

AN ABSTRACT OF THE THESIS OF

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Abstract Approved

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This study was made to evaluate the industrial education program in the province of Alberta and to note trends evident in the field. Specific objectives were set up and may be stated briefly as follows:

1. To assemble data which would be of value to teachers, administrators, and the interested public.
2. To ascertain the growth of industrial education from 1919 till 1949 as a guide to its future development.
3. To compile data which will assist in planning of industrial arts conventions.
4. To discover possible inadequacies in the system.
5. To determine the degree of relationship between industrial arts and technical elective courses, and the apprenticeship program.

Data for the study were obtained from various sources. Annual reports from the Department of Education, Edmonton, and from the Technical Education Branch of the Department of Labor, Ottawa, combined with unpublished literature contributed many important facts. Since many of the key industrial arts men responsible for the early development of the movement are still available, personal interviews with them yielded first-hand information. An up-to-date picture was obtained by sending out questionnaires to 121 teachers in the field. Eighty-seven (71 per cent) were returned, all of which were usable.

In exploring the field many historical factors influencing the industrial arts program presented themselves. Most important among these were the MacDonald Fund of 1900, which defrayed all the expenses for shops started under it for a period of three years; and the Technical Education Act, 1919, which made Dominion funds available for technical education for a period of ten years.

The study revealed that it was not until 1935 that industrial education, as we know it today, really got a foothold in the province. It was during this time that the whole educational program of the province underwent a complete revision, emerging with a junior high school program. When the new program of studies was drawn up, general shop found its place in the curriculum on an optional basis. It has continued to grow and expand. During this period grants for technical education were increased, certification requirements for shop instructors laid down, and teacher training centers established.

The following decade shows a period of broadening the shop offerings rather than an increase in number of centers. Revision of curriculum and the introduction of industrial arts and farm and home mechanics to replace the general shop in the schools are two of the steps taken during this period. About this time the technical elective program of the secondary school began to find a more stable position in the composite schools of the province. Emphasis upon trade training made these courses more popular. As a result, more and more centers turned to the offering of technical electives.

A summary of the finds:

1. That industrial education in Alberta appears to be founded on sound principles and meets well the needs of the youth.
2. That up-to-date methods of instruction are used to advantage by shop teachers.
3. There appears to be a general movement towards self-betterment on the part of the shop teachers.
4. Teacher-pupil proportion is slightly high, indicating a need for more instructors in the field.
5. That there is a general expansion in shop facilities, especially noticeable on the secondary school level.
6. Technical elective courses of the unit shops are increasingly important and are taking on a slightly vocational aspect.

Recommendations:

1. That more advertising of the shop and of shop needs be undertaken to acquaint the public with the objectives of industrial education, and at the same time to foster public support of shop expansion.
2. That shop instructors put forward special effort to recruit young men into the field of industrial education, in an endeavor to overcome the shortage of teachers and assist in the shop expansion program.
3. That the many small centers, at the present time offering very limited courses, be encouraged to extend their offerings to more readily meet the needs of the children.
4. That an exchange program be adopted in the last year of the junior high school in which industrial arts boys may switch with home economics girls for a period of several months and thus gain a better understanding of the work of each.
5. That more craft courses be added to the industrial arts program in an endeavor to increase the artistic ability of the child.
6. That provision be made, both through industry and the Department of Education, to assist those instructors teaching technical electives to meet the journeyman's requirements as laid down by the apprenticeship board.

ADVANCE BOND
Paper

THE DEVELOPMENT OF
INDUSTRIAL ARTS EDUCATION
IN
THE PROVINCE OF ALBERTA

by

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THE DEVELOPMENT OF INDUSTRIAL ARTS EDUCATION IN THE PROVINCE OF ALBERTA

CHAPTER I

INTRODUCTION AND CONSIDERATIONS

Industrial Arts Education is older than civilization. Before you question this statement, consider the cave man teaching his son how to make a spear head or an axe. If the son had not learned the lesson well, and had not in turn passed it on to his own son with improvements, homo sapiens might have disappeared and left the world to dinosaurs and mastodons.

Ever since cave days instruction in the industrial arts subjects has been carried on in one form or another. Although the toolmaker was, and still is, the keystone of civilization and progress, industrial arts education seldom commands its due prestige. Only within the last half century has the industrial world required large numbers of technicians to build and maintain the mechanical implements which have come to be a part of our everyday lives. The demand for large numbers of skilled artisans has forced educational institutions to try to find some faster and more efficient method of producing them than the apprenticeship method. The task of training may indeed shift from the trade to the school.

Purposes of the Study

The survey as here reported deals with the various aspects of industrial education in the province of Alberta.

It is intended that this report should be a stock-taking of the progress made and a noting of such trends as have become evident.

Industrial education is of comparatively recent origin in the province, and practically all of the progress made has taken place in the last two decades. The writer of this thesis believes the subject to be of sufficient importance to dig into the past in order to establish the origins of this type of instruction and to compare these with the public attitudes on the subject as now offered.

Certain inadequacies existing under the present system will possibly show up in the light of criteria offered, and it is hoped that recommendations may be made for improvement.

These data, when properly compiled, should prove of value both to the teachers in the field and to the interested public. It is felt that this comprehensive report may also prove valuable in the planning of discussion topics at the annual industrial education convention.

Because of the influence of the apprenticeship program the vocational aspect of technical education is becoming increasingly important. Now is the logical time to consult both school and industry to evaluate the courses offered in the light of industrial requirements, and to gather instructors' attitudes on the subject.

Terminology and Definitions

The terminology used herein may be considered as standard in North America. The terms, manual training, manual arts, and industrial arts are almost synonymous, and depict the time rather than the type of course offered. The only case found where the literal meaning of the term manual training seemed to vary was in the case of the manual training course offered in the early years of the province. As defined in the Course of Studies in 1905, an interpretation of its meaning would suggest any type of hand work--from the drawing of scenes to the cutting out of paper models. "Manual training" is still used in this sense in Manitoba in connection with a course offered to students in the higher elementary grades.

Industrial Arts, although the term has come to mean that type of practical education offered to the intermediate and high school grades, had its origin in the pre-vocational schools of the province. These schools, the first technical schools, were under the jurisdiction of the local school boards, and are not to be confused with the technical school later to become the Institute of Technology and Art, at present under the control of the provincial government. This latter institution has always been a vocational school.

The shops of the province fall into two categories:

the general shop, offering industrial arts and/or farm and home mechanics courses from grades six to twelve; and unit shops, offering technical electives to grades ten, eleven, and twelve, in the composite high schools of the larger centers.

Sources of Information

The writer, in collecting data for this report, has spared neither time nor energy in insuring its complete authenticity. Annual reports of the Department of Labor, Ottawa, and of the Department of Education, Edmonton, have been reviewed to the time of their origin and many valuable statistical facts obtained. Theses, both published and unpublished, written on early education in Canada have also yielded valuable information.

Personal interviews with some of the first manual training instructors and supervisors of the province proved both interesting and informative. It was from this source that a very complete picture of the early industrial education in the larger centers was obtained.

By means of a questionnaire sent out to the industrial arts and technical elective teachers of the province, the author was able to get up-to-date data on the present program in the various school shops of the province. One hundred and twenty-one questionnaires were mailed, from which there were 87 replies, (71 per cent), all of which

were usable.

From newspaper editorials to statute books, in both the Calgary Public library and the Edmonton Provincial library have come many facts bearing on the technical education in the province.

Limitations

Since industrial education in Alberta on a province-wide basis is of comparatively recent origin, the author believes that a time limit of thirty years will more than cover the important developments which have taken place in this phase of work. Factors affecting the movement at an earlier date will be dealt with in the section entitled Early Industrial Arts Education in the Province.

Industrial education in Alberta falls into two sections; one is a part of general education. It includes industrial arts courses, farm and home mechanics courses, and technical elective courses; the other, of a vocational nature, is offered by the Provincial Technical School at Calgary and the Vocational Training School at Red Deer. This report proposes to deal only with industrial education as administered by the local school boards.

In many cases adult education enters into the picture through the various night schools. Since many of the courses offered are on a par with those offered in the day school,

on a secondary education level, it is believed that consideration must be given them also in this report. Only courses given under local administration will be dealt with.

CHAPTER II

HISTORICAL DEVELOPMENT OF INDUSTRIAL ARTS

Established systems of education react slowly to new conditions and new ideas. The introduction of "doing" into schools of "learning" has been particularly difficult in spite of the fact that the beginnings of knowledge in both the individual and the race have come from experience. For more than two centuries educational writers have recommended that hand work should accompany book learning and many early experiments were tried throughout Europe in the 1700s. Most of these schools were run by private interests as public support would not venture upon a scheme so fantastic.

Because of the limited finances possessed by these institutions, they were almost doomed from the start. Mr. Lindley H. Bennett has this to say:¹

The work of these innovators attracted wide interest among educators of their time but did not effect much change in the general education of their States. It was not till the last third of the nineteenth century, and after continued effort by their disciples and successors, that the cumulative effect of the writings and experiments of the educational reformers gradually obtained official recognition for the manual element in education. (2,p.35)

Despite the unpopularity of these early experiments the seed was sown throughout the central states of Europe. The work of such men as Pestalozzi, Rousseau, Froebel, and Huxley led others to try handwork on an experimental basis.

Unofficial experiments in practical forms of education were initiated in the Realschule in Berlin in 1747. A few years later Fellenberg and his assistant, Wehrli, introduced practical education into the schools at Hofwyl, and Kindermann in the school at Kaplitz. From this time on it spread slowly at first and then like wild fire to the other States of Europe.

It was not until after 1860 that "Manual Training," as we know it today, really came into being. One of the first countries to teach it on a nation-wide basis was Finland, then a part of the Russian Empire. In 1863 manual training was started in a normal school center and three years later was introduced in the ordinary schools. A special normal school was founded for the instruction of primary teachers in the new work.

Swedish Sloyd became an optional subject in the official program for elementary schools in 1887. In a period of twenty years its popularity became so great that by 1896 it was taught in over two thousand schools in Sweden. The eyes of educationalists in many countries were turned to Sweden and they sent many of their home teachers to study this increasingly important form of education. Among these were many from England, who were later destined to instruct the future manual training teachers of Canada. Sloyd became a national term within the next ten years.

Although England lagged far behind other European countries in the introduction of manual training in the public schools, it nevertheless made up for it by quickly expanding when the time came. Because of the nature of the English school, (mostly privately endowed), the movement was slow to grow at first. Strange to say it was the private institution which first made the course popular, and led to the opening of several experimental schools in the larger cities. Sheffield was the first center to operate a workshop for public elementary school pupils, in 1880.

Official recognition of manual training was given by the Education Department in 1890, and from that time on growth was exceedingly rapid. In 1894 London had 65 centers, with 17,000 boys attending. By 1897 there were 130 centers offering instruction for 35,000 boys. This growth was not confined to one or two centers. It had spread to the whole country. In most of these schools the English Sloyd was taught--a woodwork course of tool exercises, construction elements, and projects combining them--which had been worked out by Solomon Barter some ten years previously.

The most important factor in the English system of manual training was its extensive training program for teachers. These people were quick to realize the fact

that teaching of manual training required a combination of craftsmanship and pedagogy, a factor which remains somewhat of a problem to this day. The Central College of the City Guilds' Institute, London, was first to take the problem in hand, in 1886. This first group consisted of both professional teachers and expert craftsmen, all of whom were to form the nucleus for later teacher training. This body later formed the National Association of Manual Training Teachers which in a few years became the principal mouthpiece for the manual training movement in England.

By 1894, over 700 teachers had secured special manual training certificates from Central College, London. The majority of these went to teach throughout England and Scotland, but most important of all is the fact that it was from this early "batch" that Canada got its first manual training instructors. Many of the instructors who did most to further the cause in Alberta can trace their training to the City Guilds' Institute, London.

Early Technical Education in Canada

Shortly after Confederation, general education began to take on a new look. Schools sprang up throughout the country like wild fire. Close on their heels were the universities and colleges in the larger centers. As yet no mention was made of technical education, although it had made great progress throughout Europe and in the United

States. It was not till Sir William MacDonald, manufacturer and philanthropist, (1831-1917), returned from a trip to England, that manual training got its start in Canada.

Sir William was very much impressed by the movement and upon returning home offered, "to defray for three years the expense of a system of manual training in connection with the public schools--including teachers, equipment, and material." (15, p.67) The first center to take advantage of this offer was Halifax, in the year 1900. Soon, other centers were opened up and manual training was born in Canada. Teachers were not available for the new kind of education, so Mr. MacDonald imported as many as possible from England, paying all expenses and giving them assurance of employment for three years. A few of these men are still teaching, but the majority have retired after contributing their share to the education of their adopted country.

From the years 1900 to 1903, sixteen centers across Canada were opened to offer manual training in the public schools, all under the MacDonald Fund. These stretched from Halifax on the east to Vancouver on the west coast. In the year 1901, the first manual training center was opened in Calgary, then part of the Northwest Territories, under the instruction of a man named Runnions. The building still stands at the rear of Haultain school, as a symbol which we may be justly proud.

Report of the Royal Commission

The MacDonald fund came to an end in 1903, having used up over \$4,000,000 for industrial education. Many centers were unable to continue as they had no way to raise funds, and public support of this new phase of education was not forthcoming at that time. In many cases the academic instructors condemned the movement and did what they could to prevent its continuing. One example of this is an address given by Mr. John Square, B.A., in a lengthy public speech in which he reported:

"...that industrial training was superseding scholarly subjects in the schools to an undue extent, and urged the commencement of foreign language study at an earlier age as one of the means of meeting the situation. (15, p.451)

Conditions remained unchanged for some time and in 1910 the Dominion Government became alarmed at the slow rate of progress made in technical education. After seeking assurance from the provinces that they would not object on grounds of jurisdiction, it appointed a Royal Commission to inquire into the "needs and present equipment of the Dominion as respects industrial training and technical education, and into the systems and methods of technical instruction obtaining in other countries." (20, p.9) After three years of study and travel, the commissioners reported that in their opinion, national prosperity and individual well-being rest upon intelligent and productive labor; that Canada was

"behind the times" in the facilities available for training towards this end and that a new policy should be implemented. Industrial training and technical education should be initiated under the control of the provinces, with assistance from the Dominion consisting both of money and expert counsel.

The commissioners envisioned vocational education in a narrow sense as a mere instrument for the service of industry:

It becomes more and more evident that education must have a vocational aim and result if the industrial activities of the people are to be of benefit to all individuals and to the state which they constitute. It must be kept in mind that the first and chief object of industrial training and technical education must be the personal welfare of the individuals who are to participate in it; second, the prosperity and strength of the State; and third, the advancement and improvement of industry as such and that only as consistent with and subordinate to the other two.

In the organization of this form of education, the attempt must be made to meet all the needs of all the people, with care that none shall be debased by the occupations for which they are prepared....." (20, p.18)

In harmony with this broad conception they defined the aims of vocational education not merely in terms of the specific skills to be acquired, but in such a way as to point to the well-rounded development of the prospective worker. The aims they set up were: (20, p.19)

1. The preservation of health and the vigor of life.
2. The formation of good habits.
3. The development of the sense of responsibility and duty.
4. The preparation of the body, mind, and spirit for following some useful occupation.

5. The cultivation of the mental powers, the acquisition of knowledge, and the development of the scientific spirit with direct reference to the occupation.
6. The promotion of goodwill and desire and ability to cooperate with others.
7. The maintenance of standards and ideals.
8. As all inclusive and ultimate, the perfecting of the human spirit, the improvement of the quality of life itself and the betterment of the conditions of labor, leisure, and living.

To put these aims into effect the commissioners recommended a "Dominion Development Policy," of which the fundamental principles were: (20, p.30-31)

1. It is important to adopt a plan which will secure the largest degree of public confidence and maintain the largest measure of public interest and cooperation.
2. It is important to adopt a plan which will preserve Provincial control, encourage local initiative, and develop local responsibility.
3. It is important that there should be a large number of persons representing manufacturing industries, trades, commerce, transportation, agriculture, forestry, mining, fisheries, housekeeping, and education ready to take the initiative in local undertakings, and able to cooperate in making effective application to the needs of localities of financial grants and any other assistance. In the opinion of the commission, a policy which would be applied wholly or mainly by directive authority from headquarters, leaving to local centers little initiative or responsibility, would not accomplish much for a long time.
4. It is important that there should be in each province a central body or authority, which could bring to bear on all proposals from local centers the wide knowledge and practical experience of capable men and women familiar with education and with industrial, agricultural, and house-keeping problems.
5. It is important to adopt a plan whereby the Dominion, the provinces, the localities, and the individuals will cooperate and each contribute to the cost of development undertakings. A plan of organization which provides for the financial

support from communities being properly articulated with financial grants from central authorities would tend to bring about efficiency and stability.

6. It is important to adopt a plan which will insure that the national interests as well as the local points of view will be considered.
7. It is important that there should be a Dominion consultive body, through which the widest knowledge and experience could be put at the service of all the provinces and thus be brought to bear on problems and undertakings of consequence to all of them.
8. It is important that there should be a Dominion authority competent to cooperate with provincial authorities, to provide expert counsel to any province which might not be adequately organized or staffed to render service in that respect to all localities and industries within its borders, and to promote scientific industrial research and the diffusion of knowledge resulting therefrom.

In the same year the government took steps to help education in the field of agriculture. The sum of \$1,000,000 was appropriated for this work, but as no means of administration or control was authorized, very little was done with it for some time. The fund was to be given to the provinces over a ten year period, "for the purpose of aiding and advancing the farming industry by instruction in agriculture." (11, pp.6-7) The act expired in 1923 but was renewed for one year more.

The Technical Education Act

In July, 1919, the Dominion Government enacted legislation which provided for financial assistance to the provinces in connection with the development of educational facilities for other branches of industry. The Act may be summarized briefly thus: (11, p.56)

1. Technical education is defined as "any form of vocational, technical, or industrial instruction, approved by agreement between the Minister and the government of any province as being necessary or desirable to aid in promoting industry and the mechanical trades and to increase the earning capacity, efficiency, and productive power of those employed therein.
2. The Act does not apply to any province until the provincial government has, by order in council, signified its desire to take advantage of it.
3. Ten million dollars are appropriated, payment to extend over ten years (ceasing March 31, 1929).
4. Annual grants are allotted and paid quarterly to provinces on the following basis:
 - (a) Ten thousand dollars to each province.
 - (b) The remainder in proportion to respective provincial populations.
5. The grant payable to any province in any one year shall not exceed the amount spent by the province on technical education in the same year.
6. The grants are payable subject to the following conditions:
 - (a) The money shall be used for technical education according to the terms of the Dominion-provincial agreements.
 - (b) No part of the grant shall be used to meet expenditures incurred prior to July 1, 1919, for lands, buildings, or equipment.
 - (c) Not more than 25 per cent of the annual grant shall be applied to the purchase of lands, buildings, and equipment.
 - (d) An annual report shall be made by each province to the Minister of Labor on the work done in promoting technical education.
 - (e) Every province shall present such evidence as may be required that grants are being expended according to the Act.

The notable features of the Act are: (11, p.57)

1. The specific character of the education to be provided is not stated. This is left to the flexible scheme of annual Dominion-provincial agreement.
2. The act does make it reasonably certain that grants will be used for approved purposes.
3. Provinces are called upon to share equally with the Dominion in the expense of technical education.
4. The Act is expected to terminate after a ten year period.

Types of Instruction Approved under the Technical Education Act

No requirements were made of any of the provinces as to the way in which the work was to be organized. The purpose of the Technical Education Act was to secure sufficient vocational training for those who had passed the elementary school age and who were not eligible for courses of college grade. Within these ample limits, provinces could proceed as they pleased.

Educational Organization in Canada

Before any adequate picture of the Educational system in Canada can be formed, certain factors relating to the origin of the country itself must be understood. The author does not propose to go into this in any detail, but rather to touch only upon those factors which have an influencing effect upon the technical education of the province.

"Provincial Autonomy" for education in Canada was made under the constitutional provisions of the British North America Act of 1867, when the Dominion was formed. The Act reads,¹"In and for each Province the Legislature may exclusively make laws in relation to Education," and as each subsequent Province was formed, this authority was passed on to them. It is here interesting to note, in comparison with the educational system in the United States, that while their constitution was silent on the question of education, Canada made education one of the principal obligations of the Legislature, and guaranteed a degree of provincial autonomy in its administration.

Early Technical Education in Alberta

Alberta, about 248,000 square miles in size, was incorporated as a province in 1905, with a population at that time of 23,023. The chief industries at that time were agriculture and mining, with some stock raising in the southwestern part of the province.

The coal industry was the first to attract large financial interests from the east, and under the guiding arm of the various railroads many towns sprang up around the rich coal fields. Outside of the cities of Calgary, Edmonton, and Lethbridge, these mining towns were the first to receive industrial education in the form of evening classes. The

¹Appendix B

realization of the importance of the evening class was very apparent. Dr. Hutchinson, in his report at that time, had this to say:

Educationalists must accept the fact that a student should not be excluded from education provided by public money because he is above the compulsory school age and has to work during the day. The small number of students between the ages of 14-18 who attend night school as compared with the large number employed in the various activities throughout the province, indicate the absence of intelligent guidance, which leaves them in casual and temporary occupations until they are mature and being crowded out by others younger than themselves. It is from these chiefly, that the ranks of the unskilled and unemployed are recruited. (16, p.49)

Between 1912-14 many evening classes were started in the various schools. The first Director of Technical Education was appointed in 1913, his principal duty being, "...that of supervising and organizing night classes (7, p.50)." Realizing the important role played by these classes, the Department of Education, through the School Grants Act, 1913, authorized special grants for night classes. The courses offered were generally along vocational lines, with mining engineering holding top place. Table I gives a general picture of enrollment in the various centers after World War I.

With the development of the secondary schools and with more instruction being offered along technical lines, evening classes began to disappear. As employment conditions became worse, young people found it increasingly difficult to find jobs and therefore continued in day school

for a longer period. The beginning of the Institute of Technology and Art replaced to a large extent the needs hitherto supplied by the evening class.

This school was first started by the Dominion government in 1916 in what is today the Colonel Walker School in east Calgary. Having served its purpose during the war, it was turned over to the provincial government when the need for soldier repatriation training no longer was needed. It became a trade school under provincial authority. In 1922, with assistance offered by the Technical Education Act, a large new establishment was built in the northwest part of Calgary. Since then it has come to be recognized as the leading vocational school in the province. In 1945 it was taken under the wing of the University and now assists in the training of teachers.

In the early years the dividing line between manual training, technical training, and vocational training was very vague. As this report proposes to deal with that phase of industrial education under the jurisdiction of the local board, we must draw the line where it is most apparent. Since vocational education left local jurisdiction about the time the Institute of Technology got under way, we may reasonably assume that this is a good time to make the break. It was not till some 25 years later, however, that the principal of the institute ceased to be the supervisor of industrial education in the province.

TABLE I

Enrollment and Number of Teachers Employed in Technical
Classes, School Year Ending June 30, 1922¹

School and locality	Day		Evening		Total		Number of Teachers day even.	
	Fall	Spring	Fall	Spring	Fall	Spring		
Bankhead	-	-	43	34	43	34	-	2
Bellevue	-	-	30	28	30	28	-	2
Brule	-	-	45	24	45	24	-	1
Cadomin	-	-	12	12	12	12	-	1
Calgary								
Prevocational	230	220	366	159	596	379	12	20
Tech.(Institute)	84	129	211	223	295	352	14	13
Correspondence	269	282			269	282	3	3
Camrose	-	-	-	17	-	17	-	1
Canmore	-	-	-	30	-	30	-	3
Coalhurst	-	-	31	22	31	22	-	2
Coleman	-	-	54	21	54	21	-	2
Cora Lynn	-	8	-	-	8	-	1	-
Dinant	-	-	24	11	24	11	-	2
Edmonton								
Tech.	188	250	176	150	364	400	18	32
Victoria H.S.	78	88	-	-	78	88	7	-
Hilcrest Mines	-	-	18	17	18	17	-	1
Lethbridge	66	65	179	84	245	149	8	13
Medicine Hat	36	37	-	-	36	37	1	-
Mountain Park	-	-	10	10	10	10	-	1
National Park	-	-	114	112	114	112	-	6
Nordegg	-	-	17	15	17	15	-	2
Stettler	-	-	-	11	-	11	-	1
Taber	-	-	26	18	26	18	-	2
Wayne	-	-	20	30	20	30	-	2
	682	797	1373	1028	2055	1825	64	112
Correspondence total - 551								

¹(8, p.124, 1923)

When the Royal Commission on Industrial Training and Technical Education visited the province in 1911, one item of its report stated:

Most of the boys who drop out of school do so in the senior 4th, the chief reason being that standard 5, or the senior class in the public school, does not fit the boys for what they are expected to do when they leave--commercial life or trade....most of the boys would stay longer if they had some industrial work. (19, p.2300)

A look at the early attempts at manual training in the province may be in order, to ascertain what had been done up to this time. Since this type of work was carried on in only three centers, it might be worthwhile to deal with each separately.

Calgary

The first shop in Calgary was opened in 1901, under the director of the MacDonald Fund. The shop did not flourish, but managed to hold its own when MacDonald Funds ceased. Two more centers were opened up in the next ten years offering woodwork and a little electricity to boys of grades 6-8. The school board, believing that technical education was not progressing as it should, appointed Mr. T. B. Kidner as director of technical education in Calgary, to look into this phase of work.

Minutes of a special board meeting May 30, 1913, read:

It was moved by Messrs. Newcombe and MacDonald that Messrs. S. Y. Taylor, T. B. Kidner, and J. A. Smith visit eastern cities to gather information with

regard to pre-vocational, technical, and high school work. - - - Carried. (3, p.9)

The committee reported back to the board, November 19th, after completing a five week tour of eastern Canada and the United States. They brought back many up-to-date views on education at that time, such as that expressed by Superintendent Elson of Cleveland, who stated, "The school is the business of experts, not novices. The careful study of these problems is the paramount need of present-day education." (3, p.11)

Superintendent Martindale of Detroit said:

In recent years educators have come to realize that the ideals of universal education cannot be realized by attempting to give all children the same kind of schooling. The realization of this fact has resulted in a wide differentiation in the work of all school systems and institutions of learning in order that needs of individuals may be met. (3, p.11)

A complete scheme for the city of Calgary was recommended by the committee. Space here does not permit giving the program in full, but a short summary is in order:

1. That the present commercial course in the high school be revised and a cooperative committee of business men be invited to assist in making it practical and effective.
2. That all students of the high school be given some industrial arts or home economics.
3. That the art course be strengthened and be related to the industrial courses.
4. That pre-vocational courses be set for boys and girls of the elementary school.
5. That vocational guidance be set up in connection with the pre-vocational courses.

6. That a large new plant be built to take care of secondary education.
7. That advisory committees of citizens be appointed for commercial subjects, industrial subjects, and household arts.

Following the recommendation of the committee, Calgary opened its first pre-vocational school in the fall of 1913. At first only woodwork and metal work were offered to the grade 7 and 8 boys, but this was later increased. Printing, leatherwork, sewing, home economics, and commercial courses were added, to give a widely diversified program. The pre-vocational school was in reality a forerunner of the present day composite high school operating on a junior high school level. Mr. Speakman, then principal of the school, said:

By vocational, we mean the direct benefit to the student of the education they receive at the school in preparing them for the regular work in which they will engage later. In pre-vocational school this vocational preparation goes on while the pupil is still continuing his general education.

Training helps in that it brings "the idea of working and earning a living constantly before his mind." (20, May 2)

It was felt at that time that many of the students left school at the end of the compulsory school age of thirteen, and it was therefore desirous to put the training down on a level where they would get it before they left school. The purpose of the school was twofold from the standpoint of, "the attention given to the ordinary academic work of the school grades concerned, and the special

value of the industrial subjects taught in the school."

(20, May 19)

With the outbreak of war and the enlisting of many of the shop instructors, industrial education was somewhat retarded. According to Mr. J. E. Hanning,¹ then a member of the staff, a center in manual training was opened at Balmoral school in 1916, with three instructors in charge. This marks the first attempt at putting the course on a secondary school level, as woodwork, blacksmithing, and drafting were taught to boys of grades 8, 9, and 10.

In 1920, Mr. Hanning was appointed supervisor of manual training over the thirteen instructors engaged in the work. The same year Dr. Scott became superintendent of schools in the city, and absorbed as well the position previously held by Mr. Kidner. This was a very unfortunate occurrence from the standpoint of the manual training people. Dr. Scott was in no way a "practical" man and was not in sympathy with the manual training movement.

When hard times hit the city in 1923, the shop men were the first to suffer. Many were let go and the class time was cut from half a day a week for practically all students, grades 5 to 10, to one quarter of a day. The work was also limited to those in the elementary grades only. These restrictions continued for about three years, when

¹Information received orally from Mr. J. E. Hanning, past supervisor of manual training in Calgary, April 11, 1950, at Calgary.

the composite high school was built.

Edmonton

The first manual training center was started by Mr. Arthur E. Hutton in Edmonton, at McKay Avenue School in the spring of 1904.¹ In the next three years two more centers were opened at Alec Taylor and Norwood Schools. According to Mr. Hutton, these first attempts at manual training were anything but a success. The benches were poor, the tools were bad, and the school board was very uncooperative. No other shops were opened for some time.

In 1911, faced with the proposition of either closing the shops or doing something about them, the school board engaged Mr. Tom Hughes as supervisor of manual training. He held this position until 1946. Mr. Hughes was a City Guilds graduate from the College of Handicrafts, London, and had been teaching manual training at Newport Maughn, England, at the College of Science, Art, and Technology. A man with plenty of determination and energy, he set about to put manual training on a sound footing. Two more shops were started within the next year.

In 1913 the amalgamation of Strathcona with the city of Edmonton took place. A program was then undertaken to give all the boys from grades 6 to 12 some instruction in

¹Information derived orally from Mr. Tom Hughes, April 13, 1950, at Edmonton.

shop courses. Four more shops were started and the subjects were increased to include leatherwork, house decorating, and some concrete work. These shops and the method of instruction employed may well be classed as the forerunner of the general shop movement in Alberta.

A pre-vocational school was started in 1914, along the same lines as that operating in Calgary. The success of this venture was short lived, however. When a technical school was opened in 1916 some of the pre-vocational students were sent to the technical school while others were turned over to the manual training class at Victoria High School. Grade 9 students, although part of the high school at that time, were kept with the elementary school for manual training purposes. This later assisted in the setting up of the junior high school.

Development after World War I was very slow. From 1920-1930 three new shops were opened at Highlands, Richie, and University High Schools, followed by those at Parkdale, Allen Gray, and Westmount in the early thirties. Shop instruction in the elementary school continued to increase while in the high school there was a general slackening off. In 1940 the technical school was taken over by the provincial government and turned into a vocational school. Shop instruction in the high school ceased and was not resumed until 1949, when it became part of the program of the Victoria Composite High School.

The first interchange program of students between the general shop and the home economics classes was started by Mr. Hughes in 1934. Boys on the grade 9 level spent six weeks of the spring term taking home economics, while the girls took shop work. This has continued ever since.

Lethbridge

Situated in the heart of the coal mining area, Lethbridge was considered as one of the most progressive centers in the province. Her bid for technical education supremacy in the early years far outdid her financial ability. What may have been one of the most progressive movements in shop instruction ended a dismal failure.

The records (17, p.168-270) show that on July 6, 1911, the school board laid plans for the first manual training in this small city. Tenders were let to erect a new building at a cost of \$35,100 to house the shop and home economics departments. Another fund of \$30,000 was set aside for the buying of equipment. At a special board meeting on July 12, 1912 Mr. J. Bailie was appointed instructor and principal of the new school.

When school time rolled around, the new building was unfinished. The shops were temporarily set up in an old garage on the north side of the city, and on September 4, 1912, the Duke of Connaught officially opened the shops in a public ceremony. The courses offered included woodwork,

forging, and metalwork, all under one instructor.

Evening classes were started almost immediately, and another instructor was hired to assist Mr. Bailie. Things went along not too badly for the first year, under the temporary set up. The following summer the board negotiated with the Department of Education to be allowed to operate a summer school for the training of shop teachers. Their offer was rejected.

All the while that the shop was in operation, huge quantities of equipment were arriving, and since there was no room in the shop for them, they had to be put in storage. Public support of the venture began to fall off. During the following year, trying to justify its expenditure, the board made repeated efforts to arouse interest in the program. In the fall of 1913 the provincial teachers convention was held at Lethbridge. A large display was made of shop and home economics work to advertise the activity program as undertaken by the city. No noticeable results were achieved.

Like many other enterprises which start at the top, this manual training movement seemed doomed to failure. On August 13, 1914, a motion by the board to discontinue evening classes in manual training unless further financial aid was received from the department served only to hasten its decline. In January of 1915 a motion by the board to drop the whole field of industrial education saw the closing of the doors at Lethbridge on this major field of

education. The home economics program was stopped at the same time, but commercial work went on for another year before that also was dropped.

Most of the equipment bought for the shops was never unpacked. Large quantities were sold locally to the various industries, while Calgary and Edmonton school boards bought the remainder. It was not until some twenty years later that Lethbridge again attempted a program in industrial education. This time she felt her way upwards rather cautiously.

CHAPTER III

DISSEMINATION OF INDUSTRIAL ARTS EDUCATION
THROUGHOUT THE PROVINCE

When Dr. W. C. Carpenter took over his new duties as principal of the Institute of Technology and Art in 1922, he was also given the position of Provincial Director of Technical Education. "It was under his guidance that the curriculum was prepared, teacher-training centers established, teachers trained, and shops built." (13, p.28) Many of the shops operating today can trace their origin to the influence of this capable man.

From 1920-1929 shop development in the province was at a very low ebb. Grants forthcoming for technical education were mostly diverted to the building of the Institute of Technology and Art; little was left for manual training centers. Dr. Carpenter's energy was largely taken up by the building of the Technical school. He had very little time left to supervise the shop program elsewhere. The only noteworthy advancement made during this whole time was the building of the shops at the Western Canada high school in Calgary in 1929.

As mentioned in a previous chapter, the movement during the early part of this decade was backward rather than forward. Public opinion would no longer support rash spending and there was no room for experimenting. When times did begin to pick up, along came the depression and education

had to bide its time.

The period from 1930-39 is one decidedly different from that of the ten years preceding. The depression taught a lesson that educators will not easily forget. When every other business is slack, attendance at school goes up. The early thirties showed the highest enrollment ever experienced in the public schools. The problem of how best to fit these young people for life was discussed, and a whole new program of education was drawn up for the province, including the following innovations:

1. The schools which had operated up to this time under the 8-4 plan now changed over to the 6-3-3 plan.
2. The "large school division" was introduced, combining about a hundred smaller school districts under one supervisor and one school board.
3. A new curriculum was drawn up for all the schools. Provision was made for the teaching of optional subjects in the junior and senior high school. Shop courses found a definite place in this program.
4. New certification requirements were introduced for teachers giving instruction in the optional subjects.
5. Teacher-training courses were set up at summer school offering instruction in shop courses so that instructors could meet the certification requirements.
6. Increased grants were made available for the teaching of industrial education subjects.
7. It was during this period that the itinerant teacher was introduced in the province to assist in overcoming the shortage of general shop teachers.

Most noteworthy of all the advancement made in education

during that period was the development of the shop courses. With the introduction of the junior high school and the strong desire for subjects of a practical nature, shops sprang up in many of the smaller centers scattered throughout the province. At the spring convention of 1937, Mr. L. H. Bennett, then doing teacher training in the field, stated that the expansion was so rapid teachers would have to be imported to take charge of the centers to be opened. He made the prediction, happily, without full knowledge of the quality of the teachers of the province. They stepped into the field by the various means available, some taking the full year course at the Institute of Technology and Art, others by summer school teacher education, until certification was obtained. In 1939, 101 prospective shop teachers attended the summer school held in Calgary.

(7, p.61)

The seed of industrial education sown during the late thirties continued to grow and bloom in the forties. The period from 1940-1949 is not noted so much for the number of shops started as for the advancement made in the type of instruction offered. This was a period of revamping and expanding, in which much that was good was added. Many of the smaller shops started in the previous period were dropped. They were found to be financially inadequate. It cannot be said they were entirely a failure, for they played a part in advertising the shop program.

During this period a revision of the shop program took place. Committees were set up to call the shop teachers together and revise sections of the curriculum. These in turn reported back to the central committee and a program of studies was set up for the province.

When the farm and home mechanics program was introduced in 1946, the general shop disappeared. After that time the shop program in the intermediate and high school grades, excluding the composite high school, became known as industrial arts.

A great deal of credit for the advancement made in the shop program during that period must go to Mr. A. P. Tingley, past supervisor of technical education for the Province of Alberta from 1945 until March, 1950. It was under his guidance that the revision in the course of studies took place, and that the prestige of the shop program was built up. Through his untiring efforts, the shop men were assured of ready support in any venture they felt was necessary to further the cause of industrial education. The awarding of school time for an annual shop teachers convention, in which ideas were exchanged and problems ironed out, may be attributed directly to him.

The General Shop

"The educational theories that brought to birth the junior high school also produced the demand for some kind

of program of diversified shop experiences for junior high school pupils." (18, p.139) In no other place is this statement more true than in the province of Alberta. Much had been tried and done along the line of manual training prior to this time, but with the adoption of the new courses of studies, instruction in shop work was now put on a new province-wide standard. This was the first time that a standard curriculum was laid down to be adopted by all teaching the course.

Another important feature of the new course was the name itself. Until this time manual training had always been used to define any course pertaining to shop work. After 1936 "general shop" was the term used. This referred to all courses offered in both the intermediate school and the smaller high school, but not to those in the composite high school. "Manual arts" as a term never became popular in Alberta as in the United States.

With the revision of the shop program in 1946, and the introduction of "technical electives" into the composite high school program, general shop gave way to the term used today, "industrial arts." Although this program is basically the same as that laid down under the general shop, it has been modified in some degree to correct many of the shortcomings of the earlier program.

The general shop program as laid down in the course of studies consisted of the optional courses to be offered and

the basic requirements of each. "The primary purpose of education is to develop happy, useful, and successful citizens," (22, p.50) and with this aim in mind, the committee which formulated the course spared nothing. Enough was put into each phase of work to make it interesting and no limitation was put on the number of phases in which a teacher might give instruction at any one time.

"The work of the general shop should be as varied as possible--the limitation being the degree of versatility on the part of the teacher and the range of available equipment and material." (4, p.206)

In all grades drafting was compulsory for all shop students, as was woodwork in grade 7. Other than this, there was no restriction on the courses taught. All students were to be employed to their maximum capabilities, and the work of each graded according to his ability. By this arrangement the responsibility of the teacher was increased, but in return, he was given greater freedom to develop the individuality of the student.

Embodying the essence of the general shop idea, projects involving two or more phases of work were to be encouraged. In smaller centers where facilities were adequate, the combining of students in grades 7, 8, and 9 for shop work was permitted. Girls were allowed to choose general shop as an option, and boys were allowed to take home economics. Each student was to maintain a notebook in

which he kept a record of all his shop projects, sketches of each project, and a daily log of work done. Tools used, special features of design, and materials from which the project was made were also entered as part of the book.

The objectives of the general shop program were clearly defined and differed little from those announced in the United States. Emphasis was laid on the development of the student as an individual, rather than as one of a group. Growth in the development of good habits, the inculcation of respect for honest labor, and a basic knowledge of materials and processes were to be kept in mind at all times. Learning by doing was to be the method used, and demonstrations were to be given right in the shop.

The most notable feature of the whole general shop program was its general acceptance throughout the province. Its flexibility was such that it could be adapted easily to the needs of the one-room school or to the larger programs. The context of the course left the way open so that it could be made to fit the needs of the community, be it an agricultural, mining, or industrial center. No minimum requirements were set down for equipment, and many a well-equipped shop today started on a shoe string. The purpose behind the movement at that time was to get the shops started; once this was done, they would continue to grow on their own merits.

The Composite High School

The composite high school got its first start in Calgary when the new building at Western Canada high school was opened. At that time there was no technical program which would satisfactorily meet the needs of this type of school and a committee was set up to draft one. When that was accomplished, shop courses were put on the same basis as academic courses for credit purposes, an important step towards the advancement of technical education.

The technical school at Edmonton, although not a composite school, adopted the same program with a few minor changes. This center was taken over by the army in 1940 and technical education on the secondary school level was abolished in Edmonton until 1949.

Red Deer was the next center in the province to open a composite school in 1946. The general shop program had been taught there since 1939 and had continued to grow steadily. With the Red Deer school division providing dormitories in its new high school, the enrollment of the center was more than doubled. A new shop was built to accommodate those wishing to take a technical course. At present five full-time instructors are engaged. The facilities and equipment are on a par with any to be found in the west.

Medicine Hat is another center in the province which has recently embarked on a technical program. In 1946 unit shop

courses in woodwork I and electricity I were started. The following year they purchased the old DVA plant and offered the second unit of the above courses. The offerings were increased to include automotives and metal work in 1948. At present four full-time instructors are engaged to teach the three units of the above courses.

Grants in Aid of Technical Education

Provincial aid toward technical education was very slow in making an appearance. Dominion aid had ceased officially in 1929, although an amendment to the Act in that year stated: (8, p.63)

That the Technical Education Act be amended to provide that any balance of the ten million dollars appropriated under this act, unexpended on the 31st day of March, 1929, should remain available during any one or more of the five succeeding fiscal years but no portion shall be paid to any province after 31st of March 1934.

Alberta was one of the provinces which had taken advantage of the Dominion aid and had almost used up her quota by the 1929 deadline. The city of Calgary had received the greatest portion, having built and equipped the Institute of Technology and Art and the technical shops at Western Canada high school.

Provincial grants for night school instruction were first given in 1913, but it was not until 1923 that assistance was given for shop courses in the day school. The School Grants Act read as follows: (5, p.65)

There shall be paid to every district employing fewer than thirty teachers and providing instruction in household economics, shop courses, commercial work, music, art, or technical subjects the following grants, that is to say:

- (a) A grant, where instruction is given in household economics, shop courses, music or art by approved teachers, equal to that paid for the regular grade teachers in the same district;
- (b) A grant equal to 25 per cent of the expenditure on approved equipment especially provided in any year, and used in giving instruction in such subjects, up to a maximum grant of twelve hundred dollars.

If the school district employed more than thirty teachers, a grant equal to 40 per cent of the teachers salary would be paid. This grant was not to exceed five hundred and forty dollars.

This scale of grants continued until 1937, when the department felt that more should be done to encourage industrial education. To encourage the consolidating of districts for this purpose, an Act was passed which read as follows: (5, p.152)

When any two or more districts have entered into an agreement under the provisions of the School Act for the purpose of providing instruction in shop courses, household economics, or commercial work, there shall be paid the following grants, that is to say:

- (a) A grant equal to 50 per cent of the salaries and traveling expenses of teachers of approved qualifications giving instruction in such subjects up to a maximum grant of two thousand dollars; provided that the minister may apportion the payment of such grant among the districts having entered into such agreement;

- (b) Once only, a grant equal to 50 per cent of the cost of approved equipment provided to give instruction in such subjects up to a maximum grant of one thousand dollars;
- (c) A grant of 50 per cent of the cost of all additional equipment provided for giving instruction in such subjects after the first equipment, up to a maximum grant of one hundred dollars a year.

These grants continued in force until 1945, when the department again saw fit to increase those for shop instruction. Where previously the shop teacher drew the same grant as the academic teacher, this was now changed so that he would receive one hundred and fifty dollars more. The grant of 50 per cent of the cost of additional equipment was cut to 25 per cent in the hopes that more shops would take advantage of the higher rate with better initial installations resulting. These grants are still in effect.

In 1942, the Department of Labor again came forth with financial assistance for instruction in industrial education. The Vocational Training Coordination Act, (23, p.179) is still in effect and permits financial assistance to be given, among other purposes, to any province for "the development and carrying on of vocational training on a secondary school level." Both Edmonton and Calgary qualify for these grants with their composite high schools.

Certification of Industrial Education Instructors

When the province of Alberta was first established in 1905, a department was set up to administer laws pertaining

to education. Two normal schools were started in 1908, one in Calgary and one in Edmonton, offering a one-year teacher training program. The normal schools were the first to offer manual training instruction on a teacher-training basis. In his report to the Royal Commission, Mr. J. C. Miller says: (20, p.2294) "Manual training is part of the course of the practice school and a little manual training is taken by the students of the normal simply as a phase of method."

Certificates issued by the school were of three types, first, second, and third type. All were of a temporary nature, and two satisfactory inspector's reports had to be obtained before they were made permanent. There was no marked change in this certification until the introduction of the intermediate school when teacher certification underwent a wholesale change. Before any person may teach in the public schools of the province, he must first be a holder of a general certificate. The following list gives the five types and the grades for which a license to teach is awarded. (6, p.13)

Second Class, interm or perm.	I - VIII
First Class, interm or perm.	I - XII
Elementary and Intermediate, interm or perm.	I - X
Academic	I - XII
High school	VII - XII

The first two types of certificates were not issued after 1937 but remained as a permanent license to teach in the grades designated.

From this time on the general certificate had to be supported by a special certificate if the instructor wished to teach any of the optional courses. Under former regulations, special certificates, including vocational certificates, were granted to persons who did not hold a general certificate or other form of academic standing. These certificates allowed those possessing them to carry on instruction along only that one particular line for which the certificate was issued.

Special certificates issued from this time on were of three grades--junior, senior, and advanced. These were obtainable for all optional subjects, although the only one of interest in this report is that for the general shop and shop subjects.

The ruling laid down for the issuing of these special certificates was: (6, pp.20-21)

1. The junior certificate in general shop and shop subjects (permanent) may be granted to a teacher holding the elementary and intermediate school certificate, the first class certificate, or a higher certificate (i) who has attended two summer-school sessions in Alberta, with an attainment of twelve credits in shop courses; or (ii) who has attended elsewhere two summer-school sessions, each of at least five weeks duration, with successful attainment in a required number of shop courses which have been approved by the Department of Education.
2. Under the foregoing conditions, a teacher who has attended one summer-school session, with an attainment of six credits, or with an attainment equivalent thereto and approved by the Department, may be granted an interim junior certificate in general shop and shop subjects, valid for two years.

3. The senior certificate in general shop and shop subjects (permanent) may be granted to a teacher holding the elementary and intermediate school certificate, the first class certificate, or a higher certificate (i) who has attended four summer-school sessions in Alberta, with an attainment of 24 credits in shop courses; or (ii) who has attended elsewhere four summer-school sessions each of at least five weeks duration, with successful attainment in a required number of shop courses, practical and theoretic, which have been approved by the Department of Education; or (iii) who has attended at least one year, with successful attainment, a recognized school offering teacher-training courses in general shop and shop subjects, such courses having been approved by the Department of Education; or (iv) who, having been granted a junior certification in general shop and shop subjects, has taken further training outside the province, sufficient to meet the requirements specified either under clause (ii) or under clause (iii), preceding.
4. The advanced certificate in general shop and shop subjects may be granted to any person holding the first class, academic, or high school certificate, together with the senior certificate in general shop and shop subjects (i) who thereafter has attended four summer-school sessions each of at least five weeks duration, with successful attainment in a required number of shop courses, practical and theoretic, which have been approved by the Department of Education and in addition to those required for the senior certificate; or (ii) who thereafter has attended for at least one year, with successful attainment, a recognized school offering teacher training courses in general shop or shop subjects, such courses having been approved by the Department of Education, and being in addition to those required for the senior certificate.

Prior to 1937 teacher training, along industrial education lines, had to be taken outside the province. Many of the first instructors received their preparation in England, while those of a slightly later date attended Teachers' Training College at Hamilton, Ontario. In more recent years, and where a degree was desired majoring in the field of

industrial education, the general tendency was to attend one of the more progressive institutions in the United States. There was little uniformity of certification, and no standards by which to judge the credits received from the different institutions.

The first summer-school course in Alberta for the training of shop teachers was held at the Institute of Technology and Art in the summer of 1937. The program consisted of two and one half hours of laboratory work in each subject, plus a one hour lecture on the philosophy, objectives, and methodology as applied to shop instruction. Each course was weighted at six credits, with two courses considered a full load. Classes ran for five weeks. The subjects offered were woodwork, sheet metal work, art metal work, electricity, arts and crafts, and drafting. Since that time, automotives, machine shop, and farm and home mechanics have been added.

Since 1945, certification of teachers has been taken over by the university. Due to pressure from the Industrial Arts Teachers' Association, a Bachelor of Education degree, with a major in industrial arts is now offered by the University of Alberta. This marks the first industrial arts course offered on a degree basis in Canada. Credits earned at summer school towards a special certificate can now be counted towards a Bachelor of Education degree.

The revision of the general shop program in 1945 by the

shop teachers under the guidance of Mr. Tingley brought about a new industrial arts era in the junior high school. Although the name of the course was changed and the number of working areas to be offered at one time was decreased, little change took place in the shop itself. This program was not put into final form until 1949.

Keeping pace with the revised program came the revision in qualifications of its instructors. These were published for the first time in the 1950 calendar of the University of Alberta. It is not expected they will be rigidly enforced until instructors have had time to comply with them. The basic certificates for instructors of industrial arts subjects remain the same as formerly for general shop courses, but the qualifications necessary to obtain these certificates have been increased. Six shop courses, plus certain theory requirements, are the basis for the junior certificate, where formerly only four courses were necessary. Requirements for the senior and advanced certificates were increased proportionately.

The technical electives program of the unit shops in the composite high school is at present under revision. Since the standard of these courses is expected to be raised considerably, due to the influence of the apprenticeship standards, it is only reasonable to expect higher qualifications of the instructors. Many articles have been written voicing various opinions concerning the qualifications

necessary to carry on shop instruction on the secondary school level. Freise, as long ago as 1934 stated: (1, p.157) "...to be fully competent, he must have wage earning experience in the activities he teaches."

Mays, in a more recent article on trade training, says: (19, p.402) "...there will be a growing pressure upon the high school industrial arts teachers to have trade experience as part of their preparation, and constant contact with industry will be imperative....this will not mean less college training, but more vacation periods spent in industrial employment by industrial arts teachers."

Unlike the industrial arts course, the qualifications for the technical-elective instructors have preceded the course of studies. Bearing out the predictions as voiced by those prominent in the field, trade training has been made one of the principal qualifications.

The certification of unit shop instructors follows much the same pattern as that of the industrial arts teacher, but is of a much more advanced character. The certificates issued will be those of a specialist in each subject. The fields are mechanical drawing, woodwork, electricity, metalwork, and automotives. Specialist junior, senior, and advanced certificates are issued with possession of journeyman's qualifications, or its equivalent, plus advanced work towards a Bachelor of Education degree taken in the Faculty of Education, University of Alberta. For

the advanced specialists certificate, full degree standing plus fifteen months industrial experience in the field of specialization are required.

CHAPTER IV
PRESENT STATUS OF INDUSTRIAL ARTS
EDUCATION IN ALBERTA

With the passing of the general shop and the advent of the industrial arts period, a new program of studies was drawn up. The Supervisor of Technical Education, Mr. A. P. Tingley, appointed committees throughout the province to formulate a new program based on their contact with the instructors in the field. When this was accomplished, all recommendations were forwarded to a central committee on industrial education, and they, working in conjunction with a junior high school curriculum committee, formulated a tentative program to be tried out for three years.

Close watch was kept on the program, and each year at the provincial conference, discussions were carried out relating to the work. In the spring of 1949 the committees met again and ironed out the remaining noticeable kinks which had appeared. By September the revised program was published in bulletin form and circulated among the industrial arts instructors.

Curriculum Requirements

The drafting of a course of studies suitable to meet the needs of all the junior high schools in the province was not easy. The population is widely scattered, with

the occupations of the inhabitants ranging from farming to industry. After taking all things into account, a list of objectives based on attitudes, appreciations, understandings, skills, and abilities was laid down. The minimum time to be spent on each subject was specified, as well as an outline for each course.

The industrial arts program for the junior high school is divided among the three grades, 7, 8, and 9. The different phases of work to be taught must include some of the following: drafting, woodwork, metals, electricity, concrete, leatherwork, plastics, and bookbinding. The program for grade 7 is the same throughout the province. The courses are drafting, woodwork, and general metal work. Rigid time requirements are also laid down the the forty school weeks divided as follows: 8 weeks for drafting, 20 weeks for woodwork, and 12 weeks for metal work.

Eight weeks of drafting is compulsory in all three grades of the intermediate school. Woodwork for 16 weeks is compulsory in grade 8, while 16 weeks of electricity is compulsory in grade 9. The remainder of the time each year may be spent on any one of the courses listed above.

Girls as well as boys may elect industrial arts as an option in the intermediate school. This practice, however, has been discouraged in view of the limited space and the danger of breaking up the home economics classes for girls.

Since the personnel of classes is not homogeneous, no

minimum requirements are set out for the year's work. Achievement is expected to be commensurate with capacity. Theory and project activity should be considered as complementary, while related information should be added as the need arises.

To assist the beginning shop teacher, each subject is dealt with in detail. References are given where additional information may be secured to enrich the present program. It is expected that each student will be kept working at the height of his capacity. The welfare of the individual is all important throughout the entire program.

Types of Shops in Operation

Industrial education shops in the province today fall into three classes--those for industrial arts courses, those for farm and home mechanics, and the unit shop where technical electives are taught. The first two types were developed to meet the needs of the smaller centers and the junior high school program of the cities. The unit shop finds its place in the larger composite high school, and is especially designed to meet the needs of the industrially minded student.

The farm and home mechanics course was first introduced in 1946 with the special objective of giving the rural boy something that would be of real value in his environment. The shop differs very little from the industrial arts shop,

but subjects offered have more direct bearing on rural life. This course has become very popular in the short time it has been in existence, and the majority of the rural shops have changed over to present it in preference to the industrial arts course. In many of the smaller centers, where both rural and town boys attend, both courses are offered. The farm and home mechanics program may be followed through the high school.

In many cases throughout the province the type of shop varies with the type and needs of the school. Although the curriculum is, in effect, quite rigid, it is still flexible enough to allow for individual enterprise. A glance at table II gives to some extent the frequency of courses taught in the various centers. It must be remembered, however, that these figures are not entirely based on student choice, since woodwork and electricity are compulsory subjects in the industrial arts program for grades 7 and 9 respectively. In some cases the cement work, as reported, was generally taught as part of the farm and home mechanics program.

The number of instructors engaged in the various types of shops is readily available in table III. No distinction is drawn between shops which offer the industrial arts course or those offering the farm and home mechanics course, since in many cases they are both taught in the same shop. In five cases there is a combination of industrial arts and

the unit type shop serving the needs of the community. Technical electives definitely constitute work on the secondary school level, each course offering 8 credits toward high school graduation. To meet the needs of the more mechanically minded student, 16 credits may be earned towards graduation by taking two unit courses per year. Industrial arts courses in the high school carry a graduation value of only 4 credits. The time spent in taking the course is commensurate with the credits earned. Table IV gives a fairly accurate picture of the number of credits the different teachers are offering towards graduation in their shop centers.

TABLE II

Frequency of Courses Taught by 87
Shop Instructors in Alberta

Course	I. A. Shop	Unit Shop
Woodwork	62	11
Farm and Home Mech.	26	
Electricity	59	4
Metal	36	4
Auto		7
Leather	23	
Machine Shop		3
Printing		3
Cement work	4	
Arts & Crafts		1

TABLE III

Types of Shops 87
Instructors are Engaged in

Type of Shop	Number of instructors
Industrial arts and Farm and home mechanics	41
Industrial arts and farm and home mechanics shops on circuits	20
Unit shops	23
Industrial arts and unit shops combinations	5
	<u>5</u> *
	89

*

Two shops offering both Industrial Arts and technical electives are repeated under the circuit group.

TABLE IV

Number of Instructors Offering Courses
Carrying Various Graduate Credits

Number of credits	Number of instructors offering courses
0 - 10	8
11 - 20	7
21 - 30	5
31 - 40	5
41 - 50	9
51 - 60	<u>1</u>
	35

Table V gives the laboratory time of the various shops. In the industrial arts shop the average length of period appears to be two and one half hours once a week, with a number of shops reporting three hour classes. The majority of unit shops report a much shorter time spent in the shop at one session. The reason behind this is apparently the fact that the school day is divided into eight 35-minute periods for the secondary school. As the students must take other academic subjects, it is advantageous to have shorter shop periods for a greater number of days each week in order that there may be less clashing in the timetable.

Table VI gives comparative figures on the enrollment in the secondary school shop courses. Since these figures do not include the new composite high school in Edmonton which opened in the fall of 1949, table VII has been added to give a more complete picture. It may be pointed out here that the number of girls taking certain shop courses is fairly low, since many schools prohibit them taking shop electives.

As heretofore mentioned, special grants were set up to encourage two or more districts to combine for shop instruction. This brought about the itinerant instructors, whose duty it was to serve two or more of these centers. At present there are 22 circuits in operation under this system. Table VIII shows that the majority of these instructors have

TABLE V
Length of Shop Working Period
For 84 Instructors

Number of minutes	Industrial arts and farm and home mechanics shops	Unit shops
50 - 59	1	2
60 - 69		3
70 - 79	2	9
80 - 89	1	
90 - 99		1
100 - 109		1
110 - 119		4
120 - 129	7	1
130 - 139	1	2
140 - 149	5	1
150 - 159	40	3
160 - 169	2	
170 - 180	15	
	75	26

In some cases where an instructor was engaged in teaching both I. A. and technical electives, and the lab. periods differed, two times were listed.

TABLE VI

Enrollment of Students in Technical
Elective Courses January 1, 1949

Subject	Grade X		Grade XI		Grade XII		Total
	boys	girls	boys	girls	boys	girls	
Wood I	216	5	95	2	74	4	446
" II			77	2	12	2	98
" III					32	7	39
Metal I	146		33		47		226
" II			47		6		53
" III					13		13
Electricity I	120		78		45		243
" II			63		2		65
" III					9		9
Auto I	163		62		21	2	348
" II			73		17		90
" III					19		19
Arts & Crafts I	42	39	7	20	3	17	128
" II			15	13		4	32
" III					2	4	6
Drafting	5		9	9		2	25
Farm & home mechanics I	47		13		15		75
" II			10				10
General Shop I	403	41	160	28	62	21	715
" II	1		153	8	37	7	206
" III					9		9
							2940

TABLE VII

Summary of Total Enrollment and Courses offered
at Victoria Composite High School Edmonton
1949 - 1950¹

Day classes		
Automotives	I	242
Woodwork	I	99
"	II	10
Electricity	I	93
"	II	28
Metals	I	91
"	II	17
Total		580

¹Data obtained from Mr. W. E. Robinson, Supervisor of Industrial Arts for the city of Edmonton, by letter, April 21, 1950.

only two shops on their circuits, while three have five or more. For these traveling assignments, the teachers are required to supply and maintain their own cars. Expenses are generally paid on a mileage basis, with the cost divided between the centers served and the provincial government.

The itinerant industrial arts teacher of Alberta must be a hardy soul, imbued with missionary spirit and zeal, for he is in constant conflict with the elements, roads, and time. His schedule is governed by a school bell miles away. He must bear out the tradition that teacher are always on time, whether the temperature has dropped to

forty below, or the roads have become axle-deep in mud. In spite of the difficulties encountered, the itinerant teacher is doing a work of inestimable value by bringing the advantages of the industrial arts and farm and home mechanics programs to students in widely scattered and outlying districts.

TABLE VIII

Itinerant Circuits of Industrial Arts Teachers
(Alberta)*

Types of Circuits	Numbers of Each
2 shops	14
3 shops	3
4 shops	2
5 shops	1
6 shops	<u>2</u>
	22 circuits

*

Information obtained from supervisors records, March, 1950.

A number of the towns of the province find it advantageous to have shop instructors use part of their time in offering other courses of the curriculum. Table IX shows that only 61 of the 87 teachers reporting teach shop courses full time. No survey was made as to the combination best suited to fill out the remainder of the time with the shop instructors, but from personal contact with a large majority in the field, no set combination seems to exist.

TABLE IX

Percentage of Time Spent Teaching
Shop Courses of 87 Instructors

Percentage of time	Number of instructors
1 - 10%	5
11 - 20%	5
21 - 30%	3
31 - 40%	4
41 - 50%	4
51 - 60%	2
61 - 70%	1
71 - 80%	1
81 - 90%	1
90 -100%	61
	87

The report as shown in table X gives some idea about the special facilities available to shop instructors. Only 18 out of the 87 report an office of their own, while all the others show grave deficiencies. The drafting room report is by far the worst, since it is impossible to carry on satisfactory instruction in this course without at least mediocre facilities.

TABLE X

Special Shop Facilities
Available to 87 Instructors

Special facility	Number available	Number affected
Finishing room	45	73
Drafting room	20	87
Office	18	87
Storage room	48	87

Qualifications of Instructors

In previous chapters the requirements for certification of industrial teachers has been discussed. It is now important to see how well the qualifications of the instructors in the field meet these requirements. The vast difference between a teacher having only the minimum qualifications for a position, and one well trained for his work, has come to be recognized by most educational authorities. Givens puts it thus (14, p.52): "The quality of the teaching staff is the most important factor in the quality of education that a school makes possible."

All instructors in the province must first hold a professional certificate, which insures an academic background for the work they are doing. This regulation has now always been in force, and a glance at table XI reveals that 3.4 per cent of the 87 teachers have come into the field with inadequate backgrounds, 2.4 per cent more are teaching on a letter of authority. This indicates they have inadequate qualifications at present, but are working towards professional improvement.

Until the present time the demand for shop instructors far exceeded the supply. Despite this fact, table XII shows that 84.2 per cent of the teachers have obtained a senior shop certificate or better. Only 3.4 per cent have been conscripted from industry and show an inadequate

background. Since the new standards of certification have just been published, tables XI and XII are based on past certification standards. An evaluations committee of the board of teacher education and certification has been set up recently to deal with the certification of teachers trained outside the province and to evaluate their transcripts in terms of provincial standards.

TABLE XI

Professional Certificates held by 87 Shop
Teachers in Alberta

Certificate	Teachers	%
First Class	55	63.2
Elementary and Inter.	8	9.2
Senior High School	18	20.7
Vocational	3	3.4
Letter of Authority	2	2.4
Second Class	1	1.2

TABLE XII

Special Certificates Held by 87 Shop
Teachers in Alberta

Special Certificate	Teachers	%
Junior Shop	6	6.8
Senior Shop	38	43.6
Advanced Shop	35	40.6
Letter of Authority	2	2.3
Permanent Vocational	6	6.8
Temporary Vocational		

Table XIII gives the self rating of experience in a trade or trades, and shows that over half the instructors have had trade experience ranging from one to more than ten years. By combining this information with that in the previous table, one might readily conclude that "Specialists Certificates" would be in order for about 50 per cent of the teachers reporting. It must be kept in mind, however, that trade qualifications in Alberta have specific requirements, and that proof of having met these requirements must be given before a person will be allowed to sit for his qualifying examination. The table does point out the fact that industrial education instructors are backed with a wealth of practical experience, which is invaluable from a teaching standpoint.

TABLE XIII

Trade Experience Reported by 87 Shop
Teachers of Alberta Schools

Years Experience	Number of teachers
Over 10 years trade experience	9
From 6 to 10 years trade exp.	6
From 1 to 5 " " "	32
Less than 1 year " "	8
No trade experience	32

The professional status of the shop teachers is clearly shown in table XIV. Here a total of 45 degrees are distributed among those teachers reporting. Table XV gives the

relative years when these degrees were obtained. The progressiveness of the industrial education teacher may well be realized as 31 of the degrees were obtained within the past five years.

TABLE XIV

Degree Status of 87 Industrial
Education Teachers

Degree	Number of teachers	%
Bachelor of Science	19	21.9
Bachelor of Arts	5	5.7
Bachelor of Education	21	24.1
Master of Science	1	1.1
Master of Arts	1	1.1
Master of Education	1	1.1
No degree	42	48.2

TABLE XV

Periods in which Degrees of 45
Shop Teachers were Obtained

Period	Number of Degrees
1920 - 1925	1
1926 - 1930	3
1931 - 1935	3
1936 - 1940	5
1941 - 1945	5
1946 - 1949	31
	48

The above numbers include three Masters degrees

An examination of table XVI with the purpose of obtaining the institutions responsible for the training of

industrial education teachers shows that 60 per cent obtained degrees from the University of Alberta. Twenty three of the 27 degrees reported were obtained under the new Bachelor of Education program adopted by the university in 1945. Many of the credits earned towards these degrees were built up by teachers in the field attending the Institute of Technology and Art during the summer sessions.

The annual exodus to American universities has many commendable features, for individual ideas are not only broadened, but the ideas and ideals of nations are brought closer together and provincialism is broken down.

TABLE XVI

Colleges and Universities where Degrees of 45
Industrial Education Teachers were Obtained

Place	Frequency	%
University of Alberta	27	56.16
Bradley University, Peoria, Ill.	12	24.96
Colorado A & M	3*	6.24
University of Saskatchewan	1	2.08
McMaster	1	2.08
Columbia	1*	2.08
Stout Institute	1*	2.08
University of London	1	2.08
University of Quebec	1	2.08

*Masters degrees counted as separate degrees above.

Audio-visual Education in the Industrial Education Program

One of the very commendable features about the Department of Education's film extension library is its wide range of films. These are loaned to the schools at cost sufficient only to cover the postage and handling. In order for a school to participate in this scheme all it must do is place a small deposit with the Department and give a month's notice as to when a film is desired. Three films to a school per week is the limit, although special consideration is given individual cases. A catalogue is published bi-annually for all schools participating, in order that they may select and order the desired films ahead of time.

The films on industrial subjects range all the way from arts and crafts to the most technical operations. There are many good films on the origin and manufacture of many industrial products. The extent to which the industrial education teachers of the province have availed themselves of these valuable teaching aids may be judged to some extent by the number who have projectors for these films. Over 35 per cent of the teachers reporting on table XVII have machines suitable to handle these films. Over 15 per cent more indicated they used some type of silent projector, principally of the "Jam Handy" type. About 13 per cent more gave reference to either the use of slides or charts in their shop work. Visual aids have come to play an

increasingly important role in the theory phases of the shop teachers work.

TABLE XVII

Visual Aids Equipment used by 87 Instructors

Equipment used	Number of cases	%
Moving projector (sound)	30	35
Films (Silent)	13	15
Slides	4	5
Charts and placards	5	6
	52	62

Attitude Toward Industrial Education

Although the supervisory program in Alberta schools is authoritative in principle, it is nevertheless quite democratic in outlook. The Department of Education is always open to suggestions. Where these are backed by the demands of the community, action is usually taken to see that they are satisfied. Local authorities have the right to decide whether or not certain elective courses are to be offered in the school. Once a course is adopted, the Department sees to it that qualifications of the instructor, shop facilities, and time allotment meet the required standards for that program.

Graduation from high school in the past was based on college preparatory courses. Finding that this failed to

meet the needs of a large proportion of the students, graduation requirements were revised. Today a student may leave grade 12 with a clear sheet, having graduated with certain compulsory courses and a wide selection of general electives. Should a student change his mind and wish to go on to college, he is only obliged to make up those courses in which he is deficient.

The popularity of the shop program, offered as a general elective, is summed up in table XVIII. This seems to indicate that in general, the public is well satisfied with the type of course offered. The findings of this table, although based on teacher ratings, seem to be well borne out by the large attendance at shop demonstrations and at exhibitions of work done by the students.

TABLE XVIII

Community Reaction Towards Shop Instruction
(87 teachers reporting)

Attitudes	Number reporting
Opposed	-
Indifferent	-
Tolerant	5
Favorable	62
Enthusiastic	26
	93*

*

Some instructors reported more than one attitude where they taught two or more centers.

It was felt in making the survey that it would be very profitable to find out upon what objectives the various instructors placed greatest emphasis in the courses they offered. Table XIX shows the results of the findings. Sixty-one of approximately 85 gave first place to either elementary skills or habits and appreciation. It might be noted also that 41 out of 75 reporting voted the vocational end in fifth place or lower.

TABLE XIX

Evaluation of Objectives by Alberta Shop Teachers

Objectives	Distribution of rankings					
	1st	2nd	3rd	4th	5th	6th
Elementary skills	37	18	13	14	1	1
Exploratory	19	13	15	23	8	-
Vocational	3	10	13	6	38	3
Creative expression	8	18	21	20	13	4
Habits and appreciation	24	27	21	8	3	
General knowledge						
Cooperation						
Pleasure						
Consumer knowledge						
Guidance						

Other objectives were added to the list by various instructors, and although their frequency was in no way sufficient to exercise a bearing on the results, they are nevertheless worth recording. General knowledge, cooperation, pleasure, consumer knowledge, and guidance formed the majority of those added.

The advancement made in offering instruction in shop courses may be seen by glancing at table XX. Over 78 per cent of the instructors report that their shops were started within the past twenty years. This figure might be increased considerably by taking into account the 15.39 per cent who did not know when instruction was first offered in their center.

TABLE XX

Periods when Shop Instruction was First Offered
in Centers Throughout the Province of Alberta

Year period	Number of centers	%
1905 - 1910	1	1.09
1911 - 1915	5	5.49
1916 - 1920	1	1.09
1921 - 1925	-	
1926 - 1930	13*	14.3
1931 - 1935	2	2.18
1936 - 1940	29	31.9
1941 - 1945	13	14.3
1945 - 1950	14	15.39
Shops reported unknown	<u>14</u>	15.39
91 centers		

*

11 of these are from Western Canada H. S. built in 1929

By the statistics offered in table XXI, the outlook of the shop is fairly bright. Many factors, however, are influencing both the number of shops in operation and the type of courses offered. Like many other high-quality commodities, the shop teacher in Alberta is at a premium. According to a report from the past supervisor, 11 shops in

the province were closed during the 1949-50 school year for want of qualified instructors.¹ At present the demand is greater than the supply, and it looks as if progress along these lines will be detained until a sufficient number of instructors can be trained to cope with the situation.

TABLE XXI

Trend in Future Shop Offerings
(87 Shop Instructors Reporting)

Shops	Number	%
Increasing offerings	20	23
Decreasing "	6	6.8
Remaining the same	61	70.1

Industrial Arts Teachers Organization

With the growth of industrial education in the province and an ever increasing number of teachers finding their way into the field, it became evident that an organization of some type was necessary if these teachers were to exercise a voice in the building of the shop curriculum. Such an organization was formed at the summer school in Calgary in 1941, and has since grown to form a very important part in the life of every industrial education teacher. The organization at that time was called Industrial Arts Teachers Association, and started with an initial membership of 76. A shop magazine was published monthly, outlining

¹Information by Mr. A. P. Tingley, orally, past supervisor of Technical Education for the province, at Calgary, 1950.

objectives and principles of shop courses, and expressing personal views on various aspects of the profession.

One of the principal aims of the organization was to have all industrial arts teacher-training courses placed on a basis whereby they would be credited towards a B. Ed. degree. The teachers were successful in their endeavor in 1945, when the University of Alberta offered a new course with a major in industrial arts education.

Another objective set up by the organization was that of having an annual provincial convention. With the assistance of the supervisor of industrial education, this was realized in 1948. A two-day convention was held at Calgary on May 22 and 23, with a total attendance of 92 per cent of the teachers in the field. Since then the convention has been held annually with very little slackening off in attendance.

As time elapsed, many technical points of the organization needed ironing out. The name selected met with disapproval from the technical-elective teachers, in that the name Industrial Arts no longer included them. It was changed to Industrial Arts and Technical Education Association in 1948 and this name is still used. The work of the organization is very commendable from the standpoint of fostering goodwill and interest in the "practical field" of education.

Evening Classes

The status of the evening classes in the province has never been very clearly defined. In earlier times a combination of central and local authority seemed to administer these classes, which were mostly of a vocational nature. The early need for night classes seemed greatest during the period before World War I and directly following it. This need was brought about by the influx of immigrants who found it necessary to increase their knowledge of mining engineering if they were to be successful in the mining industry. A glance back at table I will show that practically all the evening classes, other than those at Calgary, Edmonton, and Lethbridge, were offered in mining towns. With the socio-economic changes of the depression years, these classes disappeared.

Table XXII is a summary of present offerings at evening classes by the shop instructors of the province. These classes are not on a vocational level, but rather of a hobby nature and no set program has been laid down. Instruction offered is in accordance with local demands. Vocational schools are still offering instruction through evening classes, but they come outside the scope of this report. Table XXIII deals only with those courses offered in the shops of the province under local authorities at Edmonton.

TABLE XXII

Enrollment in Evening Classes December 31, 1948

Course	Men	Women	Total	Number of Centers
Woodwork	293	109	402	23
Leather work	38	42	80	6
Arts and Crafts	5	25	30	1
Electricity	75	-	75	1
Unspecified courses offered	-	-	-	4
			587	35

TABLE XXIIIEnrollment in Evening Classes Offered at Victoria
Composite High School Edmonton, 1949-50¹

Course	Total enrollment
Elementary Wood	22
Advanced Wood	29
Steel Square	18
Electricity Theory	19
Electricity Code	17
Radio	12
Elementary Drafting	23
Advanced Drafting	17
Machine shop	32
Automotives	15
Welding	17
Art metal	9
Total	230

¹Personal letter from Mr. W. E. Robinson, supervisor of industrial arts, Edmonton, April 21, 1950.

Teacher Load

With a shortage of shop teachers in the province, it is only reasonable to expect the pupil-teacher load to be greater than desirable for efficiency of instruction. Table XXIV is representative of the enrollment in shop courses as experienced by the 76 instructors reporting.

Few men in the field of industrial arts education have ventured to say what the pupil load of the shop teacher should be. Ericson, (12, p.151) made an attempt to define it in terms of total enrollment of boys in the school, which would seem to be a satisfactory measure where the school is a standard high school of reasonable size, and mixed classes are not permitted. It does not seem satisfactory, however, for use in the larger centers in Alberta, since classes there attend shop centers at different schools throughout the city.

A more satisfactory standard would appear to be the pupil load per class period. For some time now, it has been the policy of the supervisor of industrial education to put his stamp of approval only on those classes containing 20 pupils or less. Thus in one week of 10 industrial arts periods, the shop teacher would be able to handle from 150-200 students through a $2\frac{1}{2}$ hour shop session per week, and still retain a half hour period per day for shop maintenance. This seems to be the pattern around which the

majority of the industrial arts shops in the province work, although it is a heavy load.

Upon comparing this standard with the figures of table XXIV, it can be seen that 17.4 per cent of the industrial arts shops fall in the critical upper bracket, while 7.6 per cent are definitely overloaded. Since these two groups form almost one quarter of the shops reported, it may be reasonably stated that an overload condition does exist.

The technical elective instructor has a slightly different problem. Those students attend for a definite number of periods per week in proportion to the number of credits they will receive. A student taking an 8-credit technical course is obliged to spend 8 periods per week in the shop, or on complementary work. Since the school day is divided into 8 periods and instruction is carried on for 5 days per week, the maximum hoped-for enrollment would be 5 classes with a maximum of 20 each, or 100 students. In all fairness to the instructor, he should be allowed one period per day for shop maintenance, thus making the maximum enrollment per technical instructor 80 students.

Comparing these figures with those of table XXIV shows a much sadder picture than that for the industrial arts instructor. Almost 62.5 per cent of those reporting carry too great a load for effective instruction. It is important to note, however, that since the unit shop courses consist of orientation of the same pupil for a longer period

of time, the technical elective instructor in all probability has a lighter teaching load than has the industrial arts teacher.

TABLE XXIV
Teaching Load of Shop Instructors*

Pupil load	Industrial Arts and Farm and Home Mechanic shops		Unit shops and Combination shops	
	Number	%	Number	%
20 - 50			3	12.5
51 - 75	2	3.8	6	26
76 -100	6	11.5	7	29.4
101 -125	12	23.1	5	21
126 -150	12	23.1	2	8.4
151 -175	7	13.4	1	4.2
176 -200	9	17.4		
200 - or over	4	7.6		
	52 reporting		24 reporting	

*Table computed on basis of 100 per cent of time spent teaching shop courses.

CHAPTER V

TRENDS EVIDENT IN THE FIELD
OF INDUSTRIAL EDUCATION IN ALBERTAThe Part-Time Work Program

Starting in the fall of 1950, Western Canada High School in Calgary will try out a part-time work program that will give the student credit towards graduation for work done during school hours under the supervision of certain employers. The field has been canvassed for those employers willing to cooperate in this scheme, and to date a number of employers have subscribed. This method has the advantage of on-the-job training, and at the same time, furthering the academic standing of the student. The supervisor at Edmonton intimated that a similar program was to be organized there.

Practical experience under the direct supervision of the instructor has been gained in some of the centers by having the advanced shop pupils work on real units. In Red Deer the school board purchased a site, and the third year woodwork students built a modern bungalow. When completed, the house was sold and the profit was added to the school's general fund. At present a similar proposition is before the school board in Medicine Hat.

Safety Education in the Public Schools

Safety education in the shop has always been part of the job of the instructor. Since safety in industry has come to play such a vital part of our every-day life, and thousands of man hours are lost each year because of neglect and failure to realize the importance of it, the Workmen's Compensation Board has decided to assist in the instruction offered in the school. Starting in the fall of this year, a paid employee of the Board will visit all the shops of the province for a day or two in both the fall and spring, and carry on a safety program. Final arrangements have been made regarding this proposition and the Department of Education has given its consent on the matter.

Apprenticeship Credit for Shop Courses

For some number of years the general feeling among the technical-elective teachers of the province has been that credit should be given towards an apprenticeship training program if a student completes three years of a given trade course in the high school. Table XXV seems to bear out this statement. The amount of credit they should get on a three year apprenticeship program seems to vary to a much larger extent. Table XXVI shows the recommendations of the various instructors offering technical elective courses. The general recommendation appears to be that one-quarter to one-third of the length of the course should

TABLE XXV

Attitude towards Apprenticeship Credit
for Technical Elective Courses

Attitudes	Numbers of Technical teachers	Percentage of Teachers
For credit	22	78.6
Against credit	4	14.3
Undecided	2	7.15

be dispensed with for those who have completed the work in school. The apprenticeship board has been approached on the subject, and has given assurance of cooperation with the technical schools. Before any definite allotment of time will be given, however, the Board believes that instructors in these trade subjects should have a trade background. It was through the Board's influence that trade requirements were introduced into the qualifications for a Specialist Certificate.

TABLE XXVI

Recommended Credit towards Apprenticeship
Training Program for Three Years of a Shop Course

Number of instructors	Time allotment	%
4	0 months	14.3
1	3-6 "	3.7
4	6-9 "	14.3
13	9-12 "	46.8
3	15-18 "	10.7
1	21-24 "	3.7

Shop Expansion

No fair understanding of the shop program in Alberta could be obtained without taking certain other factors into account. A glance at table XXVII shows that over half the students are enrolled in divisional schools, the smaller school of the province. One quarter of them are enrolled in city schools, and the remainder are registered in towns, villages, and separate schools. The enrollment in the small type of school definitely dominates the educational picture. Out of the 160,821 students registered for 1948-49, 11,133 were receiving instruction in some type of shop program. This is approximately $5\frac{1}{2}\%$ of the total registration. According to table XXVIII, shop instructors account for slightly less than 2 per cent of the teachers, which is ample evidence that shop instructors are carrying their share of the educational load.

TABLE XXVII

Enrollment and Attendance in Alberta Schools by
Divisions and Districts 1948-1949¹

Type of schools	Enrollment	Boys	Girls	Average attendance
Schools in the divisions	90,857	46,344	44,513	75.437.07
City	40,336	20,311	20,025	35,607.35
Town	10,243	4,920	5,323	9,062.32
R. C. Separate	9,019	4,319	4,700	7,984.71
Village	4,313	2,160	2,153	3,414.31
Consolidated	2,567	1,269	1,298	2,249.97
Rural	3,486	1,727	1,759	2,934.52
Total	160,821	81,050	79,771	136,690.25

¹(7, p.107)

TABLE XXVIII

Contrast of Industrial Arts and Academic Enrollments
in Alberta Schools for the period 1920-1949¹

	1920	1929	1939	1949
Number of shops in operation	23	-	118	155
Number of instructors employed	23	-	87	121
Number of students enrolled in I.Ed courses	-	-	7,812	11,133
Total school enrollment	135,750	164,850	163,241	160,821
No. of schools in operation	2,826	3,314	3,592	2,459
Number of rooms in operation	4,289	5,558	6,082	5,915
Total number of teachers	5,014	5,705	6,176	6,945
Population of province	588,454	731,605	796,169	803,330

¹Information compiled from Annual Reports, Department of Labor, 1939-1949. Annual Reports, Department of Education, 1920, 1939, 1949. Bureau of Statistics for Canada, 1946.

An increase also worthy of note is shown in the same table. In 1920 the shop teachers formed less than .04 per cent of the teaching staff, while in 1949 they had moved up to a little over 2.2 per cent.

Table XXIX is a comparison between the shops of Alberta and those of the other provinces in the Dominion. Variable factors make interpretation of the table difficult, but since the grades in the senior and junior high schools vary with the provinces, this is difficult to avoid. Comparative values may still be obtained from it, although great strides have been made since this time. Statistics contained within it seem to indicate Alberta is holding its

own in the field of practical education, and in comparison to some of the far eastern provinces, it is out in front. One must keep in mind also that Alberta and Saskatchewan are the two youngest provinces in the Dominion.

To judge a program by comparison alone would lead to a misconception of the work done. Even the number of centers offering instruction is deceiving, since enrichment of the program will not show under such statistics.

Consideration of the building program for shop instruction, as carried on for the past year, will throw more light on the situation. In 1948-49 Edmonton built a large composite school costing over \$4,000,000. The shop building alone cost \$400,000, while the initial installation of shop equipment ran slightly over \$70,000. On May 22, 1950, Calgary let contracts for a \$950,000 shop building adjoining Crescent Heights High School. In the past year Lethbridge completed a new composite high school at a cost of slightly over \$7,000,000. This plant is to go into operation on September 1st. The increase in shop facilities is not limited to the larger centers. Others that have completed new plants in the past year are Ponoka, Lacombe, Red Deer, Stettler, and High Prairie. All of these centers had shops of various kinds before, but have expanded to meet the needs of the children of the community.

TABLE XXIX

Comparison of Industrial Education in
the Provinces of the Dominion (1945)¹

Province	Area in Square Miles	Population	Number of inter. school instructors	Number of h.school instructors
Alberta	248,000	846,000	60(7-9)	35(10-12)
British Columbia	359,280	1,082,000	37(7 and lower)	127(8-12)
Manitoba	219,720	757,000	300*(7-8)	75(9-12)
New-Brunswick	27,420	503,000	26(7-9)	12(10-12)
Nova Scotia	20,740	635,000	45(7-12)	
Ontario	363,280	4,297,000	285(7-9)	400(Inc. Voc. schools)
Prince Edward Island	2,180	93,000	5	2
Quebec	523,600	3,792,000	200(7-9)	35(10-12 Prot. schools)
Saskatchewan	237,980	854,000	10(7-8)	75(9-12)

^{*}Including Arts and Crafts teachers

CHAPTER VI

SUMMARY AND CONCLUSIONS

This survey of the development of industrial education in Alberta has been made to ascertain its present status in contrast with past developments. This phase of education may well be said to have passed through the adolescent stage and is now entering the era of adulthood. While much experimentation is yet to be done, much has been learned and accomplished. The study indicates that the growth period has been of very short duration, and yet within this period remarkable advances have been made.

Foremost of these is the construction of a sound curriculum which seems to serve well the needs of the majority of students and at the same time maintains a high standard of education throughout the province. The survey seems to show that very little emphasis has been placed on vocational skills; instead, emphasis has been placed on the development of those traits which tend to improve the child and his relations to his environment.

The report seems to indicate a general movement towards the improving of existing shops rather than the starting of many new ones. This gives the impression that facilities at present are insufficient to meet the needs. If the most is to be obtained from this type of education, it must be backed by a good physical plant and good

equipment. The fact that this ideal is realized by the various school boards is very gratifying and may be considered as a point well gained by the shop instructor.

In harmony with improved shop conditions, it was natural that the province should initiate higher qualifications for the instructors. This, at first, will doubtless work a hardship on a field already short of instructors. There is the advantage of allowing only qualified instructors to teach, and thus maintain a high standard of efficiency in the shops. The introduction of trade qualifications for unit shop instructors insures that work taught on an elective basis will be of a general nature, and yet in line with good trade practices.

Another mark of progress may be obtained from the large percentage of teachers taking advantage of the film extension service offered by the Department of Education. Thirty-five per cent of the teachers reporting indicate that they have access to projectors which will handle these films. Shop instructors are quick to realize the advantage of audio-visual education in their work, especially those pertaining to related information.

In view of the experience program in granting of apprenticeship credit for shop work, the unit shop is definitely taking on a more vocational aspect. From this standpoint saleable skills will have to be more highly developed and better qualified instructors will be needed.

Recommendations

Recommendations growing out of this study may be stated as follows:

1. That more advertising of the shop and of shop needs be undertaken to acquaint the public with the objectives of industrial education, and at the same time to foster public support of shop expansion.

2. That shop instructors put forward special effort to recruit young men into the field of industrial education in an endeavor to overcome the shortage of teachers and assist in the expansion program.

3. That the many small centers, at the present time offering a very limited course, be encouraged to extend their offerings to more readily meet the needs of the children.

4. That an exchange program be adopted in the last year of the junior high school in which industrial arts boys may switch with home economics girls for a period of several months and thus gain a better understanding of the work of each.

5. That more craft courses be added to the industrial arts program in an endeavor to increase the artistic ability of the child. At present practically all courses offered have a vocational background. Something of a craft nature would be of great value to those who were

interested in the avocational aspect of the course.

6. Provision should be made, both through industry and the Department of Education, to assist those instructors teaching technical electives to meet the journeyman's requirements as laid down by the apprenticeship board.

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APPENDICES

APPENDIX A

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APPENDIX B

CONSTITUTIONAL PROVISIONS FOR EDUCATION IN CANADA

British North America Act, 1867.

Section VI, Distribution of Legislative Powers
Subsection 93, Education

In and for the Legislature may exclusively make Laws in relation to Education, subject and according to the following provisions:

(1) Nothing in any such Law shall prejudicially affect any Right or Privilege with respect to Denominational Schools which any Class of Persons may have by Law in the Province at the Union:

(2) All the Powers, Privileges, and Duties at the Union by Law conferred and imposed in Upper Canada on the Separate Schools and School Trustees of the Queen's Roman Catholic Subjects shall be and the same are hereby extended to the dissentient Schools of the Queen's Protestant and Roman Catholic Subjects in Quebec:

(3) Where in any Province a system of Separate or Dissentient Schools exists by Law at the Union or is thereafter established by the Legislature of the Province, an Appeal shall lie to the Governor General in Council from any Act or Decision of any Provincial Authority affecting any Right or Privilege of the Protestant or Roman Catholic Minority of the Queen's Subjects in relation to Education:

(4) In case any such Provincial Law as from Time to Time seems to the Governor General in Council requisite for the due execution of the Provisions of this section is made, or in case any decision of the Governor General in Council on any appeal under this Section is not duly executed by the proper Provincial Authority in that Behalf, then and in every such Case and as far only as the Circumstances of each Case require, the Parliament of Canada may make remedial Laws for the due Execution of the Provisions of this Section and of any Decision of the Governor General in Council under this Section.

The Alberta Act, 1905.

Section 17

Section 93 of The British North America Act, 1867, shall apply to the said province, with the substitution for paragraph (1) of the said section 93,

of the following paragraph:

(1) "Nothing in any such law shall prejudicially affect any right or privilege with respect to separate schools which any class of persons have at the date of the passing of this Act, under the terms of chapters 29 and 30 of the Ordinances of the Northwest Territories, passed in the year 1901, or with respect to religious instruction in any Public or separate school as provided for in the said ordinances.

(2) In the appropriation by the Legislature or distribution by the Government of the provinces of any moneys for the support of schools organized and carried on in accordance with the said chapter 29 or any act passed in amendment thereof, or in substitution therefor, there shall be no discrimination against schools of any class described in the said chapter 29.

APPENDIX C

Teachers cooperating in the Survey

Persons	School
Allan, W. K.	Calgary
Barry, Walter	Calgary (separate)
Bazant, E.	Camrose
Beauregard, J. A.	St. Paul
Betton, F.	Cluny
Bodluc, F.	Edmonton
Bradwell, C.	Canmore
Brand, N. F.	Calgary
Cameron, N. J.	Calgary
Carron, F. A.	Edmonton
Cliff, M.	Calgary
Cochran, R. G. P.	Hanna
Collinson, G. S.	Calgary
Cromie, C. A.	Wainright
Cowin, L. M.	Lacombe (College heights)
Dynes, M.	Taber
Elliott, L. N.	Calgary
Freeburg, G. P.	Stony Plain
Gault, M.	Red Deer
Gilbert, H. R. J.	Champion
Gilbert, G. W.	Mirror
Goode, J. W.	Bellevue
Graham, F. E.	Calgary
Hall, Harold	Oyen
Hardy, E. M.	Holden
Harriman, N. H.	Medicine Hat
Harris, F. J.	Black Diamond
Henderson, R. S.	Edmonton
Henry, Wilbert	Coronation
Holeton, Doug.	Medicine Hat
Heibert, J. E.	Strathmore
Hoover, R. E.	Didsbury
Irwin, W. F.	Calgary
Jenkins, Ivan I.	Claresholm
Johnson, W. C.	Claresholm
Jones, O. V.	Bow Island
Kalbfleisch, L. R.	Calgary
Klem, S. G.	Warspite
Kuetbach, A.	Taber
Lang, J. C.	Calgary
Leavitte, Lee.	Banff
Leitch, R. A.	High Prairie
Little, Roy.	Three Hills
Lowry, J. N.	Picture Butte
McBain, H. E.	Medicine Hat

McCoy, M. G.	Ponoka
McKim, H. H.	Calgary
McLeod, J. D.	Forestburg
Maiko, L. J.	Vegreville
Marsh, R. B.	Leduc
Mather, J. W.	Calgary
Mellom, C.	Stattler
Mellom, L. R.	Barrhead
Miller, D. E.	Raymond
Mitchell, J. P.	Edmonton
Moffatt, W. J.	Edmonton
Motut, R.	Bonnyville
Otkin, E. O.	Proverst
Parkinson, H. G.	Exshaw
Parry, T. M.	Calgary
Paton, N. G.	Grande Prairie
Pearce, Robert A.	Brooks
Perrin, A. M. K.	Calgary
Pillott, Geo.	Edmonton
Richards, L. S.	Athabasca
Richardson, J. E.	Fort Saskatchewan
Ritchie, T. H.	Calgary
Robinson, W. E.	Edmonton
Romfo, H.	Medicine Hat
Robson, A. B.	Edmonton
Rooney, H. H.	Calgary
Saunders, G. A.	Wetaskiwin
Sharp, Howard	Lacombe
Simpson, J. A.	Edmonton
Stonehocker, R.	Evansburg
Throop, G. R.	Calgary
Traub, E. M.	Trochu
Trevoy, H. V.	Calgary
Tweedle, D. L.	Jasper
Walker, L. A.	Swalwell
Weiler, F.	Cardston
Weir, J. B.	Sundre
Whitney, H.	Medicine Hat
Wright, F. J.	Calgary

To the Teachers of Industrial Arts and Technical Electives,
Gentlemen:

Industrial Arts is assuming a more important place each year in the educational system of Alberta. Perhaps because of this rapid growth there is a certain amount of variation in the courses offered and the facilities available. Would you kindly give your cooperation in compiling data from your field, which will furnish a basis for study of this subject.

The objectives of this survey are briefly:

1. To assemble data which would be of value to teachers, administrators, and the interested public.
2. To ascertain the growth of I.A. in Alberta from 1919 to 1949, and to make allowances for its future development.
3. To compile data which will assist in the planning of I.A. conventions in order that material presented would answer the needs of the majority of teachers present.
4. To discover possible inadequacies in the system.
5. To determine degree of relationship between I.A. and technical courses, and the apprenticeship program.
6. To tabulate these data as part of a thesis written to complete requirements of graduate study at Oregon State College.

Your prompt and conscientious attention to the attached questionnaire will be greatly appreciated.

Thanking you in anticipation, I am,

Yours truly,

441, 19 Ave. N.W.,
Calgary Alberta,
March 8, 1950.

A.M.K. Perrin B.S.

RESPONSE FORM

What is your academic teaching certificate?.....
 What special certificates do you hold?.....

 What degree do you have?.....From where?.....
 Year degree obtained?.....
 Have you had trade experience?.....How many years.....
 In what trade or trades?.....
 In what type of shop do you teach?.....
 What per cent of time do you teach Ind. Ed.?.....
 In how many centers do you teach?.....

Please list the types of Industrial Education courses you offer.....

What is the length of class period in your shop?.....
 In what grades does your school offer I.A. or technical electives? Please give enrollment at each level.

VI VII VIII IX X XI XII

.....
 If classes are mixed, give number of boys.....girls.....
 Has the number of courses offered at your school increased or decreased in the past five years?.....
 When was shop instruction first offered at your school?....
 Please check separate rooms, apart from the shop, for:
 Finishing room....Drafting....Office....Storage.....
 List any audio-visual aids that you use in your shop

.....
 If evening courses are offered by you at your school, list courses given.....
 Enrollment in evening courses, men.....women.....
 If you teach technical electives, how many units may be earned towards a High School Diploma at your school?.....
 Do you think this should be increased?.....Decreased.....

Check the attitude that best described community reaction to your work, opposed.....indifferent.....
 tolerant.....favorable.....enthusiastic.....
 Rate the following objectives by number, in the order in which you place emphasis in your program.
 Elementary skill..... Creative expression.....
 Exploratory..... Habits, appreciation.....
 Vocational..... Others (state).....
 Do you think courses offered in your shop are of sufficient vocational nature to warrant credit towards apprenticeship training?.....
 If so, how much credit should be justly given.....

Name..... S.D.