into words, grasp the significance of phrase signs, and translate the whole into English sentences.

One of the greatest educational advantages offered in the study of shorthand is its close affiliation with language. Nothing can so familiarize one with the wonders and beauties of the English language as does the constant practice of shorthand reporting. It compels a study of the grammatical and rhetorical phases of language and gives an acquaintance with the details of it that could hardly be so easily acquired in any other way. It is to the student of English what a course in dissection is to the medical student—but it goes still further, because the shorthand writer must reconstruct from the pieces the thing he has torn apart.

Although the intensely practical value of shorthand in the work of the world has so completely overshadowed its disciplinary and cultural value that few at first glance recognize these, it must be admitted, upon investigating the art, that shorthand has great educational as well as commercial value.



Class in Typewriting—Carleton County Vocational School.

Agricultural High School Department

R. C. Elder, B. S. A.

There is a great movement in modern educational practice to introduce into our secondary school curriculum subjects for study which deal directly with the

manual arts, trades and industries. Society has assumed the function of training and licensing the lawyer, the physician and the teacher, but only recently have we considered that the farmer and the mechanic should receive such attention. Since the vast majority never have the opportunity to prepare for their life work in a college or university they should receive some vocational guidance and training in their high school.

It is a regrettable fact that less than one-half of one per cent. of our farm boys attend high school. Higher training is as essential for success in farming as it is in any other occupation. How then are we to arrange our courses of study to meet their needs? Education has made rapid strides during the last fifty years so that the children of today have mastered the three R's of our grandfather's time before they have reached the teen age. Before graduating from high school they have covered considerable Algebra, Geometry, Chemistry, Physics and a foreign language or two. Some subjects which were formerly found only in a college course have been placed within reach of a greater number of boys and girls but we have failed to provide the college's opportunity for diversified study along lines chosen by and adapted to the pupils. We are now ready for this further development. As a consequence of the attempt to force all through the same mould a large part of our efforts has been in vain. There are many subjects such as English, Arithmetic, Geography and History which are equally important to all and which should be taught to all alike in the same classes. Our problem then is simply one of extending the principle of the college opportunity for specialization to our high schools.

It is a mistake to think that the boy or girl who is preparing himself or herself for the world's work in industry, needs an altogether different brand of education from his brother or sister who devotes all of his time to the "cultural" side of life and that the two should be isolated and under distinct systems of education. It was as truly great to build King Solomon's temple as to record the fact in history. It is as truly cultural to care for the flocks and herds in the best known manner as to write a pastoral poem. One serves as an inspiration to the other. Therefore wherever possible those of different talents should receive part of their education in the same building and in the same classes.

There has been some variation in the methods of establishing Agricultural High School Departments in different provinces and states. Where the school is large enough a graduate of an Agricultural College is placed on the staff and it becomes his duty to teach only the various lines of Agriculture, which will vary according to the needs of the district.

The greatest progress in establishing Agricultural High School Departments has been made in the Middle

Western States. Vocational Education in the United States as we find it today is the product of the Smith-Hughes Act of 1917. It was the writer's privilege to study at first hand the practical working out of the provisions of the above act in the country schools of Indiana during the past summer. Indiana has a greater percentage of consolidated schools than any other State in the Union. These schools prepare the students for entrance to university and provide education for the farm boys and girls until eighteen years of age, close to their homes. There is no need for the immature youths to leave home for a High School education as the school van takes them to and from school each day. It is necessary to keep these conditions in mind in drawing accurate conclusions. Each school has at least an Agricultural and a Domestic Science teacher so the boy or girl may avail himself of an education which is of direct benefit in after life even though he does not go to college. The time table is so arranged that during the last four years of school the pupil may spend half the day under the academic teachers and the other half with the vocational teacher. They are doing such good work that every boy from some three thousand pupils who passed the High School entrance in 1919 in Carroll County, Indiana, went back to school.

The school is as big as the community. It reaches out and touches every home. It influences the life of everyone in the locality or it teaches things that concern the children and the home folks. On the other hand every home reaches in and gives something to the school. The folks in every community have a vast fund of valuable experience and information. By making the school the centre of the social and educational activities of the older people the best and greatest efforts of the community are kept before the children so that they grow up in an atmosphere of co-operation, culture and progress.

Agriculture is taught on the "Home Project" basis. That is each boy is required to carry out some practical farm enterprise or project at home along the line taken up in-class. He receives personal help and advice from his teacher in his daily work on this home project. Although the agricultural course extends over four years the classes are so grouped that one agricultural teacher is sufficient at each school. In a few cases where the classes are small he may divide his time between two schools. It is found advisable to give the work in each project in order of seasonal sequence rather than attempt to cover all of a given project in one term. By devoting half of each day and all of the summer to purely agricultural subjects the vocational group can cover four projects each year. This gives a student sixteen lines of agriculture during the four years and the method of

rotation enables one teacher to handle the work without being over taxed.

Although our conditions are somewhat different from those in the Middle West, our population being more scattered and they having a great advantage in their consolidated schools, there are many things in their system which deserve our careful study and which would help the province of New Brunswick in establishing Agricultural High School Departments. How shall we begin? First by revising the High School curriculum; second by placing agricultural teachers on the staff of our High Schools and thirdly we must give credit for the time spent on agricultural science when the student wishes to enter the College of Agriculture.

Some Results From Vocational Training

W. K. Tibert,

Lately Supervisor of Vocational Schools, D. S. C. R.

The Vocational work carried on by the Department of Soldiers' Civil Re-Establishment, among the men returning from Overseas, being about completed, it might be of interest to those who are advocating the establishing of Vocational Training in connection with our Educational System, to give a few facts as to the work accomplished and the results obtained in New Brunswick.

To date about two thousand men have been given courses in various branches, and of this number a large percentage are employed along the lines of their training, and with very few exceptions are making good. Of those who are not engaged in the vocation for which they

were trained, the large majority were minors who were given commercial courses, and who for the present are following other lines of endeavor; but many of these will return to commercial work as soon as the opportunity occurs. The results obtained have shown the value of this training for men of all ages, but especially for young men. They have proven that it is unnecessary for a boy to spend two or three of the best years of his life as an apprentice in order to learn many of the



MR. OLSON (on right)

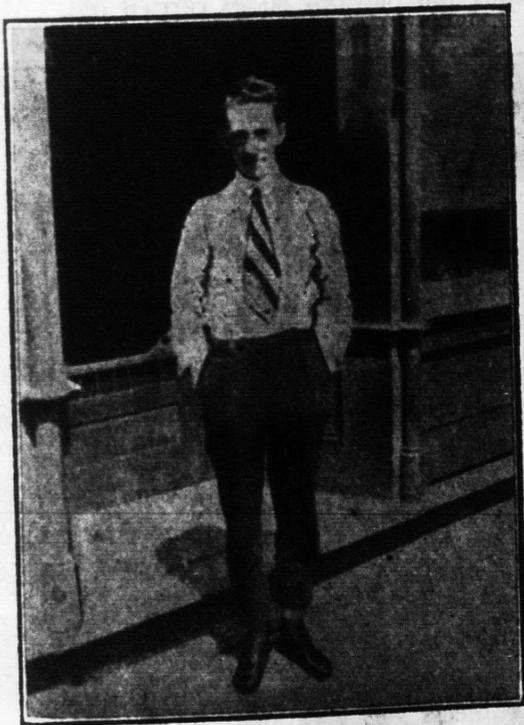
Owens and runs the best shoe repairing establishment on the North Shore. Previous to taking an eight months' Vocational course he was a day laborer.

trades, as by intensive training for eight or ten months the average man can acquire as much knowledge of a trade as the apprentice gets in two or three years. This is not surprising when you consider the time spent by the apprentice upon work that is not essential to the trade he is learning. Some may contend that the apprentice will have the wider knowledge, that may be so, but what are wanted today, are men who can do one thing and do that well. The day of the "Jack of all Trades" has gone and the day of the "Specialist" is here.

Let me give a few out of the many cases that have occurred to show that a young man of average ability, and with enough education to grasp the training, can secure sufficient knowledge of the ordinary trade in ten months to be able to carry on successfully.

A young man of nineteen, who had just completed the High School Course previous to enlisting was granted a course in Chemical Engineering, and placed as a student with Fraser Company, Limited, at Edmundston. In seven and one-half months he completed the course, and was employed by the firm as Pulp Tester, and today is getting a salary of \$170 per month.

A man of twenty with Grade VII. education took an eight months' course in Carpentry, and is today employed by the firm with whom he was a student at \$5.00 per day.



MR. AMOS BREAU

Was a teamster earning \$40 a month. He took an eight months' Vocational course in watch repairing. Now he is manager of a jewelry store at \$145 per month.

A teamster, with Grade VI. education before enlisting, returns and applies for a course at age nineteen. He is given an eight months' course in watch repairing and is today in charge of a branch store of the firm with whom he was a student—former wage \$40 per month—present salary \$145 per month.

A man of twenty-one who reached Grade VIII. was given an eight months' course in spring making, and is today employed by a St. John firm at \$100 per month.

In each of the cases cited the earning power had been more than doubled by the training.

If such results are possible with men, many of whom were suffering from the effects of wounds, and all having passed through an experience that made concentration almost impossible, how much more could be accomplished by taking the boys at the age when they are most teachable.

Vocational Education In Rural Districts

Miss Sarah M. Barnett.

The latest development of vocational education in New Brunswick, is the Rural Evening School. Northumberland has the distinction of being the progressive county to introduce this to us. The adjoining districts of Little Branch and Black River Bridge co-operated to bring in a special teacher and form classes in Elementary Dressmaking. They ran from October 12, until November 10, thus providing a course of twenty lessons for each class. Twenty-three students registered for these classes—eleven at Little Branch, and twelve at Black River Bridge.

Since the two classes were about three miles apart, it was arranged that one should be held in the afternoon from 2-4 o'clock, while the other was held in the evening, 7-9 o'clock. A vacant house at Black River Bridge supplied an excellent class-room, while the living room of a member of the Little Branch class provided the other.

Each class contained students who knew something about sewing, and also those who knew nothing, hence a course was drafted which aimed at meeting the needs of both groups. It began with very simple elementary work and progressed to more difficult. But in order to be of interest and benefit throughout an effort was made to incorporate as much variation in ideas and methods as possible so that more was taught than was needed for the actual production of the garments under construction. The course was divided into four problems, the general purpose of which was:

1. To teach the girls and women of a rural community how to make intelligent use of commercial patterns.
2. How to construct four garments of a simple wardrobe.

The first two problems, consisting of an envelope chemise, and white or colored underskirt, were especially designed for the new beginner, while the last two—a washable blouse and woolen skirt—were particularly for the more experienced sewer.

Upon the completion of the course a social gathering was held in the Little Branch school house, at which the work was put upon exhibition and a short program of speeches and patriotic songs carried out. Mr. F. A.



Class in Dressmaking, Little Branch.

Fowlie, M. L. A., had offered each class prizes for regular attendance and improvement in work; these were presented at this time. Light refreshments were served by the ladies before dispersing.

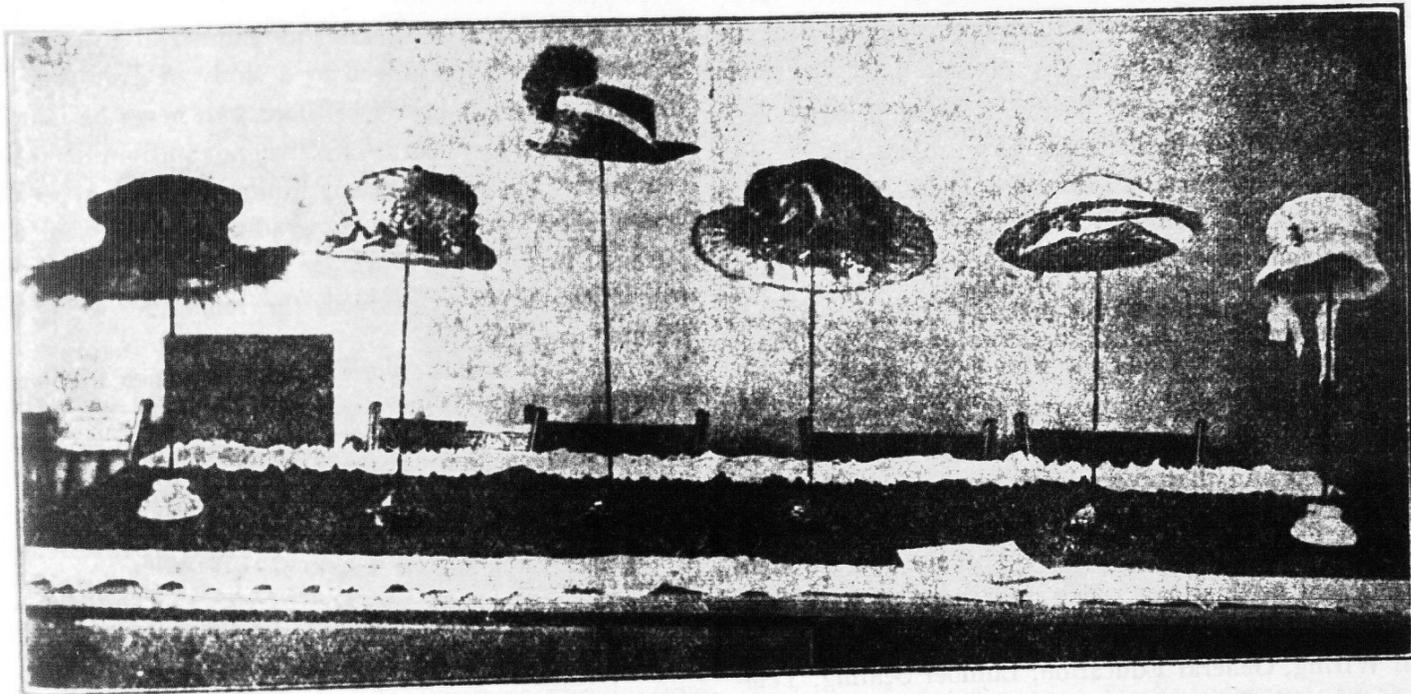
As one might imagine, there were some difficulties attendant upon the running of such a course in such a community. The remoteness of the shops was one of the most serious, but by no means of much forethought, careful planning and the hearty-co-operation of the local committees and classes with the instructor, this and all others were quite easily overcome.

Throughout, only the most intense interest was shown, arising from an eagerness to learn rather than from competition for prizes. Handicapped as they were by distance and the multiplicity of home duties, these girls and women were loath to miss a lesson. The at-

titude from beginning to end seemed to be that a wonderful opportunity had been given them, of which, at all cost, they must take advantage.

Had the lessons been given in alternate days instead of daily, not only might more have been able to avail themselves of the privilege, but also a class in millinery—for which there were a number of applicants—might have been formed.

A large part of the credit for the success of this suggestive experiment is due Mr. F. A. Fowlie, M. L. A. He requested the Vocational Board to send the teacher, arranged for the co-operation of the two school districts, and was tireless in attending to the many details of preparation and carrying on. He believes that Vocational training should be carried to the rural districts, and his community has clearly demonstrated how this may be done.



Work of Millinery Class, St. John Evening Class

Industrial Re-Training for New Brunswick Returned Soldiers

W. C. Lawson, B. A.

District Vocational Officer, "K" Unit, D. S. C. R.

The work of the Vocational Branch of the Department of Soldiers' Civil Re-Establishment, now nearing completion, is unknown to a large number of the people of this Province, and is only very imperfectly understood by the great majority. A brief sketch, therefore, of its origin, growth and results obtained may prove of value, especially to those who are interested in Industrial Training.

In 1915 the Canadian Government instituted throughout the Dominion a system of Industrial Training for the purpose of re-establishing in civil life those disabled returned soldiers who were prevented from re-

turning to their pre-war occupations. It was a difficult proposition. The disabled men who were eligible for re-training varied in age from sixteen to sixty-five years, and in educational qualifications from illiteracy to a university degree. It was necessary that they be allowed to begin their re-training at any time during the year and graduate at any future date.

As a result of these special conditions, different from those in any existing public school, technical school or university, a system of re-training has been built up which is totally unlike any training or educational system heretofore. The evolution of the system has taken place by natural growth. Hand in hand with re-training has gone research and experiment and, as new ideas have been found effective in one part of the country, they have been put into effect throughout.

In New Brunswick during 1916-17, the re-training

consisted only of instruction in Light Carpentry, General Education, Primary Commercial Subjects, etc., for men convalescing from wounds or sickness, the classes being held in the Park Convalescent Home, St. John. These classes were later transferred to the Armouries, where they remained until May, 1918, when the Military Hospital was opened in Fredericton, on the grounds of which they were then accommodated in three large tents until the completion of the Vocational Building, where they have since been conducted. At this time the number receiving training amounted only to about thirty.

Early in 1919 demobilization and the discharge of large numbers from hospital, together with the extension of the Industrial Training Scheme to include those young men who had enlisted under the age of eighteen, brought applications for re-training in large numbers until in the month of April, 1920, the actual number being trained and in receipt of Pay and Allowances, amounted to 1265. Since that date these courses have been completed at an equally rapid rate until, at the present date, less than 300 are in training. The following statement will give some idea of the extent of the work:

| | |
|--------------------------------------------------------------------|-------|
| Applications considered by Disabled Soldiers' Training Board | 2,483 |
| Courses approved | 2,163 |
| Courses commenced | 2,090 |
| Full courses completed (8-10 months) | 1,296 |
| Partial courses completed (2-6 months) | 465 |
| Courses current | 293 |
| Transferred to other Units for training | 36 |

It very early became apparent that, unless great care were exercised, some few occupations would be seriously over-crowded and that every effort must be made to include the greatest possible variety. The list of courses which have been granted comprises some 206 different subjects and occupations. The most popular have been Commercial, Motor Mechanics, Shoe Repairing, Electrical Wiring, General Education, Lumber Scaling, Telegraphy and Civil Service.

The difficulty of arranging classes for even a small number of the most popular courses can be easily appreciated. As many students as possible were accommodated in Vocational Classes; a large number were placed in the various Business Colleges; a few attended the Universities and, in the absence of any system of technical education in the Province, it was necessary to make arrangements for the training of the remainder in Industrial and Business Establishments. A thorough survey of these was then made. Business men and manufacturers were interviewed and, it has been largely due to their hearty assistance and co-operation that our work has been carried on so successfully.

The great value of the practical training thus obtained soon became evident. The employer obtained the man's services free of charge and in return gave him every opportunity to learn if he appeared at all willing and, in

many cases, Pay and Allowances from the Department, were increased by some pay from the employer. In the majority of cases, upon the completion of his training, usually eight months, he was retained at a good living wage. This led to the adoption of the policy, in all cases, whereby only a part of the training was given in a school, an apprenticeship in an industry or business establishment being arranged for the completion of the training.

The success of an enterprise can only be judged by the results obtained and it is not sufficient to re-train a man only or, even to place him in a good position. The most critical period for these returned men has been on completion of their training and return to wage earning. In order to meet this condition the Follow-Up and After-Care system was organized, the purpose of which is both to render all possible assistance to the men and to watch results of the re-training.

The practical results of any Industrial Re-Training Scheme can only be judged by a study of averages. Individual success, however brilliant, can never be taken as a proof that the system is effective, nor individual failure condemn. The results of our Follow-Up and After-Care system show that out of 1422 graduates on October 31st, 1920, or over 72 per cent., are following the occupation for which they were trained, the remainder being distributed as follows:

| | Number | Percentage |
|----------------------------|--------|------------|
| Temporarily employed | 236 | 16.6 |
| Unemployed | 22 | 1.55 |
| Awaiting information | 66 | 4.64 |
| Sick in hospital | 26 | 1.8 |
| Deceased | 9 | .63 |
| Gone abroad | 20 | 1.4 |
| Not a success | 5 | .35 |
| Untraceable | 9 | .63 |

This system also enables us to ascertain the increased earning power of each graduate due to his industrial re-training and, we find that this amounts to over 100 per cent. over the amount previously earned by him and over 50 per cent. more than is being paid today in that occupation.

It is regretted that space will not permit of discussion of the several other parts of the work of the Vocational Branch, such as, Ward Occupations, Curative Workshops, etc., or description of the hundred and one details in connection with its administration. This article would not be complete, however, without a short account of the Loans which are now being made by the Vocational Branch to those who have completed their industrial re-training, to enable them to engage in business for themselves. \$500.00 may be obtained for a period of five (5) years, free of interest and, to date, over fifty (50) loans have been made, amounting to over \$15,000.00, in following lines of business, and further applications are being received daily:



Show Card Writing, St. John Evening School.

- | | |
|----------------------------|-------------------------|
| Barbering | Medicine |
| Baking | Optometry |
| Pressing and Cleaning Shop | Restaurant |
| Carpentry | Storage Battery Station |
| Candy Maker | Shoe Repair Shops |
| Druggist | Telegraphy |
| Sign and Show Card Writing | Taxi Service |
| Electrician | Upholstering |
| Grocery Store | Vulcanizing |
| Garage | Watch Repair Shops |
| Law | |
| Ladder Manufacture | |
| Meat Shop | |

The results in the great majority of cases have been most gratifying and in two cases the loan has already been repaid in full.

In conclusion I would like to draw attention to the great need of technical training as a part of the educational system of this Province. That such training can be successfully carried out has now been demonstrated and the following figures, compiled from the statements of our 2,000 applicants for re-training—men of all classes, from all parts of the Province, and which, in most cases were a very liberal estimate of their educational qualifications—show the extent of the failure of the present system:

| | Number | Percentage |
|-------------------------------------------|--------|------------|
| No Education | 95 | 4 |
| Grade I | 23 | 0.5 |
| " II | 40 | 1 |
| " III | 124 | 5 |
| " IV | 194 | 8 |
| " V | 246 | 9 |
| " VI | 296 | 11 |
| " VII | 311 | 13 |
| " VIII | 553 | 24 |
| " IX | 181 | 7 |
| " X | 144 | 6 |
| " XI | 127 | 5 |
| University 1-2-3-4 years | 67 | 3 |
| English Schools 3rd to 8th Standard | 67 | 3 |
| Provincial Normal School | 12 | |
| Agricultural College | 3 | 0.5 |

At the present time the industries of this Province are, in the majority of cases, supplied with skilled mechanics from other provinces, or from the United States, where technical training is provided. A start has now been made in the right direction by the Department of Soldiers' Civil Re-Establishment; the co-operation and assistance of the Leaders of Industries and Business Men have been gained and the time, I believe, is ripe for the institution of a system of technical education to take care of that 75 per cent. of young men who never get beyond Grade VIII. in our public schools, and who go to form our great body of unskilled labor.

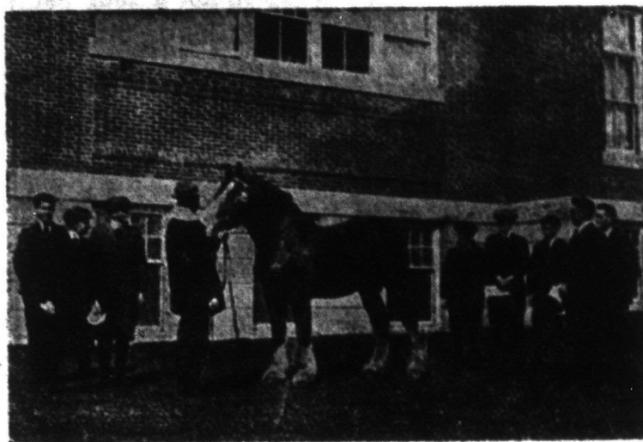
WOODSTOCK VOCATIONAL STUDENTS WIN.

The Woodstock Provincial Exhibition Executive, this year, featured a Live Stock Judging Competition, open to all young men not exceeding twenty-six years of age. Fourteen entered the judging arena and faced four classes of stock; heavy horses, dairy cattle, beef cattle, and sheep. The classes picked were such that would entail sound judgment and solid reasoning for the placing thereof. Twenty minutes was the period given in which the boys were to place each class, write the reasons and submit their cards to Mr. E. P. Bradt, who supervised the contest.

A committee, consisting of the exhibition judges and the Secretary for Agriculture, corrected and scored each competitor's card. The final summing up showed that Ralph Lloyd, Gordonville, N. B., sixteen years of age, had amassed the greatest number of points, by virtue of which he won the silver cup donated by Mr. E. W. Mair, Woodstock.

It was interesting to note that the first six young

men, listed in order of proficiency in the competition, were boys who, last winter, were in attendance at the Course in Agriculture and Farm Mechanics at the Carleton County Vocational School, Woodstock, N. B. Ralph Lloyd, together with his classmates, is again in attendance, and much interest is already being taken in preparation for the competition next year.



Stock Judging.

The contest had its educational features. By virtue of the young men's previous knowledge of judging, combined with that supplied him by the judge, who correctly placed each class, the competitors learned the type and conformation sought after in each class of farm animals; he was told where to look for quality, and was shown the points which denoted it. Breed characteristics were impressed upon him in such a practical manner that he can carry his ideal in mind and use it in his selection of animals for his own or other herds or flocks.

—Rev. Maxwell.

SOME POLICIES OF THE N. B. VOCATIONAL EDUCATION BOARD.

(Continued from page 150)

(c) Part Time Schools.

These are schools attended by adolescents or other workers for a certain portion of each day, week, month, or year, during working hours. Technical and citizenship subjects only are given. Vocational skill is acquired on the job. The teachers and courses should be specially adapted. This kind of school is economical and efficient and its introduction is strongly urged by the Vocational Board where conditions are favorable. If adolescents must earn money this enables them to do so while receiving training. If a community finds it cannot afford to supply the expensive equipment and accommodation for a day Vocational School, it can under a part time plan utilize the machinery, etc., of the local industries. Economy in teaching staff is also effected as groups of pupils go to school only on alternate weeks, days, or months. This scheme has the additional value of giving the boys their practical training under

real production conditions. It offers a happy combination of school and industrial influence, at a minimum expense.

Part time schools for Vocational Education are so highly thought of in the United States that all Federal grants for Industrial Education may be spent in promoting them and 20 per cent. of such grants must be used in this way if spent at all.

(d) Evening Schools.

The Board approves of the organization of evening schools under the Vocational Act. These are classes to give opportunity for self improvement to workers during their leisure hours. Usually they deal with the technical aspects of the day work of the student, though this need not always be the case.

If even a fair proportion of our people could be induced to devote a part of their leisure to constructive purposeful study, the standard of efficiency would soon be advanced and the plane of citizenship raised. The evening school is the most economical and adaptable instrument of Vocational Education yet devised. It possesses undreamed possibilities and applications. It may be organized in any place where a group of 10 workers with a common interest can be found—providing a teacher is available. In these days of shorter hours of work and keener competition, it is bound to have a big development.

(e) Itinerant Schools.

Some phases of Vocational Education require so much equipment and technical knowledge in their presentation as to place them beyond the reach of small communities through any of the above instrumentalities. To meet this difficulty the Board favors the organization of Itinerant schools which will carry the equipment and technical knowledge from place to place, giving short intensive courses in each locality desiring the same.

The Itinerant school is being used extensively in the Western States and Provinces.

(f) A Correspondence School.

As soon as possible it is the intention of the Vocational Board to make certain phases of technical training available through correspondence courses. This is to give opportunity to those throughout the Province who may be isolated or who cannot procure locally the kind of help they require. This service is particularly needed in small communities where special technical training may be required by too few people to warrant the establishment of a local class. Courses will be outlined that such help may be given by correspondence directly from the Vocational Department. Nova Scotia has been carrying on such a service for years. During 1919 the International Correspondence School alone sold more than 1,000 courses in New Brunswick at an aggregate price of about \$100,000.

THERE IS SOMETHING FOR EVERY COMMUNITY;
AND EACH SHOULD PROVIDE FOR ITS
OWN NEEDS.

By means of the above 6 kinds of schools the Vocational Board has outlined the beginning of a program to make practical instruction of less than college grade, available to all the people of the Province who need it. Any community in which a need can be shown to exist may adopt one or all of these agencies of training.

The Vocational needs of each community are determined by the jobs its people work at. All courses should have a direct bearing on these. Out of the varied courses and subjects to be taught in the above schools each locality will select those which will meet its needs, and form up its own peculiar program. This necessitates a careful survey of the community. The citizenship subjects are common and must be taught in all day schools.

VOCATIONAL TEACHERS.

The first requirement in the establishment of Vocational Education is a supply of competent teachers. The Vocational Board seeks to draw these from the teaching profession and from the ranks of expert workers in the Province. They will be trained through summer schools, and by attending Institutions of high standard abroad. It is expected that very soon Canada will have the best Teacher-Training Institution in this connection in existence. Meantime the Board pays the travelling expenses and tuition of suitable candidates attending American schools.

PROVINCIAL INSTITUTE OF TECHNOLOGY
AND ART, CALGARY, ALBERTA.

On November 8, 1920, the Province of Alberta opened an Institute of Technology and Art. Both day

and evening classes are being run. The following paragraph from the announcement of the school sets forth its aim:

"The demand for skilled men with technical insight and education has been brought to all young men by the world-quaking events of the past few years, and the economic value of a proper vocational training has been revealed to everyone who has noted the thousands of returned men who became efficient in various lines through short intensive courses in the school at Calgary, and in similar schools throughout Canada. The courses offered at the Provincial Institute will attempt to meet the immediate needs of the students who attend, and will have a direct application to their chosen occupations."

The Director of the school desires not to duplicate any work of any other Institution in the Province. The cities and towns are already served with day or evening vocational schools or both. There is an efficient University at Edmonton. The work of the Institute lies above the former and below the latter. It will undertake to meet the special needs of what might be termed the non-commissioned officers of industry. The courses will be short, intensive, and vitally connected with the life work of the students. Only the best technicians are employed as teachers. The Institution should influence most helpfully the whole industrial life of the Province.

The following courses are now offered:

| | |
|--------------|-----------------|
| ENGINEERING— | UNIT COURSES— |
| Tractor | Farm Machinery |
| Motor | Farm Carpentry |
| Electrical | Farm Forging |
| Power Plant | Gas Engine |
| Steam | Storage Battery |
| Mining | Vulcanizing |



Faculty and Students of Vocational Summer School for Teachers, Woodstock, N. B., 1920.



Cafeteria Vocational Summer School for Teachers, Woodstock, 1920.

| | |
|----------------|-----------------------|
| Farm Mechanic | Armature Winding |
| DRAUGHTING— | Oxy-Acetylene Welding |
| Railway | Machine-shop Practice |
| Architectural | TELEGRAPHY |
| Mechanical | SPECIAL COURSES FOR |
| CORRESPONDENCE | TEACHERS |
| ACCOUNTANCY | |

TECHNICAL EDUCATION FOR FISHERMEN.

(Continued from page 149)

duct, great improvements and more uniform good results could be secured through local conferences, exhibitions, demonstrations, education and training. Practical and scientific knowledge must be combined. Instruction in regard to the best methods of making entirely suitable containers and the packing of pickled, canned, and smoked fish is a necessary and important part of the work.

Care in the treatment of the dried salt codfish begins as soon as it is landed on the deck of the boat. In order to obtain an attractive and thoroughly satisfactory product, the fish should be "White-naped" after "heading and throating" by removing the dark membrane with water and a small brush or separating it with a knife. All blood should be washed free from the throat and the clot at the tail end of the back bone must be carefully cleaned away. In salting, the fish must be "kenched" properly and the salt evenly distributed. When the fish are properly handled on board the vessel, they can be easily spoiled by the curers or "fish-makers" unless the utmost cleanliness is secured. If the fish are not washed in repeated changes of clean water they become covered with a deposit of slime when they are thrown on the flakes. This dries in the sun

and shows no bad effect until the fish are shipped to some tropical climate, when it "lights up," after the cargoes start to sweat, causing the imperfectly dried fish to deteriorate rapidly, with the effect that the product is almost unfit for consumption when it is unloaded at its destination. Here it has to compete with good fish from other countries and only a few such bad cargoes of fish, can almost ruin our reputation and lose to us the market.

Our pickled herring is acknowledged to be much inferior to the Scotch brands in color, texture, keeping qualities, and packages. Our fresh fish is handled in a much superior way to the methods employed a few years ago, but no one will contend that there is no room for improvement.

These details have been set forth at length because our modes of curing are such common knowledge. The average fisherman will say that our ways are good enough and that there is no need of instruction to those who have been handling fish for years. The obstinate fact still stares us in the fact that in the free and unrestricted competition that has followed the war, we will not be able to hold our own and to expand unless our products are equal or superior to those of foreign countries. Surely those who are recognized as the most competent among the successful fishermen and curers can teach the others and by a united effort all can improve their present practise. All this criticism is constructive and the reason for it can be removed through those means employed by farmers to advance their industry.

5. First Aid to the Injured. Since fishing is such hazardous occupation, accidents often occur and a large proportion of those who go down to the sea in ships from our fishing ports should have the necessary knowledge of the recognized means for first aid such as is provided

in the courses of the St. John Ambulance Association. Further than this some two or more members of the crew of each schooner should know how to treat ordinary illnesses that may appear and demand attention before a physician can be reached. Short abbreviated courses in nursing would be most valuable for selected men with some aptitude for it.

For many years the fishermen have been plying their trade without the help of science or the benefits or organized effort that other industries have enjoyed in our phenomenal materialistic development. The time has come for the well known and tested methods which have led to success in other lines. Every man can learn something from every other one and united effort achieves its goal where individualistic activity fails. Every honest worker can and should be trained thoroughly for his occupation and no permanent or lasting reform can be effected except through education. These trite statements are just as true and forceful today as since the Universe was created, but they need to be fully recognized and actually applied to the fishing industry to bring about that evolution in methods and results that is fondly hoped for by every well-wisher of the fishermen.

TECHNICAL EDUCATION IN MANITOBA

(Continued from page 133)

employees in which the boys attend for two half days per week.

In the evening school the present enrolment for Technical classes is 3,521 under the supervision of 133 instructors, having a total of 179 different departments or classes running from one to four nights per week.

The Vocational work of the evening schools comprises: Commercial Courses, including book-keeping, short-hand, type writing and commercial correspondence.

Home-making Courses in cooking, household management, dress-making, millinery textiles, child's clothing, plain sewing and physical training.

Building Trades including classes in wood-working, architectural drawing, building instruction and estimating.

Trades and Industrial Courses including forging, tin-smithing, design, pattern making, machinist's mathematics, electrical courses, auto mechanics, telephony, sign writing, printing, machine drawing, applied physics and chemistry and commercial arts courses.

The Vocational work of the evening schools has been confined chiefly to those already employed in vocations, and in many cases special equipment has been provided to accommodate the large numbers of vocational students applying for instruction in the evening schools. The teachers have been procured mainly from industrial establishments and have had several years practical experience and if possible some teaching ex-

perience. Practically all the regular technical teachers who formerly were journeymen mechanics devote two or more evenings per week to the teachers of trade courses. During the past three years sixteen practical industrial men have been trained in Winnipeg for manual training teachers.



Girls are Taught the Use of Home-making Machinery.

While the work in Agriculture is carried on by the Department of Agriculture special mention is here made of the forty itinerant gas engine short courses carried on in different parts of the Province. These courses were from five to ten days' duration and had an attendance of from twenty-five to sixty-five members per course. Equipment consisting of tractors and small engines were provided locally while teachers on the basis of one teacher for fifteen students were provided by the Extension Service.

Some of our most effective Home-making education has been carried on by the Department of Agriculture and the Department of Education working in co-operation through the Boys' and Girls' Clubs, the membership of which now comprises 30,000 boys and girls.

The editor wishes to draw attention to an omission which occurred in the November issue of the Educational Review. The map which illustrated the section in Current Events, New Baltic Republics, was loaned by The Youth's Companion.

Three members of the Fort William School Board have resigned owing to their disapproval of the slowness of the Board in dealing with salaries. This has been followed by the resignation of seventy women teachers of the public school staff, to take effect Jan. 1st, 1921, unless the Board recognizes the salary schedule. The citizens in general and the various clubs have expressed themselves in favor of proper remuneration for the teachers.

OFFICIAL PAGE

—OF THE—

NEW BRUNSWICK TEACHERS' ASSOCIATION

AN ADEQUATE PENSION FOR N. B. TEACHERS.

"The teachers' pensions should be at least doubled."—Chief Supt's address at Moncton.

1. From all parts of the United States and Canada comes the demand for more teachers, and better teachers. Tens of thousands are needed in the U. S. to supply their schools; it is reported that 2,000 schools in Ontario are without teachers; Saskatchewan is advertising for 1,000 in January next, and in N. B. a conservative estimate places the number of vacant schools at 300.

2. The Montreal Star in an editorial on the question says:

"Fear of a national calamity arising from a neglect of Education is justified in Canada."

"Neglected schools means inferior education for the generations to come. An underpaid teaching profession proclaims our betrayal of the children."

3. What are the causes of the great shortage of teachers in N. B.? The two principal causes of this alarming situation are: The low salaries paid to teachers, and the fact that after giving the best years of their lives to the service, they are ruthlessly cast aside with no savings, and an altogether inadequate pension, to drag out the remainder of their lives in penury. Little wonder that the Normal School classes are small and that few remain in the profession for any length of time.

Owing largely to the influence of our Association, substantial increases have recently been made in salaries, but much more remains to be done. When in this very issue of The Review, Saskatchewan is offering "a minimum initial salary" of \$1200 for second class teachers it must be apparent that, to retain the services of our teachers, the Schedule of Salaries for N. B. must be very materially increased at once.

For the same reason an adequate Pension Scheme must be adopted without delay. As a matter of simple justice to a deserving class whose work is absolutely essential not only to the moral and intellectual, but to the material progress of the Province, the Government should at once adopt measures to this end, and have the necessary legislation passed.

The teacher of course can protect himself by leaving the profession or by flitting to greener pastures, but the people in general have no avenue of escape from the stigma and the handicap of penny-wise education.

A Committee of the Executive of the Teachers' Association is at present engaged on the preparation of such a scheme to present to the Government. We appeal

to teachers of every class to be loyal to the profession and to support the Executive in their efforts for the uplift of the profession.

ASTONISHING SUCCESS OF A N. B. TEACHER

After thirty-five years of service in the schools of N. B. a prominent High School teacher has just retired at the age of 60, worth \$10,000! He accomplished this by hard work every day and by practising the most rigid economy during all that period, and to the additional circumstance that a nephew engaged as a conductor on the C. P. R. has just died and left him a legacy of \$9,999.99.

"SERVICE AND SACRIFICE."

"Service" and "Sacrifice," these are noble words, precious words in the teacher's vocabulary. Young teachers and old teachers find their hearts warm to them; they help them to bear the strain of the profession, to plan their work with disinterested care. However, they may lose some of their magic magic. When life becomes for teachers a grim struggle for existence, when business men and politicians with one breath declare ours a noble profession so essential for citizenship, and with the next breath try to beat the teacher's wage to that scarcely equal to the unskilled and untrained, we are tempted to cry a halt to these fine words and ask for action.

JOIN NOW.

Every teacher in New Brunswick should have a share in the important work that is being accomplished by the New Brunswick Teachers' Association. Those who are not members should fill out the following blank and mail it at once to the Secretary, A. S. McFarlane, Fredericton.

NEW BRUNSWICK TEACHERS' ASSOCIATION ENROLMENT SLIP.

Name of Teacher, Mr. or Miss
Class of License held
Address for year 1920
Home Address
Number of years in the profession
Present salary from Trustees
Present salary from Government
Date of enrolment

Fee Enclosed, One Dollar.

Vocational Training for Disabled Soldiers

A. F. Jewett, A. C. P., Case Superintendent, S. C. R.

Though vocational training is not a new idea in the world of education, its adoption by all the Great Powers engaged in the late war, as a solution of the problem of the re-establishment in civil life of the disabled ex-soldier, has focussed public attention upon its possibilities, and stimulated an interest comparable with that evinced in the daily accounts of the world struggle, but, it is to be hoped, productive of more permanent effect for good.

In Canada, the term "vocational training," as applied to the re-establishment of the disabled ex-soldier, means the method by which the Canadian Government, through the Department of Soldiers' Civil Re-establishment, is successfully restoring these men to full citizenship, enabling them to take useful places in industrial life, equal, and, in very many cases, superior to those they held before enlistment.

Vocational Training may be said to commence when the men are in Hospital. Before they are able to leave the hospital wards, occupations such as bead work, basketry, chip carving, weaving and the like are provided, and energetically carried on, under the direction of women, specially trained by the Department of Soldiers' Civil Re-establishment.

When the men are able to leave the wards, they are encouraged to work in the workshops attached to most of the hospitals. There, under the direction of skilled instructors, the men may recover at least some part of that manual dexterity which has been impaired by disuse, continue interrupted studies or hobbies, or learn the rudiments of a skilled occupation denied them previous to enlistment by the stress of having to earn a living before education or apprenticeship was completed, and which may be completed through vocational training.

The subjects taught in these classes are varied, and include Wood-work, Machine Shop Practice, Shoe Repairing, Telegraphy, Motor Mechanics, Drafting, Stenography, Show Card Writing, General Education, Commercial and Business Education. Attendance at these classes is not compulsory, but it is interesting, as indicative of the attitude of the men, to find that 70 per cent. of the patient strength is in regular attendance.

The work in the Wards, and in these Curative Workshops, is under the control of the Medical Branch of the Department, and is provided mainly for its therapeutic value, but it has been found invaluable in preventing that physical and mental inertia which long hospitalization frequently produces, and providing guidance towards vocational training.

Definite training for an occupation generally com-

mences on discharge from Hospital. Any man who, by reason of a service disability, or aggravation by service of a pre-war disability, is unable to return to his pre-war occupation, is eligible for vocational training. In addition to this class, any boy who enlisted under eighteen years of age, and suffered thereby a serious interruption of his education or training, is also eligible for training.

The men presenting themselves for training are carefully interviewed by industrial experts, and by specially qualified Vocational Medical Advisers, with the object of assisting them to a wise choice, having regard to their educational and industrial histories, and also to their disabilities, thus insuring economy of effort and money. The choice having been made, and approved by the representatives of the Department in the Provinces and the Director of Vocational Training in Ottawa, the men commence their training, the average length being eight months, though extensions are readily granted on the recommendation of the provincial representative, or, as he is called, the District Vocational Officer.

During training, a careful medical and industrial supervision is provided, and the men are relieved from financial worries by the provision of a generous allowance, both to the men and their dependents.

The total number of men who have commenced courses of vocational training, up to the 23rd of October, 1920, is 49,563. Of this number 33,861 have graduated, 8,652 have discontinued training, because, as a rule, they have improved physically to such an extent as to be able to return to their pre-war occupations, or have found suitable occupations in other directions, while 7,050 are still in training.

The training is practical. This is insured by providing the training, wholly or in part, in industrial establishments. In those cases where it has been found impossible, or inadvisable, owing to the nature of the chosen occupations or to local conditions, to give the training this form, it is given in well equipped workshops provided by the Department, or advantage is taken of the facilities afforded by Universities, Technical and High Schools, Colleges and other educational institutions.

Training has been provided in no less than 325 different occupations, and thus the danger of overcrowding and undue competition is avoided, and the cordial assistance of labour organizations assured.

Of the 33,861 men who had graduated up to the 23rd of October, 1920, 45 per cent. trained wholly or in part in industrial establishments, 35 per cent. in the D. S. C. R. Schools and Workshops, and 20 per cent. in Universities, Technical Schools, and other institutions.

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provided for the placement of the men, though many men are retained in the industries where they were trained.

The training is successful in its object. After the men are placed in employment, their progress is watched by the After-Care Department for at least four months, and of those which this Department has ceased to follow up, because they are successfully re-established, 71 per cent. are following occupations for which they were trained, or occupations allied to their training, while 91 per cent are employed, the remaining 9 per cent comprising sick, dead, abroad, unable to trace, and unsuccessful, the latter forming 1.15 per cent. Should it appear likely that any of those who have not made a success of their training may be re-established by additional training, it is provided on the recommendation of the District Vocational Officer, and approval of the Director of Vocational Training.

The re-training of the blinded ex-soldiers has received the special attention of the Department, and the first step towards their re-establishment has been to teach them that they can take their places in the world again as independent citizens, capable of making a living and in no sense dependent on charity.

Training was given at first entirely at St. Dunstan's Hostel, London, England, but afterwards at the Canadian National Institute for the Blind, Toronto, the Montreal Association for the Blind, the Nazareth School for the Blind, Montreal, and the Halifax School for the Blind. Arrangements were also made with the Nova Scotia Technical College, Military School of Orthopaedic, Surgical and Physio-therapy, Hart House, Toronto, and the Ontario College, Guelph, for other courses not included in the curricula of the other institutions for the Blind.

The number of ex-soldiers suffering from blindness, or from defective eyesight, and requiring special training, is 191. Of these 120 have completed their training and been settled, 20 are unwilling or unable physically to take training, while the remainder are in training, or awaiting the conclusion of final arrangements.

The subjects taken by these men include Massage, Poultry Farming and Carpentry, Boot and Mat Making, Piano Tuning, Stenography, Vocal Music, Basket and Net Making, Rattan Work, Rubber Stock Mixing, Electric Motor Assembling, Law Course, Business Course, Gardening and Poultry, Leaded Light Assembling, Wicker Work, Broom Making.

Eleven men have been established in stores of their own, one man having three stores in Toronto. Five men are stenographers, drawing the regular rate of pay, and twenty men have made a success of poultry farming, combined with gardening, while the masseurs have been remarkably successful.

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| TITLE | "Imperial" 75x65 | | "Grand" 52x44 | | "Unrivalled" 48x38 | |
|--------------------------------------------------------|---------------------|---------|------------------|--------|-----------------------|--------|
| | No. | Price | No. | Price | No. | Price |
| Africa | 1-10 | \$10.00 | 1-52 | \$5.00 | 1-608 | \$3.50 |
| Asia | 1-12 | 10.00 | 1-58 | 5.00 | 1-606 | 3.50 |
| British Isles | 1-14 | 10.00 | 1-62 | 5.00 | ..... | ..... |
| England and Wales | 1-16 | 10.00 | 1-68 | 5.00 | ..... | ..... |
| Europe (to 1914) | 1-18 | 10.00 | 1-70 | 5.00 | 1-604 | 3.50 |
| Europe (Revised) | 1-19 | 10.00 | 1-71 | 5.00 | ..... | ..... |
| North America | 1-8 | 10.00 | 1-54 | 5.00 | 1-600 | 3.50 |
| South America | 1-24 | 10.00 | 1-56 | 5.00 | 1-602 | 3.50 |
| Scotland | 1-26 | 10.00 | 1-88 | 5.00 | ..... | ..... |
| United States and Mexico | 1-28 | 10.00 | 1-90 | 5.00 | 1-612 | 3.50 |
| World, in Hemispheres | 1-20 | 10.00 | 1-78 | 5.00 | 1-610 | 3.50 |
| Eastern Hemisphere ..... | ..... | ..... | 1-74 | 5.00 | ..... | ..... |
| Western Hemisphere ..... | ..... | ..... | 1-76 | 5.00 | ..... | ..... |
| World, Mercator's Projection | 1-22 | 10.00 | 1-94 | 5.00 | ..... | ..... |
| Australia ..... | ..... | ..... | 1-60 | 5.00 | ..... | ..... |
| France ..... | ..... | ..... | 1-72 | 6.00 | ..... | ..... |
| India ..... | ..... | ..... | 1-80 | 6.00 | ..... | ..... |
| Ireland ..... | ..... | ..... | 1-82 | 5.00 | ..... | ..... |
| New Zealand ..... | ..... | ..... | 1-84 | 6.00 | ..... | ..... |
| Pacific Ocean ..... | ..... | ..... | 1-86 | 6.00 | ..... | ..... |
| West India Islands ..... | ..... | ..... | 1-92 | 6.00 | ..... | ..... |
| Greater Britain (British Empire) 66x46 inches | 1-522 | 8.00 | ..... | ..... | ..... | ..... |
| Canada, 86x54 inches | 1-4 | 10.00 | 1-64 | 5.00 | ..... | ..... |
| Ontario (all in one scale) 76x72 inches | 1-6 | 10.00 | ..... | ..... | ..... | ..... |

| MISCELLANEOUS | | Price |
|---------------|------------------------------------------------------------------------|---------|
| No. | | |
| 1-30 | —World, Mercator's Projection, 86x80 inches | \$10.00 |
| 1-32 | —World, in Hemispheres, 68x48 inches | 10.00 |
| 1-40 | —Australasia, 58x50 inches | 8.00 |
| 1-504 | —Quebec, 75x50 inches | 7.50 |
| 1-500 | —Maritime Provinces, 63x50 inches | 8.00 |
| 1-520 | —Manitoba, Saskatchewan and Alberta (in one map), 81 x 55 inches | 6.00 |
| 1-516 | —British Columbia, 56x61 inches | 6.00 |

STANDARD MOUNTINGS

The following prices are ADDITIONAL to those quoted for the different series of maps mounted in Style "A" above.

Style "B."—On cotton, wood roller at bottom, spring roller at top; top extended. This is the style of mounting necessary for maps to be fitted in map cases.)

| | |
|--------------------|---------------|
| "Unrivalled" | extra \$ 1.50 |
| "Grand" | " 2.00 |
| "Imperial" | " 3.00 |

Style "C."—On cotton, wood roller at bottom, spring roller at top, and attached to a portable board.

| | |
|--------------------|---------------|
| "Unrivalled" | extra \$ 2.00 |
| "Grand" | " 2.50 |
| "Imperial" | " 4.00 |

(If tin spring rollers are required for Imperial sized maps, add \$3.00 to cost of "C" Mounting)

Style "D."—On cotton, wood roller at bottom, spring roller at top, attached to a portable board and fitted with oilcloth dust-proof protector.

| | |
|--------------------|---------------|
| "Unrivalled" | extra \$ 2.50 |
| "Grand" | " 3.00 |
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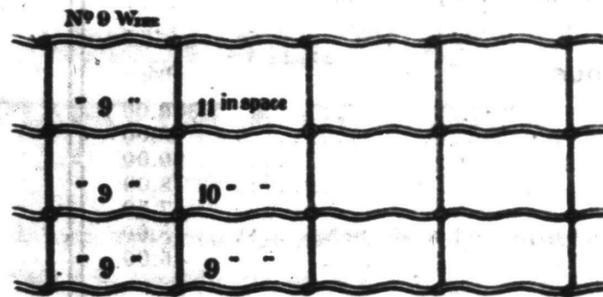
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A direct result of vocational training has been the discovery and development of latent talent and possibilities. In many cases men have been raised from the unskilled to the skilled class, with resultant personal and national gain, and a noteworthy indirect result is the awakening of the national conscience to the claim of the industrially disabled to vocational training under the direction and at the expense of the nation in whose service they were disabled.

CURRENT EVENTS.

Miss Ethel Murphy, Aberdeen High School, Moncton, N.B.

The Baltic Republics. The following is a summary of a second interesting article in *The Youth's Companion* on the Baltic Republics:

The Lithuanians differ from the Letts much as the Irish differ from the Scots. Lithuania is Catholic and conservative; Latvia, Protestant and radical. From 1386 until the partitions of Poland, Lithuania and Poland were united, somewhat as England and Scotland are. After the partitions of Poland, 1772-95, Lithuania was Russianized. In 1915 the German armies invaded Lithuania and the people were exasperated by the German rule. After the armistice the Lithuanians set up a provisional republican government. Poland, however, wishes to have as much Lithuanian territory as possible and offered Lithuania union on the old terms, but the people will have none of it. France, desiring Polish power as an offset to Germany in the East, favors Poland's claims.

In 1919 Poland invaded Lithuania and captured Vilna from the Bolsheviks. The Lithuanians claimed their army would have taken it and wanted it handed over. When the Russian Soviet advance came the Lithuanians made peace with the Soviets and took what territory they could get, whether their own or Poland's. These two republics are still at war.

Until 1809 Finland belonged to Sweden; then Russia took it but allowed it to keep its own customs tariff, currency, army, postal service, railway and banking system. The position was like that of Canada. Under the last Czar, however, the Russians undertook to destroy Finland's independence. In 1917 Kerensky restored the Finnish constitution but just before the Bolshevik revolution Finland declared her independence. Then came a season of terrorism and German power. Since the armistice, the Finns have set up a republic and have universal suffrage—no new thing for them however. Nearly all the people can read and write and they are accustomed to gaining what they want by the ballot. The greatest natural resource of Finland is in its forests. Much of the wood is exported in bulk, the rest used up in the sawmills, pulp mills and paper factories on the Baltic.

Finland is not content with its seaports because they are frozen up in winter but desires a port on the Murman coast, far within the Arctic Circle, but kept open by the Gulf Stream. The capital of Finland is Helsingfors.

Thames-Danube Water Route.

In the Peace Treaty provision was made for a water route between the Thames and the Bosphorous. The Treaty said that if a deep-draught Rhine-Danube navigable waterway were constructed, the property and flags of all nations should be equally treated on both rivers. The shipping firm of Furness-Witty & Co. has formed the River Syndicate and founded the Danube Navigation Co., with 200 steamers and 2,000 tow boats. The

river bed is to be deepened to allow small steamers to go upstream as far as Budapest.

It is now possible to go from the Danube to the Rhine by the Danube-Main Canal, but it cannot take barges greater than 15 tons, while the new Rhine-Danube canal will allow the passage of boats of from 600 to 1,000 tons. British and French capitalists are negotiating for the acquisition of shipping and transport rights. The mutual advantages of such penetration of Central Europe by the West can scarcely be calculated.

Georgia. The Turks, having overrun the Armenians, have ordered the Georgians to evacuate the seaport of Batum and to give them the use of the railway lines in Georgia. The Republic of Georgia should naturally look to Russia for aid; but it is hated by Lenin and Trotsky because it eschews violence and elects its rulers by a democratic suffrage. Ramsay MacDonald, and other British Socialists who visited Georgia lately at the request of its government report that country to be a Socialist Utopia, and there can be no doubt that Georgia is making an experiment in Socialism, based on the will of the majority. No so-called "capitalist" government would interfere with the Georgians, but Lenin and Mustapha Kemal seem likely to do so.

The following have loaned cuts for this issue:

- The Advocate, Pictou, N. S., Dr. MacKay.
- The Tribune, Sackville, N. B., Mr. Peacock.
- The Daily Mail, Fredericton, N. B., Mr. Magee.
- The Globe, St. John, N. B., Dr. Carter.

It has been found necessary to hold over the department School and College until the January number because the present issue has grown to such unexpected proportions.



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