

AN INDUSTRIAL ARTS PROGRAM FOR THE HIGH SCHOOLS
OF BEAVER COUNTY
OKLAHOMA

AN INDUSTRIAL ARTS PROGRAM FOR THE HIGH SCHOOLS
OF BEAVER COUNTY

OKLAHOMA

By

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CHAPTER I

PURPOSES AND TECHNIQUES

The important position that industrial arts, as a school subject, is achieving in the educational program of our high schools of today is causing more emphasis to be placed on this subject. Secondary schools of this country are almost universally making it an integral part of their educational system.

The kinds of training offered in industrial arts programs meet the vocational and industrial needs of many average types of communities in our state. The fact that industrial arts provides an opportunity for the exercise of the creative urge in terms of material things has caused it to become a stable part of the curriculum in our schools. The instructors in this field are realizing the possibilities that are offered for those who are interested in industrial materials and are constantly initiating new techniques and teaching devices with which the program can be improved.

The types of communities that are being served by industrial arts today are unlimited. The many agricultural areas that exist over our country offer opportunities for rural applications of this subject and, while many of them already have industrial arts programs, there are many others where the expansion has not developed.

This study was made through the desire to suggest a more adequate and comprehensive program of industrial arts for the high schools of Beaver County. The study includes two chief

divisions, (1) to formulate a substantial and satisfactory basis upon which recommendations may be made for a suitable program, and (2) to formulate and propose a detailed plan for a county-wide program of industrial arts for a typical agricultural county in Oklahoma.

How the Problem Originated. The expansion of the industrial education program is being realized in almost every city and rural community. The progress that is being made is attracting the attention and interests of school administrators, teachers and students. The writer realizes that there must be desirable opportunities for a new field to materialize and grow. The failure to make a preliminary study of the program would be injurious to the industrial arts field. In making an intensive study of the area and seeing the limited opportunities that are offered, a desire was created to plan a program that would meet the immediate needs and offer to the schools a new subject that has already become so important in many of the secondary schools of this country.

Statement of the Problem. Many studies have resulted from a felt need or an interest of some person in a particular study. The industrial arts programs that are being carried on in other schools act as an incentive for carrying out this plan. The writer feels that the administrators might become better acquainted with the program through this study and better realize its importance to the school curriculum. The outcome of this study is planned to be the beginning of

An Industrial Arts Program for the High Schools of Beaver County, Oklahoma.

The Purposes to be Realized from this Study. This study will serve the purpose of meeting the tentative needs of the schools and the rural communities which are involved. It will offer a better understanding to the writer of the industrial arts program. This study should help to clarify the thinking of those who are in doubt as to the importance of industrial arts to the school program. An industrial training that could be given during the high school career of the boys who may leave school before graduation, the boys who will graduate or the ones who may go on to college would be of the utmost importance. Since the records show that a large majority of high school students do not go to college and that the largest percent live on farms or are closely associated with rural life in this community, the writer recognizes a need for a special program of industrial training that would meet the present needs of boys in an agricultural community.

Delimitations. When a study is undertaken, certain boundaries and limitations should be established so that definitions may aid in the development of the subject. This study has both geographical and educational limitations. Only one county, and that of a particular type is considered. Beaver County, the location for this study, is primarily agricultural in its industry. The educational system as it now exists in this county was surveyed and analyzed. The economic

and geographic conditions of this area are among controlling factors in any final recommendations resulting from this study.

Definition of Terms. Throughout this study certain terms are used in regard to industrial education and quite often in such ways that formal definitions of them would prove helpful. The definitions given are by recognized authors in the fields of industrial arts, vocational industrial education or by men of considerable experience in these fields.

Industrial Arts. A study of the changes man makes in materials to increase their values to meet needs, of the appropriate usage of products made, and of the social advantages and problems resulting from the making of these changes and products. (9, Bonser, pages 1 and 2)

Industrial Education. A generic term including all educational activities concerned with modern industry, its raw materials, products, machines, personnel, and problems. It therefore includes both industrial arts, the general education forerunner of our introduction to vocational industrial education and the latter also. (23, Friese, page 5)

Vocational Industrial Education. This includes those forms of vocational education the direct purpose of each of which is to fit the individual for some industrial pursuits or trade. (47, Snedden, page 547)

Manual Training, is a historical term describing education of the mind through the hand based on hand-work instruction in the elementary industrial processes and the theory of formal discipline. (7, Bollinger, pages 29 and 30)

Education. Education involves the acquisition of information, skills, habits, ideals, attitudes, concepts and tastes, and is not to be thought of as merely acquiring knowledge. (18, Douglas, page 126)

Education, is for the purpose of training an individual to think, in order that he may solve the problems both social and economic which he may meet in life, and to prepare him for complete living. (14, Cook and Walker, page 4)

Education, that process by means of which the individual acquires experiences that will function in rendering more efficient his future actions. (2, Bagley, page 22)

Secondary Education is that period in which the emphasis is shifted from the study of the simpler tools of learning and literacy to the use of these tools in acquiring knowledge, interests, skills, and appreciations in the various major fields of human life and thought. (18, Douglas, page 4)

Secondary Education is to help young people realize upon the significant possibilities implicit in their changing status-- to help them find themselves anew in their personal, social, and economic relationships, and to develop a working philosophy of values which will give meaning, zest, and purpose to their living. (Thayer, Zochry, Kotinsky, 51, page 6)

Manual Arts. A term used to describe such subjects as woodworking, mechanical drawing, metal work, printing, leather work, jewelry making, clay work, book-binding, etc., when taught as a form of general education having for its chief purpose that of developing within the pupil, through work in the school shops, manual skill and an appreciation of good design and construction by practice with a variety of exercises and practical projects of personal value. (7, Bollinger, page 29)

Vocational Education, as contemplated in the national vocational education act, includes education and training of less than college grade, the specific purpose of which is to equip boys and girls, men and women for the effective pursuit of occupations. Such training prepares those of school age for advantageous entrance into skilled trades and occupations.

General Shop. The general shop is a broad group of educative industrial arts activities embracing technics of shop organization and teaching method which enables a community, whether large or small, to present a unified core of content based on life needs as summarized in these aims: developmental experience interpretative of the major phases of the world's industrial work, "handy-man activities," consumer's knowledge and appreciation, guidance, hobbies, social habits, and (for a small per cent) vocational preparation. (29, Newkirk and Stoddard, page 11)

Trade and Industrial Education includes those forms of vocational education the direct purpose of each of which is to fit the individual for some industrial pursuit or trade. (47, Snedden, page 547)

Trade and Industrial Education Courses refers as a phrase to those industrial type school subjects and courses authorized specifically by the Smith-Hughes and subsequent vocational education acts and subsidized by a grant from federal funds.

Review of Previous Studies. There have been numerous studies in the industrial arts field to determine the present status of industrial arts and others reorganizing programs that have been in operation for a period of years, in order to meet the present needs. There have also been studies made organizing material for the teaching of industrial courses and the proposing of new buildings and equipment lists. As far as the writer was able to find, very few studies have been made in proposing industrial programs on a county-wide basis. Of those that were found, a discussion will be made as to their plans of organization.

William F. Cline's study, A Survey To Determine the Needs for Industrial Education in Wood County West Virginia, included all the pupils in Wood County from grade one to twelve. An age-grade study was made to determine whether the school systems provided adequate opportunities for normal progress. It was found that out of 12,044 students of the county, 5,793 were in the normal grade for their age, 1,063 were above normal grade and 5,188 were below normal grade for their age. Studies were also made of the age-range by grades

where it was found that in some particular grades, the ages varied from six to eight years. In studying the in-school problems of over-aged pupils, it was found that eighty per cent of the truant cases consisted of over-age students. He also made a study of the unemployed groups, the C.C.C. enrollees and those enrolled in the N.Y.A. In conclusion it was found that forty-three per cent of the pupils of that county were educationally retarded. The early school losses made up ninety per cent of the youth enrolled in the N.Y.A. and the C.C.C. The study presented the idea that legitimate industries of all kinds, with their variety of occupations, are a part of modern community living. They are as inseparable as are the professions for which the communities by their public schools have long prepared their citizens. The writer used the personal interview along with the questionnaire in obtaining much of his information.

Joseph F. Zack of the Ohio State University recently made a study proposing an Industrial Arts Program for the Schools of Tuscarawas County Ohio. The purpose of this study was to find a satisfactory basis upon which recommendations could be made for a suitable program. The study was limited to one county because the needs and interests of several communities would be so variable that the county plan seemed to be more justifiable. The development of industrial arts from the beginning and its increasing popularity in the school curriculum were presented. The writer pointed out the place

of industrial arts in the public schools, giving the grade level at which the courses should start and listing the type of activities that should be included. After making a survey of the county, finding out the interests and looking over the needs of school enrollees, a "General Shop" type of industrial arts program was proposed. The work units included in the general shop were woodwork, automotives, metalwork, home mechanics and drawing, because these were the units that were of most interest to the 160 boys who replied to the questionnaire. The objectives of each work unit were stated, as well as the function, organization and shop layout. The conclusions of the study indicated that the present industrial arts offered in the county was totally inadequate to meet the needs of youth in modern education. Also there was no evidence that courses in industrial arts were offered or organized in the terms of pupil interests. The fact that teachers of industrial arts taught in many other fields raises the question of the quality of teaching, when one must prepare to teach as many as five or six subjects a day. The writer made recommendations to meet the needs that were found in order to form a well organized program.

Theses written for Oklahoma schools were examined but none were found in which county-wide educational problems were studied. A few studies were made determining the present status of industrial arts programs that are in operation in various schools but the writers did not include proposed programs for a county-wide organization.

Research Methods Used in this Study. The material used in the first part of this thesis was obtained from geographical study of the area. Since recent publications were not found about the development and growth of Beaver County, it seemed necessary to make a study of the geographical history. This study was made to form a background to assist in making the proposal that is in consideration.

The chief method of research used in this thesis is known as the survey method. It was used to gain the information that was needed concerning the schools in the county. This method did not cover every phase of the school system, but was confined to enumeration, enrollment, transportation and district areas. The library technique was also used in obtaining much of the information about the development of industrial education and its present trends. The writer reviewed all similar studies that could be found which might offer suggestions toward this study.

Since the purposes and techniques regarding this study have been stated, the next chapter will make a study of the county determining the needs for an industrial training program.

CHAPTER II

A DESCRIPTION OF BEAVER COUNTY

The change that the education movement is making today to meet the demands of communities progress, offers opportunities that were unthought of several years ago. The fact that communities are changing in some areas due to the economic and social conditions, offers an interesting study which will serve as a background for this thesis. Therefore, a brief description of Beaver County will help clarify the objectives of this study.

PART A

GEOGRAPHICAL DESCRIPTION OF THE AREA

A description of a community or a certain area would not be complete without first making a geographical study of that area. This will aid in making the recommendations that will be found later in this study. The following paragraphs will give a geographical description of Beaver County.

The Location. Beaver County is the eastern most of the three counties which make up the Panhandle of Oklahoma. It lies north of the Panhandle of Texas. The south border of the county is the Oklahoma-Texas line, being 35 degrees 30 minutes north latitude. The north boundary is the line between Kansas and Oklahoma, 37 degrees north latitude. The eastern boundary is the 100th Meridian, while the western boundary is about three miles east of the 101st Meridian. (38, page 7) In referring to the location of the county by its association with

surrounding counties, it is joined on the west by Texas County and on the east by Harper County. The county that joins it on the north is Seward County, Kansas, while on the south it is joined by Ochiltree and Lipscomb Counties of Texas.

The boundary lines of Beaver County form a rectangular shape, about fifty-two miles in length from east to west and thirty-four miles across from north to south. Beaver County has an approximate area of 1,768 square miles.

Elevation. Beaver County is an excellent example of the plains area that is so commonly known. It has very few hills and most of them are extremely rounded due to their age and erosion. The general slope of the land is to the east, the long way of the county, and is interrupted by two major stream valleys of the Cimarron and the Beaver rivers. The total amount of difference in elevation between the floor of the valleys and the flat upland is approximately 200 feet.

The points of elevation taken at various places over the county are as follows: Turpin, 2,770 feet; Forgan, 2,675 feet; Beaver, 2,500 feet; Knowles 2,477 feet; Gate, 2,172 feet. The elevation of Liberal, Kansas, which is located immediately north of the northwest corner of the county is 2,351 feet. The general slope of the land taken from these figures show that it is approximately twelve and one-half feet per mile to the east. (38, page 9)

The Types of Soil. The surface color of the soil seems to vary a great deal but it is found to be chiefly sand and

gravel. It is thought to have originally come from the Rocky Mountains during the Tertiary Period. The farming land varies in some places from a sandy loam to gypsum, gumbo, or to a dark top soil that is rich in humus. The rich sandy loam soil seems to lie to the north of the Beaver River, which runs from west to east almost through the center of the county. The very tight soil, often called gumbo, seems to lie to the south of the river, but throughout is a mixture of sand which improves its quality. The rough and broken land that runs along the streams is composed of the various kinds of soil probably due to the erosion of the land. Great sand dunes which are worthless for cultivation are found along the rivers.

Rivers. A number of the large rivers such as the Platte, Arkansas, and South Canadian, which rise in the Rocky Mountains have cut valleys entirely across the mid-western plains of the United States. Streams like the Red, Beaver, North Canadian, Cimarron and Republican do not rise in the mountains but on the plains. They have also cut valleys across the plains area and two of these streams, the Beaver and the Cimarron, cross Beaver County, flowing from the west to the east.

The Cimarron River rises in Johnson Mesa, a flat topped mountain in northeastern New Mexico, and flows east for seventy-five miles entering Oklahoma in the northwest corner of Cimarron County. After flowing for fifty miles in this county, it enters the corner of Colorado, flows into the southwest part of Kansas, and crosses Oklahoma a short distance east of

the center of the north boundary line of Beaver County. Here the river flows in a broad shallow valley averaging about eight miles wide and 150 feet deep. The channel of the Cimarron is sand-choked with low sandy banks. For a considerable part of the year the channel flows with very little water, but during flood time it leaves its banks and covers the low lands.

Beaver Creek, sometimes called Beaver River, is formed in southwestern Cimarron County by the junction of two creeks, Seneca and Currumpa. From this point the river flows practically the length of the Panhandle. In Beaver County the river flows first in a northeast direction, then due east.

The general character of Beaver Creek is similar to that of the Cimarron, however, the Beaver is not as large as the Cimarron. The width of the channel from bank to bank of the latter averages perhaps 200 yards.

A number of tributary creeks enter into both the Cimarron and Beaver, but they are considered small only at flood time. A large number of the small tributaries that enter the Beaver Creek are spring-fed, thus making it possible to find water in that creek at most times.

PART B

ECONOMIC ASPECTS OF BEAVER COUNTY

The condition of an agricultural area can be seen more clearly by studying its economic status. This county like

many other counties suffered during the depression. Its present condition is greatly improved from the position reached in 1936. The following paragraphs will discuss the economic condition at the present time.

Report of the 1940 Census. In studying the trends in population for the past ten years, the writer found considerable decrease in population, for not only Beaver County but for the entire state. The loss in per cent in the last ten years for Beaver County was 24.5 compared with 2.5 per cent for the state. Forty-eight of the seventy-seven counties in the state lost population during the last ten years. Cimarron County, with a decrease of 32.4 per cent, had the most extensive decline.

The population for Beaver County for 1940 was 3,648 compared with 11,452 in 1930. This represents a loss of 24.5 per cent in the last decade. The population for the various towns in the county is shown with the 1930 population following the 1940, designating either an increase or a decrease. They are as follows: Beaver City 1,166 - 1,028; Porgan 428 - 695; Gate 243 - 307, and Knowles 105 - 219.

The reasons for the numerous changes in population in certain areas is based on various conditions. Numerous studies have been made of various places in the United States where the per cent of decrease is much larger than that of Oklahoma. The results of these surveys have shown that the greatest cause

was due to the extended drought that lasted in some areas for a period of seven or eight years. Perhaps this is the major cause for the high per cent of loss in Beaver County. It is believed by the writer that the peak of the loss occurred in 1935 and 1936; however, since that time, there has been a slow but gradual increase, although not enough to show a gain in 1940.

The last two years have witnessed a remarkable change in agricultural conditions within the county. This fact makes one hope that the county will again return to its former status as the leading county in this section from an agricultural and financial standpoint.

Farming Conditions. The productivity of the farm lands has increased sixty per cent as compared to the same area five years ago. The condition in many places was not a fault directly to the farmers themselves, but was due to something that was beyond their control, drought and wind erosion. The last two years have seen a remarkable change from this condition and is the primary reason for the gradual increase of population.

The farm land of Beaver County in general is divided into areas in which agricultural problems are similar. There is no one farm in the county where the same problems would be practical over a particular area. This is due largely to the differences in the land and of the people. Map I was taken from the report made by the Beaver County Land Use Planning

MAP NO. 1. LAND USE POTENTIAL AREA MAP OF BEAVER COUNTY

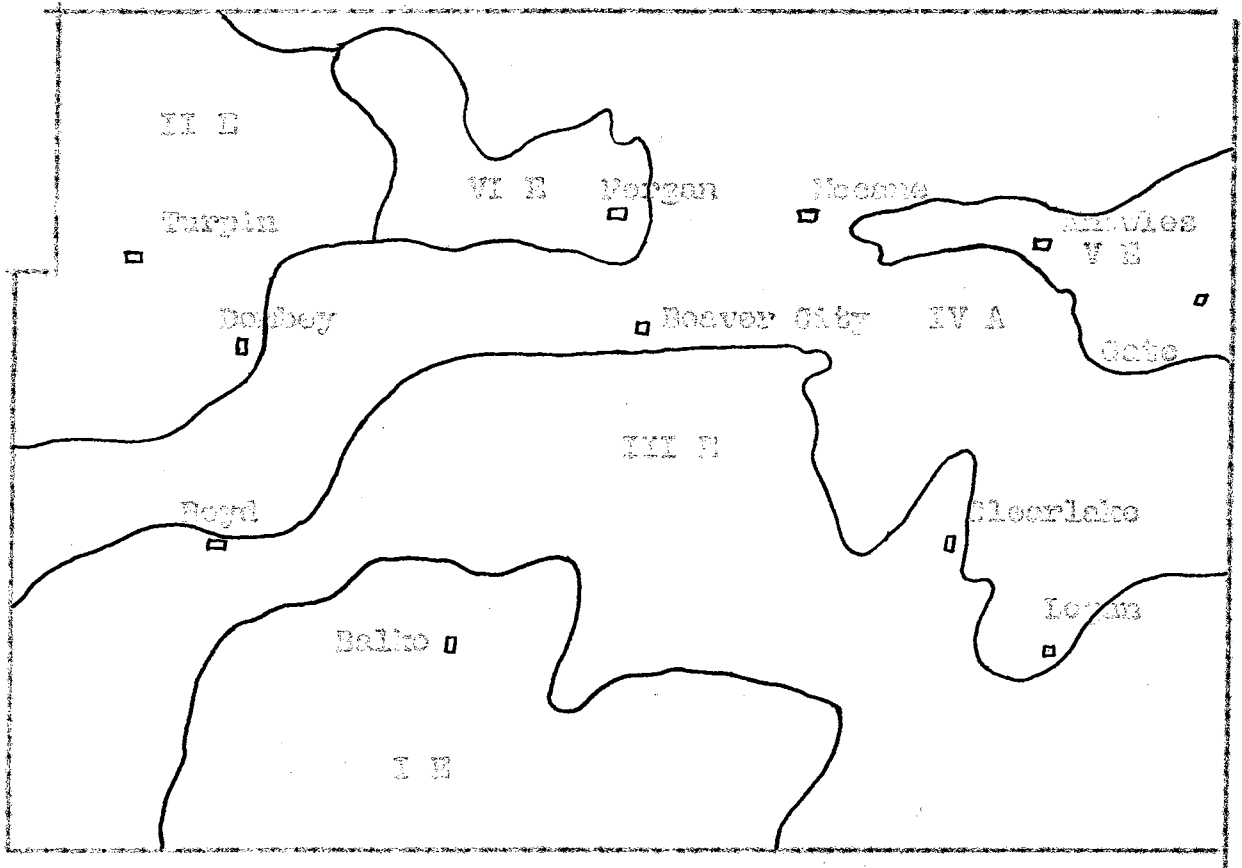


Table to the areas.

Areas

- I E - Level, hard, heavy land, Wheat farming.
- II E - Level to rolling sandy loam, wheat farming, some food crops and livestock.
- III E - Rolling, mixed land area -- General farming, wheat, livestock.
- IV A - Ridge area -- Some farming along area boundaries -- Level to rough, some sand, loam and hard land.
- V E - Level to rolling, sandy loam -- some hard land -- wheat farming and general farming.
- VI E - Sandy and sandy loam area, level to undulation -- General farming, food crops and livestock.

Committee, and shows the various areas over the county where the farming conditions vary to a certain extent. (30, page 1)

According to the report by this planning committee, the major agricultural problem is wind erosion in all the areas except the one marked IVA. Recommendations as to the control of wind erosion were made at that time and much of the latter has been taken care of in the last two years.

The map shows that there is a large area in the north central part of the county where very little farming is carried on, being mostly ranch land and cattle raising. In referring to the farms of the county, as to their size and condition, the writer will explain them as a whole.

The average size farm under cultivation in the county is 261 acres. An average of 125 acres is devoted to wheat while the rest is used for various other types of grains that are commonly grown. Each farm has an average of three work horses and twelve cows. All of the farms are reported as having chickens and hogs.

The extended drouth that the county has just passed through has cut the average yield of wheat considerably. At one time the county average reached a high of eighteen bushels per acre, but dropped to approximately seven in 1935. The average for the 1941 crop will probably yield twelve bushols. The fact that some areas do not produce wheat and some produce as high as thirty-five and forty bushels to the acre does not show the true value of some of the land when speaking in terms of the county average.

The farming equipment found on the average farm consists of a tractor, combine or row binder, plow, lister, truck, grain drill, cultivator, wagon or trailer and a cream separator. This equipment will vary in the various areas designated on Map I but holds true with the larger per cent of the farms.

TABLE I
FARM SURVEY OF BEAVER COUNTY

	1940	1935	1930
Number of farms	1,659	2,080	2,047
Land area in acres	1,147,520	1,160,320	1,045,528
All land in farms (acres)	1,080,406	1,677,774	1,625,528
Average size of farm (acres)	651.2	518.2	510.8
Irrigated crop land (acres)	0	0	0
Value of farms in dollars	11,532,702	13,320,671	25,085,231
Value of buildings	1,647,250	Included	3,433,347
Value of implements and machinery	1,465,792	in land. No report	3,136,783
Number of full owners	451	734	676
Part owners	564	607	726
All tenants	637	731	627

The material in Table I was taken from the 1940 Agricultural Census for Beaver County. (53, pages 1 to 16)

The number of farms has decreased in the last ten years, probably because some of them have been turned back to pasture land, and many of the farms have increased in size, that is, there has been a buying and selling to the extent that many farmers have increased their acreage. The table shows that the average farm has increased in size 140 acres. The value

of farms and farm buildings have decreased around one-half in the last ten years on account of the extended drought that was mentioned before. The number of tenants has increased in the last ten years but has decreased in the last five. This is probably due to the amount of land buying that has occurred the last five years.

There has been a considerable change the last two years in crop production and the partial return of market prices. The future, from an agricultural standpoint, looks promising to the farmer and will mean more business for Beaver County.

The Industries that are Represented. The number of industries found in Beaver County is not as large as is found in many other places. There are no manufacturers or work along the industrial type to be found within the county. The kinds of business found are those that are generally found to meet the needs of an agricultural community.

The report of the 1940 census shows that there has been an increase in wholesale and retail business in Beaver County since 1935, but that it has not reached the mark of 1929. This slight increase in business may mean one of two things, (1) that the production of crops, cattle raising, market prices, and places of business have all increased in the last few years, or (2) that there has been enough gain in population in the last five years to show an increase in business over the 1935 report.

Table II shows the retail trade of Beaver County, listing the stores and sales of major business groups. (54, page 8)

Reading the column marked "Sales", the figures are expressed in thousands of dollars. The greatest amount of retail trade carried on by one business was found to be in food sales and grocery sales, while the greatest number of stores in any one business was filling stations. It was interesting to note that lumbering was second in the amount of sales, which indicates

TABLE II
RETAIL TRADE IN BEAVER COUNTY IN 1940

Businesses	Stores	Sales (Thousands of dollars)
Food Group	22	\$300
General Merchandise	3	29
Apparel Group	4	56
Automotive Group	7	145
Filling Stations	32	151
Lumber - Building		
Hardware	17	237
Eating and		
Drinking	8	39
Drug Stores	2	(x)
Other Stores	20	222
Grocery Combination	21	298
Restaurants	5	21
Feed, Farm and		
Garden Supplies	3	19

that there has been a considerable amount of building, perhaps both new and remodeling.

The comparison of the retail trade to the wholesale, shows that there was approximately \$500,000 more retail trade during the last five years. This shows a substantial amount of business for a county which has suffered much in production in the last ten years.

TABLE III

WHOLESALE ESTABLISHMENTS, SALES, PERSONNEL AND
PAY ROLL FOR BEAVER COUNTY 1940

Number of Establishments	Sales	Active Proprietors	Number of Employees (ave. for yr.)	Pay Roll
29	1,092	19	35	\$20*

*Thousands of dollars.

Tables II and III include most of the types of businesses that are found in Beaver County, but do not include such businesses as grain elevators, abstract offices, hotels, law offices, jewelry stores, banks, and cleaning establishments. The industries found are typical of those found in most any agricultural area. The number of industries represented are varied enough to offer working opportunities for a large per cent of those who are interested in that type of work.

The Size and Location of Towns. The population is sparse in the county, averaging only about five people per square mile. However, this average is larger than the other two counties of the Panhandle. Cimarron County has an average of less than two people per square mile and Texas County has an average of 4.7. There are only four towns that receive classification as towns while the other places are referred to as townships. Three of the four towns are located on United States Highway 64, which runs the entire length of the county from east to west. Gate, which is located in the extreme eastern part and on Highway 64, has a population of 243.

Knowles, which is located ten miles west of Gate on the same highway, has a population of 105. Forgan is located twenty-two miles west of Knowles and has a population of 428. Beaver City is located on United States Highway 270, which joins Highway 64 east of Forgan. Beaver, the largest town, is eight miles south of Forgan and has a population of 1,166. All of the towns are so located that they serve most of the communities.

PART C

TRANSPORTATION FACILITIES

Transportation is one of the most important factors that helps to make a community. It helps to serve the needs in offering complete and dependable service so that business may be carried on. The transportation facilities found in Beaver County are aiding the growth and expansion of business. Changes have been made to provide better methods of transportation for the people. It is worthwhile to discuss these conveniences that are found in the County.

Railroads. The most important railroad in Beaver County is the Wichita Falls Northwestern, a branch of the Missouri, Kansas and Texas system. This railroad has connections with the Santa Fe at Woodward, Oklahoma, and with the Rock Island at Elk City, Oklahoma. There is a short line, the Beaver, Meade and Englewood, that runs from Forgan to Beaver City. There is also a railway line from Forgan west to Turpin, Hooker and Keyes. This line makes connections with the Santa Fe in the

extreme western part of the Panhandle. The northwestern part of the county is served by the Rock Island Railroad from its station at Liberal, Kansas. This railroad cuts across the extreme northwest corner of the county, but within Beaver County there are no towns along this railroad. The extreme northeastern part of the county is served by the Santa Fe railroad at Englewood, Kansas. The southern part of the county is served by a branch of the Santa Fe that runs through the northern part of the Panhandle of Texas. It is evident that Beaver County is very adequately served by railroads which help to meet the needs of the people within the county.

Public Roads. There are no better natural roads anywhere in the United States than the roads of the High Plains. The mixture of sand and clay in the soil makes the roads hard and firm practically the year around. The modern equipment that is furnished for the up-keep of the public roads enables them to be kept in the best of condition. United States Highway 64, which runs through the county from east to west, has an all weather surface which affords a good outlet and a direct route to the western states and points in the east. United States Highway 270 runs almost parallel with United States Highway 64 but in the southern part of the county. This road is surfaced with a mixture of gypsum and clay which offers an all weather road that serves those people who live in the southern part of the county.

There are two main highways that run north and south through the county and connect United States Highway 64 and

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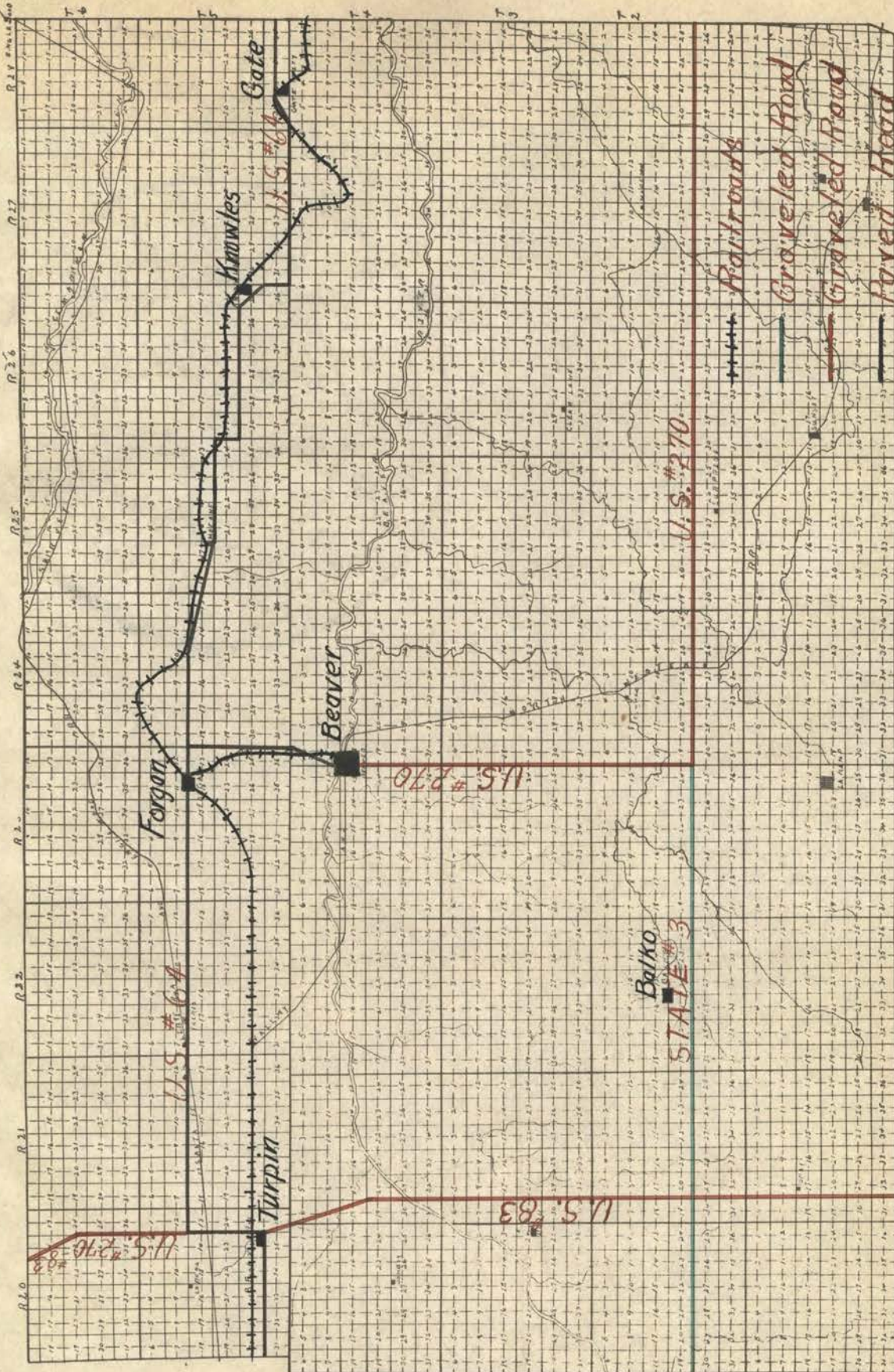
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MAP II. PRINCIPAL ROADS AND RAILROADS IN BEAVER COUNTY

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State Highway No. 3. One of these highways, Oklahoma State Highway No. 83, runs south from Turpin about fifteen miles and joins State Highway No. 3. The other runs south from Forgan through Beaver City and joins State Highway No. 3 at Hibbs Corner. The arrangement of these roads is such that the people living in the county do not have to drive but a few miles to reach an all weather highway that leads to the industrial centers in surrounding counties and states.

The county roads are carefully maintained by state and county workers who use the modern highway equipment available to the districts of the counties for the proper road work. The county is divided into three districts with a county commissioner in each. Each commissioner is responsible for the roads within his district. The roads of a county have a definite relationship to its school system. Especially is this true in the current era when school busses transport rural pupils from one or fifteen to twenty miles so that they may have the educational advantages of town or city schools.

Map No. II, on page 24, shows the location of the principal roads and railroads of the county.

PART D

CONSOLIDATED SCHOOLS IN BEAVER COUNTY

For the purpose of making recommendations relative to a reorganization of high schools in Beaver County, school statistics for this county are reviewed here. These statistics cover the last twenty years, which should be long enough to indicate

definite trends.

The schools have faced grave situations from time to time due to the sudden drop in enrollment. This situation has changed considerably in the last few years, thus causing the enrollment to become more stabilized.

The following paragraphs will present information pertaining to the eight consolidated schools, including both elementary and high school grades. The rural schools of the county were not included in this study because of difficulty encountered in securing the data. Also, the study has more direct relationship to the consolidated schools, since they include most of the seventh and eighth grades and all of the senior high schools of the county.

Enumeration. The enumeration of Beaver County started in 1891. At that time the county included the whole Panhandle. In 1907 Oklahoma was admitted to the union as a state and the Panhandle was divided into the three counties. In 1906, just before the division of this area, the enumeration was quite large. It rose steadily in Beaver County until 1918 which was the peak. The war was probably responsible for the sudden drop after that date.

The enumeration reports shown in Tables IV and V are based on the last twenty years with some tables showing statistics for consecutive years, while others are based on intervals of five years. All of the statistics pertain to the eight consolidated schools of the county which are as follows:

Balko, Beaver, Bethany, Forgan, Gate, Green-o, Knowles and Turpin.

Table IV shows the total enumeration of the school districts and the number of districts in the county for the past twenty years. (Biennial Reports, State Department of Education, 1920-1941)

TABLE IV
THE ENUMERATION AND THE NUMBER OF DISTRICTS IN
BEAVER COUNTY FOR EACH YEAR FROM 1920-1941

Year	Enumeration	Number of Districts
1920	1625	116
1921	5001	114
1922	4761	112
1923	4890	110
1924	4735	107
1925	4468	106
1926	4344	103
1927	4621	98
1928	3984	101
1929	3913	100
1930	3915	98
1931	3810	98
1932	3836	96
1933	3763	96
1934	3710	96
1935	3479	95
1936	3260	95
1937	2856	93
1938	2764	94
1939	2513	93
1940	2570	93
1941	2446	93

Table IV shows that from 1921 to 1941 there has been a general decrease in the enumeration. The 1941 enumeration was about one-half that of 1920. At the present there are 93 school

districts in the county as compared to 116 in 1920. Many small one-room schools have been consolidated with the larger districts. To indicate how the total enumeration was divided according to sex, Table V gives the enumeration from 1930 to 1941 according to male and female.

TABLE V

SCHOOL ENUMERATION AND THE NUMBER OF DISTRICTS, SHOWING
MALE AND FEMALE SEGREGATED, 1930-1941

Year	Enumeration			Number of Districts
	Male	Female	Total	
1930	2016	1899	3915	98
1931	1964	1846	3810	98
1932	1982	1851	3833	96
1933	1929	1854	3783	96
1934	1885	1828	3713	96
1935	1763	1716	3479	95
1936	1700	1560	3260	95
1937	1492	1363	2855	96
1938	1436	1328	2764	94
1939	1312	1201	2513	93
1940	1349	1221	2570	93
1941	1290	1156	2446	93

The total number of boys is higher than that of the girls from 1930 to 1941. This does not mean there is this amount of boys and girls enrolled at this time, but it does give the trend in the number that are between the ages of six and twenty-one. It is interesting to note the comparison between the enumeration and the enrollment for corresponding years. The enrollment of the schools will be shown in later paragraphs.

TABLE VI
THE AGE GROUPS OF BOTH BOYS AND GIRLS IN BEAVER COUNTY
CONSOLIDATED DISTRICTS, 1920-1941

Year		Ages																Total
		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1920	M	69	61	54	44	53	43	53	45	48	43	43	35	40	26	8	0	675
	F	60	62	57	46	53	40	46	36	33	33	43	36	26	35	10	0	616
1925	M	48	48	52	53	38	56	60	49	46	57	47	53	44	49	15	0	665
	F	64	57	46	52	55	58	59	50	51	61	46	38	40	31	11	0	719
1930	M	60	53	59	52	49	48	55	51	61	42	49	55	64	37	33	0	767
	F	63	47	50	61	56	50	55	56	44	61	60	50	38	50	19	0	769
1935	M	62	53	44	42	35	41	49	48	45	49	43	46	52	47	32	0	689
	F	54	51	37	41	49	42	45	47	60	51	61	54	49	43	25	0	709
1941	M	40	33	35	30	39	29	39	40	29	37	38	35	36	41	20	0	521
	F	41	33	28	29	44	32	38	30	31	32	42	37	37	30	22	0	506

The eight consolidated districts of the county were included in a study of the age groups to determine the actual number of boys and girls that were a certain age. This was done because the consolidated districts represent the larger school enrollment of the county. Table VI shows the number of boys and girls at various ages, from 1920 to 1941, at five year intervals. This table shows that in some instances there was a considerable drop from one five year period to the next in certain age groups. The highest total for both boys and girls was in 1930, while the largest drop in a five year period was from 1935 to 1941.

Enrollment. The records used twenty years ago in keeping statistics for the schools were not as complete as the ones that are used today. The writer found this to be true in obtaining data concerning the enrollment for the schools of Beaver County. Some of the information is not given in a few of the tables for this reason.

The study of the enrollment is used to make a comparison with the enumeration and also to show the trends of enrollment in the schools. Table VII shows the enrollment for stipulated years of both elementary and high school and the number of teachers for each of the consolidated schools. These comparative figures in Table VII show that the largest enrollment was from 1920 to 1924. Although there has been a remarkable decrease since that time, most of the schools show an increase in the enrollment in 1940 over that of 1935. Of all the schools

TABLE VII
BEAVER COUNTY HIGH SCHOOLS AND THEIR ENROLLMENT
FOR STIPULATED YEARS

Year	School	Enrollment		Number of Teachers	
		Grade	H.S.	Grade	H.S.
1919-20	Beaver	244	54	6	5
1924-25	"	263	172	8	5
1929-30	"	245	159	7	6
1934-35	"	220	181	8	6
1939-40	"	303	181	8	9
1919-20	Forgan	251	33	5	3
1924-25	"	223	107	7	4
1929-30	"	179	88	6	5
1934-35	"	125	78	5	4
1939-40	"	129	60	4	4
1919-20	Knowles	103	30	4	2
1924-25	"	106	36	4	3
1929-30	"	105	49	4	3
1934-35	"	69	49	3	3
1939-40	"	65	35	3	3
1919-20	Gate	114	24	4	2
1924-25	"	120	32	3	3
1929-30	"	78	30	3	3
1934-35	"	110	36	3	3
1939-40	"	51	40	3	3
1919-20	Bethany C-84	153	No H.S.	4	0
1924-25	"	109	6	3	1
1929-30	"	63	7	3	1
1934-35	"	39	32	3	2
1939-40	"	68	43	3	3
1919-20	Balko C-75	114	9	3	1
1924-25	"	77	25	3	1
1929-30	"	60	20	3	2
1934-35	"	63	30	3	2
1939-40	"	77	51	3	3

(Continued)

TABLE VII (Continued)
 BEAVER COUNTY HIGH SCHOOLS AND THEIR ENROLLMENT
 FOR STIPULATED YEARS

Year	School	Enrollment		Number of Teachers	
		Grade	H.S.	Grade	H.S.
1924-25	Green-0	117	60	3	2
1929-30	"	94	55	4	3
1934-35	"	63	44	3	3
1939-40	"	42	40	2	3
1929-30	Turpin	125	62	4	3
1934-35	"	110	70	4	4
1939-40	"	113	38	4	4
1924-25	Union C-68	99	50	3	2
1929-30	"	70	45	3	2
1934-35	"	31	6	2	2
1924-25	Blue Mound C-74	96	17	3	1
1929-30	"	No Report		No Report	
1934-35	"	52	17	3	2

(35, Annual Statistical Reports 1920-1940)

shown, Beaver was the only school with a larger enrollment in 1940 than in 1920. Two schools shown, Turpin and Green-0, were not consolidated in 1920. Green-0 became a consolidated school in 1923 and Turpin in 1926. There were also two schools, Union and Blue Mound, which transferred their pupils to other schools in 1935.

Table VIII shows a summary of the tabulations and gives a better comparison of the teacher load. The grade teachers in 1924-25 had an average of 31.1 pupils as compared to 27.3 pupils in 1939-40. The high school teachers had an average

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of 23.09 pupils in 1924-25 as compared to 15.2 in 1939-40.

This information has greater significance when we consider the extra time that is available for the teacher. The adding of elective courses to the curriculum would offer greater opportunities for the students.

TABLE VIII

THE TOTAL ELEMENTARY AND HIGH SCHOOL ENROLLMENT
 IN BEAVER COUNTY CONSOLIDATED DISTRICTS

Year	Enrollment		Number of Teachers	
	Grade	H.S.	Grade	H.S.
1919-20	934	117	15	5
1924-25	1124	508	35	22
1929-30	1019	505	37	28
1934-35	830	526	31	27
1939-40	848	488	31	32
1940-41	911	447	30	31

(35, Annual Statistical Reports 1920-1941)

The distribution of the total enrollment is seen in Table IX. This shows the number enrolled, both boys and girls, in the elementary and high school for each of the consolidated schools. The records were not complete enough to obtain all the information. The significance of this table is to show how the distribution of boys and girls compares in different schools.

TABLE IX
THE ENROLLMENT IN ELEMENTARY AND HIGH SCHOOL OF BOTH BOYS
AND GIRLS IN EACH OF THE CONSOLIDATED SCHOOLS

School	1940								1935								1930							
	No.		No.		Pupils		No.		No.		Pupils		No.		No.		Pupils		No.		No.		Pupils	
	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.	Elem.	H.S.
	Tchrs.	Tchrs.	B	G	B	G	Tchrs.	Tchrs.	B	G	B	G	Tchrs.	Tchrs.	B	G	B	G	Tchrs.	Tchrs.	B	G	B	G
Balko	3	3	41	36	20	31	3	2	32	35	16	14	3	2	42	27	6	18						
Beaver	8	9	155	148	95	86	7	8	155	115	66	87	7	6	142	127	81	93						
Bethany	3	3	39	39	21	22	3	2	23	17	14	19	3	1	35	34	7	5						
Forgan	4	4	71	58	30	30	4	3	51	63	36	31	6	4	89	104	39	41						
Gate	4	3	27	24	13	27	3	3	49	54	20	20	3	2	48	48	18	18						
Green-O	2	3	18	24	19	21	2	3	27	36	17	24	4	3	43	57	24	38						
Knowles	3	3	33	32	21	14	3	3	44	29	21	24	4	3	65	45	21	30						
Turpin	4	4	65	48	19	19	4	4	56	49	37	34	4	3	68	67	37	25						
Union*													3	2	33	18	14	13						
Blue Mound*													3	2	47	46	10	7						

(Continued)

*These schools were not consolidated where data is not given.

TABLE IX (Continued)

THE ENROLLMENT IN ELEMENTARY AND HIGH SCHOOL OF BOTH BOYS
AND GIRLS IN EACH OF THE CONSOLIDATED SCHOOLS

School	1925						1920					
	No. Elem. Tchrs.	No. H.S. Tchrs.	Pupils				No. Elem. Tchrs.	No. H.S. Tchrs.	Pupils			
			Elem.	H.S.	Elem.	H.S.			Elem.	H.S.	Elem.	H.S.
			B	G	B	G			B	G	B	G
Balko	3	1	40	37	6	19	3	1	65	49	3	6
Beaver	8	5	59	116	58	84	7	5	129	144	47	44
Bethany	3	1	51	58	3	3	No Report					
Forgan	No Report						7	3	118	142	32	39
Gate	No Report						No Report					
Green-O*	2	2	54	69	28	33						
Knowles*	4	3	66	54	17	28						
Turpin*												
Union*	3	2	55	44	20	30						
Blue Mound	3	1	50	56	5	12	2	1	48	58	0	1

*These schools were not consolidated where data is not given.

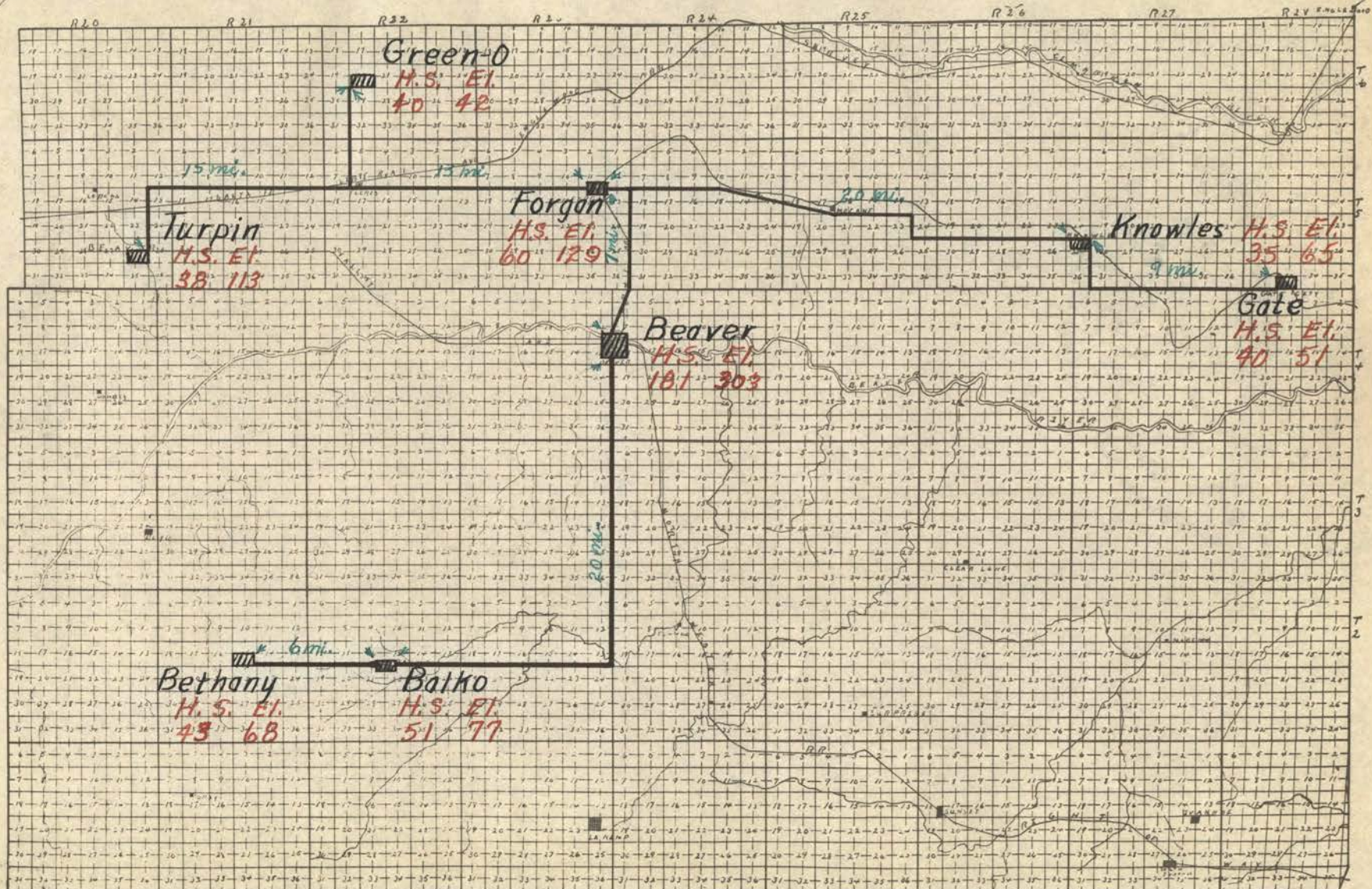
MAP OF BEAVER COUNTY, OKLA.

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MAP III. LOCATION OF CONSOLIDATED SCHOOLS IN BEAVER COUNTY SHOWING ENROLLMENT FOR 1940



It will be noticed that an average of a little less than fifty per cent are boys in the total average of the schools. Another interesting comparison may be made as to the teacher-pupil load. It was found in some of the schools that the teachers had an average of less than ten pupils while in others there were as many as twenty.

The enrollment in many of the rural schools of the state is declining. Many of the students are going to the larger schools where they can obtain a more practical education which is vitally needed in present day living. Some of the schools offering industrial and vocational courses are attracting the attention of students because this is the type of training that interests them. Map III on page 36 shows the location of the eight consolidated schools and their enrollment in 1940. By comparing the locations and enrollment one may readily see that it would be possible to combine the enrollments in one central location and form a school that would offer greater opportunities for the students.

District Transportation. The high cost of transportation has been one of the factors that has kept the districts from extending free modes of travel to the pupils. The transportation cost per pupil in Beaver County in 1931-32 was \$25.00 as compared with \$19.00 for the state. This high cost is partially due to the sparsely populated districts. The 1934-35 report shows that the cost decreased from \$25.00 to \$18.00 for that year. The main reason for this decline was the improvement of transportation methods and the decrease in the

amount of equipment purchased for that year.

The report made by some of the areas shows that there is less than one student per square mile, as compared with eight found in other sections. Practically forty-five per cent of the rural schools have transferred into the consolidated schools.

The territorial legislature of Oklahoma in 1905 recognized transportation as a service and responsibility of the local school unit in consolidated districts. In the last few years, the State of Oklahoma has recognized school transportation as a function and responsibility of the state through financial and administrative assistance. (41, Eighteenth Biennial Report, State Department of Education)

Before making a study of the transportation situations of the county, it will be well to have in mind a picture of the transportation areas as they now exist. Map IV on page 39 shows each district transportation area which has been established for the 1941-42 school year. The boundaries were changed some from the preceding year. These changes were authorized by the State Division of Transportation for each district offering transportation for its pupils. The alterations were for the purpose of straightening the present boundary lines as much as possible and still enabling the district best situated to serve the extreme areas in order to improve the present bus routes. The extensive areas for some of the districts indicate the extent to which educational opportunities are offered to

MAP OF BEAVER COUNTY, OKLA.

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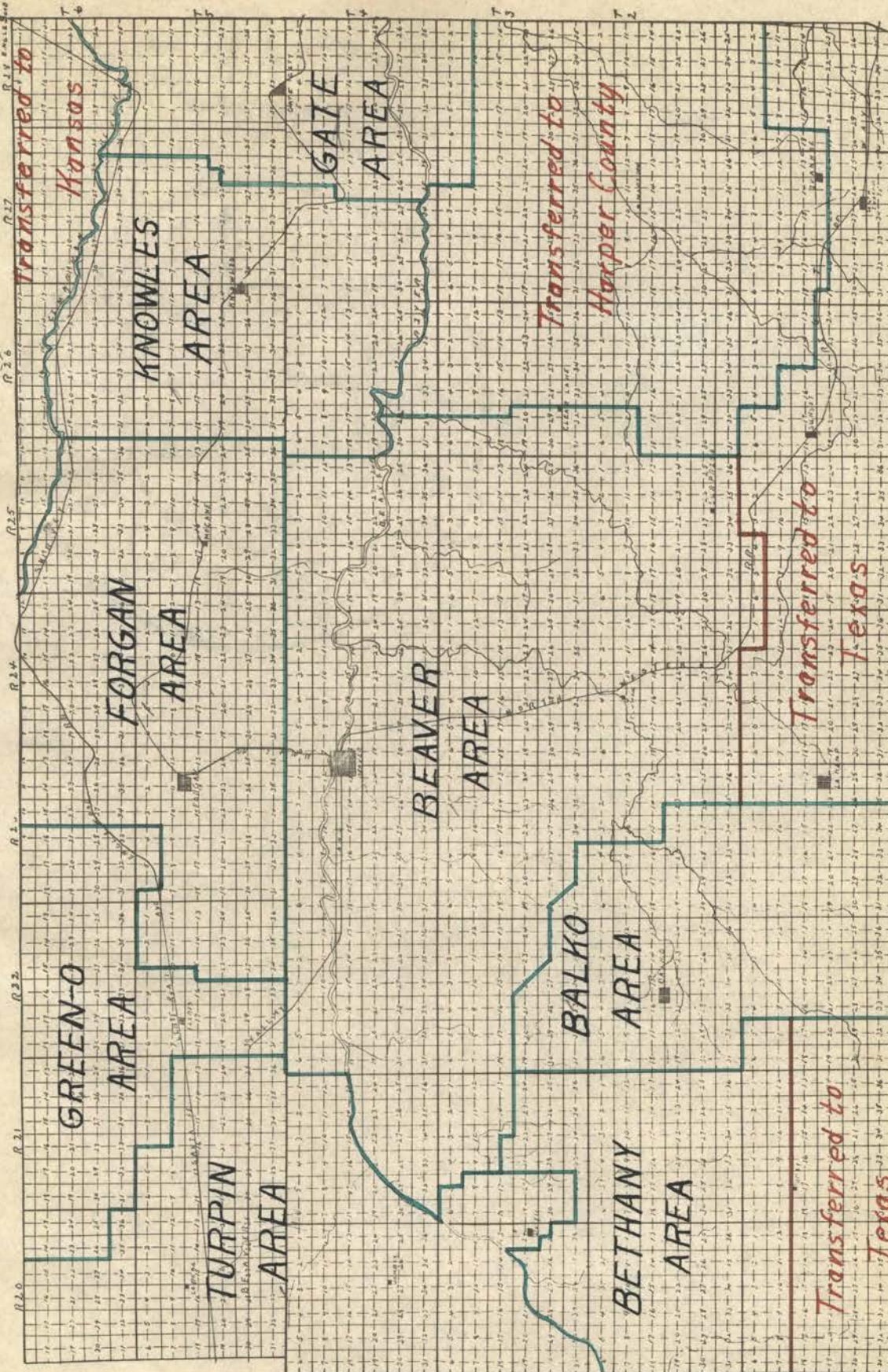
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MAP IV. DISTRICT TRANSPORTATION AREAS IN BEAVER COUNTY

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the pupils. There are some areas in the county where the transportation doesn't extend. What few students live in these areas transfer to other schools out of the county.

Some of the schools of Beaver County have offered transportation for only the last three years. It is important to study the transportation of each of the schools in order to understand more clearly the transportation as a whole. This is shown in Table X.

The information shown in Table X gives the district areas, the number of busses and, in some cases, the number of pupils that were transported in each of the consolidated schools. The table shows that there were twenty-four busses serving the Beaver County schools in 1940-41, transporting 558 students. This is an average of 23.25 pupils per bus. The largest district in the county is Beaver, consisting of ninety-three square miles. The table shows that each district serves rather an extensive area, totaling $418 \frac{3}{4}$ square miles. The busses in most of the districts are serving areas outside of their own in order to offer opportunities to as many of the rural children as possible.

The transportation is further shown shown in Table XI. This table shows the total number of pupils transported during the year by all the busses in each district. It also gives the number of miles travelled by all the busses in each of the districts for each day. Since some of the schools have only offered transportation facilities for two or three

TABLE X
BEAVER COUNTY SCHOOLS FURNISHING TRANSPORTATION,
SHOWING DISTRICT AREAS, THE NUMBER OF BUSES
AND THE NUMBER TRANSPORTED

Year	School	Area of Dist. in Sq. Miles	Number of Busses	Number of Pupils Transported
1925-26	Beaver	92 $\frac{1}{2}$	2	No report
1930-31	"	92 $\frac{1}{2}$	2	No report
1934-35	"	92 $\frac{1}{2}$	3	89
1938-39	"	93	5	No report
1940-41	"	93	5	186
1925-26	Forgan	39 $\frac{1}{2}$	2	No report
1930-31	"	39 $\frac{1}{2}$	2	80
1934-35	"	39 $\frac{1}{2}$	2	42
1938-39	"	38 $\frac{1}{2}$	3	No report
1940-41	"	39 $\frac{1}{2}$	3	44
1925-26	Green-O	51	5	No report
1930-31	"	51	5	140
1934-35	"	51	4	78
1938-39	"	51 $\frac{1}{2}$	4	No report
1940-41	"	60 $\frac{1}{4}$	4	85
1930-31	Turpin	85	5	190
1934-35	"	81	5	144
1938-39	"	82 $\frac{1}{2}$	4	No report
1940-41	"	76 $\frac{1}{4}$	4	109
1938-39	Balko	36	3	No report
1940-41	"	36	3	57
1938-39	Bethany	36	4	No report
1940-41	"	36	3	58
1939-40	Knowles	45 $\frac{1}{2}$	1	22
1940-41	"	45 $\frac{1}{2}$	1	19
1939-40	Gate	32 $\frac{1}{2}$	1	No report
1940-41	"	32 $\frac{1}{2}$	1	No report

years, this table includes only the years 1939 and 1940.

The significance of Table XI is to show the importance of transportation as represented over a period of two years.

TABLE XI
TRANSPORTATION, SHOWING THE NUMBER OF STUDENTS
TRANSPORTED AND THE NUMBER OF MILES DRIVEN EACH DAY

School	Total pupils hauled during the year	No. Busses	No. of miles driven each day
1939			
Beaver	31,640	5	298
Balko	No report	3	No report
Bethany	No report	4	
Forgan	7,709	3	147
Gate	No report	1	No report
Green-O	15,076	4	133
Knowles	3,399	1	40
Turpin	18,887	4	174
1940			
Beaver	30,771	5	307
Balko	No report	3	No report
Bethany	16,080	3	194
Forgan	12,165	3	190
Gate	No report	1	No report
Green-O	13,590	4	134½
Knowles	8,573	1	66
Turpin	19,911	4	182

It is possible for one bus to transport as many as 4,000 pupils in the course of a year. The results of the table show that the five busses of the Beaver School travelled approximately 55,260 miles in 1940 serving its transportation area.

After studying the sizes of the districts and the number of busses that each have, it is well to make a study of the

transportation costs. This will offer a comparison of the costs with the average number of pupils transported daily and the total miles traveled each day.

TABLE XII

THE COST OF TRANSPORTATION, SHOWING THE NUMBER OF PUPILS TRANSPORTED, THE LENGTH OF ROUTES AND THE DISTRICT AREAS SERVED

Year	Number of Transporting Districts	Number of Busses	Average No. Pupils Trans- ported Daily	Total Length of all Routes	District Area Served (Sq. Miles)	High School Area Served (Sq. Miles)	Total Cost of Transportation
1934-35	4	14	355	254	273	378	\$6,755.00
1936-37	6	16	407	326	268	386	12,887.83
1937-38	7	16	460	340	270	389	19,239.43
1938-39	7	24	569	420	418	460	19,239.43
1939-40	7	24	520	406	418	454	17,538.07

The summary of the transportation costs in Table XII shows that eight districts were providing transportation for 520 students each day of the school year, at a total cost of \$17,538.07. On the basis of the number of pupils transported daily, it cost \$33.73 per pupil for transportation in 1939-40. This is somewhat higher as compared with the state average for transportation of school children of all races which was \$19.29.

Transportation service has increased materially in extent because of the change in the law that enables districts to provide transportation for students who live more than a mile from the school building, where prior to 1935 it was two miles.

The average cost of transportation per pupil runs comparatively high since the bus areas are sparsely populated. Some of the busses average less than a pupil per mile on their routes. The greatest problem of transportation is the serving of the district areas in such a way as to eliminate dead-end mileage. It was previously stated that the busses of one school travelled over 55,000 miles in one year. This is one of the reasons for the high cost of transportation in the county.

Assessed Valuation Within the Districts. The local unit for support of the Oklahoma Public Schools is the school district. The county superintendent originally divided the counties into a convenient number of school districts. No school district could be formed that contained less than six square miles in area and an assessed valuation of \$50,000 or that had less than eight persons between the ages of six and twenty years, inclusive.

Since property assessments are in the hands of seventy-seven county assessors in the state, many variations in assessments are to be given. The law provides that property be assessed at approximately its true value, but this is not followed in many cases. In 1935 it was found that the assessed

valuation of all school land in the state was only 38.02 per cent of its appraised value.

The ability of local districts to finance their schools from local sources has decreased in many parts of the state. In 1920, there were 2,400 units that had \$3,000 or more assessed wealth per child, and in 1935 the number of units with \$3,000 or more assessed wealth had dropped to 1,134.

The assessed valuation as enumerated in Beaver County is compared with that of the state in Table XIII. (Biennial Reports, State Department of Education, 1934-1940)

TABLE XIII
ASSESSED VALUATION PER CHILD ENUMERATED IN
BEAVER COUNTY AND IN THE STATE

Year	Assessed Valuation	
	Beaver County	State
1934	\$3,021	\$1,641
1935	3,226	1,619
1936	3,712	1,627
1937	3,609	1,515
1938	3,821	1,600
1939	3,591	1,515
1940	3,702	1,518

The comparing of the assessed valuation in Beaver County to that of the state shows that it is much higher than the average for the state. This variation may be understood more clearly by studying the property assessment for the consolidated school districts in the county.

The assessed valuation of the property within each of the consolidated districts is shown in Table XIV. It will be noticed that the total valuation of most of the school districts for 1940 is approximately one-half that of 1930. This enormous reduction has affected the schools considerably during this period.

As a result of the low valuation of assessable property and the tax exemption that is allowed, there is a decrease in the ability of local districts to support their schools. A few of the districts have relied upon tax money received through public service for supporting their schools. This has likewise decreased in evaluation, thus lowering the amount of money received from this source. The fact that the local amount of school money has decreased in the last few years, has caused the schools to rely upon money received through state aid, consisting of Primary, Secondary and Homestead Exemption replacement money.

District Boundaries. The area in square miles of each of the districts in the county has been shown in Table X. It was found that one of the districts had ninety-three square miles as compared with thirty-six for another. The district boundaries have rather an irregular form in many instances due to the addition of rural districts that consolidate with the larger districts.

The information that is shown on Map No. V gives a vivid

TABLE XIV
 ASSESSED VALUATION WITHIN EACH CONSOLIDATED
 SCHOOL DISTRICT IN BEAVER COUNTY

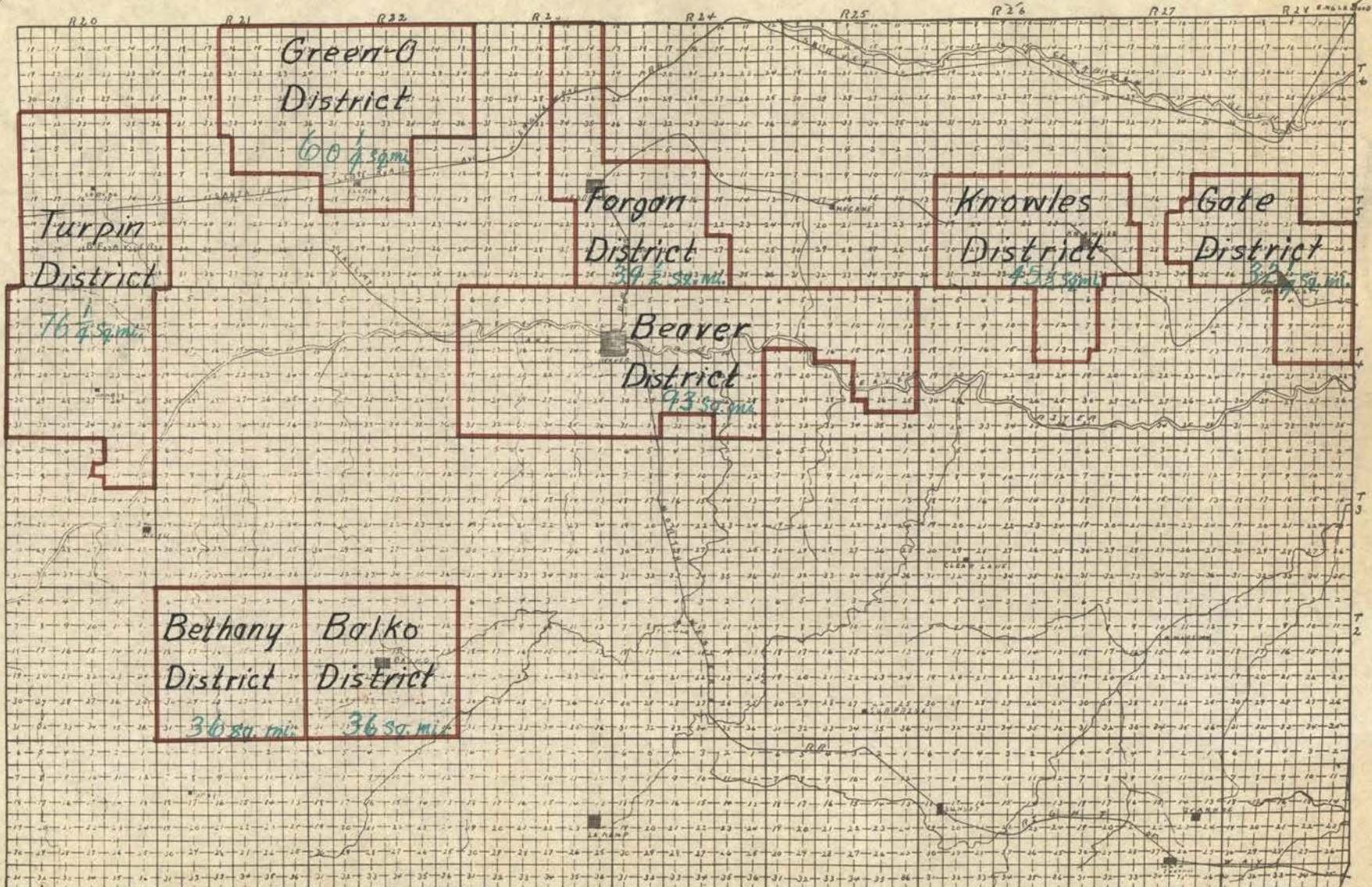
School	Personal Property	Real Estate	Public Service	Total Valuation
1941				
Balko	\$14,575	\$134,555	\$3,076	\$152,206
Beaver	121,475	377,439	121,710	570,624
Bethany	14,846	156,565	127,433	298,808
Forgan	23,535	216,667	161,136	400,438
Gate	14,645	132,596	99,817	267,058
Green-O	19,615	239,699	1,373	260,678
Knowles	21,800	149,183	136,085	307,668
Turpin	23,680	396,322	83,755	503,857
1935				
Balko	14,257	181,075	3,229	198,561
Beaver	115,589	481,351	127,211	724,151
Bethany	10,497	203,956	110,583	329,036
Forgan	36,355	296,703	177,505	510,563
Gate	15,931	184,736	103,254	303,921
Green-O	17,825	306,113	1,573	325,515
Knowles	15,185	190,037	126,111	331,333
Turpin	19,586	481,262	100,567	601,415
1930				
Balko	51,290	314,800	447	366,537
Beaver	217,616	741,975	80,680	1,040,271
Bethany	60,405	346,920	None	407,325
Forgan	104,791	498,212	111,069	713,722
Gate	71,452	314,936	85,791	472,179
Green-O	69,500	527,205	1,543	529,248
Knowles	61,996	344,780	129,542	536,318
Turpin	110,209	818,235	49,717	978,161
1925				
Balko	43,356	503,662	None	347,018
Beaver	188,257	718,258	25,417	931,932
Bethany	29,948	344,260	None	374,208
Forgan	119,603	56,333	58,999	694,935
Gate	48,640	253,568	77,897	379,305
Green-O	48,842	420,015	979	469,836
Knowles	58,658	361,135	124,398	544,491
Turpin	None	None	None	None

Used as Page No.

of Abstract No.

Compiled by H. N. Lawson, Abstracter

MAP V. DISTRICT BOUNDARIES IN BEAVER COUNTY



picture as to the comparative sizes of the districts. The districts are well balanced over the county except for the southeast portion. These students from the eighth grade transfer to Laverne, located in Harper County, which lies directly east of Beaver County. The students from the extreme southern part of the county transfer to high schools in Texas, while those living in the northern part go to Kansas schools. By comparing Map No. V with that of the district transportation map on page 39, it is immediately seen that each school is serving a larger area than the district boundaries indicate. Another comparison may be made with school enrollment. The comparatively large districts compared with enrollment shows that the areas are sparsely populated. The changes that were made in the district boundaries for the 1941-42 school year were included on this map.

Summary. This description of Beaver County has pictured it from a geographical, agricultural, economic and educational point of view. It was attempted to give its past and present conditions concerning these things. The purpose of these surveys is to serve as one of the criteria for final recommendations. Some of the important found facts are summarized as follows: (1) The location has shown that the county lies in the typical plains area; (2) farming is the greatest industry, Thus making it an agricultural county; (3) transportation facilities are adequate in carrying for present transportation

needs; (4) each town is situated to adequately serve its surrounding community; (5) Beaver City, the county seat and also the largest town, is centrally located in the county; (6) there are eight consolidated high schools with a total enrollment of 447 students; (7) there are only three high school teachers in five of the eight schools; (8) the average cost per pupil transported in 1940 was \$33.73 as compared with \$19.29 for the state; (9) the school busses in a course of a year travel approximately 75,000 miles; (10) the greatest distance between any two adjoining schools is seventeen miles; the shortest is six miles; (11) the local district school tax money is inadequate to support the schools, and (12) most of the schools find it hard to operate with present school budgets.

Since the people living in this agricultural area have a definite place in maintaining a democracy, these people have a right and need for practical education in every day life; there is a town centrally located in the county where educational opportunities could be provided; the schools at present are small and their curricular offerings are inadequate to meet the needs and interests of the students; the schools are located so close together that a broad educational program cannot be carried on; the transportation costs are high under the present school organization; it is hard to operate the schools with the amount of money appropriated at present, therefore, the following recommendations are made: (1) Provisions be made for a county high school at Beaver, which is centrally located, to accommodate

all the grades from seven to twelve from the consolidated schools; (2) a county transportation system be organized to serve each consolidated school area; (3) a curriculum adequate to meet the needs and interests found in the county be organized, and (4) industrial training be a definite part of the curriculum.

Plans for organizing industrial arts education courses should be determined on the basis of contributing to the needs of the communities to be served and to the interests and needs of the students in school. Since the needs of the county have been determined, it will be the purpose of the next chapter to discuss the opinions of the school administrators as to the needs and express the interests designated by the students.

CHAPTER III

EXPLANATION AND DISCUSSION OF THE QUESTIONNAIRES

An extensive study of Beaver County was made in Chapter II to determine the educational needs for organizing an industrial program beyond the things common in the county. The results of this information have shown a definite need for industrial training. From this need, the question arose, "What is the attitude of the administrators in regard to industrial training, and what are the interests of the students?" Answers to these questions were thought necessary and should be influencing factors in proposing an industrial program. It is the purpose of this chapter to discuss the method used in obtaining the information and its results.

PART A

THE BASIS FOR SELECTING THE QUESTIONNAIRE

There are generally several methods of securing data which can be used in making a study of this nature. The writer did not use the personal interview for securing the needed information because sufficient time was not available. The questionnaire technique was used instead. It seemed that it was the only method by which satisfactory data could be secured in the time available. The questionnaires submitted to the pupils in grades nine and twelve, inclusive, and to the administrators of all the high schools of the county proved very interesting. There was much interest and thought shown in the replies. Forms of the questionnaires used will be found in Appendix A.

How the Questionnaires were Distributed. The questions used for obtaining the needed information in the questionnaires were carefully considered in order to increase their validity. The forms were taken to each of the high schools in the county. The administrators assembled all of the boys of grades nine and twelve inclusive and the purpose of the meeting was explained. The questionnaires were left in charge of the superintendent so that adequate time could be used in filling them out. They were later mailed to the writer.

Percentage of Usable Returns. The forms were taken to the schools near the close of the school term and as a result some of the senior students were absent at the time. One of the administrators failed to return the forms and this lowered the percentage of returns. There was a total of 147 questionnaires distributed to the students and 125 were returned, which is eighty-five per cent. All of the returned forms were usable. There were six of the eight questionnaires returned from the superintendents, which is seventy-five per cent.

The usable returns from the students, as stated before, was around 100 per cent. This was not altogether true with the forms received from the administrators as some of the information had already been obtained from other sources. The material in general answered very well the purpose of the questions.

PART B

OPINIONS OF SUPERINTENDENTS CONCERNING INDUSTRIAL ARTS

Since industrial arts, at present, is serving only the

students in one of the high schools of Beaver County, the writer thought it necessary to obtain the opinions of the administrators concerning the need for industrial training.

The Need for Industrial Training. The administrators were asked to give their opinions on this question. Table XV shows out of the eight administrators receiving the questionnaire, six expressed their opinion that there is a need for industrial training in Beaver County. Two of the administrators

TABLE XV
ADMINISTRATORS OPINIONS AS TO THE NEEDS OF
INDUSTRIAL TRAINING IN BEAVER COUNTY

Schools Represented	Need for Industrial Training		Did Not Respond
	Yes	No	
Balko	X		
Bethany			X
Beaver	X		
Forgan	X		
Gate	X		
Green-O	X		
Knowles			X
Turpin	X		

did not respond. The opinions given by the superintendents express the fact that the schools should offer industrial education courses. They were then asked if their school was offering industrial arts courses and if not, why this was not being done.

Table XVI shows that only one school in the county is offering industrial arts at present. The reasons given for not offering such courses were insufficient funds and lack of teaching force. The table on page 34 shows that most of the high schools have such a small enrollment that the teaching force is not adequate enough to enable the practical education courses to be offered. Since it has been stated in Table XV that there is a need for industrial training in the county, it seems justifiable to offer this type of training in one large central school system where there would be adequate funds, room and equipment available.

TABLE XVI

SCHOOLS OFFERING INDUSTRIAL ARTS COURSES IN BEAVER COUNTY

School	Offering Courses		Reasons for Not Offering Courses
	Yes	No	
Bd ko		X	Insufficient funds
Bethany*			
Beaver	X		
Forgan		X	Lack of teaching force
Gate		X	
Green-O		X	Lack of teaching force
Knowles*			
Turpin		X	Small Enrollment

(*Did not respond)

The Per Cent of Boys that Drop from School. It was of interest to find what per cent of the students in school were boys and what per cent of these dropped from school during the year. However, the reasons for the boys dropping from school

were not given. It will be found that a number of them secure regular farm jobs while a few have gone into industry. Table XVII shows there is an average of 45.3 per cent boys in the schools of the county. The average per cent that drop from high school is 5.8. It is believed that with this low per cent of students dropping from school that it could be reduced even more by offering such industrial courses that would meet the needs and interest of the students. It was found that an

TABLE XVII

THE PER CENT OF BOYS IN THE SCHOOLS OF BEAVER COUNTY

School	Per Cent of Boys in School	Per Cent that drop out of school	Per Cent that go to College
Balko	30	0	10
Bethany*			
Beaver	54	10	30
Forgan	51	15	17
Gate	41	0	25
Green-O	51	5	20
Knowles*			
Turpin	45	5	40
Average	<u>45.3</u>	<u>5.8</u>	<u>23.6</u>

(*Did not respond)

average of 23.6 per cent of the students that graduate go to college. This is above the average as compared with a statement made that only one out of every five attend college.

Subjects Offered in the High Schools of the County.

The study of the high school curricula seemed important after obtaining information concerning the present status of industrial education in the schools. Since most of the schools

were not offering industrial courses, a list of the academic subjects would seem helpful in determining how well the schools were meeting the objectives of secondary education as are described in Chapter V. Table XVIII lists all the academic subjects that are now offered in the high schools of Beaver County. The number of credits are shown for each subject that is taught. The subjects have been grouped according to the class in which they are generally offered. It will be noted that many of the subjects offered during the Junior year may also be offered during the Senior year. The courses marked with (x) indicate this. As seen from the table, one school offers as few as sixteen courses for its four years. This leaves very little choice for the student in selecting elective courses. Some of the schools, as shown by Table IX in Chapter II, have only three teachers in which to offer its high school curricula. This does not allow the needed time to be given the student by the teacher. It also overloads the teacher and may reduce the efficiency of the instruction. The courses offered in some of the schools are purely academic in nature and provide only enough credits to meet the high school requirements for graduation. This amount varies from $15\frac{1}{2}$ to 16 credits. (39, page 43)

TABLE XVIII

SUBJECTS AND CREDITS OFFERED IN EACH OF THE HIGH SCHOOLS
OF BEAVER COUNTY

Subject	Schools							
	Belko	Bethany*	Beaver	Forgan	Gate	Green-O	Knowles*	Turpin
Freshman Subjects								
Composite Math	1		1	1	1	1		1
English 1	1		1	1	1	1		1
General Science	1		1	1	1	1		1
Oklahoma History	1		1	1	1	1		1
Civics	1		1	1	1	1		1
Sophomore Subjects								
Algebra 1	1		1	1	1	1		1
English 2	1		1	1	1	1		1
Geographies	1		1	1	0	1		1
Home Economics 1	0		1	0	0	1		1
Industrial Arts 1	0		1	0	0	0		0
Modern History	1		1	1	1	1		1
Spanish 1	0		1	0	0	0		0
Theory of Music	0		1	0	0	0		0
Junior Subjects								
Algebra 2	0		1	0	$\frac{1}{2}$	0		$\frac{1}{2}$
Trigonometry	0		$\frac{1}{2}$	0	0	0		0
U.S. Arithmetic	0		$\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{2}$
American history	1		1	1	1	1		1
Bookkeeping	0		1	1	0	0		1
Democracy	1		1	1	0	1		1
English 3	1		1	1	1	1		1
Home Economics 2	0		1	0	0	1		1
Industrial Arts 2	0		1	0	0	0		0
Physics	0		1	0	0	0		0
Public Speaking	0		1	0	0	0		0
Shorthand	0		$\frac{1}{2}$	1	0	0		1
Commercial Law	$\frac{1}{2}$		$\frac{1}{2}$	0	$\frac{1}{2}$	$\frac{1}{2}$		$\frac{1}{2}$
Spanish 2	0		1	0	0	0		0
Typewriting	0		1	1	0	0		1
Business English	0		0	0	0	$\frac{1}{2}$		$\frac{1}{2}$
Geometry	0		1	1	1	1		0

TABLE XVIII (Continued)
SUBJECTS AND CREDITS OFFERED IN EACH OF THE HIGH SCHOOLS
OF BEAVER COUNTY

Subject	Schools						
	Balko	*Bethany	Beaver	Forgan	Gate	Green-O	*Knowles Turpin
Senior Subjects							
Algebra 2	0		x	0	x	0	x
Trigonometry	0		x	0	0	0	0
U.S. Arithmetic	0		x	0	x	x	x
English History	1		0	1	1	0	0
Bookkeeping	0		x	x	0	0	x
Democracy	x		x	x	0	x	x
English 4	1		1	1	1	1	1
Home Economics	0		x	0	0	x	x
Industrial Arts 2	0		x	0	0	0	0
Physics	0		x	0	0	0	0
Biology	0		1	1	0	0	1
Sociology	0		0	0	0	0	0
Physiology	0		0	0	0	0	0
Public Speaking	0		x	0	0	0	0
Shorthand	0		x	x	0	0	x
Commercial Law	x		x	0	x	x	x
Spanish 2	0		x	0	0	0	0
Typewriting	0		x	x	0	0	x
Total	14		28	18	13	17	20

(* Did not respond. x Offered either Junior or Senior year)

PART C

RESPONSES FROM THE STUDENTS

The per cent of questionnaires returned from the students was eighty-five. This amount, according to Crawford (15, page 178), represents a fairly high percentage of responses to the questionnaires distributed. Perhaps a sub-

stantial reason for this was that the forms were taken to the schools rather than sent by mail. The information received from the students will be shown in the succeeding paragraphs and tables.

Classification and Ages of the Boys Answering the Questionnaire. The method of distributing the questionnaires and the per cent of the returns made was mentioned in the preceding part of this chapter. The forms returned represent seven of the eight schools in the county.

TABLE XIX

GROUP CLASSIFICATION OF THE BOYS REPRESENTED
BY THE QUESTIONNAIRE

Classification	Number of Boys Represented
Freshman	30
Sophomore	39
Junior	41
Senior	15
	Total 125

The 125 boys represented have been grouped in Table XIX according to their classification in school. It is seen that the largest group represented was Juniors. The fact that students of this rank in school have had more practical experience in life, will add to the validity of the questions answered.

Table XX shows the 125 boys grouped according to ages. There were 67.2 per cent of the entire group between the ages of fifteen and seventeen, inclusive. This age group seems to be the desirable time for boys to make selections for the type of work that later may be required of them. According to this table, most of the boys are through school before they are twenty.

TABLE XX
AGE GROUPS OF THE BOYS REPRESENTED

	A g e s									
	14	15	16	17	18	19	20	21	22	23
Grouping According to Ages	14	28	31	25	10	12	3	0	1	1

Interest Shown for Industrial Arts. The writer did not overlook the fact that an interest for industrial training shown by the students would be helpful in making final recommendations. The boys were asked in the questionnaire if they were interested in industrial arts training. Since industrial arts is offered in only one of the schools of the county, they were also asked if they had ever had any industrial arts courses. Some of the students have attended other schools of this state and other states where such courses were offered. The information from these questions is shown in Table XXI. There were

only three boys who indicated they were not interested in industrial arts courses. Administrators in many schools realize the importance of industrial training to the extent that two years of such training is required of every boy. The per cent of interest shown by the boys in Table XXI for industrial training is high enough that a requirement for the training would not be necessary. This does not mean that industrial arts courses should not be required, it is only emphasizing the interest shown for them.

TABLE XXI

THE INTEREST SHOWN FOR INDUSTRIAL ARTS TRAINING
BY THE STUDENTS

Students Interested in Industrial Arts	Not Interested	Have had Courses in Industrial Arts	Have not had Courses
122	3	48	77

Industrial Arts Courses Preferred. The questionnaires contained a list of industrial arts courses from which the students were to make choices as to the kind of work that interested them. They were also asked to list other industrial arts courses not mentioned but which were of interest to them. It was not the aim of the writer to use the exact courses designated by the students in proposing an industrial arts program, however, some of the choices made will probably be used.

The purpose was to find out if the students were industrially or mechanically interested. The courses in many school shops have been selected with pupil interest in mind but more emphasis placed in selection on the practical experience to be received from the training. The suggestions made by the students on the questionnaires will aid in the organization of an industrial program but the greater emphasis in organizing the program will be directed toward practical purposes.

Table XXII lists the subjects and the rank of choices that were made by the students. The last column on the right ranks the choices according to the first six. These in their order are: Auto Mechanics, Electricity, Woodworking, Farm Shop, Welding and Mechanical Drawing. These subjects would be of utmost importance for the boy who contemplates doing agricultural or industrial work. Some of the students indicated an interest for Designing, Engineering, Aircraft and Diesel Engine work. Industrial arts courses would certainly be of value to the boys who intended entering these vocations.

Summer Occupations of the Boys. Usually there are reasons other than interest why a person makes a preference for a certain thing. The boys were asked to give the occupation of their fathers and to indicate the kind of work they themselves frequently did during summer vacation. Education today is not thought of as teaching boys to follow the occupation of their father, but there are many cases where boys do follow

TABLE XXII
INDUSTRIAL ARTS COURSES REFERRED BY THE BOYS
IN BEAVER COUNTY

Listed Subjects	Total Interests for each Subject	The Rank of Interest	The Rank of First Six Choices
Auto Mechanics	96	1	1
Foundry	7	13	
General Metal	29	7	
Concrete	11	19	
Welding	51	5	5
Electricity	85	2	2
Woodworking	82	3	3
Mechanical Drawing	42	6	6
Forging	11	10	
Farm Shop	62	4	4
Home Mechanics	20	9	
Cabinet Making	27	8	
Other Subjects of Interest			
Carpentry	9	11	
Designing	2	14	
Engineering	2	14	
Aircraft	8	12	
Diesel Engines	1	15	

their fathers' occupations. The purpose of asking this question was to find out how many different occupations were represented in this group.

TABLE XXIII
OCCUPATIONS REPRESENTED AND THE KINDS OF WORK DONE
BY THE BOYS IN SUMMER TIME

Father's Occupation	Number Represented	Boy's Occupation in Summer Time	Number Represented
Farming	94	Farming	107
Blacksmith	3	Ranch Work	1
Broom Maker	1	Clerking	11
Laborer, W.P.A.	3	Lumber Yard	1
Truck Driver	2	Cafe	1
Rancher	2	Service Station	2
Railroad Engineer	2	Mechanic	1
Merchant	3	Bakery	1
Janitor	1		
Mechanic	2		
Depot Agent	1		
Carpenter	4		
Minister	1		
Mail Carrier	1		
Service Station	3		
Sheriff	1		
Lumberman	1		

Table XXIII lists all the occupations represented by the parents of the boys answering the questionnaire and lists the kinds of work done by the boys in the summer time. There were seventeen different occupations represented with farming the most common. This representation shows this is strictly an agricultural county. Eighty per cent of the boys were doing farm work as an occupation. Many of the boys who live in town do farm work during the summer months. Although this does not give 100 per cent representation from all the schools, it does give a general idea as to the occupations represented. There may be some comparisons made from the information given in Table XXIII to that which is found in Table XXII. Some of the boys who indicated their choices of industrial arts courses may have been influenced by the occupation of their fathers.

Summary. The results in summarizing this chapter have not only shown there is an interest for industrial training but have further shown the need for it. From the list of curricular offerings it was found that practically every school offered a minimum curriculum to the students. Industrial and vocational courses were overlooked almost entirely. Over ninety-eight per cent of the students receiving the questionnaire expressed a desire for industrial training. Of the types of work common to the community, it seems necessary to include industrial courses as a part of the school curriculum. An

industrial program would not only fulfill the interests and needs of the boys in school but would assist the schools in meeting the objectives of education in a democracy. The schools under the National Emergency are asked to provide industrial training for the boys so that they may work in industry if they are needed. It is important that boys have an opportunity to take courses in industrial drawing so that they may learn the fundamentals of blue print reading. It is also important that they receive experiences in various shop activities to give them manipulative experiences. The schools should feel obligated in providing this training. Furthermore the schools are asked to promote democratic ways of living. They can meet these demands by strengthening certain areas in the school, as for example: (22, page 10)

Develop locally the program of training in such fields as industrial arts, home economics and agriculture, generalized or specialized, at both elementary and secondary school levels. These areas provide to an unusual degree opportunity for home projects; such as, home repairs, gardening, growing a field of wheat, and the like. They also have social values in developing attitudes toward work through experience -- values which are always useful but especially so in time of stress.

Many schools have already recognized the need for reorganizing their educational systems. They are realizing the importance of providing an education that will universally be accepted. The trends toward this reorganization will be discussed in the next chapter.

CHAPTER IV

TRENDS TOWARD THE REORGANIZATION OF SECONDARY EDUCATION

Education is a social function and in order to be effective it must change with changing society. Its practices are based upon certain psychological assumptions which must be reformulated as new light is thrown upon the nature of the individual and the way he learns. The history of education has been closely related to shifting social conditions. The demand for a reorganization of education on the secondary level in America today is attributed to fundamental readjustments in American life as they bear upon young people, to the opportunities and threats of prevailing social and cultural conditions. These social changes do not take place momentarily, there is no one moment when a situation reveals itself in its wholeness. Institutions have always been slow to adapt themselves to new and changing conditions, and full realization of what is required comes only by small degrees.

It is the purpose of secondary education to help young people realize the significant possibilities implicit in their changing status and to help them find themselves anew in their personal, social, and economic relationships. Also, to develop a working philosophy of values which will give meaning and purpose to their living. In order to carry forth this purpose, secondary education must reorganize to insure such objectives as: citizenship and character, home leadership,

physical and mental health, proper leisure activities and the abilities and interests which tend to foster the continuance of learning beyond the school period.

It is the purpose then to make mention of the guiding principles of secondary education and discuss the need for reorganization.

PART A

THE CONTROLLING PHILOSOPHIES OF SECONDARY EDUCATION

There have been certain governing principles determining the direction of education for some time. Since there have been changes made in recent years setting the standards of the secondary schools, these controlling philosophies will be discussed, following the present trends.

College Entrance Requirements. The higher institutions of education have exercised a marked influence upon the development of secondary education. This influence has operated through the establishment of requirements for college entrance. These requirements have gradually crystalized into statements of standards and regulations for accrediting. Students who plan to enter college find the subjects they study in high school largely determined by the rigidities of college-entrance requirements rather than by their own interests, capabilities, and resources. Traditionally, the preparation of students for college has been considered the major function of the high school.

The college entrance requirements have had great influence

on the curriculum for students not interested in college. The curriculum tends to reflect more what college instructors consider essential for subsequent college work than what is actually required for the enrichment and development of students' present capacities and interests, or for the meeting of their needs.

The trend today is to change the high school curricula of the secondary schools to meet the needs of the great mass of youth who do not go to college. The tendency is to offer training in vocational and general culture fields to parallel the college courses intended for those who remain four years in college. (18, page 97) If this is true, the college entrance requirements will perhaps make changes from their present form.

The Importance of Vocational Preparation. Most people do not realize that a large portion of their life is spent at work. It is said that a person sixty years old spends two-thirds of his life in some vocation. It is important then that this large portion of life be spent in the kind of work that will result in reasonable happiness. This emphasizes the importance of vocational preparation.

Everyone, during the time of childhood, is confronted with the question, "What are you going to do when you grow up?" It does not take long for the child to realize that his interests are under curious and constant surveillance, and that many of his activities are being appraised for their possible vocational

promise. At adolescence the young person begins to conceive of his interests in terms of their implications for a career. He early recognizes that without a job he cannot establish independence from home authority. He also learns that there are many vocations from which to choose in selecting his work. Investigations into many fields show there are certain requirements made of the applicant for that vocation. It is sometimes found that certain occupational fields are over crowded and there are no opportunities for workers.

The schools have made it a part of their program, in the past, to offer opportunities to the students for vocational preparation. More emphasis is placed on this in the schools today. It is not necessary that a person become a "jack of all trades" in the present era but it is important that preparation be made toward a livable vocation.

General Education and Its Objectives. It has long been the custom of schools to provide for general education. When the home found itself unequal to the task of teaching the art of reading, writing and computation, schools were developed to do this work. The nineteenth century brought compulsory education to this country and the minimum education thus enforced has been measured in terms of ability to read, write, and perform ordinary arithmetic. Beside the subject content of education, the fundamental features of human nature are to be taken into account. Civilization has demanded the fulfillment of four fundamental necessities, according to Schweickhard,

that have become almost distinctive. They are as follows:

(45, page 262)

1. It has been established for centuries that general education should fulfill the cultural needs of the human race, and to some this constitutes a complete education. As a product of man's intellectual invention however, this is probably the most artificial of all, yet so firmly established that it is universally accepted, and is contributed to by all of the phases of the threefold education.

2. The social instinct of man calls for an element in general education which may contribute to its development. Since education is the organized method of perpetuating social traditions and relationships, it is essential that this factor be retained.

3. General education must contain the elements necessary for religious development. It need not be sectarian, nor denominational, but it must enable the individual to follow his own religious tendencies more directly and develop his religious nature more fully.

4. No system of general education may neglect the physical development of humanity, for a race may be highly educated culturally, socially, and religiously, but without sound physical vigor it cannot endure substantially nor permanently. These four fundamental necessities have become accepted toward the fulfillment of which all general education should contribute.

It has been established that general education is so planned and conducted as to be of benefit to all normal persons. From the standpoint of prominence, it is most prominent at the beginning of the educational ladder, and diminishes in prominence as the process proceeds. Besides fitting the individual for life in general and acquainting him with means for sustaining life, it aids in forming the foundation for subsequent selection and specialization. It

may finally give way to specialization after the choice has been made.

One of the reasons why general education has maintained its place in the educational system has been the substantial and definite statement of objectives as stated in Schweickhard's book on Industrial Arts. These objectives that are so commonly referred to are: (45, page 137)

- Health
- Command of Fundamental Processes
- Worthy home-membership
- Vocation
- Civic Education
- Worthy use of leisure
- Ethical character

PART B

THE COUNTY AS A UNIT OF ORGANIZATION FOR ITS HIGH SCHOOLS

Since there is a trend toward the reorganization of secondary schools for the purpose of providing young people with an education that will find themselves anew, the small school immediately faces an important problem. They have always found it hard in providing broad educational opportunities for pupils. Now under the present movement for reorganization to meet with emerging conditions they will find it equally as hard. Small school systems in many places have solved a great number of their problems by organizing their schools as one large unit. In places where conditions would permit, they have been organized as County Units for administration of their schools. The schools in Beaver County are faced with problems of the small school. These have been discussed in preceding chapters. It is the purpose here to

discuss the possibilities of a county organization of high schools through a desire to see extended educational opportunities offered to the youth of this county. There are many factors that need consideration in a program of this nature. A few of these will be mentioned as well as opportunities offered by an organization of this kind.

The County Unit System in Practice. To obtain a thorough understanding as to what is meant by a county unit in school organization, Leech gives the following definition: (26, page 37)

The County Unit is the term applied to systems in which the schools in the county are organized as a single system under one board of education, one superintendent and supported largely by county funds.

In 1901 the territorial legislature of Oklahoma made provisions for the organization of county high schools. Thus two administrative units for high schools were established; the county high school and the city district high school. The first county high school was organized at Guthrie in 1903. One year later a county high school was organized at Helena. Other schools were later established at Paden and Boise City. The last of these to be abandoned was the Okfuskee County High School at Paden in 1935. (40, page 41) The increased population in these counties was greatly responsible for discontinuing them and organizing high schools of consolidated districts.

The leading states that practice the county unit system are Louisiana, Maryland, Utah, Alabama, Florida and New Mexico. Most of these states are practicing the county unit system in

the counties where the conditions deem it profitable. Some states make it a practice throughout the state.

Forms of Administration. There are various methods found in the administration of the county unit. This is generally left to a decision of the districts but may be found in a state law providing such organization. In some states, the county unit includes rural districts and city schools alike, while in others, city schools and small town schools are independent of county organization. The people generally elect a five man board who in turn elect the county superintendent. He becomes the executive officer of the county board. Some states provide that the people themselves shall elect the county superintendent. The consolidating of the districts into one is left to a vote of the people. They vote to approve the tax rate and thereafter must be consulted if the board desires to change the rate.

Suggested Essentials. As stated before, there are several factors governing the introduction of a county unit. In order to have an effective organization, the following suggested essentials are made by Leech and are as follows:
(26, page 37)

1. The county unit should be inclusive of all the districts in the county.

2. It should have a small governing board which should elect the superintendent and make him executive officer of the school.

3. The board, through the executive officer, should determine all educational policies as respects the school plant, supervision, teaching staff and other personnel instructional service. These, of course, are subject to limitations set by state law or regulations of state board of education or state superintendent.

4. The county unit administration should be so designed that it will be responsive to public sentiment and will guide public thought through adequate publicity and leadership.

Transportation. The transportation of pupils by small districts, consolidated districts, or county unit systems has generally presented problems. The problems of transportation vary with the locality where the transportation is carried on. The fact that a small district may be having problems of arranging bus routes for the elimination of dead-end mileage or high costs does not substantiate the theory that a larger district or a county unit would be having the same trouble in equal proportion. Problems of this kind are common in sparsely populated regions but have been solved with reasonable satisfaction.

Since the county unit is not common at present in this state, it is necessary to study the systems in other states to find how transportation is organized and administered in providing an efficient transportation system. Effective and economical transportation routes for county unit high schools have been reported by counties in Florida, West Virginia, Alabama and Utah where problems of bad weather, sparsely populated areas and long bus routes were common. The methods used in solving the various problems were reported by the schools.

One school reported operating twenty-seven busses, transporting 1000 pupils. It was serving an area of 526 square miles.

A summary of suggestions for transportation in a county unit system will be made by the writer. They are taken from the information on transportation systems that are now in operation in other states.

1. A careful and well planned arrangement of routes to eliminate dead end mileage. Routes planned to utilize the good roads that are available.

2. All busses of one make, thus providing various parts to be interchangeable.

3. Uniform bus bodies capable of hauling from forty to sixty pupils.

4. Capable, well trained student drivers paid by the day, or contract drivers paid per day per child transported.

5. In remote places and especially in sparsely populated areas, provide small type busses to gather the pupils and bring them to designated places. This may be done through contract of some individual or by county owned busses.

6. A mechanical force of men, ranging from two to five, to repair, overhaul, grease and care for the trucks.

7. School owned gasoline pumps to provide fuel for the entire group of busses.

8. Careful and complete records kept on all expenditures, to use as a method of determining the efficiency and for making changes for improvement.

9. Have the executive control of transportation in the hands of the board or a designated group so that problems could be worked out in regard to the conserving of costs and providing better transportation.

10. Adopt the policy of quantity purchase of transportation equipment through agencies, thus lowering the costs.

11. All busses owned by the county, thus enabling the board to purchase the busses in a fleet which would lower the initial cost.

The preceding statements are only a few of those that could be worked out in providing transportation for a county unit system. The location of the community, population, types of roads and the number of square miles to be served are factors to be considered in planning for pupil transportation.

County School Problems as Now. Nearly every high school in this state, especially the smaller school, is facing problems much different from the time the school was organized. These conditions in a large sense have resulted from uncontrollable forces. The small school should not be condemned for what it has done or what it is trying to do. It seems that something should be done which would assist its efforts. Whaley lists some problems which are common with small schools and are common with most Beaver County Schools. These are given in order to show the possibilities for improvement: (56, page 41)

1. The schools when first established were as large as transportation would permit. Today the school program is limited by low valuation and small enrollment which is too narrow to meet the modern needs.

2. In many places the county superintendent must plan an educational program with ten to fifteen boards of education. He must attempt to obtain accurate financial data, plan rehabilitation programs, set up transportation schedules and make out numerous attendance records which in many cases are difficult to obtain.

3. Low valuations in rural areas have seriously hampered the development of a progressive school program. The lack of sufficient funds is in part due to the creation of small school units.

4. Farm values are low and there is little tangible wealth in many communities. Public utilities form only a small portion of the income in some places.

5. The housing and equipment facilities have been limited because of small enrollment and low valuation. A high school enrollment of fifty requires as broad a curriculum as one with 500.

6. Industrial arts, vocational subjects, music, art and home economics are needed as much by pupils in the small schools as in the larger ones. There is a like need for academic subject areas, including college preparatory courses.

7. Well trained teachers are as necessary for efficiency in small schools as in larger ones. They generally specialize in one field and have to teach in four.

8. The teacher pupil ratio is ordinarily higher in the smaller school while in others it may be found to be lower.

9. The experience and tenure of teachers is a problem found in most schools. Teachers on an average stay in one school from one to two years. Since no advancement is offered by many small schools, they feel free to leave. This affects the efficiency of the school system.

Although the preceding problems may not be found in all small schools they are well worth considering.

Opportunities Offered by a County Unit System. The opportunities offered by a county unit system may not solve all the problems of the small school but would be a great advancement toward that end. The following is a list of offerings made possible through county organization.

1. It would provide a school large enough to accommodate all the high school students in the county.
2. The educational opportunities would be equal to all students.
3. The cost of maintaining one large school would be less than that of maintaining several small ones. More room, equipment and teaching facilities would be available.
4. A curriculum broad enough to offer educational opportunities to meet the needs of all students could be provided. Such courses as industrial arts, vocational agriculture, vocational home economics, commercial subjects, and music could be offered. The civic, industrial and vocational needs could all be met.
5. A higher standard of efficiency could be established by teachers. Teachers that had specialized in one or two fields would be allowed to teach that field in the curriculum.
6. Teachers would have a tendency to remain with the school for several years which would increase the efficiency of the school system.
7. Since the cost of operating one school would be less than the operation of several, money received through school taxation and state aid, in some cases, would supply sufficient funds to operate and maintain the school.

8. A wide variety of recreational activities could be provided. Physical education classes could serve the needs of all students.

There are other valuable educational offerings that would accompany those just enumerated, such as student council, club organizations and social functions.

The county unit system is not the solution to all the problems of the secondary school. It is like any other educational system, it must be well organized in insuring an education which will meet with universal approval. It seems that it is one solution for the small schools. It is a step in the ascent toward the goal of universal education advocated by Horace Mann.

PART C

THE SCHOOL PROGRAM IN ITS ENTIRETY

It is the aim for the outcome of this study to plan an industrial training program that will be of direct value to the students, schools and communities of Beaver County. The writer recognizes that this alone does not constitute the entire school program. There are other courses, of perhaps equal importance, such as agriculture, business, and home economics education that are essential in offering practical education in the schools. Although the industrial phase of education has been the sole purpose of this study, the other courses are not to be overlooked. A discussion will be made as to their importance and place in the school program.

Vocational Agriculture for Agricultural Pursuits. Vocational agriculture is a training program. Its primary aim is to train present and prospective farmers for proficiency in farming through the various types of instruction. Through the assistance of the teacher, the boy is helped in developing special skills and abilities, recognized as worthy training objectives for useful farm life. The need for such training is recognized by the Federal Government through the Smith-Hughes and George-Deen Acts. These acts provide funds for the teaching of vocational agriculture of less than college grade that will meet the needs of those over fourteen who have entered or are preparing to enter the business of farming. As stated in the Seventeenth Biennial Report, a list of the objectives of vocational agriculture in developing abilities shows its importance in a school program: (39, page 166)

To select and use appropriate methods of building and maintaining soil productivity.

To produce agricultural products efficiently.

To utilize the economic returns of farming to the end of maintaining satisfactory standards of living.

To grow vocationally and to become successfully established in farming.

To exercise constructive leadership and to recognize and follow worthy leadership.

To save systematically.

To cooperate intelligently in economic activities.

To manage the farm business effectively.

To use scientific knowledge and procedure in the farming occupation.

The Need for Business Education. It has been the same early belief with business education, as with other vocations, that this type of education should be given only in private institutions. Since it has been found that it is the place of the secondary schools to offer the basic training in business education, many schools have included commercial departments. A school that offers business education in its program is providing another opportunity for the student to aid him in making a desirable living.

According to the 1935 census report, there were 17,984,435 jobs in the business world. This included all the jobs of a business nature that were found in the United States. This large figure shows the necessity of business education in order to supply the demand of the business employers. It is not the purpose to prepare everyone for a vocation in business but it is necessary that business education be included in the school program to meet the needs that arise.

The Importance of Home Economics Education. Home economics is a subject which is fundamentally a response to social needs. It deals with commodities essential to everyday living, and with human relationships as they exist in the personal lives of individuals. As a school subject, it is less possible of standardization than are some other subjects which are more easily organized in terms of their content. Cora M. Winchell makes the following definition which states briefly the scope of the field: (57, page 1)

Home economics is a subject that centers around the problems of the home and other institutions whose problems are of similar nature. It includes a study of food, shelter and clothing viewed from the standpoint of hygiene, economics, and art and a study of the relations of the members of the family to each other and to society.

An important aim of home economics education in the high school is that of contributing to the education of youth for worthy home membership and of developing attitudes of both immediate and future value to girls. The course, as found in the high school, may be introduced for either general or vocational education. Non-vocational home economics has as its purpose the development of intelligent insights and desirable attitudes toward personal living as involved in problems of food, clothing and home life. Vocational home economics, as stated by Winchell, provides for the preparation of girls and women for useful employment as house daughters and home-makers engaged in the occupations and the management of the home.

The education that is offered by home economics is directly related to the school and community. It can be used in the school lunch room and the social activities that are carried on by the school. The important place that women have with community affairs affords an opportunity with such organizations as Girl Scout work, church socials, Farm Women Clubs and many others. It would seem, therefore, that education in home living and home-making, as well as education in food

and clothing should have a place in the general school curriculum.

The Importance of Industrial Education. The movement for industrial education was a part of the educational advance and resulted from the attempt to bring about universal and appropriate education. It generally means the complete and appropriate education of industrial workers at any grade. It is more than the introduction of shopwork into the curriculum it furnishes for the working classes an education for their prospective life work. It furnishes for the student of education, the study of real conditions in industrial methods and developments.

The importance of industrial education has come from demands made by manufacturing interests, organized labor, educators and from societies formed to promote the social well-being of men and women. There has also been a demand by youthful workers themselves.

This is essentially an industrial age. Our civilization is dependent on science, invention and skill. The manufacturing and construction industries are important among activities which make for the material well being of the people. It is the study of these industries that constitute industrial education.

It is an important function of the high school, the vocational schools and the adult schools to provide such industrial training so as to:

- (1) Assist the individual in a revival of apprenticeship.
- (2) Provide extended training of youth prior to their acceptance in industrial employment.
- (3) Broaden the knowledge of workers in their crafts.
- (4) Retrain persons for service in new industrial lines.

A new order that has called for more industrial training is the National emergency. The states, communities, towns, and schools have each been asked to do their part in making America safe for democratic ways of living. There is without question an increasing demand for extended industrial education in the schools and its importance today is unlimited.

Adjustments Needed for College Preparation. As mentioned previously, the general tendency of the secondary schools has been to provide such courses as will prepare high school students for college. The colleges in the past have set the standards and curriculum offerings of the high schools. They are not to be criticized for aiding secondary schools in this way. The conditions of today are changed and are changing with each year. The increased pupil enrollment in school is compelling a modification of the curricula. This increased enrollment is shown in the following statement made in a report by a special committee on "What the High Schools Ought to Teach" (44, page 6)

Almost every decade from 1880 to 1930 witnessed a doubling of the pupil population of secondary schools. If present population trends continue, it will be impossible for the pupil population ever to double again for 1930 census figures showed that half of the population of the United States from 14 to 17 years of age was registered in secondary schools. The census of 1940 will undoubtedly show that two-thirds of the youth of the ages mentioned are in secondary schools. The later stages of this evolution can be described in vivid statistical terms by pointing out that in 1900 there were in all types of secondary schools, public and private, somewhat fewer than 700,000 pupils; in 1939 there were more than 6,500,000.

The program of instruction which may possibly have been appropriate when the pupils were few and selected does not fit the needs of the great majority of those now in secondary schools. The program must be broadened and courses of study changed to provide an educational program which is suited to the needs and interests of all pupils.

There are other important factors that have influenced the change in modifying the curricula. The contributions to knowledge which have resulted from research in recent times have made necessary a broader inclusiveness in the programs of educational institutions. The passing of compulsory education laws with interest in lengthening the period of development so as to give young people larger opportunities to prepare for adulthood is perhaps another factor.

Since there has been a large per cent of increase in enrollment in the secondary schools and only a small per cent of these are attending higher institutions of learning, there is a need for these institutions to make adjustments and consider carefully their plans and procedures in the selection

and administration of students. This would enable the secondary schools to adjust their curricula to not only prepare the minority for college but to prepare the majority for places in everyday life. It would be a step toward providing an educational program suited to the needs and interests of all concerned.

PART D

EDUCATION AND THE NATIONAL DEFENSE

The program of national defense calls for men and women who are mentally well adjusted and who are physically able to endure, whether in the field, in the factory, in the office or in the home. It calls for those who know and who practice the responsibilities of American citizenship, who recognize the worth of honest labor, and who themselves have found a place in the field of work. These are vital needs of the national defense program in terms of human values. They are reflected in the major objectives of education in a democracy. Conceived as democratic purposes, they have been designed to promote democratic ways of living. It is the place of the schools to reenforce these values that have been recognized for many years.

How the Schools can Serve. The school has been designated as being foremost in national defense for promoting health, physical fitness and safety. This program may be started in the lower elementary grades and carried through the high school. Various types of programs may be presented

in meeting these objectives. Opportunities presented for student participation in recreational work, community-sponsored programs, organizing committees for school organizations and planning excursions will enable them to understand leadership.

The combining of education with work experience may be accomplished with the high school students more so than with elementary grades. The extensive program that is now carried on presents a privilege for everyone to associate themselves with work. Vocational and industrial training offers unlimited experiences in helping to train workers for those occupations in which experience is needed. The secondary schools can serve toward this aim by following suggestions made in a pamphlet issued by the Federal Security Agency. They are as follows: (22, page 10)

1. Acquaint pupils and out-of-school youth with the special programs established by the United States Government for the training and employment of defense workers and study their application in State and community.

2. Develop locally the on-going program of vocational education in the skilled trades. It is practical and fitting that schools should be embarking upon plans for giving larger numbers of high school pupils at least preliminary training for basic defense industries and for occupations where replacements are needed of workmen who leave their present jobs in order to contribute more directly to the defense effort.

3. Develop locally the program of training in such fields as industrial arts, home economics, and agriculture, generalized or specialized, at both elementary and secondary levels. These areas provide to an unusual degree opportunity for home projects. They also have social values in developing attitudes toward work through work experience-- values which are always useful but especially so in time of stress.

4. Encourage students to engage in various work activities of a service type which are of special significance.

These are only a few of the ways that the schools can serve for national defense. Special mention is given to these because it shows further the importance of industrial training which has been discussed in other parts of this study.

Summary. It has been the purpose of this chapter to discuss the present trends for the reorganization of the secondary schools. The reasons for this reorganization were shown and are summarized as follows: (1) To insure the objectives of general education, (2) to adjust the schools in accordance with increased enrollment, (3) to meet the demands of the greater mass of students who do not attend college, (4) to provide a richer curriculum to meet with changing conditions, and (5) to solve the problems of the smaller schools.

The importance of the county unit system as a possible solution for the small high schools was shown. The opportunities offered through an organization of this kind were enumerated in order that comparisons could be made with the needs for reorganization.

The important position that the schools have in assisting the national emergency was shown with suggested ways of improving certain areas within the school to enrich their offerings.

This chapter in general has shown the reasons for reorganization of secondary schools and the importance of

developing certain divisions in the school program. It will be the purpose of the next chapter to discuss the direct importance of industrial education to the school curricula.

CHAPTER V

THE CURRENT DEVELOPMENTS OF INDUSTRIAL EDUCATION

Education is one of the oldest institutions responding to human needs. Its main purpose has been to prepare one for the duties of life. An insight of the modern industries of today reveals some of the results of education. This type of education is referred to as industrial education, which includes most of the educational activities concerned with industry. These activities were not found in the old school systems due to the tradition from the Greek philosophers, who looked with contempt on manual work which was performed by slaves, workers and tradesmen. During the Middle Ages, industrial education was entirely separated from culture; one was a matter of apprenticeship and the other a matter of books. Today every man is expected to be a worker. It is in the interest of society, labor, and capital to have the most effective system of industrial education.

✓ The phrase, industrial education, as defined in Chapter I, "includes industrial arts which is the general educational forerunner of our introduction to vocational industrial education." The changes in educational thought and practice have had a highly stimulating effect on the development of industrial arts. Some of the trends toward this development will be discussed for the purpose of showing the growth of industrial arts.

PART A

TRENDS IN INDUSTRIAL ARTS

During the past two score years the changes that have occurred in educational thought and practice in the field of general education have had a highly stimulating effect on the development of industrial arts. Among the most influential ones, as cited by Proffitt, are the following: (43, page 1)

The tendency toward deriving the school curriculum from fundamental human experiences that function in present-day life; the tendency in practice--we have long had it in theory--toward providing pupil experiences in an increasing order specifically; the tendency toward providing instruction in accordance with developmental levels of pupils; the tendency toward a more real and practical interpretation, translated into school activities, of objectives in education that have long been generally accepted; the tendency toward the organization of instruction in accordance with principles that make its offering feasible.

A discussion of some of these preceding trends will be made as they have been noted from observation and study.

✓ Trend Toward an Alignment with the Objectives and Principles in General Education. It is the general practice now to consider industrial arts as an area in general education, and not as a special subject having specific occupational values. However, it is assumed that the progress made by the pupils as they advance in maturity by the industrial arts offered them, will become more specific in reference to their needs. The activities included in the program and the purpose it will serve in the adjustment of their lives is noted. There is no conflict between industrial arts and vocational-industrial education; each serves an essential need in education.

The general education objectives are interpreted in terms of reality and of modern-life situations. Industrial arts translates the objective, worthy home membership, into pupil activities that are directly and immediately effective for the maintenance of the home. It includes in accordance with the objective, worthy use of leisure time, such activities in which pupils like to engage during their leisure time. It makes citizenship an everyday practice in shop organization, also in responsibilities for cooperation. This is obvious in the completion of a shop project and observation of industry at work. The industrial arts teachers are in the forefront of the movement to organize the curriculum on the basis of pupil experiences that conform to the developmental levels of the pupils.

Trend Toward a Varied Program of Activities. It is interesting to note the ever-growing tendency toward the increase in the number of shop activities. In the past the number of shop activities was generally from one to two, while now it is possible to find as many as six or seven. This broadened field, which offers self-expression, appeals to more pupils. The increase in the number of shop activities is complimentary to the increase in industrial activities and in the kinds of constructional materials. Some of the newer types of activities being introduced are: plastics, which are used much in the world today; ceramics, photography and pewter. All of these are offering not only new materials with which

to work, but also a variety of experiences. To better understand the change that has been made from the number and types of activities that were present 30 years ago, a report is given here by Harry E. Wood, director of fine and practical arts and vocational education, Indianapolis, about industrial arts in the Public Schools of Indianapolis in 1910 and 1940. (43, page 4)

1910--Shop work in grades 7 and 8 known as manual training--two 90-minute periods per week, in bench work in wood, and mechanical drawing. A few schools also had print shops.

In grades 9 to 12, inclusive, unit shops gave opportunity in drafting, cabinet making, pattern making, wood turning, foundry, forging, and machine shop. Work carried on five 90-minute periods per week.

1940--Shop work in grades 7 and 8 known as industrial arts work carried on four 50-minute periods per week, in general shops with units of instruction in bench wood work, sheet metal, electricity, cold bent iron work, printing, mechanical drawing, and we are beginning to add concrete work, plastics, and home mechanics.

Shop work in grades 9 to 12, inclusive, known as industrial arts, carried on five 90-minute periods per week in unit shop in some cases and general shops in others in woodworking, pattern making, forging, foundry, machine shop, electricity, printing, and mechanical drawing.

It will be noticed that the number of activities has changed since 1910, the trend is toward a broadened program. Another example to show the trend is taken from a report made by the schools of Minneapolis, in 1939. (43, page 8)

In September of 1882, there opened at central high school in Minneapolis a new course for boys. The equipment consisted of six benches and few tools for two classes of six each. But every boy in the school desired to enter, and so the equipment was increased to accommodate four classes of ten. From this humble genesis of

the child-centered learning-by-doing type of education, there grew, first a program of sloyd work for the grades, with manual training in the high schools, consisting mainly of woodworking and drawing courses; then metal work and machine operations were added, these courses being described by the broader term of manual arts. Many other lifelike courses grew from this beginning, making necessary a still broader term, the now familiar "industrial arts".

Today there are 112 teachers of industrial arts; 14,051 students in industrial arts courses; 50 schools whose students take industrial arts; and 123 industrial arts laboratories. The courses now being offered in industrial arts are general mechanical drawing, wood-working, wood turning, cabinet making, wood finishing, upholstering, electricity, metal working, welding, auto mechanics, printing, sheet metal working, machine shop, auto electricity, leather work, civil engineering, aviation, art metal, cement, electroplating, radio, wood carving, architectural drawing, home mechanics, foundry, pattern making, machine drawing, and aviation drawing.

There were four courses found in the Minneapolis Schools in 1888 with an increase to twenty-nine in 1939. The trend is definitely in the direction of broadening pupil experiences.

To understand our social order, school administrators are beginning to recognize the importance of including in the industrial arts area opportunities for the acquisition of information about industry.

A Trend Toward Organization of a General Shop. The increased activities which are prevailing in the school shops are perhaps leading toward the organization of pupil experiences, for instructional purposes, around the central idea of the general shop. This is especially true for the junior high school level. The reasons for this are due probably to more than one thing. Some of them are as follows: (1) Provides

for a variety of activities for pupil experiences in manipulative work, (2) provides a way for acquiring information about our industrial society, (3) provides enough activities to meet the interests and developmental levels of the pupils, (4) makes it administratively possible, due to the form of organization, to offer industrial arts in a larger number of communities.

Many schools are realizing the contribution that such activities make for an understanding of manufacturing processes, especially for pupils in the elementary and junior high school.

Industrial Arts as Seen by Others. The preceding paragraphs have stated some of the trends of the industrial arts movement as seen from observation and study. It would be well to give some of the points of view as seen by a few of the leaders in the field. A state superintendent from Oregon has this to say about industrial arts. (49, page 29)

...nor is the sole value in industrial arts to be found in the understanding and appreciation of our industrial culture. It gives opportunity for boys and girls to express in tangible fashion the urge for creative activity. The need of creative expression in the industrial arts, manipulative, intellectual and artistic, is looming more important as we become more fully aware of the factors involved in the development of wholesome and well-balanced personality.

Frank C. Moore in his article on, "Trends in Industrial Arts Education" gave the following definition of industrial arts and made a statement as to the general purpose of the trends that it is leading to. (28, page 137)

Industrial arts is one of the practical arts. A form of general, or non-vocational education, which provides learners with experiences, understandings,

and appreciation of materials, tools, processes, products. Also of the vocational conditions and requirements incident generally to the manufacturing and mechanical industries.

These results are achieved through design and construction of useful products in laboratories and shops. They are appropriately staffed and equipped, supplemented by readings, investigations, discussions, films, visits, reports, and similar activities characteristic of youthful interests and aptitudes in things industrial.

The subject of industrial arts, while encompassing all age and school levels, is justified in secondary school areas for such purposes as exploration, guidance, the development of avocational and vocational interests and aptitudes, specific manual abilities, desirable personal-social traits growing out of industrial products wisely--all coupled with the aesthetic relationships involved. In general, its purposes are educationally social rather than vocationally economic. Although in the senior high school it may increasingly emphasize vocational objectives in a non-legal sense, for certain students.

It is interesting to note the statements made five to ten years ago by various leaders in industrial arts concerning the trends and comparing their outcome with the present views. An article written by William H. Stone on "Recent History and Trends" offers a good comparison. The statement is based on subject-matter. (4, page 133)

These divergent trends, evidenced in earlier times in the opposing view points of Froebel and Herbart, still persist. Thus, in some school systems, industrial arts education is conceived as service activities, largely to provide manufacturing and mechanical knowledge and skills, hence, "opportunity" groups for non-academic-minded pupils, not only for educational activities originating in other and regular subject areas, but for economic products needed by the school system as a whole. Clearly, this is a hangover of traditional subject organization, exalting certain types of learning and learners, and debasing other types. However, this issue will disappear. Schools will be organized into major areas of activity, reproducing the major

social institutions. Within these areas, activities will originate, as they originate in life. Any one of these activities, being institutional in character, may overlap and involve participations in all other major areas. Subject-matter will be drawn and mastered either as content or as method, as needed in carrying out the activities planned. In other words, subject matter will cease to be intrinsically significant; it will acquire meaning and importance to the extent that it serves learners' needs in wholesome personal-social pursuits. Thus will be provided the close relationship between school and life activities so strongly urged by Dewey.

It will be noticed in the preceding statements that the industrial arts trends are following those of general education. There is a trend toward a varied activity program which is leading to the organization of pupil experiences centering around the general shop.

PART B

INDUSTRIAL ARTS IN THE PUBLIC SCHOOLS

It is not the aim here to discuss the place where the industrial arts program should begin in the public schools. The comment of this may be found in many books on industrial arts and will be left to the reader. Since the chief purpose of industrial arts, when found in the elementary school, is for social or general behavior values, the discussion will include the junior and senior high school.

Industrial Arts in the Junior High School. In the junior high school or in the seventh and eighth grades, the work is more specific than in the elementary school and stress is laid on more accurate technique and upon well finished pieces of work. The purpose of industrial arts in this period

is based purely upon the general educational objectives and not on vocational education. These objectives of general education which have been accepted for individual development and social efficiency are cited in "Practical Methods in Teaching Farm Mechanics" by Cook and Walker, and are as follows: (14, page 5)

Health

Command of fundamental processes

Worthy home-membership

Vocation

Civic Education

Worthy use of leisure

Ethical character

The emphasis in industrial arts should be placed upon helping the pupil to explore his own aptitudes. The pupil in the junior high school should not be required to choose the field to which he will devote himself until he has been given the opportunity to gain experiences in several types of work. With some pupils this should be followed for at least three full years.

The work best adapted to the variety of interests and needs of boys, of the seventh and eighth grades, is simplified by the general shop organization providing a sequence of relatively short units in a number of different fields. These courses will provide exploratory experiences necessary to the fulfillment of the purposes of the junior high schools and

will teach the boys to use tools in performing "handy man" activities. This may be a contribution to worthy home membership. Industrial arts work undoubtedly contributes much to the worthy use of leisure time by giving the student an insight and development of interest in hobbies of an industrial nature. It may be seen that industrial arts contributes either directly or indirectly to the objectives of secondary education.

Dr. Warner (55, pages 5-45) lists the following objectives of industrial arts which are closely related to the objectives of secondary education.

- Social habits and insights
- Exploration
- General Guidance
- Household mechanics
- Avocations, hobbies
- Consumers' knowledge
- A degree of skill
- Correlation and integration
- Vocational purposes

The purposes to be achieved in industrial arts are further shown in the objectives listed by Selvidge which extends those listed by Warner. (4, page 33)

To develop in each pupil an active interest in industry and in industrial life, including the methods of production and distribution.

To develop in each pupil the ability to select wisely, care for, and use properly the things he buys or uses.

To develop in each pupil an appreciation of good workmanship and good design.

To develop in each pupil an attitude of pride or interest in his ability to do useful things.

To develop in each pupil a feeling of self-reliance and confidence in his ability to deal with people and to care for himself in unusual or unfamiliar situations.

To develop in each pupil the habit of an orderly method of procedure in the performance of any task.

To develop in each pupil the habit of self-discipline which requires one to do a thing when it should be done, whether it is a pleasant task or not.

To develop in each pupil the habit of careful, thoughtful work without loitering or wasting time.

To develop in each pupil an attitude of readiness to assist others when they need help and join in group undertakings.

To develop in each pupil a thoughtful attitude in the matter of making things easy and pleasant for others.

To develop in each pupil a knowledge and understanding of mechanical drawing, the interpretation of the conventions in drawings and working diagrams, and the ability to express ideas by means of a drawing.

To develop in each pupil elementary skills in the use of the more common tools and machines in modifying and handling materials, and an understanding of some of the more common construction problems.

The kind of shop organization to meet the objectives of industrial arts in the junior high school varies according to the size of school and teachers available. According to the study made by Wise (58, page 18) the objectives set up for the junior high school may best be achieved by the general shop form of organization. Since the industrial arts shop is organized in varied ways, a discussion will be made as to forms generally found.

The Unit Shop. This is a well known type of shop organization, which is really a part of an organization containing many shops. It differs from a one-activity shop in that it

represents one of several kinds of activity while the latter represents the only activity that was offered.

This form of shop was introduced as early as 1879 in the St. Louis Manual Training School. At this time such courses as machine shop, woodwork, forging and similar courses were offered. The interest for the unit shop centers around the junior high school as well as some forms of the general shop. Using the unit shop organization in a school would require sufficient enrollment to demand several shops and several teachers. Separate shops would be required for woodwork, electricity, metalwork and others. This form of organization seems to be satisfactory when these qualities are available. If the enrollment of a school is small, it would not be practical to use this type of school shop if several shop courses were to be offered.

The General Shop. The type of organization represented by this shop may be understood by quoting the following definition from Newkirk and Stoddard: (29, page 11)

The general shop is a broad group of educative industrial arts activities embracing technics of shop organization and teaching methods which enables a community, whether large or small, to present a unified core of content, based on life needs, as summarized in these aims: developmental experience interpretive of the major phases of the world's industrial work, "handy-man activities", consumer's knowledge and appreciation, guidance, hobbies, social habits, and (for a very small per cent) vocational preparation.

The places where the general shop have been introduced have given the following characteristics showing its popularity in presenting the industrial arts program. (29, page 14)

1. It is well adapted to the organization of industrial arts content in the light of the general education, exploration, and guidance aims of the junior high school.
2. It permits students to be treated as individuals with due respect for their differences in interest and capacity.
3. It enables a student to discover his abilities and aptitudes thru manipulation of a wide range of materials, tools, and processes.
4. It offers an economical way to gain experience in many activities.
5. It makes possible an adequate industrial arts program for the small school.
6. It stimulates the setting up of a well-planned shop and a carefully organized teaching content.
7. It increases teacher efficiency.

The general shop seems to be well adapted to the junior high school. The characteristics that have previously been stated offer information about the situations the students meet in society today. It gives the pupil a chance to work with a variety of tools and materials. Pupils vary greatly in individual capacity for accomplishment and the general shop allows the individual to work on separate projects and advance as fast as he is able to do so.

The apparent differences found in general shop organizations may be varied according to the teaching situations or in reference to a given community. In reality they may be grouped into two classes: (1) the comprehensive general

shop, in which may be found an unlimited variety of activities; and (2) the limited general shop. The ideal organization for a large school where there are ample students, teachers and shop room, is to have the related instructional divisions presented in a series of shops through which the pupils are rotated. For the small community which can afford only one room, a comprehensive shop which houses several divisions in one room under the direction of one teacher would be more practical.

Industrial Arts in the Senior High School. The emphasis that is placed on the work when entering the senior high school will be more to the direct interest of the boy. This is done by following a better organized curriculum so the pupil may take work with reference to his needs as an individual and as a member of society.

Well developed work in industrial arts and closely related subjects would give all pupils an opportunity for equal growth. Most important of all are the possibilities which an industrial arts course offers, as training in habits of success, to those unable to achieve such in the academic courses either because of insufficient ability or absence of interest.

The common objectives that will be found in the senior high school are of a smaller number than in the junior high. There is probably less uniformity in their acceptance than in the case of the objectives of the junior high school. Where

the high school includes the ninth grade, a number of the objectives listed for the junior high school generally apply.

Ericsen states that in addition to these objectives there are a few that should be mentioned that refer directly to the senior high school. (19, page 296)

1. Vocational objective: There are a few who believe with a program of industrial or manual arts in the junior high school or below the tenth year, there is no justification for planning shopwork for the senior high school on any other basis than the vocational one. If students are going directly into wage earning they need and should have strictly vocational preparation.

2. Technical objective: It is in the minds of many that the high school is charged more than ever with the important duty of giving this type of education. It might be true that with increased enrollment and the desire made by all employers, this objective should be strengthened instead of diminished in the high school.

3. Managerial objective: It has been emphasized in recent years that if shopwork is properly organized it can serve as a training factor in preparing persons for managerial responsibilities. With this aim in view it would be legitimate to interest students in joining shop classes for the chief purpose of learning methods and organizations of industrial establishments.

The industrial arts courses in the senior high school may be organized in one of several ways. Those that are commonly found are: (1) the unit shop, and (2) the general shop. The general shop is generally divided into the comprehensive and limited shops. These forms of organizations have been previously explained under industrial arts in the junior high school.

X The size of the enrollment, the number of teachers and the amount of room available are controlling factors that

generally determine the kind of shop found in the senior high school. When the conditions are prevalent a limited type of general shop proves satisfactory. In any case the general idea is to give the senior high school pupil more extensive experience in the type of work that he is particularly interested in.

PART C

POSSIBILITIES OF VOCATIONAL EDUCATION

A discussion thus far has been made in regard to the present trends of industrial arts and the importance it has in the educational programs of the junior and senior high schools. It is the purpose to discuss here the possibilities and importance of including vocational education courses as a part of the school program where a complete vocational program cannot be provided. The steps taken by the Federal Government extending the development of vocational education, thus making it possible to offer training in the secondary schools, will also be discussed in order to show the offerings which are at hand for the introducing of vocational courses for the secondary schools. The movement which resulted in federal cooperation in vocational education is discussed rather briefly in the following paragraphs. They summarize the developments in vocational education from about 1860 up to the present time.

Origin and Present movement, of Industrial and Agricultural Education. Vocational Education, as provided in

the National Vocational Education Act of 1917, includes education and training of less than college grade, the specific purpose of which is to equip boys and girls, men and women for the effective pursuit of occupations. Such training prepares those of school age for advantageous entrance into skilled trades and occupations.

The coming of vocational education into the schools, was a result of social conviction that vocational by-education no longer sufficed for modern needs. It came when it was clearly seen how the progress of manufacturing had broken down apprenticeship. It also came when it was seen that in agricultural occupations old customs must be replaced by new skills and scientific knowledge. It has taken nearly a century of pioneering efforts of educators and social workers to give us our present body of imperfectly tested knowledge as a means of training in special schools for a few of the thousands of occupations that men, women, boys and girls must follow.

The early difficulties that were encountered in trying to provide direct vocational education were due to the fact that the early vocational schools were not able to give both the skill and the knowledge required for the successful pursuit of a calling. Some of the schools were planned to teach the "principles" of a vocation, leaving "practice" to be acquired later in actual experiences. The pedagogical effectiveness of a system of vocational education divided between the earlier technical school study and later practical experience

in the world of actual work was the essential thing needed in the schools. (47, page 14)

The old traditional program of the secondary school serves chiefly as a preliminary preparation for the professions. This program has become unsuited to the needs of the majority of the pupils. It is certain that the high school program should be of a type that will train the majority, who do not go to college, in such ways as will help in making a livelihood. This can be done without neglecting the academic subjects.

The present movement of vocational education in our schools is carrying out the idea of practical education for those of school age. It prepares them for advantageous entrance into skilled trades and occupations. It enables those who have left school for employment to receive further training which will fit them to do better work.

The first type of industrial school which attracted much attention was the trade school. The intermediate industrial school, sometimes known as the trade preparatory, was closely related to the trade school. The technical high school was also considered. There were other schools which attracted much attention among which were found the part-time cooperative and the evening schools. By 1917 the direction which the development of vocational education was likely to follow was uncertain. The Federal Government has not entirely neglected its opportunity to perform a very helpful service.

for the public schools, although it does not have control over education in the states. It has rendered its services largely through the bureau now known as the Office of Education.

The early years of the twentieth century found agricultural education receiving more attention and financial support. The particular reason for this was the agricultural tendencies of the nation. The various farm organizations advocated agricultural education in all grades of the public schools. The land-grant colleges contributed much to the movement in providing a more suitable education for agriculture and rural life. Finally, agricultural education was greatly stimulated by the activity of the United States Department of Agriculture.

Agricultural education most directly related to the Smith-Hughes Act was to be offered in secondary schools. The earliest provision for such instruction was made through separate agricultural schools of which there were three types. These are as follows: (1) There were those schools which were maintained in close connection with, and sometimes under, the state college of agriculture; (2) a number of states provided for district agricultural schools, and (3) in a number of states, county agricultural high schools were established. (6, page 10)

Another method of providing agricultural instruction was through the public high schools. Among the first of the state actions was to subsidize the instruction. There were several states which offered aid to secondary schools for the instruction of agriculture. Statistics showed in 1915-1916

that more students were receiving instruction in agriculture in the high schools than in the separate agricultural schools. The early tendency seemed to be toward the establishing of independent schools for agriculture but it was shown later that the trend was toward establishing instruction in the high schools. (6, page 11)

One of the ways in which the Federal Government has entered into and influenced education has been through provisions for education in agriculture and mechanic arts in the land-grant colleges and universities. This legislation prior to 1907 is found principally in four acts, which are as follows:

1. The First Morrill Act, July 2, 1862.
2. The Hatch Act, August 30, 1887.
3. The Second Morrill Act, August 30, 1890.
4. The Adams Act, March 16, 1906.

Since that time there have been other acts passed that have made phenomenal changes in American education.

Types of Programs that Extend Industrial Education Offerings. The purpose here is to make note of some of the offerings that have been made by the Federal Government in extending industrial education to the schools. The writer will mention only those that have a direct relation to this study.

Program Sponsored in 1862. The act passed at this time was known as the First Morrill Act, sometimes called the Land

Grant Act of 1862. It was named after Senator Justin S. Morrill of Vermont, and made the following provisions: (6, page 40)

This act gave to each state 30,000 acres of public land for each Senator and Representative to which it was entitled in Congress, the states not having enough public land within their borders receiving land scrip for the deficit. The money derived from the sale of these lands constituted an endowment fund, the interest of which was used for the support of:

...at least one college where the leading object shall be without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.

The legislative assent of a state to the provisions of the act was necessary before the state could participate in the benefits of the act.

This act specified the use which was to be made of the grant as well as the method of its management. It carried no federal supervision of its administration. The act represents a change in federal policy from making grants in aid of education in general to grants in aid of specified forms of education. Since this time secondary education has developed rapidly. This growth has resulted in an increasing differentiation between secondary education and college work.

Program Sponsored in 1917 and the Additional Legislation of 1936. The next important act passed aiding industrial education was the National Vocational Education Act of 1917.

This is generally referred to as the Smith-Hughes Act. The Federal Board for Vocational Education, an advisory body organized under the provisions of the Smith-Hughes Act, is charged with the duty of distributing federal funds to the states for approved instruction in trade and industrial fields, agricultural fields, and home economics of less than college grade. The Federal Board is also responsible for promoting, in cooperation with the states, the establishment of such instruction. The National Vocational Education Act has shown the advantage of principles such as the following contained in it: (50, page 135)

Federal Partnership -- it does not take away rights or privileges from any state. It does not seek to usurp state authority, nor to control the states.

Respects State Rights -- the provisions of the act are not obligatory upon any state. Every state had the right to accept the provisions or reject the proposition; every state has a right to accept the provisions for specified types of vocational education, at the same time it does not need to meet the requirements of other types.

The State Provides the Plan -- each state draws up its own plan and does not necessarily have to follow a drawn up plan by the Federal Government.

Proper Expenditures Safeguarded -- for the first time in the history of educational grants there were set up fairly adequate conditions safeguarding the proper expenditure of the money for the purposes for which it was appropriated.

Efficiency Safeguarded -- there are certain minimum standards for teachers, courses of study, length of the school day, and of the school term, all of which effect the efficiency of the program.

Federal Money Matched -- state or local effort must be put forth to equal federal effort -- a principle now well organized in public as well as in private grants in aid.

Reimbursement -- payments to the states are made in the form of reimbursement for funds already lawfully spent, rather than being made for expenditures that are not yet contracted.

The enactment of the Smith-Hughes law was not intended by the Federal Government to reach out for authority. It represents an effort of a group of citizens with definite ideas in educational practices. Congress responded to this appeal by setting up a program of federal participation with the states in the promotion of vocational education.

The vocational education programs organized in various parts of the state are under the supervision of a local director. The types of classes or schools generally organized in these programs are: (1) the evening classes, (2) part-time trade extension classes, (3) cooperative part-time classes, (4) day-trade classes, and (5) continuation classes. If a community or school desires to organize classes of vocational education, there are certain steps of procedure that must be followed. The Federal Board of Vocational Education has made the following statement regarding correct steps in organizing vocational classes.

Wherever it is desired to organize a program of trade and industrial education the local board of education should request the assistance of the state supervisor of trade and industrial education. A survey for the purpose of determining the need for

training in the community can be made with his help. The cooperation of employers and employees is necessary to the securing of accurate and reliable data. A person who is properly qualified to discharge the functions of a local director of vocational education is fundamentally necessary to the success of the program and should be secured by the board of education if not already employed.

The George-Deen Act. This act was approved June 8, 1936 and provided for the further development of vocational education in the several states and territories. The purpose of the George-Deen Act was to further the training of persons in agriculture, trades and industries, home economics and added training in distributive education and public service occupations. In the terms of the act there was to be appropriated annually \$12,000,000 for extending the development of vocational education. The provisions of the act are summarized as follows from the original law:

The act approved June 8, 1936, authorizes the appropriation for the fiscal year beginning July 1, 1937, and annually thereafter the sum of \$12,000,000. The states and territories were to match the appropriations authorized under the provisions of the act. One-third of the sum each year was to be allotted for salaries and necessary travel expenses of teachers, supervisors, and directors of agricultural subjects. One-third of the sum each year was to be allotted for salaries and travel expenses of teachers, supervisors, and directors of home-economics subjects. One-third of the sum each year was to be allotted

for salaries and necessary travel expenses of teachers, supervisors and directors of trade and industrial subjects. In addition to the sum authorized above, there was an additional sum authorized to be appropriated in the amount of \$1,200,000 to be allotted to the states and territories in proportion as stated in the act, to be used for salaries and necessary travel expenses of teachers, supervisors, and directors of, and maintenance of teacher training in distributive occupational subjects. For the purpose of preparing teachers, supervisors, and directors of agricultural, trade and industrial, and home economics subjects there was an additional amount of \$1,000,000 to be appropriated annually to the several states and territories in proportion as stated in the act.

The appropriations made by the George-Deen Act were additions to those made by the Smith-Hughes Act of 1917 and were under the same conditions and limitations, with a few exceptions. These exceptions are as follows: (1) The appropriations for home economics in the George-Deen Act are subject to the same conditions as for agricultural purposes in the Act of 1917, except the part where there is to be directed practice for at least six months per year; (2) the moneys provided for trade and industrial subjects, including public service and other service occupations, may be expended for part-time classes operated for less than one hundred and forty-four hours per year;

(3) at least one-third of the sum appropriated to any state be expended for part-time schools or classes shall include any part-time day school classes for workers fourteen years of age and over, and evening school classes for workers sixteen years of age and over, except the appropriations for distributive classes which shall be limited to part-time and evening schools as provided in the Smith-Hughes Act. The provisions made by the George-Deen Act have been directly responsible for the advancement made by vocational education since 1937.

Program Sponsored by the National Defense in 1940-41.

The Federal Government in 1940 by an act of Congress made further steps for the promotion of vocational education. The law made provisions for the United States Office of Education to make payments to the states for the cost of courses which authorize training for national defense. The law is a part of P.L. No. 668 - 76th Congress, Chapter 437 - 3rd Session, headed "Office of Education" and reads as follows: (48, page 1)

Vocational education of defense workers, Office of Education; For payment to states, subdivisions thereof, or other public authorities, through certification from time to time made by the United States Commissioner of Education to the Secretary of the Treasury of the name of such agency and the amount to be paid, such payment to be made prior to audit and settlement by the General Accounting Office, for the cost of courses of less than college grade, provided by such agencies in vocational schools pursuant to plans submitted by such agencies and approved by the United States Commissioner of Education, which plans shall include courses supplementary to employment in occupations essential to the National Defense and pre-employment refresher courses for workers preparing for such occupations selected from the public employment office

registers; and (not exceeding 2 per centum of this appropriation) for administration expenses in carrying out the purposes hereof, including printing and binding and personal services in the District of Columbia and elsewhere, \$15,000,000. The duties of such commissioner, in carrying out the purposes of this appropriation, shall be performed under the supervision and direction of the Federal Security Administrator, and such Administrator is hereby authorized to transfer not more than \$10,000 of the sum herein appropriated, to the Office of the Administrator for use in carrying out the purposes hereof.

The training program organized for National Defense is designated as "Vocational Education Program in and for Occupations Essential to National Defense." There are two types of training offered under this program which are as follows: (1) Pre-employment courses, (2) supplementary courses. The pre-employment courses are for specific instructions for persons of legally employable age (18 years of age or over at the time of completion of the course) selected from the Public Employment Office who, upon completion of the training course, will be qualified for employment in occupations essential to National Defense. Supplementary courses are offered to employed persons who are engaged in an occupation essential to National Defense for the purpose of extending their skills and knowledge in such essential or allied occupations. (21, page 1)

Each state is allowed to draw up its own plan for providing vocational training for employment in industries essential to National Defense. The plan is to be administered by the State Board for Vocational Education in accordance with the provisions of the Federal Act.

Oklahoma State Plans for Vocational Education have been regularly prepared and presented to the United States Office of Education as required. They have been approved by United States Commissioner of Education and an extensive program has been in operation since the enactment of the legislation that set up the program. The plan states that before a National Defense unit can be organized, there must be definite need shown by industry for a specific type of trained workers in the crafts essential to National Defense. This need is determined by local and state advisory committees. A school may set up a training unit if it has adequate equipment available or can secure this equipment rent free, for the specific training of a class of 16 to 20 men or young boys who are employable age at the time the course is completed. The classes that are held in a school may not be carried on during school hours. The course offered to school boys of employable age is generally a pre-employment course, offering training to those who have never had any type of industrial training. The courses are free to those enrolled and may last for a period of six to ten weeks. The training received includes both manipulative and related work and is organized on a basis of individual needs in accordance with the standard practices of the occupation.

The four Federal Acts that have been discussed in the preceding paragraphs have been greatly responsible for the growth of vocational and industrial education since 1862. There have been other acts passed during this time, but these

have made more advancing changes in the educational movement. The purpose of showing what has been done in the way of vocational education is to emphasize what the school could do in introducing vocational education programs in secondary schools.

PART D

TYPICAL INDUSTRIAL EDUCATION CENTERS

Since a discussion has been made on the recent developments in industrial education, showing its increasing importance to the school program, the writer feels that it is worth while to make reference to a few places where this program is in operation. The shop organization at Dewey, Barnsdall, and Ochelata, Oklahoma, are referred to, although the industrial building at Ochelata is not completed. The industrial arts program proposed by the writer is similar in organization to these programs. A building plan of each of the three shops is shown and a discussion will be made in reference to the forms of their organization.

Barnsdall Organization. The industrial building at Barnsdall was erected in 1937 and is a separate building from the main high school. The classes in the shop are from the eighth to the twelfth grades, inclusive. The work activities offered are as follows: (1) Welding, electric and oxy-acetylene, (2) machine lathe, (3) forge and heat treatment, (4) bench metal, (5) construction work, including rough carpentry, cement, and painting, (6) woodwork, hand and machine, (7) industrial drawing, free hand and the use of instruments and, (8) wood finishing.

The regular industrial arts classes are one hour periods consisting of woodwork, drawing, finishing and bench metal. The day-trade class is a three hour period, consisting of

welding, machine lathe, forging, construction and bench work including the various forms of metal work. The related information accompanies each of the activities. The general shop is used as a form of organization of the industrial arts courses. The students in the first two years of shop are rotated through various work activities. During their tenth, eleventh and twelfth years they may specialize in one or two particular activities. The junior and senior students are eligible for the work in the day-trade class where specific training may be received in the various forms of metal work offered. The students in the eighth grade are required to take one year of industrial arts, but it is an elective after that. A floor plan of the shop is found on page 125.

Dewey Organization. The industrial program at Dewey has been organized since 1937. Its present organization has changed some from the original set-up due to changing conditions. The Dewey shop organization includes grades eight to twelve. It is capable of handling a class of forty students but the classes are limited to twenty-five. The following work activities are included in the program: (1) Welding, arc and electric; (2) machine lathe, (3) forging and heat treatment, (4) bench metal, (5) sheet metal, (6) woodwork, hand and machine, and (7) drawing, both free hand and the use of instruments.

The regular industrial arts courses include the eighth to the tenth grades. The courses offered in these grades are drawing, hand woodwork, bench metal and home mechanics work.

The general shop form of organization is used for the industrial arts courses. The first year the student is rotated through several activities of work but may specialize in one or two types of work his second or third year. Industrial arts is required only in the eighth grade. The day-trade classes are organized for the juniors and seniors. Each class period is three hours long. There is one class in woodwork and one in metal work. The students are given their related information along with their regular work. There are two instructors, one teaching the trade classes and the other the industrial arts classes. This organization may further be understood by a study of the shop floor plan on page 126.

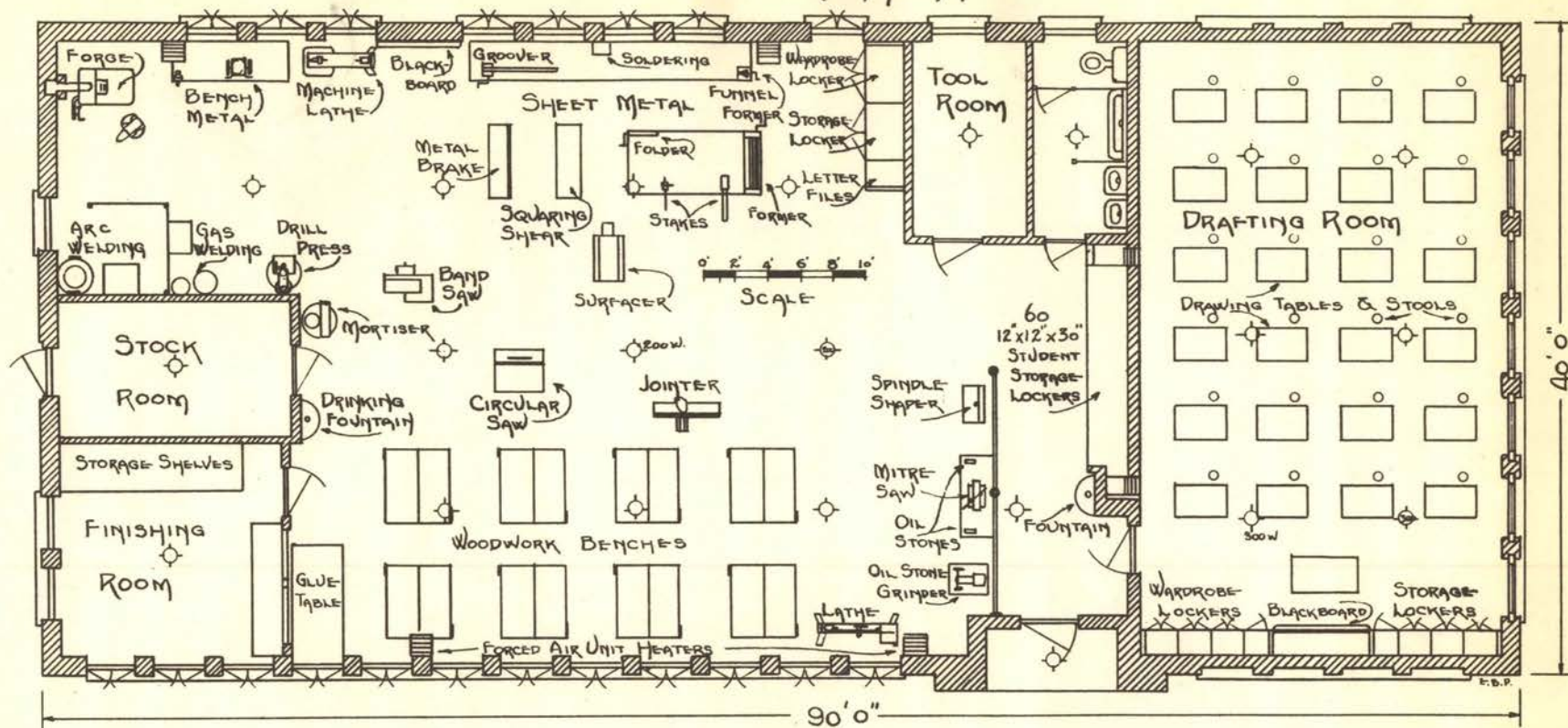
Ochelata Organization. Although the industrial education building at Ochelata has not been completed at the present time, a study of the shop floor plan will give an idea as to the form of organization to be used. It is planned to use the general shop form of organization with one instructor. The work activities to be offered may be seen on the drawing, together with the arrangement of the equipment. A plan of the building is shown on page 127.

Summary. It has been the purpose of this chapter to give the present trends and developments in industrial arts and industrial education. Since the importance of these subjects to the secondary school curricula was shown in Chapter IV, a discussion was made relative to the forms of organization generally found in school programs. Places were listed where industrial programs are now organized and the extent of their programs was given. A

program similar to these is proposed for Beaver County.

It is the purpose of the next chapter to give the proposed industrial arts program for a county high school in Beaver County.

INDUSTRIAL BUILDING DEWEY OKLAHOMA

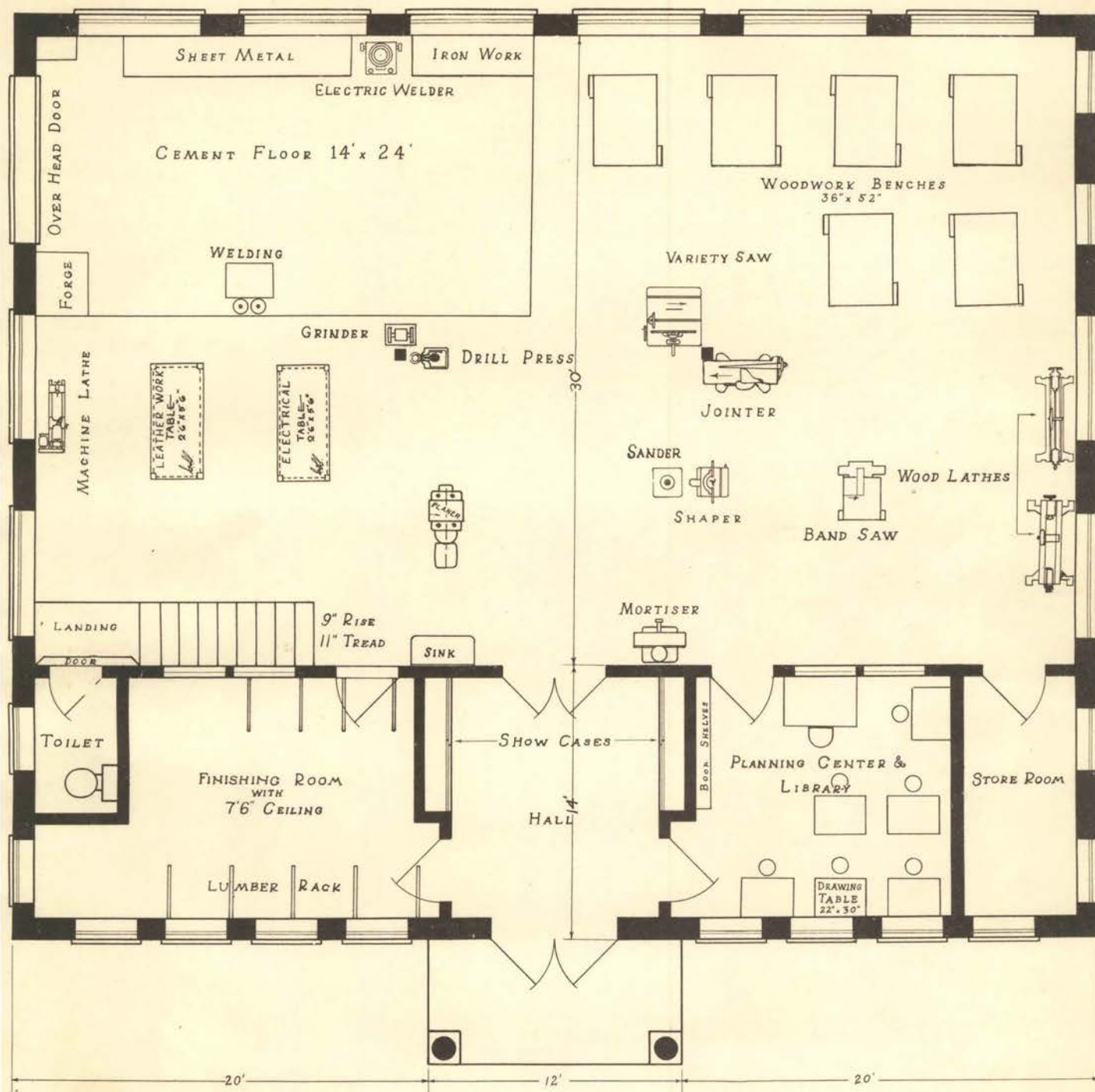


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AN INDUSTRIAL EDUCATION CENTER

FOR OCHELATA, OKLAHOMA

DESIGNED IN INDUSTRIAL ARTS EDUCATION 543

A GRADUATE COURSE ON THE GENERAL SHOP
OKLAHOMA A. AND M. COLLEGE
SUMMER 1940

CHAPTER VI

THE PROPOSED INDUSTRIAL ARTS PROGRAM FOR BEAVER COUNTY

Since the chief objective of this study was to propose "An Industrial Arts Program for Beaver County," the writer feels justified, after making an extensive study of the problem, to propose this program. The recent trends in the reorganization of the secondary schools and the results from the information obtained regarding the schools of this county, induce the writer to recommend a county unit system for its high schools which will include this program. The organization of the high school will be briefly discussed before giving the plan of the industrial arts program.

PART A

THE HIGH SCHOOL AND ITS ORGANIZATION

Realizing the opportunities that are generally found in a larger school over those found in a smaller one substantiates the recommendation that is made for a county organization of high schools. The unlimited opportunities of a larger school will not be realized by the students unless there is careful organization of the high school curricula. The size of the school is one of the controlling factors that determines the extent of this organization.

The Number of Pupils Represented. One of the objectives in recommending a county unit system has been to include the seventh and eighth grades of the consolidated schools. A high

school consisting of the junior and senior high would be housed in the same building. By an organization of this kind there would be approximately 600 students according to Table VIII in Chapter II. This would consist of about 275 students in the junior high and 325 in the senior high. It would be an ideal size school, not as large as many of the schools but large enough to promote a generalized educational program.

The Organization of the Curricula. The curricula that are found in some of the schools of the county at present offers a minimum of courses to the students. For students to realize the good of their secondary education they should have access to a broad and flexible curriculum. The enlarging of the high school enrollment presents an opportunity for organizing curricula that will meet the needs of each and every student. In making this organization there are two groups of students to consider, the academic and the non-academic. The curriculum in a large school system can be organized to meet the college entrance requirements and at the same time satisfy the needs of the larger per cent who will face life problems with only a secondary education.

In organizing the curricula it is suggested, in addition to the proposed industrial arts program and the regular academic subjects, that the following forms of education be included: (1) Business Education, (2) Vocational education, (3) Home Economics, (4) Fine Arts, and (5) Science. These forms of

education are in accordance with the reorganization of secondary education. It has been the writer's purpose to think in terms of individual needs and differences in suggesting the above forms of education.

The Place of Industrial Arts in the Curricula. The importance of industrial arts in the school program has been discussed in Chapter III. After noting its value as indicated, it undoubtedly should have a definite place in the school curriculum. Industrial arts should be offered first in the seventh grade and continued for each grade through the twelfth. If the organization of the school is such that it cannot be offered at this level it should then be offered not later than the ninth grade. The curricula should be organized so the boy could take one, two, or as many as four years (four units) if he so desired. Industrial arts should be required for one year in the junior high, preferably the seventh grade, and is recommended for at least one year in the senior high school. A well organized program, one that is functioning, will have little trouble in getting students to enroll in the classes. Where a large educational program is provided, four units of industrial arts should be allowed for graduation.

PART B

THE RECOMMENDED ORGANIZATION OF THE GENERAL SHOP

The different forms of administering the industrial arts program may be based on the following factors: (1) The type of community represented, (2) the amount of room and equipment

available, (3) the size of classes, (4) the number of units of work, (5) the teaching staff available and, (6) the number of years of work to be offered. The two most common types of organization, the unit shop and the general shop, have been discussed in Chapter III. After summarizing the factors previously mentioned, the writer recommends a general shop form of organization for the industrial arts program. Any program of industrial arts, in order to be effective, must be flexible enough to be adapted to a wide variety of local situations. The objectives of the program should apply universally, but the means of realizing them will vary with the plan of the organization adopted. The primary objectives of the general shop type of organization are: (1) to enable the smaller school to offer varied units of work in one shop; (2) to provide students with opportunity for varied experiences in industrial arts; (3) to provide for the varied interests of students; (4) to provide opportunity for the development of desirable character traits and habits; (5) to offer an economical way for students to gain experiences in many activities and (6) to increase teacher efficiency.

The term "General Shop" has been defined in Chapter I. It is recognized as the school shop equipped and organized to give instruction in two or more types of shopwork. This might include work with wood, metal, concrete, electricity, or any other type of shop activity. The chief function of the general shop is to provide various experiences with tools,

equipment and materials, and to exemplify industrial operations and industrial conditions. The general shop because of its complex nature needs to be a place of superior organization, a model of efficiency, both in arrangement of equipment and in the conduct of the pupils. A well organized and equipped shop provides the opportunity for practical application of high grade initiative with the pupil as will be found in any other shop used for teaching industrial arts. It is neither a place of disorganization and haphazard tinkering, nor a place where low standards of workmanship are encouraged.

The general shop is somewhat different from the unit shop but both its organization, management, and methods used are the same in accomplishing the objectives when the central aim is the achievement of general educational purposes. The including of two teachers in the general shop will increase the efficiency of the shop organization. In many cases unless the general shop plan is used, the student will experience only one type of shop work and that probably would be woodwork.

The basis for selecting the courses to be represented in this program are found in other chapters of this study. The two controlling factors are found in the results of the student questionnaire in Chapter IV and the summarization of Chapter V. The following paragraph will list the units to be offered in the junior high school.

Courses to be Offered in the Junior High School. The courses which are to be offered in the junior high were selected for offering a wide variety of experiences for the pupil. They will meet with the present-day trends in education and answer the objectives of industrial arts in the junior high as stated in Chapter III. Another important and influencing factor affecting the organization of this curricula and the selection of courses was the considering of the contributions which could be made to modern industry and national defense. A list of the courses for the junior high will be given with some discussion made as to the contents of each subject.

General Woodwork. This covers the field of bench woodwork, cabinet making, pattern making, carpentry, finishing and refinishing furniture, and a study of the characteristics of lumber. The specific objectives of general woodwork do not cover the woodworking trade for the purpose of training skilled tradesmen. This work may or may not be vocational. For those pupils who subsequently enter the woodworking trade as a vocation, it may prove vocational; but for others the purpose will be for an acquaintance with new materials and processes, and serve as guidance for the pupils.

General Metalwork. The metalwork course covers the field of sheet metal, forging, bench metal, chipping and filing, and the use of such power driven machine tools as are provided. The metalwork will also include the following:

soldering, wrought iron work, study of tin and iron, heating metal, bending iron, cutting, punching, turning and boring metal. This course will be provided to fill the need for a wider and more general study of metals than is ordinarily found in unit shops such as sheet metal, forging or machine shop. A general shop metalwork course provides an opportunity for the pupil to increase creative ability in designing and construction of metal projects that may be used in the home. Contacts will be made with new materials and processes thus broadening the pupil's general knowledge with those basic essentials in modern industry.

General Electricity. The experiences in this unit may conceivably extend into any phase of electricity found in present-day life. Lighting problems concerning the home, theaters, shops, streets, stores, industries, aviation, automobiles and many others may be included. Some of the information received through this unit will be: chemical generation of electricity, splicing insulated wire, conduction, bell and buzzer circuits, transformers, house wiring, general appliances, heating appliances, power appliances, electrical fixtures, and soldering and tapping splices. The electrical course enables the student to work out problems in wiring and to study the modern methods in heating and lighting fixtures. Learning the principles of electricity will be of benefit to those acquiring a general education and will provide the basic training for those who plan for further training.

General Drawing. A course in general drawing will give the student a survey of the field of graphic art and equip him with the simple skills and bits of knowledge required in drawing, sketching objects, and graphically presenting ideas. The course will present information concerning the principles of free hand drawing, lettering and orthographic projection. It will also include the use of drawing instruments and the reading of drawings and blue prints, which is perhaps the most important. The student will learn the art of visualizing and describing by means of drawings. Perhaps no other industrial arts course is of more importance than general drawing.

Home Mechanics. The purpose of the home mechanics course is to provide training and experiences in the kinds of jobs likely to be found around the home. The jobs consist of manipulative work accompanied with oral explanation and demonstrations. The course provides experiences with such objects as meters, fuses, electric devices, pipe threading, faucets, lawn mowers, glass, batteries, stoves, and many others common to the home. The purpose of the course is to train boys to do "handy-man" jobs in the home and at the same time give broad experiences with things common to everyday living.

The Organization of the Junior High School Courses. The courses offered in the junior high will acquaint the pupils with new materials, offer experiences in handling these materials and at the same time will be developing within the pupil an

interest for some particular work activity. By requiring the work in the junior high it will enable the pupil at an early age to develop a permanency of interests.

In organizing the junior high school courses the following is a suggested program to be used: (1) The first year offer general woodwork nine weeks, general electricity nine weeks, general drawing nine weeks, and home mechanics nine weeks; (2) the second year offer general woodwork nine weeks, general electricity nine weeks, general metal nine weeks, and general drawing nine weeks; (3) the third year the work may be offered so that the student could spend twelve weeks in each of three courses selected by both the instructor and the student. The third year could also be spent in new activities such as plastics, leather work, ceramics, and similar courses to give new experiences with materials and processes. There will probably be very few pupils taking industrial arts three straight years in the junior high since they will have an opportunity to take it during their senior high. The offering of woodwork, electricity, and drawing in both first and second years does not mean that the training and experiences will be the same for each, as for example: woodwork for the first year will not include the use of the plane, chisel, and like tools, it will involve tools such as the hammer and coping saw, which deal with rough construction work. If a student takes as

many as two years of work, the only requirement made, besides the one year of work in the junior high, is that he spend at least one semester or eighteen weeks in drawing. The direct importance of the fundamentals of drawing shows a need for this training.

Courses to be Offered in the Senior High School. The courses which are to be offered in the senior high school were selected in the light of their value and in offering further training for the interests developed in the junior high. Some of the courses to be offered are in accordance with the preferences shown by the students in Chapter III, such as woodwork, electricity and farm shop. The other courses proposed by the writer, in preference to those selected by students, were determined through much study on the value that would be received from each course. A list of the courses for the senior high school will be given with a discussion of each.

Woodwork. The woodwork in the senior high is not as generalized as the work of the junior high. Additional work will be offered in bench work, cabinet making and wood finishing. New experiences will deal with the operating, maintenance, and safety of power woodworking machines. The experiences received from two years of woodwork in the senior high school may prove vocational for those students who subsequently enter the woodwork trade as a vocation.

Industrial Drawing. Drawing in the senior high school is more than free hand sketching. It deals with the use of instruments, orthographic projection, reading of blue prints, and of further developing the ability to visualize and describe by means of drawings. By using the English language people are able to understand the meaning expressed by other people. By using the "Language of Industry" namely, drawing, people are able to describe the construction of houses, bridges, and many other things that would be almost impossible without such a form of expression. Industrial drawing will involve the drawing of detailed parts, working drawings, assembly drawings, cross sections, and geometric problems. One of the important values of drawing is its direct relation with the other industrial arts courses.

Electricity. The training received in electricity will be a continuation of that received in the junior high school. Advanced experiences in house wiring, electrical fixtures, heating appliances, and transformers will be received. New experiences in motor winding and construction of projects with electrical units will be introduced. The electrical course in the senior high school will be for the interests of those who want to specialize in that type of work and for those interested in obtaining larger variety of experiences.

Farm Shop. Since farm shop is not offered in the junior high school, it is a new experience for juniors and seniors.

The first year will include work with soldering, rope work, glazing, forge welding, tool sharpening, and others of similar nature. The second year will involve work in motor repair, welding, farm machinery repair, insulation, stable ventilation, paints, electric wiring, plumbing plans of the farm, concrete mixtures, and heat treatments in the forge. The purpose of the farm shop is to teach the boys common repair work, simple construction jobs around the farm, and qualities of good workmanship. Some of the work mentioned for the second year may be included in the first year, depending on the size of the classes and interests of the students. The aims of the farm shop are as follows: To get as many of the boys as possible to set up a farm shop of their own; to coordinate their work with farm life; to develop enough skill for them to do the average mechanical jobs of the farm, and to establish a standard of tool and equipment selection.

Metalwork. This course will include work in bench metal, sheet metal, machine lathe, forging and heat treatment, and the use of power driven tools such as the drill press, grinder, and lathe. The metalwork course will provide an opportunity for the pupil to increase his ability in designing and construction. It will enable him to centralize his interests if he so desires. The advanced projects will acquaint the student with new materials and processes that are common with modern industry. As in woodworking, metalwork

may be vocational for those students who contemplate working in the metalworking trade.

The Organization of the Senior High School Courses.

The courses offered in the senior high school in some cases will be a continuation of experiences with materials and processes of the courses offered in the junior high school. The new courses offered in the senior high will provide opportunities to work with new materials and further meet the needs of pupil interests. Industrial arts is not required for senior high students but it is recommended that a year of it be taken. Since requiring one year in the junior high to enable the student to form a better judgment as to the extent and permanency of his interests, the courses should be elective during the tenth, eleventh and twelfth grades. The writer believes the program will be a greater success and the objectives in offering the courses will more nearly be accomplished if the program is organized in this manner.

In organizing the courses for the senior high, the following is a suggested program to be used: (1) The first year offer bench woodwork twelve weeks, industrial drawing twelve weeks, electricity twelve weeks, and bench metal twelve weeks; (2) the second year offer machine woodwork eighteen weeks, industrial drawing eighteen weeks, farm shop eighteen weeks, electricity eighteen weeks and sheet metal eighteen weeks; (3) the third year offer machine woodwork eighteen weeks, industrial drawing eighteen weeks, farm shop eighteen

weeks, bench metal eighteen weeks and sheet metal eighteen weeks. The courses during the first year are offered for periods of twelve weeks and the students should rotate through three of the four courses. The second and third years the courses are offered for period of eighteen weeks allowing the student to spend more time in the activity of most interest. By allowing the student to select his own courses does not mean necessarily that everyone will be enrolled in the same course. A well organized program will find boys enrolled in every activity offered. In addition to sheet metal and bench metal, work may also be done on the machine lathe during the junior and senior years. Experience with forging and heat treatment will be received in the metalwork courses and also in farm shop. It is proposed that prerequisites be required for some of the courses, as for example: Hand woodwork before machine woodwork, free hand drawing before drawing with instruments and some form of metalwork preceding machine lathe. It is not recommended for a student to spend his entire time in one field of work, but he should be allowed to spend a reasonable amount of time in the activity of most interest. The judgment of the teacher should determine this. The courses in the senior high are organized to serve both the academic group and the industrial education majors. Variations may be made in the offering of the courses, and any new problem would have to be solved with reference to the situation.

The Sizes of Classes. There are two factors that will determine the size of classes for the industrial arts courses and are as follows: (1) the size of the enrollment of the school, and (2) the size of the room and the equipment available. Since there will be approximately 275 boys in school, according to the 1940 enrollment, a maximum class of forty students is proposed. This would allow an average of ten students to work in the same activity at the same time. In some instances there may be as high as fifteen enrolled in such courses as woodwork or drawing during the junior or senior year.

With each class period one hour long and a maximum of forty students to the class, a total of 240 could enroll in industrial arts. By some of the students not enrolling in industrial arts every year, the class average will probably be around thirty-five. It will take two or three years, after the program is first introduced, to organize the classes and eliminate some of the problems that will be encountered, since all of the students will be enrolling in industrial arts for their first time. It is not intended to prescribe the methods for conducting the classes, since no single, rigid method can be utilized to advantage under all circumstances.

The Personnel Organization. The industrial arts shop is a typical place for the teaching of good housekeeping. The term applies here to a neat and orderly shop kept by the students.

It would be impossible for one person or even five to keep the shop clean when work is in progress all the time. The personnel organization should be introduced and used in every class. It is not just for the purpose of keeping the shop in order, but it has unlimited value in teaching leadership, responsibility, appreciation of orderliness, satisfaction of accomplishment and character habits. A shop that is busy at work can be neatly put in order with tools in place and work stations clean in five to ten minutes under the personnel organization where every one has a definite duty. The organization should consist of the following: General Superintendent, Assistant Superintendent, Foremen, Maintenance Men, Librarian, Clean-Up Men, and others, depending on the size of class and the number of jobs available.

The Equipment and Its Arrangement. The quality of work done in an industrial arts shop depends to a certain degree on the quality of the equipment used. The great improvement that manufacturers have made in tools and machines in the last few years have had an influencing effect on the shop equipment. It is no longer necessary to buy expensive equipment to obtain good quality. The medium size power machines today serve in the same conditions as did the larger ones heretofore. It is recommended that all of the major power equipment be of a semi-industry type. It should be of a standard make and one that has proved its efficiency. All tools should be of high quality, and careful selection should be used since some tools for

special work require a higher degree of quality than others. Since each year finds new changes in machines and tools and since the equipment should be selected in accordance with the number of students represented at the time of the erection of the building, the writer has not included it in the proposed program. This should be given further study and consideration.

For the best results in the arrangement of the equipment, a scaled drawing of the floor plan should be made, the equipment drawn to scale, and arranged on the drawing. This arrangement is one of the most important factors affecting the shop organization. It should be given much thought and careful consideration.

The equipment should be arranged so full realization can be received from it and at the same time, conserve space in the shop. The writer recommends that the equipment be arranged so as to place woodwork and drawing in one area of the room and the metalwork in the other. This would enable one of the teachers to instruct woodwork, drawing and perhaps electricity and the other metalwork and farm shop. If trade classes were organized, this arrangement would permit two classes to be in progress at the same time, one in woodwork and the other in metalwork or in vocational farm shop. The arrangement of the equipment in this manner does not mean to definitely segregate the shop and form two separate units, but to arrange it so that related work will be together. The

following factors should be considered, which will give an idea as to the arrangement of the equipment: (1) Lighting; (2) placing of equipment in relation of divisions; (3) ventilation; (4) class assembling area; (5) location of tools and supplies; (6) lockers and storage space; (7) accident prevention; (8) fire prevention; (9) lavatories and showers; and (10) instructional materials. The arrangement of the equipment should be planned with the industrial building floor plan.

The Plan of the Industrial Building. It is recommended that the industrial building be separate from the main high school where there will be less interference from the noise of the machines. Since conditions change presenting new ideas in building construction and offering greater conveniences, the plan of the building is not shown, but, there are certain areas within the shop that should be provided for when planning the building. These will be mentioned with reference to the size of the building needed for the proposed program. They are as follows: (1) The building should be 30' x 50' to provide room for the number of students at present and for the courses proposed in the program; (2) the drawing room should be partitioned from the main room; (3) there should be a stock room, finishing room, tool room, and lavatory room all within the main room; and (4) there should be an entrance from the outside into the farm shop large enough for a car or truck besides the main entrance of the building. These provisions are essential in

in planning the shop and will change very little over a period of years.

The proposed industrial arts program was made in reference to the conditions found in Beaver County at the present time. A few changes would probably have to be made in the arrangement of the courses with a change of enrollment, but it is believed by the writer that it will adequately meet the needs of the youth of Beaver County at the present time.

Specific conclusions, drawn from the data presented, are stated in Chapter VII accompanied by recommendations.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

The foregoing chapters of this thesis are composed of the following studies: (1) A study determining the needs for an industrial arts program for the high schools of Beaver County; (2) a study determining the interests of the students for industrial arts training; (3) a study of the trends in reorganizing secondary education; (4) a study of the present developments in industrial education, and (5) a study of a proposed industrial arts program for Beaver County. However, the study followed by a proposal may be several years in advance of an actuality. If, and when, the proposed program becomes an actuality, there will need to be an extensive study to exceed the present one.

PART A

CONCLUSIONS

After making an extensive study of the problem, the following conclusions are made in view of the objectives stated in Chapter I.

1. An agricultural area should be provided with industrial training for its youth.
2. The youth in Beaver County need industrial training the same as the youth in other counties.
3. The schools are small and therefore cannot provide the education that is vitally needed by its students.

4. The boys in school expressed their desire and interest for industrial arts training.

5. Industrial training is essential to nearly all phases of vocations, therefore, schools are expected to make contributions toward supplying educational needs for its youth.

6. All schools are expected to contribute in the national emergency by giving its youth the education that will be expected of them.

7. Many early educators were unanimous in their claims of the educational values of industrial arts, largely because it gives the student occasion and opportunity to work with his hands as well as his mind.

8. The schools cannot serve its youth under their present conditions.

9. The probable solution for the small schools is a county unit system of organization.

10. The schools are located so that it is possible to centralize the educational system and adequately serve the entire county, providing educational opportunities for all.

11. The industrial arts program was proposed in view of providing the industrial training that is vitally needed by the youth of this county.

12. The program was proposed for a county unit system of high schools so that it could be made extensive enough for meeting the trends in secondary education.

PART B

RECOMMENDATIONS.

The recommendations made here are based upon the experiences of the writer as an industrial arts teacher of the only school offering industrial arts in Beaver County and from the results of the study that was made. These suggestions made are far from inclusive of the problem and should be considered with the idea in mind that they are only one individual's opinion. It is the belief of the writer that the following suggestions are worthy of consideration.

Problems for Further Study. Several problems that should have further study in regard to an industrial arts program for a county high school in Beaver County have presented themselves while carrying out the objectives of this thesis. The following are listed as suggestions for further study.

1. Additional study on the problem of this thesis, which might be the organization of a course of study for the courses outlined, and a complete schedule for offering the courses.
2. A design and floor plan of the industrial building with extensive study made in regard to heating, lighting, wiring, ventilation and painting.
3. A survey of the county to determine further the possibilities of a county unit system of high schools by obtaining the opinions of the people in regard to a county system.

4. A study of the transportation system for a county unit, mapping routes, and organizing methods of administration of the county transportation system.

5. Plan a program of vocational courses, such as vocational farm shop and trade and industrial courses, which could be included in excess of the industrial arts program, organized so that the boys out of school could participate the same as those in school.

This study cannot be considered as complete and final since secondary education is making continuous changes in its organization. Industrial arts is playing an important part in this reorganization and even in it, changes are made to coincide with the industrial world. This study has shown the present conditions of the schools in Beaver County and has made certain proposals for improvement. It has proposed an industrial arts program for a county unit system of high schools. It is with faith and hope that such a plan may some day become an actuality that this subject was chosen as a problem for development.

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APPENDIX A

Questionnaire for the Student

APPENDIX B

Letter to the Superintendent

Questionnaire for the Superintendent

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STRATHMORE PARCHMENT

MADE IN U.S.A.

Questionnaire for the Student

Name _____ Date _____ School _____

Classification (freshman, etc.) _____ Age _____

Father's Occupation _____ (If deceased, former occupation)

Do you live in town or on the farm? _____

Are you interested in industrial arts training? _____

Have you ever had any industrial arts courses? _____ If so, give the names of the courses you have had. _____

If you had an opportunity to take industrial arts, which of the following subjects would interest you most? Place an X in front of your four choices.

_____ Auto Mechanics	_____ Concrete	_____ Forging
_____ Foundry	_____ Electricity	_____ Farm Shop
_____ General Metal	_____ Woodworking	_____ Home Mechanics
_____ Welding	_____ Mechanical Drawing	_____ Cabinet Making

If you are interested in other subjects in addition to these, please list them here. _____

What type of work do you generally do during your summer vacation time? _____

APPENDIX B

Letter to the Superintendent

Beaver, Oklahoma
May 3, 1941

Dear Superintendent:

Will you please fill out the enclosed questionnaire at your earliest convenience and return it in the enclosed stamped envelope?

The information obtained from this questionnaire will be used as an important part in writing a thesis. The material received will aid the writer in planning and organizing an industrial arts program for Beaver County, the purpose of which is to offer industrial courses that will be of benefit to the students while they are in school and especially to aid them in their work after they have left school.

I thank you very much for your cooperation in filling out this questionnaire.

Sincerely yours,

Gene Grove
Instructor of Industrial Arts
Beaver High School
Beaver, Oklahoma

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Size of school (Grades 9, 10, 11, 12)

Size of school (Grades 9, 10, 11, 12)

Number of years you have been superintendent in Beaver County

Does you school offer industrial arts courses?

Why does you school nct offer such courses?

Does your school offer vocational agriculture?

Do you think there is a need for more industrial training in this county?

Does your school have adequate room for an industrial arts shop?

Does your school have electricity? Natural gas?

What per cent of the students in high school are boys?

What per cent of the boys drop out of high school during the year?
(estimate)

What per cent of the graduate students (boys and girls) go to college? (estimate)

What per cent of the students live on farms?

In what size of town is your school located?

How far is your school from Beaver City?

Is your school district independent or dependent?

How many miles is your longest bus route? (one way)

What is the total cost of running your school this year?

List the subjects offered in your high school and the number of credits in each.

[illegible]

TYPIST:

Winnifred Y. Vogler

Stillwater, Oklahoma