

THE COMMUNITY SHOP
IN
THE SMALL HIGH SCHOOL

THE COMMUNITY SHOP
IN THE SMALL HIGH SCHOOL

By

GARVIN A. PECK

Bachelor of Science

East Central State College

Ada, Oklahoma

1941

Submitted to the School of Industrial Arts Education
and Engineering Shopwork

Oklahoma Agricultural and Mechanical College

In Partial Fulfillment of the Requirements

for the Degree of

MASTER OF SCIENCE

1949

APPROVED BY:

iii

OKLAHOMA
AGRICULTURAL & MECHANICAL COLLEGE
LIBRARY

JUN 14 1938

Dewitt Hunt

Adviser and Head, School of
Industrial Arts Education
and Engineering Shopwork

E. R. Stapley

Associate Professor, School of
Industrial Arts Education
and Engineering Shopwork

Edward R. Stapley

Dean, Oklahoma Institute of Technology

D. G. McIntosh

Dean, Graduate School

343818

ACKNOWLEDGMENTS

It would be a long and almost impossible task to assemble and organize material for a survey and study such as this without the assistance of a number of people. The study would not be as complete and would lack the quality that comes when two or more persons view and discuss the same information.

To my adviser, teacher and friend, Dr. De Witt Hunt, I am indebted for many of the ideas for research work, for time devoted to conference, and for encouragement and professional inspiration while a graduate student at Oklahoma A. and M. College.

To the administration, the students of Okemah Public Schools and to the men of the community for their cooperation and assistance in the completion of the questionnaire, I am indeed grateful.

I am also indebted to my wife, Laura C. Peck, for her patience, encouragement and assistance in the checking and tabulation of the questionnaires.

GAP

TABLE OF CONTENTS

| <u>Chapter</u> | <u>Page</u> |
|---|-------------|
| I. THE PURPOSES AND TECHNIQUES: A PREPARATORY STATEMENT | 1 |
| Definitions and Limitations of the Report. | 1 |
| The Purpose of the Report. | 2 |
| The Need for Such A Study. | 3 |
| The Objectives of the Community Shop | 3 |
| The Methods of Collecting Information. | 4 |
| The Method of Reference. | 5 |
| The Plan of the Study. | 5 |
| II. THE HISTORY OF THE COMMUNITY SHOP | 6 |
| A. The Arts and Crafts Movement | 6 |
| Arts and Crafts in England | 7 |
| Arts and Crafts in the United States | 7 |
| The Arts and Crafts Program in the Philadelphia Schools. | 8 |
| The Rotation of Students Through Four Industrial Arts Subjects | 8 |
| B. The General Shop Movement. | 9 |
| Early Changes from the Unit Shop to the General Shop | 10 |
| The New Meaning of the Term General Shop | 10 |
| Content of the General Shop. | 11 |
| Trends of Industrial Arts Toward the General Shop. | 12 |
| C. The Community School | 14 |
| The Small High School. | 14 |
| The Community School | 15 |
| Industrial Arts in the Community School. | 16 |
| D. The Community Shop | 18 |
| The Origin of the Community Shop | 18 |
| The Community Shop in the Community School | 19 |
| III. A SURVEY OF STUDENT OPINION AS TO SHOP SUBJECTS DESIRED | 21 |
| A. The School Survey. | 21 |
| The Selection of Subjects to be Used in the Survey | 21 |
| A Survey of Industrial Arts Subjects | 22 |
| The Administration of the Survey | 24 |
| Table I The Master Table | 25 |
| The Audio-Visual Aids Used in the Survey | 26 |
| The Results of the Survey. | 26 |

| <u>Chapter</u> | <u>Page</u> |
|---|-------------|
| B. A Comparison of the Grade of the Student and His Choice of Subjects | 27 |
| The Subjects Selected by the Junior High School | 28 |
| Table II The Junior High School Table | 28 |
| The Subjects Selected by the Senior High School | 29 |
| Table III The Senior High Table | 29 |
| A Comparison of the Grade of the Student and the Choice of Subjects | 29 |
| Table IV Junior High Grade Relation Table | 30 |
| Table V Senior High Grade Relation Table | 31 |
| C. A Comparison of the Occupation of the Students' Fathers and the Students Selection of the Subjects | 31 |
| The Occupation and Subject Table | 32 |
| A Comparison of the Occupation Table with the Master Table | 32 |
| Table VI Occupation Table | 33 |
| D. The Community Survey | 34 |
| Administration of the Survey | 34 |
| Table VII The Community Survey Table | 35 |
| A Comparison of the Adult Survey with the School Survey | 35 |
| IV. PLANNING THE COMMUNITY SHOP | 37 |
| A. The Curriculum for the Community Shop | 37 |
| The School Survey | 37 |
| Aims and Objectives of the Community Shop | 38 |
| The Content of the Community Shop | 39 |
| B. Basic Content of the Selected Subjects | 39 |
| Electrical Work | 40 |
| Leather Work | 40 |
| A Summary Sheet for A Course of Study in Electricity | 41 |
| A Summary Sheet for A Course of Study in Leather Work | 42 |
| Mechanical Drawing | 43 |
| A Summary Sheet for A Course of Study in Mechanical Drawing | 44 |
| Photography | 45 |
| Plastic Working | 45 |
| A Summary Sheet for A Course of Study in Photography | 46 |
| A Summary Sheet for A Course of Study in Plastic Working | 47 |
| Welding | 48 |
| Woodworking | 48 |
| A Summary Sheet for A Course of Study in Oxy-Acetylene Welding | 49 |
| A Summary Sheet for A Course of Study in Woodworking | 51 |

| <u>Chapter</u> | <u>Page</u> |
|---|-------------|
| C. The Building and Equipment. | 52 |
| Discussion of the Building. | 52 |
| Selection of Equipment. | 52 |
| Equipment List for Leather Work | 53 |
| Equipment List for Mechanical Drawing | 54 |
| Equipment List for Plastic Working. | 54 |
| Equipment List for Photography. | 54 |
| Equipment List for Welding. | 55 |
| Equipment List for Woodworking. | 55 |
| Arrangement of the Equipment. | 55 |
| Floor Plan of the Community Shop. | 57 |
| V. THE SUMMARY AND RECOMMENDATIONS. | 58 |
| Summary | 58 |
| Recommendations | 59 |
| Appendix A. | |
| A SELECTED BIBLIOGRAPHY. | 62 |
| Appendix B. | |
| A LIST OF AUDIO-VISUAL AIDS. | 65 |

CHAPTER I

THE PURPOSES AND TECHNIQUES

The nature of the report, the reference material used, and the methods used in the survey require an explanation, that the reader might better understand the report. This chapter will also contain the reasons for making the report, the reference methods used and the aims and objectives of the community shop.

Definitions and Limitations of the Report. The study of the community shop was begun in an attempt to establish a community shop in the Okemah Public Schools. It is the belief of the writer that if the small high schools are to serve the needs of the community, a broad program of industrial arts must be offered.

The only community shop in the state is in the Oklahoma A. and M. College industrial arts department, and is used as a farm shop where vocational agriculture teachers take farm mechanics, and industrial arts teachers broaden their teaching fields. The observation and study of this shop has been helpful, but the shop is used entirely by college students and the arrangement would naturally be somewhat different with students of junior high and senior high school age.

At the beginning of the study a search was made in the library of Oklahoma A. and M. College for books and theses pertaining to the community shop. None were found. Most of the information was obtained from books and periodicals relating to industrial arts in general education, the community school and the general shop.

So that the reader may be able to understand more clearly the meaning of the term "Community Shop", and other closely related terms, the following definitions interpret these terms as to their use in this study.

Industrial Arts is a study of the changes made by man in the forms of materials to increase their value, and of the problems of life related to these changes. (4, page 5)

Industrial Arts. Those phases of general education which deal with industry--its organizations, materials, occupations, and products--and with problems resulting from the industrial and technological nature of science. (35, page 2)

Industrial Arts. The term industrial arts refers to all classes and courses of shopwork and industrial drawing taught in junior or senior high school for general education and guidance purposes. Its purposes are primarily to orient the student in our current industrial civilization by means of experience in working with as many of the materials common to everyday life as possible. (32, page 1)

The Community Shop. This place in the school building or on the school campus would contain equipment representing from ten to fifteen industrial arts subjects including bench woodworking, machine woodworking, wood turning, electrical work, art metal work, leather work, sheet metal work, bench metal work, foundry, forging, welding, art copper work, plastics working, printing and possibly automobile maintenance. It would also have provisions for instruction in industrial drawing, and this space would be used as a planning center. (18, page 12)

The General Shop. Shops that are planned and equipped to teach two or more distinct types of shopwork at the same time under one teacher are general shops. (24, page 15)

The Unit Shop is a single-activity shop. (10, page 302)

Education is the development of general intelligence, either by a system of study and discipline or by the experience of life. Education includes not only systematic schooling and formal methods of acquiring knowledge, but also that enlightenment and understanding which is gained through experiences. (20, page 26)

Industrial Education. A generic term including all educational activities concerned with modern industry, its raw materials, products, machines, personnel and problems. It, therefore, included both industrial arts, the general education forerunner of, or introduction to, vocational industrial education and the latter also. (13, page 9)

Small High School. For the purpose of this study the small high school is a school having three hundred students or less in the ninth through the twelfth grades.

The Purpose of the Report. The purpose of this study was to plan a community shop for the Okemah Public Schools. It is the belief of the writer that the small high school must change from the conventional woodworking and drawing shop to a more diversified industrial arts program. If the industrial arts program is to continue to progress as it has in the past, the shop

program must be expanded to meet the needs of the students and the community. It is no longer adequate for the school to list shop as a part of the curriculum. The question is "What type of shop?" and does that shop meet the needs of the students and the community?

It is impossible to study any subject without research in associated topics. In the research study of the history of industrial arts, an effort is made to trace the movements and trends which lead to the community shop movement.

The Need For Such A Study. Each year one in four of the rural students do not enter high school, and of those who enter, nearly two-thirds do not remain to graduate. (15, page 4) What more encouragement should be given for research and study to establish a program which will fill the needs of these boys and girls than to encourage them to remain in school, where they will not only learn to be better farmers and tradesmen, but better citizens of the community and nation.

Many industrial arts teachers express approval of the community shop plan, but few community shops are established. While this study does not fulfil entirely this need for a community shop program for the small high schools of this state, it is believed that, due to the methods used in the survey, the report will be beneficial to the profession.

The Objectives of the Community Shop. Each subject in the public school should have its own specific objectives. The community shop is no exception to this rule. Course or subject objectives must have a direct relation with, and should advance the cause of, the general education program of the school if that course or subject is to succeed as part of the school program. Probably no other phase of industrial arts work is as well

suiting to the objectives of industrial arts in a general education program as proposed by Wilber, as is the community shop. (35, page 42)

- (1) To explain industry and American industrial civilization in terms of its reorganization, raw materials, processes and operations, products, and occupations.
- (2) To develop recreational and avocational activities in the area of constructive work.
- (3) To increase an appreciation for good craftsmanship and design both in the products of modern industry and in artifacts from the material cultures of the past.
- (4) To increase consumer knowledge to a point where students can select, buy, use and maintain the products of industry intelligently.
- (5) To provide information about--and in so far as possible--experiences in the basic processes of many industries in order that students may be more competent to choose a future vocation.
- (6) To encourage creative expression in terms of industrial materials.
- (7) To develop desirable social relationships such as cooperation, tolerance, leadership, and followership and tact.
- (8) To develop a certain amount of skill in a number of basic industrial processes.

The Methods of Collecting Information. The historical chapter is presented in an effort to trace the movements and trends which precede the community shop, and to discover when industrial arts teachers first began teaching more than one subject at the same time and under the supervision of one teacher.

To determine the subjects needed for a community shop in the Okemah Public Schools a questionnaire consisting of fourteen industrial arts subjects was completed by one hundred eighty boys in the high school and junior high school. The results of the questionnaires were tabulated to determine the subjects in which the students were interested. In an effort to determine the factors which might influence the students' selection of subjects, the questionnaires were classified and studied according to the grade level of the students and the five occupational classifications of the students' fathers. The results were tabulated and compared with the master table, (See Table I) and with the results of the questionnaire as completed by the men of the community, to determine the content of the community shop.

The Method of Reference. The credit to books, periodicals and bulletins, from which quotations are taken, is given by the number of the publication in the bibliography and the page of the reference as follows. (12, page 32-46) The tables are numbered consecutively throughout the study and are referred to as follows. (Table IV)

The Plan of the Study. The history of the community shop is presented in the following chapter. Chapter III is devoted to a discussion of the survey of student opinion. Chapter IV is given to the selection of subjects, the arrangement of the building, the selection of equipment, a floor plan of the shop and a summary sheet for a course of study for each subject to be used in the content of the community shop. Chapter V summarizes and gives recommendations as to the establishment of the community shop.

CHAPTER II

THE HISTORY OF THE COMMUNITY SHOP

There are several factors which have encouraged the community shop idea. In the last half-century new industrial materials and new methods of manufacture have been introduced. The United States Patent Office since 1910 has granted over 25,000 patents each year. Industrial plants have changed from small home-owned plants to large corporations and industries in which an enormous quantity of industrial products are manufactured each year. The automobile industry alone produced more automobiles in one month in the year 1940, than all the automobile companies combined produced in the year 1920. This vast industrial expansion has created an interest in industrial arts and general education. The large high schools have the students and are financially able to establish a sufficient number of unit shops to permit the students the privilege of learning something of this vast industrial world. It is impossible for the small high school to accomplish this. Seventeen thousand of the twenty-four thousand high schools in the United States in the year 1946 had an enrollment of less than two hundred students. Twelve thousand of this number had less than one hundred students enrolled in high school. (14, page 4) School officials in these schools desire to give the students the opportunity to become acquainted with the new materials, methods and discoveries of science and industry. The only possible way to do this in the small high school is to establish a shop where several industrial arts activities may be taught under the supervision of one teacher.

A. THE ARTS AND CRAFTS MOVEMENT

The arts and crafts movement was a protest against the factory system of production and a revival of interest in fine craftsmanship and design. Its inception began with a vigorous protest against everything created by

the manufacturing industries in the last half of the Nineteenth Century and a return to the simple useful articles of everyday living, which have beauty in their simplicity. The originators of the movement were Thomas Carlyle and John Ruskin, but it was left to William Morris to call attention to the movement and to attempt to do something about it.

Arts and Crafts in England. When William Morris in 1857 rented an unfurnished apartment and attempted to furnish it, he came face to face with the ugliness of the factory manufactured articles and their lack of design. Morris brought together a group of artists and craftsmen who joined him in a business venture to improve the design of manufactured articles and to create an interest in craft work. The manufacturing of articles of new design resulted in the development of an interest in arts and crafts, and in 1884 "The Art Worker's Guild" was established in London. The purpose of this organization was to hold periodical exhibits and to interest the public in arts and crafts. Through the efforts of the Guild, the London County Council provided for instruction in design and handicraft work. The school, starting in a temporary building in 1896, soon became very popular, and in 1908 a new building was constructed, and the school moved to its permanent home.

Arts and Crafts in the United States. The arts and crafts movement was introduced in the United States in 1880 by Charles Leland, who had known William Morris in England and had become interested in the movement there. The plan was presented to the industrial committee of the Philadelphia Board of Education, who approved of the plan and classes were arranged for two afternoons each week. This movement took definite shape in the organization of "The Society of Arts and Crafts" in Boston in the year 1897. The society maintained a salesroom and a permanent exhibition and for four years published a monthly magazine called Handicraft. The movement soon spread to

the public schools where individually designed articles appeared in the workshops. This proved unsuccessful because the teachers in charge were not adequately trained in design and the handicraft work.

The Arts and Crafts Program in the Philadelphia Schools. The Board of Education of the Philadelphia Public Schools approved the arts and crafts plan as presented to them by Charles Leland and classes were scheduled for two afternoons each week. The students ranged in age from ten to sixteen and the classes were well attended. This work was continued by J. Liberty Tadd at the retirement of Charles Leland. Leland and Tadd considered the decorative arts more suitable to children of this age than the mechanical arts or trades. (30, page 104)

This natural truth, that man develops the ornamental during the infancy of every race before the useful, is illustrated in every individual. The child who cannot yet make a shoe or file metals or master a trade can, however, learn to design decorative outside patterns, mold beautiful pottery, set mosaics, carve panels, work sheet leather and repousse or emboss sheets of brass.

In these classes several industrial arts activities were taught. Drawing, modeling, carving, leather work and repousse work made up the major portion of the course. The students were first taught the skill of the hand and eye, but this was changed to practical work as soon as possible.

The Rotation of Students Through Four Industrial Arts Subjects. The system of teaching industrial arts as practiced by Leland and Tadd was quite different from any system or movement in existence at this time. One radical feature as developed by Tadd was the practice of rotating students through several industrial arts activities. (30, page 106)

Instead of the pupils in the elementary stage taking one course in a department and later taking another at a specified time, they were required to rotate work in the four departments of drawing, designing, clay modeling, and woodcarving. The theory was that in working in the

various mediums all the possible physical coordination could be acquired and that working in one medium reinforced the ability to work in all other mediums. Rotation was also practiced in the advanced work. In this stage each pupil was expected to rotate his mechanical drawing and constructive work during each lesson.

The arts and crafts movement is probably considered to be a failure as an educational program. But it did renew the interest in design and hand-craft work, as evidenced by the increase in articles written on design during this period. The idea of rotating students through more than one industrial arts activity under the supervision of one teacher was something entirely different from any method practiced at this time. No reference is made to the term general shop, but if the definition of a general shop as given by Newkirk is applied: (24, page 15)

Shops that are planned and equipped to teach two or more distinct types of shopwork under the supervision of one teacher are general shops.

Then this arts and craft shop as taught by Charles Leland and J. Liberty Tadd may well be considered as the first general shop.

B. THE GENERAL SHOP MOVEMENT

Many people do not realize the changes education must make to keep pace with an expanding industrial world. Only a few years back the student could equip himself for life by apprenticing himself to some tradesman to learn a trade. Today with our vast industrial empire, learning a single trade is not enough. As education expanded to meet these new requirements, the general shop was introduced as a means of broadening the experience of the students. Here for the first time was an industrial arts shop that could be adapted to the small high school and junior high school. Since the inception of the general shop plan the trend of industrial arts is toward this method of teaching several industrial arts activities under the supervision of one teacher.

Early Changes From the Unit Shop to the General Shop. Any change in a school program is very likely to fail since people do not readily adjust themselves to changes but tend to resist them. The change from the unit shop to the general shop had a very slow beginning, as the teachers knew very little about the general shop plan. Teacher education institutions were slow in establishing facilities for the training of teachers in this field. The belief still existed that shop classes should all be kept together. The students worked from models or patterns with each new model increasing in difficulty as the student advanced in the course. Very little time was given to design or the correlation of one activity with the other. From the unit shops of this type it is only natural that the first general shop would combine the various unit shops, or crowd them into one central location. This resulted in one teacher teaching a number of unit-shop activities at one time.

The New Meaning of the Term General Shop. With the expansion of the general education program to meet the needs of the student, the junior high school became prominent and with it the general shop. The meaning of general shop seemed to take on new significance. Newkirk and Stoddard define the general shop as: (23, page 11)

The general shop is a broad group of educative industrial arts activities embracing techniques 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 experiences interpretative of the major phases of the worlds industrial work, handy-man activities, consumers knowledge and appreciation, guidance, hobbies, social habits, and (for a very small part) vocational preparation.

Here was a new course in which the small high school and junior high schools could participate as well as the large school and for the first time a unified and complete program of industrial arts could be offered. This plan came at a time when new demands were being made on the industrial

arts teachers to render a broader service than it was possible to do under the unit shop plan. (23, page 15)

In view of the many demands for the industrial arts teacher to render a broader service than has been expected in the past, it is essential to offer a course which meets the aims of present-day education. The general shop is not the cure for evils in all types of situations, but it does enable a school, whether it be large or small, to offer a really good course in industrial arts.

Several reasons were given for the slow development of the general shop. One of the complaints was that teachers were not qualified to teach this new development in industrial arts, and that teacher-training institutions were not offering the courses needed for this subject. William E. Warner made this statement concerning the development of the general shop: (34, page 288)

Many people do not realize the widespread significance of the most recent development in industrial arts and vocational education, the general shop. The idea of the general shop is scarcely twenty years old and, in its present development, is less than ten years old. But by the end of the current year, 1930, nearly all of the universities, colleges and institutes where shop teachers are prepared will have included some sort of general shop plan in their training curricula. Many of these schools do not agree on the purpose for such a shop. This is evidenced by the examples seen on every hand. Instances of general shop work may be found in any one of the four academic years of college training.

Content of the General Shop. There is a common need among the schools for a broad educational program in industrial arts. It is true that industries vary in type and number in each state, but in this day of modern transportation and communications there is no definite assurance that the students will live in the same community in which they receive their early training. This makes it necessary for the student to have some knowledge of the industries in other sections of the country and how they affect his daily living.

The first shops that were called general shops were unit shop courses brought into one central location and taught by one teacher. This did not change the subject content of the shop. Newkirk and Stoddard, working in

cooperation with the Iowa University High School in an experimental shop, were very successful in advancing the content of the general shop. (23, page 19)

Several types of general shop instructional material are developing. These do not differ greatly in the teaching methods employed or organization required, but rather give evidence of the predominance of certain of the aims of the general shop. The different types are not distinct, but shade gradually from one to the other. The following are types of general shop content at the present time: (1) Trades Exploratory; (2) Home Mechanics (Household Mechanics); (3) Farm Mechanics; (4) General Metalwork; (5) General Woodwork; (6) Arts and Crafts; and (7) Practical Mechanics (Community Mechanics).

There are many things to consider in selecting the content of the general shop. The community survey is recommended by Newkirk, (24, page 40) as the best method of selecting the courses needed in the community. It is reasonable to assume that much of the content will be the same in all communities. Everyone uses similar types of automobiles, electrical appliances and materials in the homes. For this reason alone the students in the public schools should have an understanding of the common vocations of the country, and an opportunity to work with tools and materials which are representative of the various trades. (24, page 42)

Types of the general shop content are discussed under the following seven course classifications: general industrial arts, home mechanics, arts and crafts, practical and community mechanics, general woodworking, general metal working, and farm mechanics. All of these courses are basically general educational in character except farm mechanics, which is part of the vocational agricultural program.

Trends of Industrial Arts Toward the General Shop. From its inception the general shop plan had an appeal to the small high school. The idea came at a time when industries were expanding rapidly. The small schools were not financially able, nor were there a sufficient number of students to justify establishing the unit shop. The school officials welcomed this new plan of industrial arts education which would enable the small schools to participate in an industrial arts program. With the general shop idea less than ten

years old staff members of the United States Office of Education made a survey of industrial arts for the years 1924-26. This survey clearly indicates the trend toward the general shop: (25, page 24)

The general shop, which is a recent type of organization for teaching elementary work in a number of shop activities under the direction and supervision of one individual, has been growing in favor, especially for some of the manual arts work on the junior high school level. The number of schools adopting this general shop plan has increased rapidly during the past two years, of fifteen hundred representative school systems furnishing information to the Bureau of Education on this point, more than forty per cent report that they have organized a general shop course. More than one-fourth of these were inaugurated during the past two years.

The general shop offers each student an opportunity to work with a variety of tools and materials. Often students who are complete failures with one type of material can find an interest in other types. The general shop lends itself to a wide selection of projects. The student may select one project which will carry him through several phases of the general shop. Other reasons may be given for the continued trend toward the general shop plan, but none expresses the thought more clearly than did Proffitt in a report published by the Office of Education in the year 1940. The title of the report is, The Trends of Industrial Arts: (26, page 12)

If a single outstanding trend of the present were to be used to predict the future of industrial arts work, it would most certainly be the trend toward the organization of pupil experiences for instructional purposes around the central idea of the general shop. This trend toward the general shop form of organization for the realization of present-day objectives for industrial arts is definitely away from the practice of routing pupils through the unit shops where so frequently the instruction in each shop is the first part of a trade course, which is neither vocational industrial training nor industrial arts.

The first so-called general shops were only a series of unit shop courses taught by one teacher or in some cases they were home mechanics courses. With the expansion of the general education program to meet the needs of the students, the junior high school became prominent, and with it the general shop. Many people did not realize the importance of this new

plan of industrial arts, until the general shop was accepted by the small high schools as a solution to the problem of industrial arts. Within the first ten years a definite trend was indicated toward this plan, and this trend has continued to the present.

C. THE COMMUNITY SCHOOL

The community school is fast becoming a prominent part of the American educational system. The small high schools have traditionally provided a college-preparatory course for all students. It is being realized that this does not fit the needs of the community. The small high schools have increased in number due to the increase in population. With this increase in the number of schools there has been a gradual awakening of the school and community as to the purpose of the school. With the awakening as to the needs of the community school, the school shop became prominent. The industrial arts program, through the use of the community shop, is readily adapted to the community school plan. Here the adult and the student needs can be met in one shop with regularly scheduled classes during the day for the students and one or two evenings each week for the adults of the community. In a farming community classes in farm mechanics, and for the townspeople upholstering, woodworking and repair of furniture have proved popular.

The Small High School. Many people ask, how large are our public schools? Perhaps it would be more to the point to say, how small are our public high schools? Educational leaders have viewed with alarm the large number of small high schools and the conditions under which they operate. In a survey made in 1946 by staff members in the Office of Education there were twenty-four thousand high schools in the continental limits of the United States. Seventeen thousand of this number had less than two hundred enrolled in high school. One-third of all the students enrolled in our

public schools are enrolled in schools of this size. (14, page 4) The typical college-preparatory course as provided in so many small schools is no longer adequate. This is evidenced by the large number of students who do not enter high school, and of the number who enter nearly two-thirds do not remain to graduate. (15, page 4) This large percentage of drop-outs clearly indicates the schools are not meeting the needs of the community. This is a challenge and an opportunity for the small high schools to return to the purpose of the school, which is to make the community better.

The Community School. The community school is faced with a grave problem. The school must provide a general education program for those who do not stay in the community and, at the same time, meet the needs of the students who plan to stay in the community, as well as maintain an adult education program. It has been necessary to originate adult education programs in places other than the school plant because of the reluctance on the part of the adults to return to the rigid and formal atmosphere of the school. Careful planning of the physical plant is necessary if the school is to welcome the patrons of the community. This is well described by Englehardt and Englehardt: (11, page 15)

There would be no formal classrooms with fixed seats. Instead, rooms would be designed in attractive colors with comfortable seats arranged to meet the convenience of intimate discussion groups. A browsing room and social lounge near the entrance would tend toward increasing attractiveness and would accentuate the informality which should be sought. Halls would be used for exhibitions. The shops and laboratories would replace the traditional physics and chemistry type. General shops would be featured in place of the highly specialized shops found in many schools. The administrative offices would invite lay discussions. In general, the atmosphere of the school building would attract adults.

Some feel this type school would not lend itself for student use. However in the modern school less formality is being sought in equipment. Instead of the drab uniform color, variations of color schemes are being used, an effort is being made to create an interesting, educational and social

atmosphere in the corridors, laboratories, classrooms and libraries. Thus the school planned for student needs may also conform in many respects to the school designed for adults. (11, page 16)

The community school should be a center in which life needs of people are being met and in which advantage is taken of man's inventions and man's contributions to all the arts and sciences.

Industrial Arts in the Community School. If the school workshop is to serve the needs of the community, the shop building should be a separate building or a wing of the main building. The shop building can then be kept open evenings and will be accessible for adult use without interfering with the regular school program. Regularly scheduled evening classes should be taught for the adults. If the occupation of the community is chiefly agricultural, a class in farm mechanics one or two evenings each week, and for the townspeople, upholstering, woodworking, and repair of furniture, have proven very popular.

The shop must continue the scheme of informality and convenience as the rest of the community school. This is well expressed by Englehardt and Englehardt: (11, page 76)

The entrance to the arts and crafts unit might well be through a large lobby. This lobby would be attractively decorated and furnished as a comfortable lounge. The walls would display various products of the participants, and the central section used for other exhibits. From the lounge one might pass either directly into the shop or to the men's and women's dressing rooms. These dressing rooms should be equipped with box lockers for shop clothes and with full-length lockers for the storage of street clothes. Direct access from the dressing rooms to the shop should be planned.

The specialized shop or laboratory seems to be losing favor rapidly to the coordinated activities of the community shop. School officials have found that the combining of several industrial arts activities not only enriches the program from the standpoint of the student and the community but permits economy in building construction and permits the use of expensive machinery by all the industrial arts activities.

The community shop teacher should be available the entire year. During the summer months the shop should be kept open to serve the needs of the adults of the community, and a part of each day may be devoted to summer recreation classes for the students of the town. By careful planning and cooperation with the school and the community, the school shop can be the center of many community activities, and a benefit to all concerned. This point was clearly stated by Vaughn and Mays long before the community school idea became prominent. (33, page 133)

The hope and the salvation of industrial arts work on the non-vocational type lies in the effective tying up of such vital work with the vital activities of the school, the business, the industry, and the community. By careful planning on the part of the shop teacher the shop can be the center of school and community activities.

The community school is a result of an awakening of the community, the school officials and educational leaders, as to something lacking in the school program. Many students were not entering high school, and of those who did enter only a small part stayed to graduate. This was evidence enough that the schools were not meeting the needs of the community. Many suggestions have been made as to the program the school should maintain, among them changing the physical plant into a place of interest and informality for both work and play and adding of evening classes to the schedule, thus keeping the shop open evenings and during the summer months for the benefit of the community. These changes and activities are all important, but it is possible to have all these things and still not have a community school in its true sense. The important factor to notice is the many activities designed to awaken the interest of the school to the community, and the community to the school. From this common ground many things may be worked out that will be of benefit to both parties.

D. THE COMMUNITY SHOP

The community shop plan was established as an industrial arts program which would meet the needs of the community high school. These small schools in the past have not taught industrial arts because of the expense of establishing a limited unit shop. The content of the community shop is so broad that the plan may be adapted to fit the needs of any community, and will permit the small high schools to enrich the program of the school by establishing a well-rounded industrial arts program. The community shop plan was presented at about the same time as the community school plan. The community shop and the community school work together in that the chief purpose of both is to make the community a better place in which to live.

The Origin of the Community Shop. The term community shop is of fairly recent origin. The term is used to designate the teaching of several industrial arts activities at the same time and in a central location. The community shop movement was probably originated by Dr. Hunt and is clearly defined in his paper, The Professionalization of Industrial Arts Teaching: (18, page 12)

For professionalizing industrial arts teaching in these one-teacher situations a new shop is proposed. The name is "The Community Shop". This place in the school building or on the school campus would contain certain equipment representing ten to fifteen industrial arts subjects including bench woodworking, machine woodworking, wood turning, electrical work, foundry, forging, welding, art copper, work, plastic working, printing, and possibly automobile maintenance. It would also have provisions for instruction in industrial drawing, and this space would be used as the planning center. With adequate equipment the needs of the youth in the community for practical work experiences could be met. The teacher would necessarily be a master teacher with course work in all of these industrial arts subjects. Boys could first receive some training in many of these shopwork subjects, then those who want some degree of specialization for either vocational or avocational purposes would be enrolled for a single shopwork subject for a year or more.

The purpose of the community shop is to serve the needs of the community. The small high schools do not enroll sufficient students to justify establishing unit shops. The community shop is easily adapted to this type of

school and permits the small school to enrich the program of the school by establishing an industrial arts shop.

The community shop is similar to the general shop which has been in use for some time. The general shop is more like the unit shop in that fewer activities may be covered during the year. Contrast this with the community shop which is designed to cover a broad field of industrial arts activities with a minimum of expensive equipment.

The Community Shop in the Community School. In the past the feeling has existed that the school was for the benefit and use of the students. This feeling is gradually being replaced as the community and the school awaken to the needs of the community.

The community shop has a definite place of responsibility in the community school. Due to the nature of the small community high schools, which are usually located in the rural areas, the shop can be the center of many community activities both educational and recreational. (15, page 4)

More than seven out of ten of all public high schools of all types in the United States today are located in rural centers of less than twenty-five hundred population.

The community shop teacher should be retained on a twelve-months basis. This permits the shop to be kept open during the summer months for the use of the adults of the community. A part of each day may be devoted to a summer recreation program for the boys and girls of the community. The remainder of the day may be well spent advising the men of the community on the problems of the farm and home, many of which are industrial arts activities and should be taught in the community shop. This will involve an additional car expense which should be considered when the salary of the community shop teacher is determined.

A study of the community needs should be made to determine the subjects taught in the community shop. For schools operating on the junior high school plan, shopwork should be required at least one year. In the regular four-year high school plan, community shop should be required for the first year. A class in farm mechanics should be provided for the boys who expect to stay on the farm, and a broad community shop program must be planned for those who desire experience in either vocational or nonvocational subjects. In this class the students should be required to rotate through several industrial arts activities.

The community shop in the school should be exactly what the name implies. Every effort should be made to discover the needs of the community, and classes arranged at night and in the regular school year which will help remedy these problems. The community shop teacher on a twelve-month basis is one solution to an idle shop during the summer months. This would permit the community shop teacher to act as an advisor to the men of the community, and will be an important factor in including the community shop as an essential part of the community school.

CHAPTER III

A SURVEY OF STUDENT OPINION AS TO SHOP SUBJECTS DESIRED

The survey method was selected as the means of determining the subjects of interest to the students, and as a method of creating interest in the community shop plan. The success of the survey was due in part to the interest created by the guidance pictures, which were shown to high school and junior high school students during the home room period. The pictures (See Appendix B) covered practically all of the industrial arts subjects listed in the survey. All boys in the seventh to the twelfth grades were asked to answer the questionnaire, which consisted of a brief discussion of fourteen industrial arts subjects. Ranking the subjects in the order of preference, the students selected seven activities suitable for a community shop program.

A. THE SCHOOL SURVEY

After careful thought the decision was made to use the survey method as the means of interesting the students in a community shop. The survey was completed by one hundred eighty boys in the junior and senior high school. The results of the survey as indicated by the master table (See Table I) list seven industrial arts activities that were selected by the students who were eager to participate in the survey.

The Selection of the Subjects to be Used in the Survey. The topic of discussion in the professional meetings in the past few years has been the need for a broad and more complete industrial arts program in our public schools. There are many things involved when the decision is made to enlarge or change the conventional industrial arts program of woodworking and drawing to the community shop plan. The first question is, "What is the best method

A SURVEY OF INDUSTRIAL ARTS SUBJECTS

A survey to determine the subjects needed in this area should a community shop be established in the Okemah Public Schools.

A comparison will be made between the subjects desired by the students in grades seven (7) thru twelve (12), and the subjects selected by the men of this community.

Date _____ Age _____ Grade _____ Occupation _____

Occupation of Father _____ Mother _____

Rate the following subjects in the order of your preference. Indicate order of preference by placing a "1" in the parenthesis of your first choice, a "2" by your second choice, and a "3" by your third choice, etc.

- | | | |
|-----|---------------------------|--|
| () | AUTOMOBILE MECHANICS. | Study of internal combustion engines, and an adjustment of all mechanical parts, including major overhaul. |
| () | CARPENTRY. | General carpentry, roughing-in and finishing, including a study of blue-print reading and house plans. |
| () | CEMENT and CONCRETE WORK. | Building of forms, patterns, mixing, laying, and decorating concrete. |
| () | ELECTRICAL WORK. | Theory of electricity, housewiring, soldering, splicing, diagrams, blue-print reading and repair of electrical equipment. |
| () | FORGING. | Forming and shaping of hot and cold metal, and the tempering of tools. |
| () | HOME MECHANICS. | Practical course in the many odd jobs around the home, repairing furniture, plumbing, electrical equipment, garden tools, furnaces stoves, and upholstering. |
| () | LEATHER WORK. | Cutting, tooling, dyeing, carving, stamping, and embossing leather. |
| () | MACHINE SHOP. | Machine bench work, and the operation of metal machines, such as the lathe, shaper, drill press, etc. |

- () MECHANICAL DRAWING. Orthographic projection, sheet metal drawing, engineering drawing, and house plans.
- () PLASTICS WORKING. Cutting, drilling, polishing, carving, glueing, and shaping plastics.
- () PHOTOGRAPHY. Photographing of still and moving objects, developing, enlarging, tinting, and printing.
- () SHEET METAL WORK. The gauge and characteristics of the different metals, developing patterns, and the operation of tools and machines.
- () WELDING. Electric arc, oxy-acetylene, spot-welding, cutting, and the use of the power hack saw and grinder.
- () WOODWORKING. The use of hand and power tools, re-finishing and finishing methods, and the reading of working drawings.

In the space below list other subjects which interest you.

of interesting the students in a community shop plan?" and the second question is, "What subjects should be offered in a program of this type?" The use of the survey in the school and in the community proved to be the answer to both questions. (24, page 40)

In order to extend the industrial arts beyond the things common over the country, it is advantageous to make a study of the industrial arts needs of the community before deciding upon the type of work that is best fitted to it. The survey is especially valuable in determining whether or not there is urgent need of special guidance work with respect to local industries. In a small town located in an agricultural community with no local industries, it takes but a short time to make a survey.

The Okemah Public Schools are located in a small town in an agricultural community with no local industries. The industrial arts subjects to consider are the subjects which will benefit the students who are on the farm and intend to remain there, and at the same time fill the needs of the students who are interested in industrial arts as an avocational or as a vocational subject. The subjects included in the questionnaire were selected from a book available from the American Vocational Association, Improving Instruction in Industrial Arts. (1, page 15) The list of subjects when completed consisted of the following industrial arts activities: Automobile mechanics, carpentry, cement and concrete work, leather work, machine shop, mechanical drawing, plastic working, photography, sheet metal work, welding, and wood-working. Farm mechanics was not added to the list of subjects as this is part of the vocational agriculture program.

The Administration of the Survey. All male students in the junior and senior high school were asked to answer the survey. A brief description was given in the survey of each subject and all questions were answered at the time the questionnaire was administered. This was done to familiarize the students with all phases of the survey and was essential due to the number of students who had not had industrial arts.

The principals of the high school and junior high school were consulted as to a time which would not interfere with the regular school program. Due to the number of students answering the survey, it was necessary for the junior and senior high school students to answer the survey as separate groups. With this arrangement each student would have a desk and a comfortable place to sit, while answering the questionnaire. The comfort of the students is an important factor in the administration of any questionnaire type survey.

TABLE I

SURVEY OF FOURTEEN INDUSTRIAL ARTS SUBJECTS
RANKED IN ORDER OF PREFERENCE BY 180 PUPILS IN THE
JUNIOR AND SENIOR HIGH SCHOOL
OKEMAH PUBLIC SCHOOL,
MAY, 1949

| Subject | Rank | | | | | | | | | | | | | |
|--------------------------|------|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| Automobile Mechanics | 45 | 21 | 13 | 12 | 8 | 7 | 7 | 10 | 7 | 9 | 8 | 9 | 10 | 14 |
| Carpentry | 8 | 11 | 15 | 12 | 19 | 14 | 14 | 18 | 10 | 11 | 15 | 11 | 10 | 12 |
| Cement and Concrete Work | 8 | 6 | 9 | 10 | 9 | 10 | 15 | 13 | 15 | 15 | 18 | 19 | 15 | 18 |
| Electrical Work | 13 | 18 | 22 | 15 | 16 | 15 | 10 | 13 | 13 | 11 | 10 | 12 | 8 | 4 |
| Forging | 6 | 7 | 10 | 7 | 6 | 11 | 11 | 14 | 13 | 19 | 19 | 19 | 29 | 20 |
| Home Mechanics | 10 | 9 | 12 | 14 | 12 | 22 | 15 | 14 | 13 | 16 | 13 | 15 | 11 | 5 |
| Leather Work | 12 | 13 | 15 | 18 | 12 | 11 | 15 | 18 | 10 | 13 | 13 | 16 | 12 | 6 |
| Machine Shop | 7 | 14 | 12 | 11 | 8 | 11 | 20 | 11 | 18 | 18 | 12 | 10 | 16 | 14 |
| Mechanical Drawing | 10 | 12 | 9 | 10 | 14 | 12 | 12 | 11 | 14 | 18 | 17 | 12 | 13 | 18 |
| Plastic Working | 12 | 12 | 14 | 13 | 15 | 14 | 13 | 11 | 15 | 12 | 11 | 11 | 18 | 12 |
| Photography | 18 | 18 | 12 | 14 | 13 | 11 | 11 | 7 | 10 | 8 | 13 | 12 | 10 | 21 |
| Sheet Metal | 4 | 4 | 8 | 9 | 12 | 13 | 12 | 23 | 20 | 15 | 12 | 16 | 12 | 17 |
| Welding | 16 | 15 | 13 | 21 | 19 | 13 | 14 | 12 | 10 | 12 | 9 | 8 | 7 | 11 |
| Woodworking | 13 | 20 | 18 | 11 | 16 | 21 | 12 | 11 | 11 | 9 | 6 | 11 | 7 | 13 |

The high school boys were called together and an explanation made as to the reason for the survey and the importance of answering the questions correctly. The questionnaire was read to the students and all questions answered. It is essential that all students know how to answer the questionnaire and the reason for answering it. For the high school group,

twenty-five minutes was required to complete the questionnaire. The same procedure was followed with the junior high school boys, except more time was needed to explain the questionnaire and to answer the questions of the younger group. Thirty-five minutes was required to complete the questionnaire by the junior high school students.

There are a few important factors which must be observed in the administering of a survey questionnaire. All students must have a fairly comfortable chair or desk and a place to write. Do not rush the participants through the survey, allow plenty of time for questions, and be sure that all questions are answered and understood. It is important to keep the administration informed as to what has been accomplished and, if possible, arrange a time for the survey which will not interfere with the regular school program.

The Audio-Visual Aids Used in the Survey. The survey followed the showing of a series of vocational guidance pictures, (Appendix B) which explained the vocational possibilities of practically all the industrial arts subjects listed in the survey. Two pictures were shown each week during the home room period and all students in high school and junior high school were required to attend. The vocational guidance pictures, "Finding Your Life's Work", were a definite aid in the success of the survey.

The Results of the Survey. The students were asked to rank the subjects in the order of preference by placing a figure one in the parenthesis of the first choice, two by the second choice, and three by the third choice. This was continued until the fourteen subjects were given a rating.

It is very easy to determine the choice of the students as to the industrial arts subjects which interest them. (See Table I) Seven industrial

arts activities, automobile mechanics, electrical work, leather work, plastic working, photography, welding, and woodworking received seventy-three per cent of all votes cast as first choice by one hundred eighty students. When the one hundred thirty votes that were received by seven subjects is compared to the fifty for the remaining seven of the fourteen subjects listed in the survey, the desire of the students as to the content of the community shop is clearly indicated. As a further check the first, second, and third choices of each student were totaled. The seven selected subjects received sixty-five per cent of the votes cast in the first three places or three hundred forty-three of a possible five hundred forty votes.

This should be an indication that the students are eager to help in the selection of subjects for a community shop program and, if given a chance, will select the subjects which interest them.

The survey method was an excellent plan of determining the interest of the students in the various industrial arts activities and as a means of creating an interest in the community shop program. The success of the survey was due in part to the vocational guidance pictures shown to the students prior to the survey and to the build-up given the community shop program. The survey was answered by all boys in the junior and senior high schools. Ranking the subjects in the order of preference, the students selected seven subjects from the fourteen in the survey questionnaire. The interest in the subjects is clearly shown in the master table. (See Table I)

B. A COMPARISON OF THE GRADE OF THE STUDENT AND HIS CHOICE OF SUBJECTS

Due to the wide range in grade level, a comparison is made between the junior high school and the senior high school students as to the selection of the subjects. The industrial arts activities which received a majority of

votes as cast by the senior high school students, will be compared with the rating as given by the junior high school students. The same procedure will be used to compare the subjects selected by the junior high students with the rating of the higher group.

The Subjects Selected by the Junior High School. In the junior high school one hundred four boys answered the questionnaire. The group selected nine subjects, automobile mechanics, carpentry, electrical work, leather work, machine shop, photography, plastic working, welding, and woodworking.

TABLE II

SUBJECTS SELECTED BY 104 JUNIOR HIGH SCHOOL
STUDENTS, OKEMAH PUBLIC SCHOOLS, MAY, 1949

| Subject | Junior High School | | Senior High School | |
|----------------------|----------------------------|------------------------|------------------------|------------------------|
| | Votes cast in each subject | Per cent of total vote | Vote cast each subject | Per cent of total vote |
| Automobile Mechanics | 45 | 10.8 | 36 | 11.8 |
| Carpentry | 32 | 07.7 | 12 | 03.9 |
| Electric Work | 36 | 08.7 | 31 | 10.2 |
| Leather Work | 42 | 10.1 | 12 | 03.9 |
| Machine Shop | 33 | 08. | 14 | 04.6 |
| Photography | 36 | 08.7 | 28 | 09.5 |
| Plastic Working | 29 | 06.9 | 26 | 08.6 |
| Welding | 34 | 08.2 | 31 | 10.2 |
| Woodworking | 46 | 11.1 | 21 | 06.9 |
| Totals | 333 | 80.2 | 212 | 69.6 |

Totaling the first, second, third, and fourth choices of each student, the nine selected subjects received three hundred thirty-three votes of a possible four hundred sixteen. On a percentage basis this is eighty per cent for the nine subjects as compared with twenty per cent for the remaining five of the fourteen subjects in the survey. Totaling the first, second, third, and fourth choice of the high school students for the same subjects, the average is sixty-nine per cent or two hundred twelve votes of a possible three hundred

four. The high school students were indifferent to three of the nine subjects, carpentry, leather work, and machine shop, while the junior high school students' votes were distributed evenly throughout the nine subjects.

The Subjects Selected by the Senior High School. The high school students selected six of the fourteen subjects in the survey. The subjects selected are automobile mechanics, electrical work, plastic working, photography, welding, and woodworking.

TABLE III

SUBJECTS SELECTED BY 76 HIGH SCHOOL STUDENTS
OKEMAH PUBLIC SCHOOLS MAY, 1949

| Subject | Senior High School | | Junior High School | |
|----------------------|-------------------------|------------------------|-------------------------|------------------------|
| | Votes cast each subject | Per cent of total vote | Votes cast each subject | Per cent of total vote |
| Automobile Mechanics | 36 | 11.8 | 45 | 10.8 |
| Electrical Work | 31 | 10.2 | 36 | 08.6 |
| Plastic Working | 26 | 08.6 | 29 | 07. |
| Photography | 29 | 09.5 | 36 | 08.6 |
| Welding | 31 | 10.2 | 34 | 08.1 |
| Woodworking | 21 | 06.9 | 46 | 10.8 |
| Totals | 174 | 55.4 | 226 | 53.9 |

Totaling the first four selections of each student, the six selected subjects received one hundred seventy-four votes of a possible three hundred four votes. As indicated in Table III the per cent of votes from both the junior and senior high school students are very close on the subjects selected by the senior high students.

A Comparison of the Grade of the Student and the Choice of Subjects.

As indicated in Table IV the three grades in the junior high school do not agree as to their interest in the industrial arts activities in the survey. In the seventh grade, carpentry, leather work and woodworking received a

a large per cent of the votes. The eighth grade class was undecided and voted about equally on all subjects. The ninth grade class took a strong stand for automobile mechanics, electrical work and welding. There is a disagreement as to subjects of interest in the three grades, but an agreement as to the subjects which do not interest them.

TABLE IV

RELATION OF THE GRADE AND THE STUDENTS
SELECTION OF INDUSTRIAL ARTS
SUBJECTS, OKEMAH PUBLIC
SCHOOLS, MAY, 1949

| Subject | Junior High School | | | | | | | | |
|--------------------------|--------------------|-----|------|-----------|-----|------|-----------|-----|------|
| | Rank | | | | | | | | |
| | 7th Grade | | | 8th Grade | | | 9th Grade | | |
| | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 |
| Automobile Mechanics | 11 | 7 | 12 | 9 | 8 | 7 | 25 | 8 | 7 |
| Carpentry | 17 | 14 | 9 | 6 | 9 | 9 | 9 | 15 | 16 |
| Cement and Concrete Work | 7 | 14 | 19 | 4 | 7 | 13 | 6 | 7 | 27 |
| Electrical Work | 12 | 18 | 10 | 7 | 8 | 9 | 17 | 11 | 12 |
| Forging | 6 | 9 | 25 | 6 | 7 | 11 | 7 | 10 | 23 |
| Home Mechanics | 13 | 18 | 19 | 4 | 10 | 10 | 11 | 10 | 19 |
| Leather Work | 18 | 11 | 11 | 10 | 9 | 5 | 11 | 15 | 14 |
| Machine Shop | 11 | 15 | 14 | 9 | 7 | 8 | 13 | 15 | 12 |
| Mechanical Drawing | 11 | 9 | 20 | 6 | 7 | 11 | 10 | 9 | 21 |
| Plastics | 10 | 13 | 17 | 9 | 8 | 7 | 10 | 13 | 17 |
| Photography | 13 | 9 | 18 | 9 | 7 | 8 | 14 | 10 | 16 |
| Sheet Metal | 5 | 11 | 24 | 4 | 8 | 12 | 3 | 13 | 24 |
| Welding | 13 | 10 | 17 | 7 | 8 | 9 | 14 | 17 | 9 |
| Woodworking | 22 | 14 | 19 | 4 | 7 | 13 | 6 | 7 | 27 |
| Totals | 169 | 169 | 224 | 100 | 111 | 125 | 156 | 160 | 244 |

The senior high school students were more selective and concentrated the votes on two or three subjects. The tenth grade indicated an interest in automobile mechanics and photography. The eleventh grade voted about equally on eight of the fourteen subjects, and the twelfth grade cast a heavy vote for automobile mechanics and electrical work. Forging and sheet metal received a small per cent of the votes from the high school students.

(See Table V)

To compare the grade of the students and the selection of the subjects, the survey was tabulated as to the votes cast in each grade level. (See Tables IV, V) A Comparison was made between the subjects selected by the

TABLE V

RELATION OF THE GRADE AND THE STUDENTS
SELECTION OF INDUSTRIAL ARTS
SUBJECTS, OKEMAH PUBLIC
SCHOOLS, MAY, 1949

| Subjects | SENIOR HIGH SCHOOL | | | | | | | | |
|--------------------------|--------------------|-----|------|------------|-----|------|------------|-----|------|
| | RANK | | | | | | | | |
| | 10th Grade | | | 11th Grade | | | 12th Grade | | |
| | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 |
| Automobile Mechanics | 14 | 4 | 5 | 6 | 6 | 5 | 16 | 12 | 8 |
| Carpentry | 5 | 10 | 8 | 3 | 7 | 10 | 5 | 12 | 19 |
| Cement and Concrete Work | 6 | 7 | 10 | 4 | 3 | 10 | 5 | 8 | 23 |
| Electrical Work | 7 | 6 | 10 | 9 | 3 | 5 | 15 | 9 | 12 |
| Forging | 3 | 6 | 14 | 2 | 3 | 12 | 3 | 5 | 28 |
| Home Mechanics | 5 | 9 | 9 | 2 | 4 | 11 | 5 | 9 | 22 |
| Leather Work | 5 | 8 | 10 | 2 | 6 | 9 | 5 | 13 | 18 |
| Machine Shop | 5 | 5 | 13 | 1 | 9 | 7 | 8 | 13 | 15 |
| Mechanical Drawing | 5 | 6 | 12 | 6 | 3 | 8 | 5 | 7 | 24 |
| Plastics | 9 | 7 | 7 | 7 | 3 | 7 | 10 | 4 | 22 |
| Photography | 11 | 5 | 7 | 8 | 3 | 6 | 10 | 5 | 21 |
| Sheet Metal | 1 | 11 | 11 | 3 | 7 | 7 | 4 | 13 | 19 |
| Welding | 5 | 10 | 8 | 5 | 4 | 8 | 21 | 5 | 10 |
| Woodworking | 6 | 6 | 11 | 8 | 4 | 5 | 7 | 15 | 14 |
| Totals | 87 | 100 | 135 | 66 | 62 | 110 | 119 | 130 | 256 |

junior high school students (See Table IV) and the senior high school students. (See Table V) The students disagreed as to the first choice of subjects in each grade, but agree on the subjects which do not interest them.

C. A COMPARISON OF THE OCCUPATION OF THE STUDENTS' FATHERS

AND THE STUDENTS' SELECTION OF THE SUBJECTS

To determine the relation, if any, between the occupation of the students' fathers and the students' selection of subjects, the questionnaire was checked for the different occupations of the parents. This permitted the survey questions to be divided into five occupational classifications,

and each classification checked as to the selection of the subjects of the students in that group. This information as compiled in (See Table VI) will be compared with the master table to determine if there is a difference in the subjects selected by the students whose parents are farmers or oil field workers and the students whose parents operate a business or come under some other classification.

The Occupation and Subject Table. To study the effect of the occupation of the parents on the students selection of subjects, the questionnaires were separated into five occupational classifications. The classifications were farming, oil field work, businessmen, tradesmen, and miscellaneous. The first three are self-explanatory. Tradesmen is a classification of the occupational trade such as painters, carpenters, welders, paperhangers, shoe cobblers and mechanics. The miscellaneous classification were day laborers and any occupation which could not be placed in one of the other classifications. In tabulating the results of this survey (See Table VI) the subjects are rated in three groups, one through four, five through eight, and nine through fourteen. Using the first group or the first, second, third, and fourth selections of each student, seven subjects were selected by the students in the five classifications, automobile mechanics, electrical work, leather work, plastic working, photography, welding, and woodworking.

A Comparison of the Occupation Table with the Master Table. The subjects selected by the junior and senior high school students were (See Table I) automobile mechanics, electrical work, leather work, plastic working, photography, welding, and woodworking. These subjects are compared with the occupation (See Table VI) to determine the difference, if any, in the selection of the subjects by the students from families of different occupations. Automobile mechanics received fifty-three per cent of the total vote from the

TABLE VI

A COMPARISON OF THE OCCUPATION OF THE FATHERS OF THE STUDENTS
AND THE SELECTION OF SUBJECTS BY THE
STUDENTS OF OKEMAH PUBLIC
SCHOOLS, MAY, 1949

| Subject | Oil Field | | | Farmers | | | Businessmen | | | Tradesmen | | | Miscellaneous | | |
|--------------------------|-----------|-----|------|---------|-----|------|-------------|-----|------|-----------|-----|------|---------------|-----|------|
| | Rank | | | | | | | | | | | | | | |
| | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 | 1-4 | 5-8 | 9-14 |
| Automobile Mechanics | 24 | 3 | 13 | 24 | 7 | 14 | 15 | 6 | 14 | 16 | 7 | 10 | 9 | 6 | 12 |
| Carpentry | 11 | 21 | 7 | 13 | 17 | 15 | 8 | 9 | 18 | 8 | 10 | 15 | 6 | 7 | 14 |
| Concrete and Cement Work | 13 | 13 | 14 | 6 | 15 | 24 | 5 | 8 | 22 | 5 | 4 | 24 | 4 | 7 | 16 |
| Electrical Work | 11 | 9 | 20 | 16 | 13 | 20 | 13 | 10 | 12 | 11 | 13 | 3 | 11 | 9 | 7 |
| Forging | 11 | 6 | 23 | 10 | 10 | 25 | 4 | 6 | 25 | 7 | 7 | 19 | 6 | 7 | 14 |
| Home Mechanics | 11 | 14 | 15 | 15 | 13 | 17 | 8 | 13 | 14 | 5 | 15 | 13 | 6 | 8 | 13 |
| Leather Work | 12 | 16 | 12 | 20 | 12 | 13 | 9 | 9 | 17 | 8 | 12 | 13 | 9 | 7 | 11 |
| Machine Shop | 9 | 15 | 16 | 13 | 11 | 21 | 4 | 9 | 22 | 10 | 10 | 13 | 8 | 5 | 14 |
| Mechanical Drawing | 6 | 11 | 23 | 11 | 9 | 25 | 10 | 9 | 16 | 6 | 11 | 16 | 7 | 7 | 13 |
| Plastic Working | 9 | 13 | 18 | 10 | 10 | 25 | 14 | 11 | 10 | 8 | 12 | 13 | 10 | 8 | 9 |
| Photography | 11 | 10 | 19 | 7 | 17 | 21 | 17 | 5 | 13 | 19 | 6 | 8 | 10 | 4 | 13 |
| Sheet Metal Work | 4 | 12 | 24 | 15 | 14 | 16 | 2 | 7 | 26 | 2 | 15 | 16 | 3 | 13 | 11 |
| Welding | 14 | 14 | 12 | 18 | 16 | 11 | 8 | 10 | 17 | 15 | 9 | 9 | 10 | 9 | 8 |
| Woodworking | 12 | 14 | 14 | 19 | 20 | 6 | 10 | 12 | 13 | 12 | 8 | 15 | 9 | 16 | 2 |

boys whose fathers were farmers and oil field workers. Electrical work, leather work and plastic working received an equal distribution of votes from each of the five classifications. Welding and woodworking received a higher percentage of votes from the farm group. Comparing the occupation table (See Table VI) with the master table (See Table I) very little difference is found in the selection of subjects by the students in any of the five occupational classifications.

The questionnaires as completed by the students were divided into five occupational classifications, farming, oil field work, businessmen, tradesmen, businessmen, and miscellaneous. The results of each occupational group were tabulated (See Table VI) and a comparison of (See Table VI) with the master table (See Table I) indicates very little relation between the students' selection of subjects and the occupation of the students' father.

D. THE COMMUNITY SURVEY

The community shop, to be a success, must be more than the name community shop. The patrons of the community should feel the shop was established for the use of the students and the community. To accomplish this sixty-six men who were farmers, dairymen, and businessmen of the community were asked to complete the survey as to the subjects that had been, or would be, beneficial to the community. The results of this survey will be compared with the results of the school survey to determine the subjects needed in a community shop for student and community use.

Administration of the Survey. In order that the community shop might be more a community project, sixty-six men of the community were asked to complete the questionnaire. Since the community is primarily an agricultural community, the majority of those answering the questionnaire were farmers and dairymen. The farm group was a veteran's class that meets two evenings each

week at the high school. The questionnaire was explained to the adult group and all questions answered relating to the survey. Recognizing that there were a few who had not had the subject listed in the survey but would recognize from past experience the subjects that would be more beneficial to the community, the group was asked to rate six of the fourteen subjects in the order of preference. The results of the community survey as indicated in (See Table VII) will be compared with the school survey to determine the subjects needed for a community shop program in the Okemah Public Schools.

TABLE VII

A SURVEY OF ADULT OPINION AS TO INDUSTRIAL ARTS
SUBJECTS DESIRED FOR A COMMUNITY SHOP
OKEMAH PUBLIC SCHOOLS, MAY, 1949

| Subject | Rank | | | | | |
|--------------------------|------|----|----|----|----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Automobile Mechanics | 35 | 8 | 4 | 4 | 4 | 2 |
| Carpentry | 12 | 16 | 13 | 8 | 7 | 3 |
| Cement and Concrete Work | | 5 | 8 | 7 | 8 | 5 |
| Forging | | 4 | 5 | | 4 | 7 |
| Electrical Work | 6 | 9 | 8 | 12 | 9 | 4 |
| Home Mechanics | | 2 | 5 | 9 | 12 | 8 |
| Leather Work | | | 2 | 1 | 2 | 2 |
| Machine Shop | | 1 | 5 | 4 | 4 | 7 |
| Mechanical Drawing | | 2 | | | | 2 |
| Plastic Working | | | | | 3 | 2 |
| Photography | | | | | | |
| Sheet Metal | | | | 4 | 3 | 4 |
| Welding | 8 | 12 | 11 | 10 | 6 | 5 |
| Woodworking | 6 | 7 | 5 | 7 | 4 | 4 |

A Comparison of the Adult Survey with the School Survey. The students of the junior and senior high schools selected seven subjects (See Table I) automobile mechanics, electrical work, leather work, plastic working, photography, welding, and woodworking. The adults of the community (See Table VII) selected five subjects, automobile mechanics, carpentry, electrical work, welding, and woodworking. The two industrial arts activities which the adult

group did not approve were plastics working and photography. The latter did not receive a single vote by the adult group and received thirty-six per cent of the votes cast by the student group. Plastic working and leather work received a small per cent of votes from the adults, but automobile mechanics, electrical work, welding and woodworking received approximately the same per cent of votes from each group. Carpentry was not included as one of the top seven in the master table (See Table I) but was rated second high by the adult group.

Sixty-six adults of the community completed the questionnaire as to the subjects which would be of benefit to the community. This group selected five subjects automobile mechanics, electrical work, carpentry, welding, and woodworking. Carpentry was voted second high of the five subjects selected by the group. Carpentry was not included in the seven subjects selected by the students of the junior and senior high school but should be included in an evening class for adults.

CHAPTER IV

PLANNING THE COMMUNITY SHOP

Seven subjects were selected in the school survey by the students in the junior and senior high school. The content of the community shop will be selected from the seven subjects with the addition of drawing which is an essential subject in an industrial arts program. In establishing a curriculum the aims and objectives of the program must be carefully studied. The objectives of industrial arts in a general education program as proposed by Wilber, apply to the community shop program probably better than to any other phase of industrial arts.

A. THE CURRICULUM FOR THE COMMUNITY SHOP

The common practice in establishing a curriculum is to begin with a list of aims and objectives, and then select subjects to fit in with the aims. The school and community survey method was used to select the content of the community shop. Seven subjects were selected by the students, which will be included in the content of the community shop. To this list will be added subjects which will add balance to the program for the students and the community.

The School Survey. One hundred eighty boys in junior and senior high school were asked to complete the questionnaire containing fourteen industrial arts activities. Rating the subjects in the order of preference, the group selected seven subjects. The subjects selected were automobile mechanics, electrical work, leather work, photography, plastic working, welding and woodworking.

Due to the wide range in the grade level of the students completing the questionnaire, a comparison was made between the grade of the student and

the students selection of the industrial arts subjects. Very little difference could be found in the selection of the subjects by the two groups. The junior high school group selected a wider range of subjects. This was probably due to the age of the group and the number who are still undecided as to interest in industrial activities. To check the effect of the occupation of the students' fathers on the students' selections of the industrial arts subjects, the questionnaires were divided into five occupational classifications. The subjects selected by students in each classification were compared (Table VI) in an effort to determine the effect of the occupational background of the student and the students selection of subjects. There was very little difference in the selection of the subjects by the students in the five occupational classifications.

Aims and Objectives of the Community Shop. Each subject in the public school has its own specific objectives. Industrial arts is no exception to the rule. In stating the objectives of any subject, those objectives should further advance the cause of the general education program. The objectives, as proposed by Wilber, emphasize industrial arts in a general education program. (35, page 42)

- (1) To explain industry and American industrial civilization in terms of its reorganization, raw materials, processes and operations, products, and occupations.
- (2) To develop recreational and avocational activities in the area of constructive work.
- (3) To increase an appreciation for good craftsmanship and design, both in the products of modern industry and in artifacts from the material cultures of the past.
- (4) To increase consumer knowledges to a point where students can select, buy, use, and maintain the products of industry intelligently.
- (5) To provide information about, and--in so far as possible--experiences in the basic processes of many industries, in order that students may be more competent to choose a future vocation.
- (6) To encourage creative expression in terms of industrial materials.
- (7) To develop desirable social relationships, such as cooperation, tolerance, leadership, followership, and tact.
- (8) To develop a certain amount of skill in a number of basic industrial processes.

In none of the fields of industrial arts will the objectives of industrial arts in a general education program adapt themselves so readily as in the community shop program.

The Content of the Community Shop. The subjects selected by the students in the survey were automobile mechanics, electrical work, photography, plastic working, welding, and woodworking. Automobile mechanics will not be a part of the community shop but will be included in the vocational agricultural shop which is under construction. Mechanical drawing, which received an average vote, will be included in the content of the community shop. Drawing is the foundation of industrial arts and should be included as a phase of all types of shopwork. With the addition of drawing, the content of the community shop for student use will consist of the following subjects: Electrical work, leather work, mechanical drawing, photography, plastic working, welding, and woodworking.

The student and community survey method was used to establish the curriculum for the community shop. To the list of subjects selected by the students in the survey will be added mechanical drawing and other industrial arts activities to establish a well-balanced educational program.

B. BASIC CONTENT OF THE SELECTED SUBJECTS

The community shop teacher must have a working knowledge of a number of industrial arts subjects, and he should adapt the content of the community shop courses to meet the needs of the community and the students. An explanation is made of the selected subjects with a summary sheet for the course of study in each subject. This is not a complete course of study as time will not permit, but a list of manipulative units of instruction is presented with related informational material and suggested projects.

Additional units of instructions and projects may be added to meet the changing conditions and the needs of the students.

Electrical Work. The field of electricity is so vast and its application in practice so extensive that only a small part can be considered in the community shop. Electricity is becoming so important in our every-day lives that all students should know how to perform the less difficult tasks and how to use electricity safely.

People in the rural areas and towns are becoming interested in electricity and how it will perform the many tasks which will make living in these small communities as comfortable as in the city. For this reason instruction in electricity in the community shop should be practical in that it will serve the needs of the community and at the same time advance the general education program of the school. The time should be spent in giving the students a broad understanding of electrical theory through the use of carefully selected electrical manipulative units and projects. The installation of a bell circuit, the construction of an electromagnet, the winding of an armature and the assembling of an electric motor from a kit, introduce certain manipulative skills, problems of construction and is a safe, easy and inexpensive means of presenting ideas about the theory of electricity, the use of conductors, and the principles of magnetism.

Leather Work. Leather work is generally considered as a part of the arts and crafts, where the chief aim is the enrichment of the general education program. Much of the arts and craft content may be presented as part of the community shop activities and will add to the program by increasing the number of industrial materials taught in the community shop.

The trend of labor and the industries is toward a work week of forty hours or less. This increases the need for some type of wholesome recreation

A SUMMARY SHEET FOR A COURSE OF STUDY IN ELECTRICITY

Textbook: Practical Electricity by John Edmund Crawford

| A. Manipulative Units of Instruction | Textbook Page No. | B. Informational Material Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Projects Recommended For Use in Teaching "A" and "B" | Textbook Page No. |
|--|-------------------|--|--------------------|---|-------------------|
| Plan and construct an electromagnet | 39 | Current Flux and Magnetism Construction of Electromagnet | 33 39-42 | Construct an electro-magnet | 40 |
| Make a wiring diagram and install one bell to operate from two buttons | 32 | Construction of Buzzer Diagrams and Symbols | 52-56 7-8 | Construction of a buzzer system | 34 |
| Wind armature and assemble electric motor from kit | 151 | Direct Current Motors: Electrons Working. Parts of a 4-Pole D. C. Machine | 141-168 127-130 | Assemble electric motor | 129 |
| Electroplating a metal object | 58 | Generating a Negative Charge Generating a Positive Charge Electroplating | 56 57 58-60 | Electroplating an ash tray | 59 |
| Construct a simple D.C. generator | 112 | The Principle of the Generator Direct Current Generators: Organizing Electrons | 96 111-140 | Change generator to an electric motor | 112 |
| Reading meters, changing fuses, construction of an extension cord. | 225 228 | Electricity in the Home: Domestic Electrons | 223-239 | Construct an extension cord for a lamp. | 223 |
| Wiring a model house | | Alternating Current: Reversing Electrons Wiring Simplified (Richter) | 189-210 33-67 | Practical house wiring | |
| Workbook on the many uses of electricity | 255 | The Future of Electricity: Electrification | 255-263 | Workbook | 255 |

A SUMMARY SHEET FOR A COURSE OF STUDY IN GENERAL LEATHER WORK

Textbook: General Leather by Raymond Cherry

| A. Manipulative Units of Instruction. | Textbook Page No. | B. Informational Materials Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Projects recommended for Use in Teaching "A" and "B". | Textbook Page No. |
|---|-------------------|---|----------------------------|--|-------------------|
| How to make designs, templates, lay out and cut leather | 19-21 | How to make Designs How to Make Templates How to Lay Out Templates on Leather How to Cut Leather | 19 19 20 21 | Key Case | 51 |
| How to prepare leather for tooling and transfer the design to leather How to use the modeler | 22 23-25 | How to Prepare Leather for Tooling How to Transfer Designs to Leather | 22 22 | Belt | 56 |
| Stippling How to use the embossing wheel and carriage | 26 27 | How to Do Outline Tooling How to Do Flat Modeling How to Do Embossing How to Stipple Backgrounds How to Use the Embossing Wheel and Carriage. | 23 24 25 26 27 | Billfold Loose Leaf Note Book | 61 72 |
| How to use the incising knife, swivel cutter and veining tool How to use the edge creaser | 28-29 29 | How to Do Incising or Carving How to Use the Edge Creaser | 28-29 29-30 | Book Ends | 81 |
| How to use the hollow punch, revolving punch, thonging chisel | 31 | How to Make Thong Slits | 31-32 | | |
| How to use drive punch, eyelet setter and eyelet setter punch | 32 | How to Use Eyelet Setter | 32-33 | Picture Frame | 71 |
| How to whip stitch and buttonhole stitch | 33-34 | How to Do Edge Lacing, Whip Stitch How to Do Edge Lacing, Buttonhole Stitch | 33-34 | Brief Case | 73 |
| How to finish leather | 36-44 | How to Sew Leather by Machine How to Sew Leather by Hand How to Set Snap Buttons, Bag Plates How to Finish Leather | 37 36 38 40-44 | | |

to utilize the leisure time thus provided. The introduction of leather work in the community shop will encourage the establishment of home work shops for use in this leisure time. Leather work, as taught in the community shop, may serve many purposes. For a small number it may be vocational, for others worthy use of leisure time, but for all consumer knowledge and general education.

Mechanical Drawing. Mechanical drawing is defined as the "language of industry." To attempt to describe in words the appearance and details of even a simple project is almost impossible. But to make a working drawing is a simple and easy task and will explain the project clearly.

In the community shop drawing should be the first subject taught. If the equipment is available, all students should spend at least six weeks in drawing before going into the other activities. The drawing section should be the planning section. After the student has learned how to make two and three view working drawings and to read blueprints and the drawings of others, the remainder of the time should be used in planning and designing the projects which he intends to make in the other activities of the community shop.

Architectural drawing is important in that the students are all prospective home owners and should understand housing problems, the reading of blueprints, and should be able to help plan or select a convenient and efficient home.

All community shop students will spend the first six weeks of the school year in the drawing section. Here they will be taught the fundamentals of drawing as outlined in the summary sheet for a course of study. The drawing room will remain open and serve as the planning center and lecture room for all the community shop activities.

A SUMMARY SHEET FOR A COURSE OF STUDY IN MECHANICAL DRAWING

Textbook: Mechanical Drawing by Thomas French and Carl L. Svenson

| A. Manipulative Units of Instruction | Textbook Page No. | B. Informational Material Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Projects recommended for Use in Teaching "A" and "B". | Textbook Page No. |
|--------------------------------------|-------------------|--|-------------------|---|--------------------------|
| How to use the instruments | 172 | Learning to Draw Lettering | 3-14 15-21 | Draw a stencil Draw a shim Draw the cushioning base | 174 176 180 |
| Geometrical construction | 181 | Graphic Solutions | 121-129 | Equilateral triangle Prob. 29 Draw an ellipse having a major axis of 4" and a minor of $2\frac{1}{2}$ " Probs. 35-36-37-38 | 183 183 183 |
| Shape description | 190 | The Theory of Shape Description Principles of Size Description | 22-32 54-66 | Problems, 63-64-65-66 Problems, 75-76-77-78 Problems, 91-92-93-94 | 190 191 193 |
| Working drawings | 222 | Technique of the Finished Drawing Mechanical Drafting | 67-76 93-105 | Problems, 190 Problem, 178 Problem, 203 Problem, 208 | 238 235 243 245 |
| Developments and intersections | 277 | Sheet Metal Drafting | 130-147 | Problem, 314 Problem, 330 Problem, 355 | 278 281 287 |
| House planning | 148 | Architectural Drafting | 148-149 | Floor plan of student's home Floor plan of future home | 291 |

Photography. Photography is adaptable to the community shop in that it requires a minimum of equipment. Much of the equipment may be constructed by the student in the community shop. This construction of photographic equipment lends itself to the community shop plan in that it requires the application of several industrial arts activities to complete the project.

The photographic dark room may be used as the blueprint room for the drawing class. If a blueprint machine is not available, the enlarger and printing box may be used to make blueprints of the projects to be made in the shop.

The teaching of photography in the community shop will, for the majority of students, serve only as a means of recreation and pleasure. To a small number of students it may be vocational training, but to all students it means the gaining of a knowledge of photography, how to judge a good picture, an appreciation of pictures, and certain manipulative skills in the construction of photographic equipment.

Plastic Working. The plastic industry is fast assuming an important position in the modern industrial field. Many products which, in the past, have been manufactured from wood or metal are now made of plastics. This new activity is fast becoming an important subject in the industrial arts field of studies and is easily adapted to the community shop program in that few special tools are required. Many of the operations for working plastic are basic operations in the fields of woodworking, turning, and metal working. For this reason, in many schools, plastic is not considered as a separate subject, but only as a new material to be used in the construction of projects. The addition of any new material in the program increases the selection of projects which may be designed and constructed in the community shop.

A SUMMARY SHEET FOR A COURSE OF STUDY IN PHOTOGRAPHY

Textbook: Elementary Photography by Gilford G. Quarles

| A. Manipulative Units of Instruction. | Textbook Page No. | B. Informational Material Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Project Recommended for Use in Teaching "A" and "B". | Textbook Page No. |
|---|-------------------|--|---|--|-------------------|
| Assembly and disassembly of camera, enlarger, parts and accessories | 48 | Camera Parts and Accessories Camera and Camera Testing | 48-68 69-80 | | |
| Taking campus scenes for the school annual | | Elementary Photographic Optics Film Sensitivity and Exposure | 21-47 81-96 | Pictures for Annual | |
| Developing negatives | 197 | Development of Negatives Fixing and Washing Negatives Negative Trouble Reduction and Intensification | 97-116 117-125 179-188 189-202 | Construction of Printbox | 135 |
| Printing of pictures | 126 | Contact Printing Photography of Colored Objects Photography by Artificial Light | 126-141 142-162 163-178 | | |
| Enlarging pictures | 203 | Projection Printing Composition Projection Control Photography of Moving Objects | 203-222 223-238 239-252 155-162 | Build an enlarger | 209 |
| Finishing the print | 253 | Finishing the Print Picture making with Paper Negatives Toning of Prints Coloring Photographic Natural Color Photography | 253-265 277-279 280-290 291-300 301-317 | Construction of wood, paper, plastic picture frames | |
| Slides and transparencies | 319 | Lantern Slides and Transparencies | 319-329 | 2 x 2 slides of school activities to show the civic clubs and assemblies | 319 |

A SUMMARY SHEET FOR A COURSE OF STUDY IN GENERAL PLASTIC WORKING

Textbook: General Plastics by Raymond Cherry

| A. Manipulative Units of Instruction | Textbook Page No. | B. Informational Material Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Projects recommended for Use in Teaching "A" and "B". | Textbook Page No. |
|---|-------------------|--|-------------------|--|-------------------|
| How to design plastic projects, lay out stock | 11-12 | How to Design Plastic Articles | 11 | Letter Openers | 75 |
| Use of hack saw, back saw, jewelers saw, tin snips and paper cutter | 14-16 | How to Lay Out Stock How to Cut Out Stock | 12 14-16 | | |
| How to use the try square, block plane, file and wood chisel. | 17 | How to Square Stock | 15-17 | Book Ends | 97 |
| How to drill, bore, tap countersink & punch holes | 18 | How to Drill, Bore, Countersink, and Punch Holes | 17-19 | | |
| Grooving and veining | 22 | How to Cut Grooves How to Do Veining | 22-23 | | |
| Carving, inlaying and overlaying | 24 | How to Do Carving How to Do Inlaying How to Do Overlaying | 24 25 25 | | |
| Bending, clamping and the use of jigs | 25 | How to Do Forming | 25-29 | Tableware | 116 |
| The use of files | 30 | How to Do Hand Filing and Rough Finishing | 30-32 | | |
| Polishing and buffing | 32 | How to Do Hand Polishing and Buffing | 32 | | |
| Cementing plastic | 33 | How to Cement | 32-36 | Lamp | 111 |
| How to shrink handles | 37 | How to Make Shrink-Fit Assemblies | 37 | | |
| Coloring and dyeing | 38 | How to Color and Dye Plastics | 38-39 | | |
| Embed a flower in plastic | 41 | How to Cast Plastic | 41-42 | | |
| Use of power machines | 45 | How to Do Machine Sawing | 45-50 | | |
| | | How to Do Turning | 50-54 | | |
| | | How to Do Drilling, Joining, Routing, Shaping and Filing | 55-60 | | |
| | | How to Do Carving and Engraving | 65-71 | | |

The addition of plastic to the community shop program encourages the establishing of home workshops. The adaptability of this new material to the construction of so many useful and decorative articles, permits the home workshop to be a pleasure to the entire family.

Welding. Welding is fast becoming one of the important processes of industry. Unknown a few years ago, oxy-acetylene welding and cutting equipment and electric welding equipment has spread throughout the metal working trades and is now in daily use in many industrial shops and factories. The modern automobile, which has all steel bodies, is an example of the products in the manufacture of which welding has played an important part.

The welding of metal was an important factor in the construction of battleships, airplanes, tanks, trucks, and other equipment of World War II. Much of this equipment was welded together in sections, then hauled to a central location for final assembling.

Welding in the community shop can be only an introduction to the field. The projects should be selected to familiarize the students with the use of the equipment, a knowledge of the materials to be used, and at the same time advance the general education program of the school. Cutting a two-inch square of steel in a few seconds with a cutting torch is enough to make one ask, "How and why?" Why does a welding torch burn under water? What is metal spraying or metallizing? What material applied with the welding torch is almost as hard as the diamond? These are only a few of the questions which should stimulate the interest of the student in the science of welding.

Woodworking. For many years woodworking has been an important phase of our industrial life. While brick, concrete, and steel are fast replacing wood in the larger building industries, enormous quantities of lumber are still used in the construction of homes, furniture, paper and other

A SUMMARY SHEET FOR A COURSE OF STUDY IN OXY-ACETYLENE WELDING

Textbook: General Shop Gas and A. C. Arc Welding and Cutting by Royalston F. Jennings

| A. Manipulative Units of Instruction | Textbook Page No. | B. Informational Material Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Projects Recommended for Use in Teaching "A" and "B". | Textbook Page No. |
|--|-------------------|--|-------------------|--|-------------------|
| To assemble the welding torch and hose. | 9 | To Assemble the Welding Torch and Hose | 9 | | |
| The operation of the pressure regulators and changing of cylinders | 9 | To Operate Pressure Regulators | 9-11 | Construct a welding table | 34 |
| To select and care for tips. | 11 | To Handle Oxygen and Acetylene Cylinders Safely | 11-13 | | |
| Selection of materials | 13 | To Select the Correct Torch Tip for Work | 13-14 | | |
| Select the proper flame | 15 | To Select Proper Welding Materials | 14-15 | Sheet iron match box | 23 |
| Welding without a rod | 18 | To Prepare Pieces to be Welded | 15-16 | | |
| Using mild steel rod | 20 | To Light and Adjust the Welding Torch | 17-19 | | |
| Bronze weld | 21 | To Gas Weld 16 Ga. Iron without Welding Rod | 19-20 | Lamp | 44 |
| Cutting torch | 22 | To Gas Weld 16 Ga. Iron with Mild Steel Welding Rod | 20-22 | Christmas tree stand | 26 |
| Angle iron and plates | 31 | To Bronze Weld Sheet Iron | 22-25 | Barbecue grill and fork | 25 |
| Identify materials with | 34 | To Use Hand Oxygen Cutting Torch | 31-33 | | |
| | 37 | To Cut and Weld Angle Iron and Plates | 34-35 | Playground equipment | 39 |
| | | To Identify Steel, Malleable, and Cast Iron | | | |
| | | To Bronze Weld Copper, Brass, and Bronze | 45 | | |
| | | To Weld Cast Aluminum with Puddling Rod | 44-46 | | |
| Operate the acetylene generators | 53 | To Weld Aluminum with Aluminum Rod | 47 | | |
| | | How Electrolytic Oxygen is Produced | 52-53 | | |
| | | How Acetylene is Produced | 53-54 | | |

construction work. In the last two centuries the demand for lumber and articles manufactured of lumber has so far exceeded the natural supply that the government has set aside extensive forest acreages for the purpose of conserving the lumber supply.

Woodworking is one of the most common industrial arts subject and probably more teachers are familiar with woodworking than with any other industrial arts activity. In the community shop woodworking should consist of practical projects which will teach the basic operations of hand tools and materials. All students are potential purchasers of houses, furniture and other items manufactured of wood and should be familiar with the kinds of lumber and the finishing methods used.

The students in the community shop in the Okemah Public Schools will spend twelve weeks in woodworking. Here, all tool operations as listed in the summary sheet for a course of study in woodworking will be explained as to the nature of their use in other subjects.

An explanation is made of each subject selected for use in the community shop with a summary sheet for a course of study. The summary sheet is intended as a guide in planning a complete course of study. Additional units of instruction, related information and projects will be added as the community shop program is adapted to the needs of the students and the community. The eighth grade students in the Okemah Public School Community Shop will spend the first six weeks in drawing. The students will then divide into groups and work twelve weeks in woodworking, four weeks each in leather work, plastic working and electricity, and three weeks each in welding and photography. This is sometimes called an orientation course in industrial arts subjects and is a required course in the eighth grade. Following this orientation course, students may elect to work full semesters in any industrial arts subject offered in the community shop.

A SUMMARY SHEET FOR A COURSE OF STUDY IN WOODWORKING

Textbook: Units in Hand Woodworking by J. H. Douglas and R. H. Roberts

| A. Manipulative Units of Instruction | Textbook Page No. | B. Informational Material Relative to the Manipulative Units Listed in Column A. | Textbook Page No. | C. Projects Recommended for Use in Teaching "A" and "B". | Textbook Page No. |
|--|-------------------|--|-------------------|--|-------------------|
| How to make a material bill and plan the procedure for doing a job | 32-35 | Reading a Working Drawing | 24-25 | Working Drawing of the Project | 32 |
| How to read and use the rule and square | 28-29 | Layout Tools | 26-27 | | |
| How to use the crosscut and rip saws | 40-41 | Handsaws | 36-37 | Slicing Board and Knife Holder | 147 |
| How to sharpen a plane iron | 44-45 | How to Sharpen the Plane Iron | 44-45 | | |
| How to use the common hand planes | 46-47 | Handplanes | 42-43 | | |
| Squaring stock to size | 48 | How to Square Stock to Size | 48-53 | | |
| How to plane chamfers and bevels | 54-55 | How to Plane Chamfers and Bevels | 54-55 | | |
| How to use the coping saw, compass saw, and turning saw | 56 | How to Lay out and Cut Curves | 56-57 | Corner Shelf, and Wall Shelves | 148 |
| How to use the drawknife, spoke shave, wood file and round sand paper blocks | 58 | How to Smooth Curved Surfaces | 58-59 | | |
| How to bore holes with auger bits | 62-63 | Wood Bits | 60-61 | | |
| How to fasten stock with Screws | 66-68 | Kinds and Sizes of Wood Screws | 64-65 | End Table, Coffee Table | 152 |
| How to use the backsaw, wood chisel, gouge and carving tools | 55 | How to Use the Backsaw How to Use the Wood Chisel, Gouge, and Carving Tools | 73 75-76 | | |
| How to clamp stock for gluing | 93-95 | Kinds and Composition of Glue Holding Tools | 91-92 89-90 | | |
| How to prepare wood surfaces for finishing | 107-108 | Finishing Abrasives Kinds and Composition of Wood Stain | 105-106 109 | | |
| Finishing the project | 111 | How to Apply Wood Stains, Paste Filler, Varnish, Shellac, Lacquer | 110-121 | | |

C. BUILDING AND EQUIPMENT

The present shop building which was designed for woodworking and drawing will be converted to as many of the community shop activities as possible with a minimum of expense on the building. Due to the limited budget of the shop and the expense involved in changing to the community shop program, every effort will be made to use the tools and machines now in the shop. This equipment will be included in the list of tools and machines needed in each field.

Discussion of the Building. In 1940 a native rock building was constructed to house the music and industrial arts departments. The entrance to the building is through a large octagon-shaped room which serves as a lobby and provides direct entrance to the band room, shop and drawing room. The industrial arts department contains about three thousand square feet of floor space and is partitioned into a drawing room, rest room, finishing room, paint room, lumber room, office and tool room, and workshop. The building is well ventilated with large windows on the east and west sides and south end. The Pittsburgh Plate Glass Company color scheme has been used throughout the shop to increase the lighting and make the shop a more pleasant place in which to work. The building was designed for woodworking and drawing and does not have a ground level entrance, but with only a few changes the building may be adapted to many of the community shop activities.

Selection of Equipment. The list of equipment for each subject is planned for a different number of students in each section. This will avoid purchasing large amounts of expensive equipment and permit the maximum use of the machines and tools now in the shop. The number of students that may work in each section is, electricity 3, leather work 10, mechanical drawing 20, photography 3, plastic 10, welding 2, and woodworking 10. There are 38

work stations in the shop and twenty in the drawing room, but only twenty boys will be enrolled in each period. This arrangement will permit students who are fast or slow to complete the work without interfering with the other students.

The shop is equipped with ten woodwork benches, with two Columbia rapid acting vises for each bench. The power tools in the shop which may be used by all the community shop activities includes a 16" band saw, a 10" tilting arbor circular saw, 24" tilting table jig saw, 6" jointer, 6" wood lathe, floor model drill press, $\frac{1}{2}$ " chuck, shaper, and grinder.

ELECTRICAL WORK

For Three Students

| | Number | | Number |
|-------------------------------------|--------|-----------------------------------|---------|
| Ammeter, 0-40 amps | 1 | Cleats, porcelain | 50 |
| Buzzer | 3 | Drills, 1/8, 3/16, 1/4 inch, each | 3 |
| Bushings, 1/2" and 3/4" | 100 | Fuse Puller | 1 |
| Bulbs, 110-V. A. C. 25 W. | 6 | Fuse Plugs, 15-20 amps. | 12 |
| Boxes, switch | 10 | Electric meter | 1 |
| Boxes, octagon outlet | 10 | Electric motor kit | 20 |
| Blow Torch | 1 | Hammers, claw 13 oz. | 3 |
| Brace, ratchet 10" | 1 | Hammers, machinist | 2 |
| Doorbells | 3 | Hydrometer | 1 |
| Knobs, split assembled | 50 | Solder, 1 lb. | 1 |
| Mallets, rawhide | 3 | Switch, toggle surface | 3 |
| Nuts, lock, 1/2" and 3/4" | 100 | Soldering iron | 1 |
| Plates, wall | 12 | Transformer, bell ringing | 3 |
| Pliers, side cutting | 3 | Voltmeters | 1 |
| Receptacle plate, duplex | 6 | Vises, machinist | 2 |
| Sockets, pushbutton | 6 | Vises, pipe | 1 |
| Sockets, pull chain | 6 | Tape, friction 8 oz. roll | 6 |
| Switches snap, single pole | 6 | Tape, rubber 8 oz. roll | 6 |
| Switches snap, three-way | 3 | Wrench, pipe 14" | 1 |
| Screw drivers, 3", 4", 6", 8", each | 2 | Wire, rubber covered No. 14 | 100 ft. |
| Switches snap, four-way | 1 | Wire, rubber covered No. 10 | 100 ft. |
| Saw, hack adjustable frame | 1 | Tube, porcelain 3" | 50 |
| Saw, keyhole | 1 | Connectors, box 3/8" | 100 |
| Saw, crosscut 8 point | 1 | | |

LEATHER WORK

For Ten Students

| | Number | | Number |
|---------------------------|--------|-----------------------------|--------|
| Ball tools | 1 | Small paint brushes | 4 |
| Carborundum stone, medium | 1 | Revolving punch 6 tube type | 1 |

| | Number | | Number |
|-------------------------------|--------|--------------------------|--------|
| Deerfoot | 1 | Mallets, wood | 2 |
| Drive punch, 1/8", 3/16" each | 1 | Chisels, 4 prong 3/32 | 1 |
| Eyelet setter | 1 | Chisels, 4 prong 1/8 | 1 |
| Embossing carriage | 1 | Tracer | 1 |
| Lacing needles | 24 | Awls | 10 |
| Modelers | 10 | Chisels thonging, single | 5 |
| Skiving knife | 5 | Space marker | 1 |
| Snap attaching set | 1 | Swivel top cutter | 2 |
| Single edge creaser | 1 | Stippler | 2 |

MECHANICAL DRAWING

For Twenty Students

| | Number | | Number |
|-------------------------|--------|---|--------|
| Drawing boards, 18 x 24 | 20 | French curves | 2 |
| T squares, 18" | 20 | Scale, architect's triangular hardwood | 20 |
| Triangles, 30° x 60° 8" | 20 | Drawing sets, Dietzgen | 5 |
| Triangles, 45°, 10" | 20 | Paper cutter 24" | 1 |

PLASTIC WORKING

For Ten Students

| | Number | | Number |
|----------------------------|--------|---------------------------|--------|
| Buffers | 3 | Block plane | 2 |
| Buffing compound | 1 | Drills, 3/32", 1/8" each | 8 |
| Back saw | 5 | Drills, 5/32", 3/16" each | 6 |
| Dividers | 1 | Blades, jig saw | 144 |
| Chisels, 1/4", 3/8" each | 2 | Jig saw, 24 inch | 1 |
| Chisels, 3/32", 5/32" each | 2 | Drill, hand | 2 |
| C-clamps 4" | 10 | Files, assorted | 12 |
| Flexible shaft, 36" | 2 | Squares, try 6 inch | 5 |
| Jewelers saw | 3 | Mallets, rawhide | 5 |

PHOTOGRAPHY

For Three Students

| | Number | | Number |
|----------------------------------|--------|---------------------------------|--------|
| Acid fixing powder, 1 gal. | 1 | Enlarger kit, 35 mm.-2½ x 3½ | 1 |
| Bulb, ruby and amber each | 1 | lens F/6.3 | 2 |
| Blotter book, 9 x 11 | 1 | Enlarger easel | 1 |
| Bottles, 4 quart amber | 3 | Graduate, 16 oz. | 1 |
| Camera, box | 1 | Funnel | 1 |
| Cutter, paper | 1 | Kodak timer | 1 |
| Contact printer, 35 mm. 4 x 5 | 1 | Developing tank, 35 mm. - 116 | 1 |
| Chamois 5 x 7 | 2 | Tank thermometer, 0-140 degrees | 1 |
| Clips, film 2" | 12 | Trays steel, enameled 8 x 10 | 4 |
| Contact paper No. 2 4 x 5 | 100 | Tongs print | 2 |
| Contact paper No. 2 2½ x 3½ | 100 | Print roller 6 inch | 1 |
| Oil coloring set, Marshall No. 2 | 1 | Washing assembly | 1 |
| Kodak hypo test kit | 1 | Developer 12 oz. packages | 24 |

WELDING

For Two Students

| | Number | | Number |
|--|--------|--|--------|
| Welding torch complete with regulators, hose, assorted tips, wrenches, tip cleaner, goggles and lighter | 1 | Cutting torch attachment | 1 |
| Goggles, extra | 1 | Wire scratch brush | 2 |
| Gloves, canvas gauntlet | 2 | Vise, 6 inch jaws | 2 |
| 150-200 ampere transformer type welder, A. C. 220 volts with accessories, two welder cables, two power line cables, one electrode holder, one hand shield, arc welder helmet | 1 | Anvil | 1 |
| | | C-Clamps, 8 inch | 4 |
| | | Grinding wheel, 50-grit | 1 |
| | | Arc welder helmet | 1 |
| | | Cover glasses for hand shield | 2 |
| | | Cover glassed for helmet | 2 |
| | | Oxygen, acetylene, rods and flux as needed | |

WOODWORKING

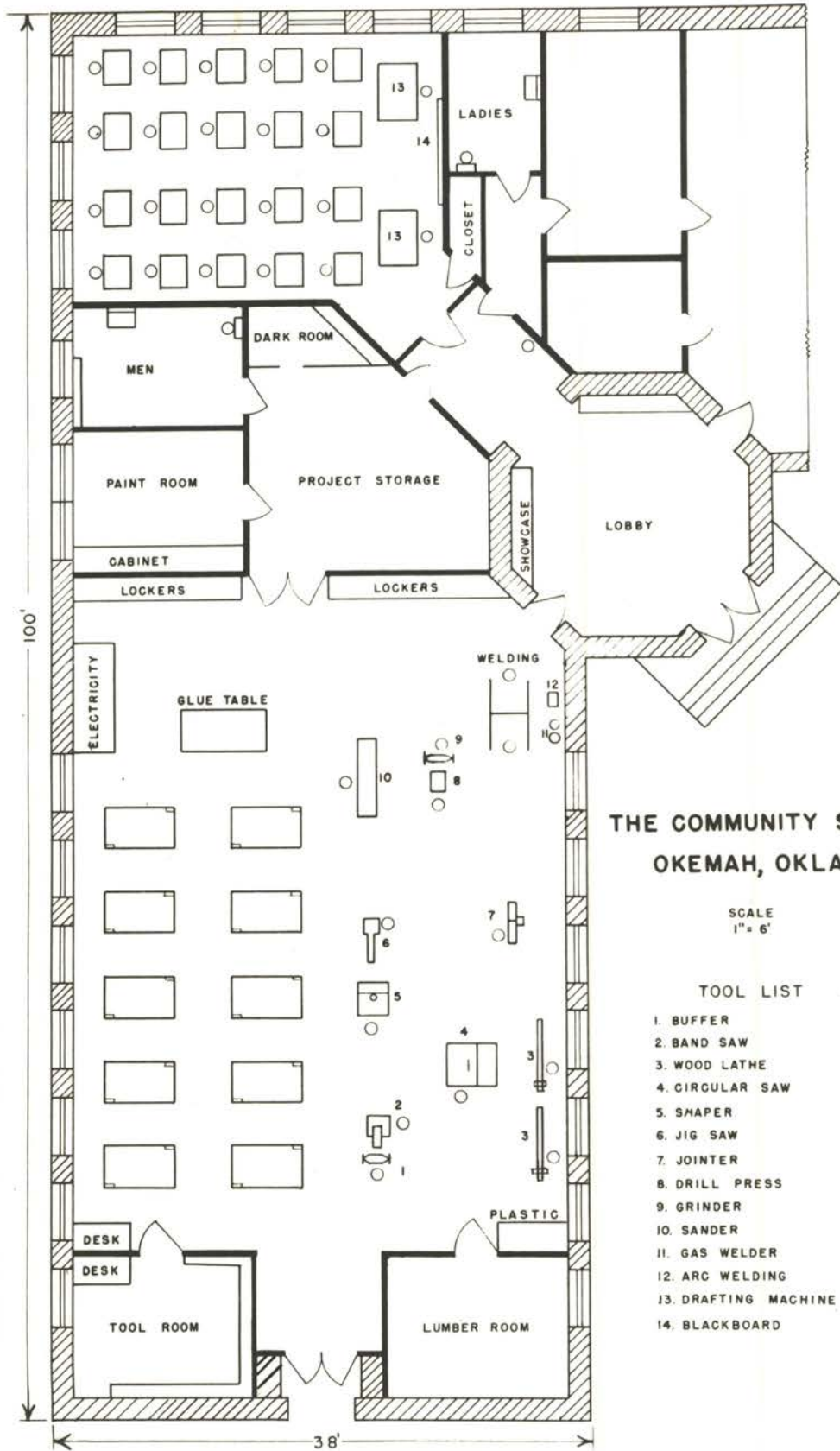
For Ten Students

| | Number | | Number |
|--|--------|--|--------|
| Brace, 10 inch | 2 | Key hole saw, 10" | 1 |
| Auger bits, No. 4-16 | 13 | Chisels, wood, butt, $\frac{1}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{8}$ ", $\frac{3}{4}$ " each | 2 |
| Bit gauge | 1 | Block plane | 2 |
| Back saw, 16 inch | 5 | Hand drill | 2 |
| Countersink, $\frac{3}{8}$ ", $\frac{1}{2}$ " each | 1 | Bench rules 2' | 10 |
| Cabinet scraper | 10 | Coping saw | 2 |
| C-clamps, 4", 6", 8" each | 2 | Expansion bit | 1 |
| Bar clamps, Hargrave 3' | 4 | Jack plane 14" | 10 |
| Bar clamps, Hargrave 4' | 8 | Spoke shave, 10" | 2 |
| Bar clamps, Hargrave 6' | 4 | Screw drivers, 4", 6", 8", 10" | 2 |
| Clamps hand screw, 12" | 8 | Try-squares, 6" | 10 |
| Compass saw, 12" | 1 | Framing square, 18 x 24 | 1 |
| Crosscut saw, 22", 10 point | 2 | T-bevel square | 1 |
| Rip saw, 24", 6 point | 2 | Spirit level, 24" | 1 |
| Marking gauge, 6" | 5 | Grinder 1/3 hp. | 1 |
| Claw hammer, 16 oz. | 2 | Plane iron grinding attachment | 1 |
| Claw hammer, 13 oz. | 2 | Wheel dresser | 1 |
| Claw hammer, 7 oz. | 2 | Nail set, $\frac{3}{32}$ " and $\frac{1}{8}$ " | 2 |
| Carborundum stone, medium | 1 | Files and wood rasp assorted | 12 |
| Carborundum stone, fine | 1 | | |

Arrangement of the Equipment. The work benches for twenty students are grouped on one side of the shop. This will centralize the work and permit the instructor to be near more of the students. Much of the work in electricity, leather work, plastic working, and photography require a bench and vise. It will not be necessary for the students to go to the special sections

except for testing or completing the job. The tools will be housed in moveable racks and will be rolled out of the tool room and to the work stations at the beginning of each day. The machinery is arranged on the opposite side of the room from the work benches. That is a safety factor which is very important with students of the junior high and senior high school age. The drawing room, located at the south end of the building, is equipped to handle twenty students and will be used as the planning section for all community shop activities.

The students will spend the first six weeks in drawing, then divide into the remaining activities for the remainder of the school year. Each student will spend six weeks in drawing, twelve weeks in woodworking, four weeks in leather, plastic, and electricity, and three weeks in photography and welding. Each class will have twenty students with equipment and work stations for thirty-eight. This will permit the slow student to complete the work and the progressive student to go deeper into the subject or move on to the next activity without the fear of being forced to move on to make room for the rest of the class.



**THE COMMUNITY SHOP
OKEMAH, OKLA.**

SCALE
1" = 6'

TOOL LIST

- 1. BUFFER
- 2. BAND SAW
- 3. WOOD LATHE
- 4. CIRCULAR SAW
- 5. SHAPER
- 6. JIG SAW
- 7. JOINTER
- 8. DRILL PRESS
- 9. GRINDER
- 10. SANDER
- 11. GAS WELDER
- 12. ARC WELDING
- 13. DRAFTING MACHINE
- 14. BLACKBOARD

CHAPTER V

SUMMARY AND RECOMMENDATIONS

This chapter contains a brief summary of the movements and trends which preceded the community shop, the results of the community and student survey and the arrangement of the building and equipment. There are also recommendations for future studies, the writing of a course of study for an orientation course in community shop and the establishment of the community shop in the school.

Summary. There are three movements which have influenced the community shop idea. The first of these, the arts and crafts movement, was introduced in the United States by Charles Leland in 1880. The plan was approved for the Philadelphia Public Schools and classes were held two evenings each week. Here the students were rotated through four industrial arts subjects during the school year. This is probably the first time in the history of industrial arts that anything except a unit shop plan had been followed in the public schools. The second movement which influenced the community shop was the general shop movement. Prior to 1925 the general shop had consisted chiefly of home mechanics courses. But the demand of the small high schools for a broad industrial arts program established a trend toward the general shop which has continued since 1925. The third contributing factor was the realization by the educational leaders of the number of students in the smaller communities who were not going to high school and that these small high schools could not serve the needs of the students and the communities with the resources at their command. The research and study which followed this realization of the need for a community school did much to encourage the establishment of the community shop.

A student and community survey consisting of fourteen industrial arts subjects was completed by one hundred and eighty students in the high school and junior high school and sixty-six men of the community. The purpose of this survey was to determine the industrial arts subjects to use in the establishment of a community shop in the Okemah Public Schools. The results of the student survey were tabulated to determine the subjects selected by the students. Seven subjects, automobile mechanics, electrical work, leather work, plastic working, photography, welding and woodworking received seventy-three per cent of all votes cast by the students in high school and junior high school. To check for factors which might influence the students selection of subjects, the questionnaires were tabulated according to the grade level of the student and the occupation of the students' fathers. A study of the results revealed very little difference in any of the three tables.

The present shop building was designed for woodworking and drawing and does not have a ground level entrance, but with only a few changes may be adapted to the following community shop subjects, electrical work, leather work, mechanical drawing, plastic working, photography, welding, and woodworking.

To make full use of the tools and machines now in the shop and to avoid purchasing large quantities of expensive machinery, the classes will be limited to twenty students each period. Work stations will be provided for thirty-eight students. This will permit the students who are slow or fast to complete the work without being forced to move on to make room for the other members of the class.

Recommendations. The community shop course should be a required subject in the eighth grade with the students rotating through the seven industrial arts activities. The first six weeks should be devoted to drawing. The

sixth week in the drawing section the students should design and draw the projects which they intend to make in the remaining community shop activities. The drawing room should remain open and may be used as a lecture and planning room for the remainder of the year. At the beginning of the seventh week the students will divide into sections and work twelve weeks in drawing, four weeks each in leather work, plastic working and electricity, and three weeks each in welding and photography. This is sometimes called an orientation course in industrial arts. Following the orientation course, the students may elect to take four semesters in any of the industrial arts subjects offered in the community shop and two semesters of drawing. The second semester of drawing should be devoted to architectural drawings and house plans. If the student has elected to take one semester of woodworking, he may take machine woodworking as one of the three remaining semesters of work. This will add another subject to the content of the community shop.

The community shop should be kept open one or two evenings each week from seven to nine-thirty for the adults of the community. The subjects selected in the community survey were carpentry, electricity, woodworking and automobile mechanics. The class should start with carpentry work and then permit the adults to choose the subjects and the order in which they want to take them.

To acquaint more industrial arts teachers with the community shop plan, it is recommended that a committee be appointed to plan a course of study for an orientation course in the community shop. The course of study should be planned for all industrial arts subjects and should contain about six weeks work in each subject. This would permit the community shop teachers to select six or eight subjects which are suitable to the different communities and use them in the orientation course.

Committees from the State Board of Education and the Oklahoma A. and M. College have planned courses of study in a number of industrial arts subjects. The committees should be continued until courses of study are completed for all industrial arts subjects. The courses of study should be planned for one semester or one year of work in each subject. This will encourage their use in the community shops as courses of study for the students who elect to take one full semester's work in each subject.

If the small high schools will adopt the community shop as suggested in this study, it is believed their students will have a better understanding of the many industrial materials which are a part of our daily life. Then, perhaps, the words of Ralph Waldo Emerson will not ring as true when he said:

We are students of words; we are shut up in schools and colleges and recitations rooms from ten to fifteen years and come out at last with a bag of wind, a memory of words, and do not know a thing. We cannot use our hands, our legs, our eyes, or our arms.

APPENDIX A

A SELECTED BIBLIOGRAPHY

1. American Vocational Association, Improving Instruction in Industrial Arts
A revision of the 1929 bulletin. The Association, 1010 Vermont
Avenue, Washington, 1946, 96 pages.
2. Bennett, Charles A., A History of Manual and Industrial Education
1870-1918, The Manual Arts Press, Peoria, Illinois, 1936, 401 pages.
3. Bobbitt, F., How to Make A Curriculum, Houghton Mifflin Company, Boston,
1924, 292 pages.
4. Bonser, Frederick G., Industrial Arts for Public School Administrators.
Teachers College, Columbia University, New York, 1930, 100 pages.
5. Charters, W. W., Curriculum Construction, The Macmillian Company, Chicago,
1924, 352 pages.
6. Cherry, Raymond, General Plastics, McKnight and McKnight, Bloomington,
Illinois, 1947, 156 pages.
7. Cherry, Raymond, General Leathercraft, McKnight and McKnight, Bloomington,
Illinois, 1946, 111 pages.
8. Crawford, John Edmund, Practical Electricity, The Bruce Publishing
Company, Milwaukee, 1943, 277 pages.
9. Douglas, J. H., Roberts, R. H., Units in Hand Woodworking, The McCormick-
Mathers Publishing Company, Wichita, Kansas, 1946, 160 pages.
10. Ericson, Emanuel E., Teaching the Industrial Arts, The Manual Arts Press,
Peoria, Illinois, 1946, 384 pages.
11. Englehardt, N. L., Englehardt, N. L. Jr., Planning the Community School.
American Book Company, Chicago, 1940, 190 pages.
12. French, Thomas E., Svenson, Carl L., Mechanical Drawing, McGraw-Hill
Book Company, New York, 1940, 300 pages.
13. Friese, John F., Course Making in Industrial Education, the Manual Arts
Press, Peoria, Illinois, 1946, 297 pages.
14. Gaumitz, Walter H., A Look At the Size of Our High Schools, School Life
31:4-6 July, 1949.
15. Gaumitz, Walter H., Wright, Grace S., Broadening the Services of Small
High Schools, United States Government Printing Office, Washington,
D. C., 1948, Bulletin No. 9, 46 pages.
16. Griswold, Lester, Handicraft, Out West Printing and Stationery Company,
Colorado Springs, Colorado, 1942, 512 pages.

17. Hunt, De Witt, A Manual for Hand Woodworking, Harlow Publishing Company, Oklahoma City, 1947 revision, 253 pages.
18. Hunt, De Witt, The Professionalization of Industrial Arts Teaching, Printed by the Industrial Arts Department, Okla. A. M. College, Stillwater, Oklahoma, 16 pages.
19. Jennings, Royalston F., Gas and A. C. Arc Welding and Cutting, McKnight and McKnight, Bloomington, Illinois, 1937, 84 pages.
20. Johnson, William H., Fenn, Isadore M., Fundamentals of Industrial Arts and Vocational Education, The Goodheart-Wilcox Company, Chicago, 1943, 138 pages.
21. Leavitt, Frank M., Examples of Industrial Education, Ginn and Company, Boston, 1912, 330 pages.
22. Leavitt, Frank M., Brown, Edith, Pre-Vocational Education in the Public School, Houghton Mifflin Publishing Company, Boston, 1915, 245 pages.
23. Newkirk, Louis V., Stoddard, George D., The General Shop, The Manual Arts Press, Peoria, Illinois, 1929, 190 pages.
24. Newkirk, Louis V., Organizing and Teaching the General Shop, The Manual Arts Press, Peoria, Illinois, 1947, 200 pages.
25. Proffitt, Marris M., Industrial Education in 1924-26, United States Bureau of Education, Washington, D. C., 1927, Bulletin No. 29.
26. Proffitt, Marris M., Trends in Industrial Arts, United States Office of Education, Washington, D. C., 1940, Pamphlet No. 93.
27. Quarles, Gilford G., Elementary Photography, The McGraw-Hill Book Company Inc., New York, 1940, 350 pages.
28. Richter, H. P., Wiring Simplified, Park Publishing Company, Minneapolis, Minnesota, 1948, 122 pages.
29. Rossi, Boniface E., Manual of Instructions in Welding and Cutting, McGraw-Hill Book Company Inc., New York, 1941, 100 pages.
30. Stombaugh, Ray M., A Survey of Movements Culminating in Industrial Arts Education in Secondary Schools, Teachers College, Columbia University, New York, 1930, 192 pages.
31. Struck, Theodore F., Foundations of Industrial Education, John Wiley and Sons Inc., New York, 1930, 491 pages.
32. State Department of Education, A Course of Study in Hand Woodworking, Oklahoma State Department of Education, Curriculum Division, Oklahoma City, 1943, 36 pages.
33. Vaughn, Samuel J., Mays, Arthur B., Contents and Methods of the Industrial Arts, The Century Company, New York, 1924, 397 pages.

34. Warner, William E., Establishing the General Shop, Industrial Arts and Vocational Education, 19:287-290, August, 1930.
35. Wilber, Gordon O., Industrial Arts in General Education, International Textbook Company, Scranton, Pennsylvania, 1948, 362 pages.

APPENDIX B

LIST OF AUDIO-VISUAL AIDS

The vocational guidance film "Finding Your Life's Work" is a series of pictures describing and illustrating the different vocations. The films may be rented from the Vocational Guidance Film Inc., International Distributors, Carl F. Mahnke Productions, 1814 Beaver Avenue, Des Moines, Iowa.

Finding Your Life Work. The student analyzes himself as to his natural aptitudes, and how the school subjects will help in his chosen field.

Automotive Service. A view of the many jobs in this field, and helpful suggestions on the preparation for this type of work.

Baking Industry. Illustrates the work in a large commercial bakery and a small retail bakery, discusses the technical jobs involved.

The Draftsman. Describes the draftsman part in construction, manufacturing, and the machining of tools.

Brick and Stone Mason. Different bonds laid, the working conditions and the opportunities as a brick and stone mason.

The Electrician. Deals chiefly with the jobs not requiring a college degree, motor servicing, communications, diesel equipment, and house wiring.

Engineering. Presents the many specialized branches of engineering, civil, structural, chemical, electrical and mechanical.

Heating and Air Conditioning. Describes the construction, assembling and servicing of equipment, the working conditions and the qualifications.

Home Builders at Work. Shows each building trade at work during the construction of a modern home.

Painting and Decorating. This picture outlines the training of a first class painter.

Photography. Shows the technical, professional and commercial aspects of photography, and the operation of a camera store.

Plumbing. Demonstrates the jobs performed by the plumber, the use of tools, and the qualifications.

The Sheet Metal Worker. Demonstrates the many jobs including the fields of ventilation, air conditioning, and war production.

The Welding Operator. Illustrates arc welding, oxy-acetylene welding and cutting in its many uses, and explains the jobs in the field.

The Woodworker. Illustrates all phases of the woodworking field, the advancement possible, and how the student can prepare himself.

The Machinist and Tool Maker. Explains the jobs in the field, and the work of tool and die operators.

Typed by: Mr. Victor L. Van Hook