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### ADAPTING AN INDUSTRIAL ARTS COURSE TO THE NEEDS AND INTERESTS OF THE HOME

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ADAPTING AN INDUSTRIAL ARTS COURSE TO THE NEEDS  
AND INTERESTS OF THE HOME

A Thesis Submitted to the Graduate Division in  
Partial Fulfillment of the Requirements for the Degree  
of Master of Science

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By

Virgil Pugh

KANSAS STATE TEACHERS COLLEGE

Pittsburg, Kansas

July, 1936



#### ACKNOWLEDGEMENTS

The writer wishes to take this opportunity to extend thanks to those who have helped in anyway in this study. Whatever value the data herewith submitted may have is due to the interest and help of the fathers who so kindly took the time to fill in the checklist and who gave encouragement to the writer in the work he was undertaking.

The writer is especially grateful to Doctor Ralph A. Fritz, who not only helped with the selection of the problem and suggested the method of procedure but has given many valuable suggestions as it has developed.

The writer is also indebted to Doctor W. T. Bawden for his suggestions on the organization of the teaching content of the course of study.

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## ABSTRACT

The problem confronting all teachers in industrial arts today is to make the curriculum fit the needs of the pupil in the school, home, and community. My problem in this thesis has been to make a course of study in home mechanics to meet the needs and interests of the homes in the community of Pratt, Kansas. To work out this problem a check list of one hundred ninety items consisting of things done about a home was prepared and taken to one hundred eight homes in the Pratt community. The fathers in these homes checked this list to indicate the things they had done about their homes and what needed to be done at the time the survey was made.

The activities which were marked by 50 per cent or more of the fathers and those jobs which were in need of being done in at least 20 per cent of the homes were used as a basis for selecting the objectives of the course of study. Other items marked by at least one-third of the fathers and items which were added in at least three check lists were used as supplementary activities in the course.

The interviews showed a desire on the part of the parents for home mechanics training in our high school. A study of the check lists showed that the men who have taken some industrial arts training in school are doing on



the average twenty-five more jobs than those without such training.

It is hoped that the use of this course of study will fit boys for better adult living, for worthy home membership, and for better use of leisure time.



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## CHAPTER I

### INTRODUCTION

For a number of years the world has been in a state of unrest and change. Mankind has suddenly awakened to the fact that conditions are entirely different from those of a few years ago. Because of this social change, education must change. Old-time services must be discontinued and new functions must be included in the curriculum.

This study involves changing the curriculum of the manual arts courses usually found in the junior and senior high school. However, change involves danger, for too often we think that we are making progress when in reality we are only shifting positions.

#### Statement of the Problem

Education is primarily for the purpose of preparing boys and girls for useful adult life and nothing should be included in the educational system which does not work toward that end. I hope by a careful analysis of the needs and interests of a number of homes in Pratt, Kansas, to adapt our course of study in industrial arts to this purpose.

When manual training, or work with the hands, was first introduced into our schools, it was encouraged by laymen because of its vocational aspects; by schoolmen on the



grounds of formal discipline and its basic vocational guidance. But now we realize that manual training is not vocational training. Also we have found it is of little value as an exploratory course for vocational guidance. Nor can it be justified now by the argument of formal discipline. The result is that neither school men nor laymen can see any great amount of value in the manual training subjects as they were introduced into the secondary schools a few years ago.

#### Need for Such a Study

Shop work for boys must be justified then upon some other bases than those used in the past or we may find that sooner or later it will be abolished from the curricula of our schools. The fact that during the depression many schools curtailed very materially their offerings in industrial arts is evidence that a change in objectives and content of the manual training curriculum is necessary.

School principals and superintendents now see the value of the shop subjects for the students of un-academic mind, the unruly ones, and those who are subnormal. It has become a dangerous thing for a principal to remove a student from school or fail to give him a diploma after he has been in attendance for a reasonable length of time. Expulsion or repeated failure creates in the student an attitude



toward school that is not desirable. The best method under these circumstances is to have the problem boy take as much work as possible in the practical activities course.

The teacher of industrial arts knows that his department is used as a means to pass through high school the student who is not able to make passing marks in the traditional subjects, but if he is the teacher he should be--one who has the interest of his students at heart--he will not be disturbed by this condition. Rather, he will accept the challenge and realize that he is facing a task for which his fellow teachers have failed to find a solution.

One of the most important functions of the entire high school program is to provide a means for the poor student to receive a high school diploma and to keep him interested in remaining in school until he is qualified to receive it. A student through his shop work and the inspiration of his industrial arts teacher often sees the value of securing a high school education and will be stimulated to do better work in his other subjects. Students as a rule do not fail because of lack of ability, but because of lack of effort and application. If their interest can be aroused, they become creditable students.

The problems that face the industrial arts teacher should be thoroughly understood by the teacher and his supervisors, and where there is cooperation among all of



them, the practical arts courses can accomplish much good. A wide-awake teacher of industrial arts can also do much to build up his course so that it will appeal to the superior students. To make the course attractive, however, it will take more than the execution of the same drawing exercises semester after semester or the construction of the same three-cornered shelf or taboret each year. The practical arts courses need to be completely reorganized and put on an educationally sound basis. Instruction must be given in those activities which function in the life of the pupil now, and what is more important, activities that will function in his adult life as well. Cox says that children should be taught to do those desirable things better than they would do them anyhow.<sup>1</sup> Granting that this assumption is true, the industrial arts subjects should include those activities that children are now doing around the home and those activities that they will do when they become home builders.

To build these new courses of study for practical arts, scientific studies and investigations must be made. The various practical activities which the students now use and those in which they will engage after finishing school must be determined, and methods of teaching these new activities must be formulated in such a way that students will understand

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<sup>1</sup>Philip W. L. Cox, Curriculum Adjustment in the Secondary School, (Philadelphia: J. B. Lippincott Company, 1925), p. 177.



their purpose and appreciate their value.

Most of the productive and distributive work of the world is now done by specialized occupations, training for which comes through vocational education. However, we still find that there are many tasks which need to be performed by the individual in the home. Living in such an age of specialization, the unspecialized activities have been largely overlooked. We do not want to reach such a degree of specialization that every nail about the home should be driven by a carpenter or every knife taken to a specialist to be sharpened, but undoubtedly many of these unspecialized activities need a certain amount of training in order to be done properly. Since education is preparation for adult living in the home and community, industrial arts courses can be justified if they give training in the unspecialized activities that can be utilized by the future home builder.

There are people who advance the argument that all work should be specialized, that a person should do one type of work and do that well. On the other hand there are those who believe that each individual should be skilled in one specialized field of work and yet be able to perform several kinds of activities of an unspecialized nature.

Bobbitt builds up a strong case for the unspecialized practical activities. He shows that beyond a certain point



specialization is not economical, that if carried too far it will increase the cost of living; that one without unspecialized practical ability is helpless in the unforeseen emergencies that occur in this highly mechanical age, and that the individual runs a grave risk of being defrauded by workmen whose ethics are dimmed by the effects of slack times.<sup>2</sup>

Bobbitt also states that it is not good for man to be too much of a specialist, that his life, to be fully developed, must be diversified. Not only does he secure this fullness of development, but there is also the matter of physical health.<sup>3</sup> A person needs to leave his specialty and turn to the miscellaneous activities about the home. This provides a necessary type of relaxation and a normality of physical experience. These unspecialized activities are needed to maintain the solidarity of the home, for without them the family would inevitably disintegrate.

Certain activities in and about the home should fall to the lot of men just as distinctly as others fall to the lot of women. Men should be able to perform their tasks with as much interest and efficiency as women accomplish theirs. These duties involve the care and upkeep of the

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<sup>2</sup>Franklin Bobbitt, How to Make a Curriculum, (Boston: Houghton Mifflin Company, 1924), pp. 180-185.

<sup>3</sup>Ibid.



house, its equipment, and surroundings. We cannot ignore the fact that many duties formerly performed by women in the homes are now performed elsewhere and many of the home tasks of the men are now performed by specialists in the particular field of work involved. No training we can offer will check this social and economic development. It is just another phase of our growth from fireside production to factory production. The thing we can do, however, is take advantage of the present situation and tendencies in order to give the boys who come to us those experiences which will help to develop them into happy, useful, and successful citizens under our modern social and economic conditions.

We find in our present-day civilization that working conditions have changed. Many people now have more hours for leisure than they devote to their occupations. This presents a serious problem to civilization. Many of the so-called "fads and frills" of the curriculum are included for their value in teaching the wise use of leisure time. It would be vastly more profitable to the individual and society as well, for him to be employed with the unspecialized activities about his home than out upon the highways indulging in the vices which are to be found there. Industrial arts might be justified for this value alone, if for no other,--such courses teach a wise use of leisure time.

The attitudes, interests, and habits of thought and



action of students are of much greater importance than specific skills. The principal purpose of the industrial arts should be to develop desirable attitudes and habits of thought and action rather than a high degree of skill in a variety of activities. These courses should develop a habit of observing how things are done, why they are done in a certain way, and the habit of carefully analysing and planning tasks before they are begun. These are some of the most valuable habits a boy can form. Any kind of home task is worth-while which will direct the boys' attention to the care of things in their homes, increase their interest in having things neat and orderly, and give them pride and confidence in their ability to do things.

Home mechanics' duties usually consist of small adjustments, minor repairs and preventative measures. These tasks do not require a high degree of manipulative skill,--if this requirement were necessary, the ordinary home maker would not be able to do them. To accomplish these duties he does not have to become skillful in a wide range of activities. In most of the minor jobs to be done about the home, it is much more a matter of will to do than it is a matter of skill.

If these experiences are really to function in the home, they must involve the use of relatively few and inexpensive tools. Any job which does require special and expensive



tools can hardly be classified as a practical home job.

### Objectives of Education

The usual method in establishing a curriculum for any course is to begin with a list of the aims or objectives of education, then enumerate the specific goals of the course to be outlined, and, finally, select the school tasks and projects which may be expected to accomplish these ends. Therefore, in this study the objectives of education as a whole and those for a home mechanics course must be considered. The general principles of education have developed over a fairly long period of time and have already proved their worth in other subject fields. However, it might be well to review them briefly.

Bobbitt gives the following classification of the objectives of education:

1. Language activities; social intercommunication
2. Health activities
3. Citizenship activities
4. General social activities--meeting and mingling with others
5. Leisure occupations
6. Keeping one's self mentally fit--analogous to the health activities of keeping one's self physically fit
7. Religious activities
8. Parental activities, the upbringing of children, the

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maintenance of a proper home life

9. Unspecialized or non-vocational practical activities

10. The labors of one's calling<sup>4</sup>

If it can be shown that training boys to do the many unspecialized jobs in and about the home achieves these objectives, then the course in home mechanics will be justified.

We should also keep in mind the special objectives of such a course as well as the general objectives of education. Selvidge suggests that in selecting learning units for a home mechanics course we should select experiences which will give the boy an opportunity to learn:

1. The things which practically every man needs to know how to do without respect to his vocation.
2. The things which a boy should be able to do in order that he may contribute his share to the upkeep of the home, meet his own needs and develop an interest and pride in his home surroundings.
3. The things which will tend to make him self-reliant and give him confidence and pride in his ability to meet different situations.
4. Things which will give him the training necessary to do small jobs in connection with the upkeep of the home, and thus save the time and money which would be involved in calling in "experts".
5. The proper use and care of the house and household equipment.
6. The things which will enable him to maintain a higher

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<sup>4</sup>Bobbitt, op. cit., pp. 8-9.



standard in his home surroundings with a smaller expense.

7. The things which will give him a better understanding of, and a greater interest in, the things with which he comes in daily contact.<sup>5</sup>

In addition to the training in unspecialized acts, a certain amount of concrete insight into the nature of tools, machines, forces, appliances, raw materials, and processes should be taught. As a portion of social training pupils should be brought to an understanding of economic production and distribution. This understanding is partly developed through observation, reading and discussion but to know the realities one needs personal contact with these things.

It is easily possible, then, to combine the two purposes in the organization of courses which develop a certain amount of occupational understanding and also train for unspecialized activities. This viewpoint utilizes real life experiences for instructional purposes and makes each class activity a sample of worthy life for the learner. Industrial arts, then, must become in part an actual study of individual processes about the home and school.

#### Purpose of the Problem

The writer has felt the need for the teaching of more

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<sup>5</sup>R. W. Selvidge, "A Cooperative Analysis of Trade and Industrial Arts Subjects," Industrial Education Magazine, XXXIII (January, 1932), 194-195.



practical work in our shop classes. With this need in mind, a survey of the homes in Pratt, Kansas, was begun. The purpose of the check list used in the survey was to find what tasks the fathers do in their homes and also what things they have done for their homes by some other member of the family or an outsider. In addition a check was made on the number of things which were in need of being done at the time the survey was conducted.

This information has been used to outline a course of study which will develop ability to do the common activities of the home. Through this survey the writer also hopes to have explained the industrial arts work and especially this newer type of material--the practical activities of the homes--to the parents so that they and the instructor may each be more appreciative of the viewpoint of the other.



## CHAPTER II

### SIMILAR STUDIES

Virtually all of the larger cities, as well as many of the smaller ones, now give courses in home mechanics. Since it is gaining such nation-wide favor, home mechanics must be meeting a real need in the schools of this country. However, few courses of study in this type of work have been published. In view of the present popularity and success of home mechanics work, it may be worth-while to review some of the studies and developments that have been made in this field.

The writer does not know when the first classes in home mechanics were organized, but as early as 1911, George F. Buxton at Stout Institute organized a course called "Special Shop Work."<sup>1</sup> One-third of this course covered problems in "home repair." This was the beginning of the elaborate course in home mechanics that has been developed by Mr. F. E. Tustison under the direction of Clyde A. Bowman, director of industrial arts at Stout Institute.

The following pages of this manuscript will review some of the more recent studies which have been made in the field

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<sup>1</sup>William F. Rasche, "The Shop Objectives and the Physical Equipment for Home Mechanics Departments of Continuation Schools," The Industrial Arts Magazine, XIV (May, 1923), 163-166.



of home mechanics. Detroit was one of the first schools in the United States to develop a course of home mechanics. The idea of organizing such a course was conceived at a meeting of industrial arts teachers in 1912 for the purpose of overcoming the narrowness of manual training instruction. In 1913 a committee was appointed to work out a course of study. They failed to get a curriculum organized at this time, but on the basis of the discussions of the curriculum committee, a few teachers began teaching some home mechanics activities. In 1917 the first class in household mechanics was conducted in Detroit, and since that time the development has been very rapid there. Every boy in the Detroit schools has an opportunity to receive instruction in home mechanics.<sup>2</sup>

One early study was made by Logan R. Fuller<sup>3</sup> in which he undertook to find out what problems and processes would be involved in a manual arts course based upon work which is done or may be done about the home with common tools. He worked out a list of jobs by interviews with about fifty people who were asked to list all the things which they could think of that they had done in their homes. This was supplemented by a personal inspection of a number of dwellings,

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<sup>2</sup>John Herman Trybom, "Household Mechanics in Detroit," The Industrial Arts Magazine, XVI (January, 1927), 8-9.

<sup>3</sup>Logan R. Fuller, "Manual Arts Based on Home Repairs," Journal of Educational Research, III (March, 1921), 173-179.



in some cases, the homes of the people interviewed. This gave him a list of about two hundred items. With this list he made a complete survey of a small rural community in Missouri. This gave additional items which made a total of three hundred twenty-eight activities. From this he prepared a questionnaire in which the items were grouped under seven general headings. This questionnaire, with complete directions, was given to the high school students in the University high school, Columbia, Missouri. They were asked to go over the list with their parents and then return the filled-in form. There were 430 lists returned. Mr. Fuller then determined the frequency of each job listed. He felt that two plans were available for giving home mechanics training: first, the course might be taught as a project or home-project course, and students given the jobs to do at home or in the school shop; secondly, the tool processes necessary to perform these jobs might be drawn off the jobs and taught systematically or by the problem method. The second plan was chosen and an analysis of the tool processes was necessary. Mr. Fuller found from this analysis that there was little similarity in processes involved in home mechanics courses and in the regular manual arts course. Less than half of the tool processes for the home mechanics work were being taught in regular shop work courses. This report shows that the woodworking classes usually found in



high school do not fill the needs of the home in providing for the practical activities which need to be done. Mr. Fuller worked out his course of study on the tool process basis, while in the present study the writer used the frequency of the jobs as a basis of selection for course of study material.

L. J. Shaw<sup>4</sup> outlined a course in home mechanics. He devised the course from a study of other courses of a similar nature and from experimentation in his own classes. It is outlined for twenty-four boys, but may be used for a larger group. The subject matter is taught by class demonstration with the aid of mimeographed job sheets and reference reading. The class is divided into six definite units of four boys each and all the units progress at the same time.

In a thesis study by Merrill T. Eaton<sup>5</sup> in 1929, a survey similar to the one made by the writer was conducted. Mr. Eaton, however, secured his data by the questionnaire rather than by the interview technique. He used 380 activities which were not limited to jobs involving the use of tools as closely as the writer's list. Mr. Eaton sent out

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<sup>4</sup>Lyle J. Shaw, "Outline Course in Household Mechanics for Eighth Grades," The Industrial Arts Magazine, XIII (June, 1924), 226-227.

<sup>5</sup>Merrill T. Eaton, "A Course in Home Mechanics Based on Current Home Practice," (unpublished Master's thesis, Indiana University, 1929).



about 500 copies of his questionnaire of which 250 were returned and used in his study. In sending out the letters with the questionnaires half of them were sent to the fathers and half to the mothers. In filling out the questionnaire, the parents were asked to check under the word "father" if he did the job, under "mother" if she did, under "children" if they did it, "friend or neighbor" if performed by either, and under "hired help" if some one was hired to do the task. The parents were also asked to indicate whether they thought training would be valuable to the student in accomplishing such jobs. Space was provided for them to state whether they considered school training necessary. Mr. Eaton worked out a course of study on the basis of his findings. His course of study included training in the jobs which were done more frequently in the home than done by persons outside the home.

Another method of determining jobs for the home mechanics course was tried by Mack and Read.<sup>6</sup> They asked several hundred boys enrolled in junior high schools to write down the things they had done at home in the line of repair work or construction. They found the results in this survey very enlightening, first, in regard to the type of jobs, second, the number of jobs, and, third, the frequency

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<sup>6</sup>Francis E. Mack and Russell S. Read, "A Survey of Home Mechanics," The Industrial Arts Magazine, XIII (September, 1924), 335-336.



of some of them. They also found that with few exceptions the seventh grade boys performed those jobs which are of short duration, requiring not a very high degree of skill; whereas the jobs undertaken by ninth grade boys call for a higher degree of skill, require much longer time, and, in some cases, the cooperation of others.

Newkirk and Stoddard of the University of Iowa made a very extensive study in 1928 to try to find out what the teaching content in home mechanics should be.<sup>7</sup> They used the questionnaire as a means of securing the required data. In order to determine the items which were to be included in the questionnaire, an analysis of several courses of study, including those from St. Louis and Detroit, was made. In addition to analyzing courses of study, a number of surveys were made to discover the outstanding jobs on the basis of social utility.

The results of the questionnaires from seventy-five schools were used. These schools were scattered over the entire United States, and one reply came from Hawaii. It is the belief of the authors that the addition of seventy-five more schools would not have made any significant change in the results, because the jobs that were ranking high in the

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<sup>7</sup>L. V. Newkirk and G. D. Stoddard, "The Teaching Content and Objective Testing in Home Mechanics," The Industrial Arts Magazine, XVII (February, 1928), 47-50.



returns from fifty schools were in all cases the high-ranking jobs in seventy-five schools. It is true, however, that the suggested jobs would have been a somewhat larger group.

Table I shows the school level at which home mechanics is most commonly taught and the percentage of courses offered in each school grade as determined by Newkirk and Stoddard from the data collected.

TABLE I

School Level for Home Mechanics Classes Found  
by Newkirk and Stoddard, and Percentage  
of Courses offered in Each Grade

<u>Grade</u>	<u>Per cent</u>
5	1
6	1
7	30
8	40
9	20
10	4
11	2
12	2

Home mechanics is offered in all grades from the fifth to the twelfth and is given as both an elective and a required subject. The most common practice was found to have the course in the eighth grade either as an elective or a required subject. However, the writer of the present study plans to use his course in the senior high school.



Newkirk and Stoddard selected seventy-two home mechanics jobs on the basis of two criteria: (1) the frequency of occurrence in seventy-five home mechanics courses, and (2) social utility.

The study by Newkirk and Stoddard illustrates one procedure used in the construction of a course of study. The writer attempted to base his course upon the interests and needs of the homes served, while the course derived from the procedure described above might or might not include activities that would be most helpful in the homes of any given community.



## CHAPTER III

### METHOD OF PROCEDURE

#### The Check List

A check list technique was used to obtain the data desired for this study. After listing all the jobs which the writer had done, all those he could think of as possible tasks, and getting all suggestions he could from available material, a check list of one hundred ninety items was worked out. These items were then grouped into eleven sections according to the type of work involved.

This check list was taken to one hundred and eight homes of boys in the industrial art classes in the Pratt Junior-Senior High School. The returns from one hundred check lists comprised the data used in this survey. The homes of boys who were finishing the work offered in industrial arts were not included in this study, except in a few instances.

The fathers were asked to place "1" before the jobs listed which they did in their homes, "2" before those things that had been done by some other member of the family or by some one outside the home, and "3" before the things which were in need of being done at that time. The complete check list as it was used in the home-to-home



survey may be found in the appendix of this study.

### Additional Items

There were blanks provided at the end of the check list in which to write additional things which the fathers had done that were not included in the items of the check list. There was also additional space in which to write things that needed to be done in the home that had not been listed.

Table II, page 23, gives the eleven headings under which the items of the check list were grouped and the number of items comprising each section. This table also shows the number of additional jobs which the fathers had done. These are classified according to the type of work. The number of things which needed to be done are given under the proper headings.

In the space provided for additional items, sixty-six men listed 108 jobs which they had done. In some cases the same item was mentioned a number of times. The total number of times that items were suggested or mentioned was 145. In the blanks provided for listing the additional things that needed to be done about the homes, there were thirty other jobs listed. Items in this group were mentioned thirty-nine times. This made a total of 184 times that items were mentioned or added to the check list, or an average of nearly



TABLE II

The Grouping of Activities Included in the Check List  
and the Number of Items Added by Sixty-six Fathers

<u>Title of Heading</u>	<u>Items on Check List</u>	<u>Items Added by Fathers</u>	<u>Things that Needed to Be Done</u>
Sharpening tools	15	3	0
General repair work	23	27	13
Fitting handles in tools	10	4	0
Finishing	27	4	2
New work	25	40	22
Plumbing and metal work	6	18	0
Electrical work	31	3	0
Auto mechanics	22	8	0
Furniture repair	13	1	0
Leather work	7	0	0
Screen repair	11	0	0
Totals	190	108	37

two items per person. The 190 items on the check list plus the 108 jobs which the fathers had done and wrote into the check lists and the 37 items which were added as in need of being done made a total of 335 jobs which were considered as a basis for possible material in the home mechanics course.

#### Industrial Arts Training of Fathers

The fathers who filled out the check lists were asked to state what training they had had in manual training or industrial education. Only twenty of the one hundred men



whose check lists were used had taken some school work in industrial arts. The average number of jobs done by these twenty men was 114.8 as compared to 89.8 jobs for the eighty men who had no school work in industrial arts. This is an average of twenty-five more jobs per person for those with some training in school than for those without any school work in industrial arts. The twenty men averaged 49.8 jobs done by some one else in their homes as compared to 48.5 jobs done in the homes of the eighty men who had no school training in industrial subjects. The average of all the group was 105 jobs done by the fathers and 48.8 jobs done for their homes by some one else.

The difference of twenty-five jobs between the averages of those with and those without industrial school training seems rather significant. It is reasonable to conclude that --since these twenty men were for the most part younger men-- had they had their homes established longer there might have been a greater difference in these averages. If the doing of an average of twenty-five jobs per father can be credited to the fact that they had had some training in the use of tools and materials, that they had come to realize better that these jobs needed to be done, and that they themselves could do the work; then the work in industrial arts has not failed entirely to function, even in the manner in which it has been taught in the past. If the training which these twenty men



received had been in the unspecialized activities instead of just woodwork and drawing, it is likely that the difference would have been greater than twenty-five jobs.

We find that these eighty men are doing on the average nearly half of the common home tasks listed. This emphasizes the statement made by Cox that children should be taught to do those desirable things better than they would do them anyhow.<sup>1</sup> If the people in their homes are going to do these tasks in some manner, it should be the work of the school to carefully select and teach many of these jobs in a practical arts course so that they may be able to do them better and more efficiently. Perhaps another reason for the necessity of teaching this type of work is the fact that many of the older men had better opportunity to learn some of these activities from their fathers than the boys in our high schools at the present time. If these activities are not taught in school, most of them will have to be learned by trial-and-error experimentation later on.

#### Occupations of Fathers

The fathers of the boys were also asked to state their occupations on the check lists. Table III, page 26, gives a list of these occupations and the number of men engaged in each occupation. There were more farmers in the group than

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<sup>1</sup>Philip W. L. Cox, loc. cit.



TABLE III

The Occupations of the Men from Whom the Data  
for this Study were Collected

<u>Occupation</u>	<u>Number</u>	<u>Occupation</u>	<u>Number</u>
Farmer	13	Auto Mechanic	1
Teacher	8	Drayman	1
Laborer	7	Elevator operator	1
Conductor	5	Farmer and Co. worker	1
Fireman	5	Cashier for railroad	1
Railroad shops	4	Railway storekeeper	1
Insurance	4	Painter	1
Salesman	4	Boilermaker	1
Machinist	3	Sexton	1
Janitor	3	Nursery	1
Real estate	3	Jeweler	1
Brakeman	3	Clerk	1
Carpenter	2	Fish culturist	1
Bookkeeper	2	Dentist	1
Dairyman	2	Lawyer	1
Publisher	2	Director highway dept.	1
Trainman	2	Engine inspector	1
Engineer	2	Barber	1
Postal clerk	2	Minister	1
Electrician	2	Service station operator	1
Furniture dealer	1	Telephone workman	1

men pursuing any one of the other vocations. However, there were only thirteen farmers.

The attitude of the homes toward the program was very gratifying to the writer. Only one man contacted seemed to be antagonistic toward the industrial arts work or the instructor. Just two other men refused to fill out the check



list, stating that they were not interested in industrial arts and did not have time to give to the demands of the check list. Some of the check lists had to be left with the fathers to be filled in later, for these men wanted to have time to go over the items carefully. A few of these check lists were not returned in time to be used in the tabulations of this study.

The course of study constructed as a result of this survey may or may not be valuable. Only experience and use will prove its worth. However, it is felt that it will help to solve some of the problems in teaching industrial arts in the Pratt schools as well as help other instructors in similar communities.

Perhaps one of the greatest services of this study is the opportunity it furnished to the writer to get actual experience in doing research work. However, if nothing more were gained from the preparation of this study than the contacts which the writer made with the parents and the chance to make them feel the importance of industrial arts work in training for better living, the time has been sufficiently well spent.



## CHAPTER IV

### THE DATA AND THEIR INTERPRETATION

The justification of the home mechanics course, the need for study and investigation in this field and the need for new courses of study have been discussed. The objectives of education in general and also those in home mechanics have been reviewed. A description of the check list and a brief discussion of the interviews made have been given.

This chapter will offer an interpretation of the data upon which a course of study for practical arts classes is to be based. The following pages show in tabular form the results obtained on the check lists. These tables give the original items under each classification as they appeared on the check list together with the items which were by the fathers who assisted in this survey. These additional items include what the fathers had done in their homes and those jobs which were in need of being done at the time of the survey. Each group of items is presented in the following discussion under the heading by which it was labeled on the check list.

#### Sharpening Tools

In Table IV, page 29, items of sharpening tools are given. Eleven of the fifteen original items are used in the



TABLE IV

## Items of Sharpening Tools

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Sharpen pocket knives	92	35	13	127	1
Sharpen hoes	88	27	22	115	2
Sharpen butcher knives	85	42	23	127	3
Sharpen paring knives	80	41	24	121	4
Sharpen axes	78	21	20	99	5
Sharpen skates	65	23	5	88	6
Sharpen chisels	60	20	9	80	7
Sharpen scissors	57	37	43	94	8
Sharpen bread knives	56	20	13	76	9
Sharpen auger bits	47	8	10	55	10.5
Sharpen planes	47	25	11	72	10.5
Sharpen hand saws	42	31	31	73	12
Sharpen lawnmowers	39	32	29	71	13
Sharpen drill bits	36	8	11	44	14
Sharpen scrapers	31	10	2	41	15
<u>Items Added by Fathers</u>					
Sharpen razor	2				
Sharpen pruning shears	1				
Sharpen spade	1				

course of study as basic jobs. However, they were combined into six jobs because the tool processes involved in some of these jobs are the same.

General Repair Work

Table V, page 30, contains the items of general repair



TABLE V

## Items of General Repair Work

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total</u> <u>1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Put up curtain rods	83	49	2	132	1
Reputty window glass	81	35	44	116	2
Hang window shades	79	47	4	126	3
Replace broken window glass	76	38	20	114	4
Repair door that binds or sticks	75	25	15	100	5
Cut window shades to fit	67	36	8	103	6
Stop rat holes or mice holes	65	25	5	90	7
Replace shingles on roof	64	28	26	92	8.5
Replace worn boards in porch or steps	64	29	27	93	8.5
Tarring roof or gutter to stop leaks	67	23	4	80	10
Repair holes in plastering	56	40	21	96	11
Mend toys	54	37	9	91	12
Repair broken spring in mortise lock	52	9	17	61	13.5
Repair lawn mower	52	24	7	76	13.5
Adjust window stops to stop rattling	46	8	16	54	15
Cut window glass to fit	45	37	6	82	16.5
Paper rooms in home	45	56	37	101	16.5
Replace or repair sash cords	35	11	7	46	18.5
Repair ice cream freezer	35	10	6	45	18.5
Install weather strips on doors	29	20	27	49	20
Install weather strips in windows	26	24	32	50	21
Make keys for door lock	17	18	10	35	22
Repair coal chute	12	5	3	17	23
<u>Items Added by Fathers</u>					
Repair and clean flue, chimney and stovepipe				7	
Regulate and repair gas appliances				5	
Clean and repair clocks				3	
Shoe horses				3	
Splice belt on electric washer				2	



TABLE V--Continued

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total</u> <u>1 &amp; 2 Rank</u>
<u>Items Added by Fathers</u>				
Hang doors	2			
Repair cream separator	2			
Repair washing machines	2			
Repair garden hose	1			
Repair lawn sprays	1			
Repair and rebuild outbuildings	1			
Repair oil stoves	1			
Repair weather strips on doors	1			
Repair mail box	1			
Repair and make tongues for machinery	1			
Repair bicycle wheels	1			
Repair sewing machine	1			
Repair radio	1			
Mend musical instruments	1			
Replace isinglass in stove	1			
Replace grate in stove or furnace	1			
Take proper care of furnace or stove	1			
Tear down old buildings	1			
Mend camp cot	1			
Adjust scissors	1			
Stop holes in furnace	1			
Clean and repair down spout	1			
Rebuild chimney			1	
Repair breaks in cement			1	
Waterproof outer walls of basement			1	
Renail siding			1	
Repair refrigerator			1	
Reline furnace			1	
Rebuild cellar or cave			1	
Repair furnace			1	
Repair clothes line			1	
Splice hose			1	
Foundation cracks calked or filled up			1	
Repair ironing board			1	
Repair sewing machine			1	



work. Forty-one items were added to this group by the fathers. This addition shows that a wide variety of general repair work is done about the home. There is a close correlation in the things which the fathers do and those done by some one else. We notice the item "Paper rooms in home" has been done more times by some one else than by the fathers. This shows that at present paper hanging is more of a specialized activity, but, if we note that in thirty-seven homes there were rooms that needed to be papered, we are fully justified in including this item in our curriculum as one of the problems to be taught.

It is interesting to note that the item "Reputty window glass" was marked to indicate that it needed to be done in forty-four homes. This was a larger number than any other item that needed to be done.

#### Fitting Handles in Tools

Table VI, page 33, which has the items of fitting handles in tools, shows a very close correlation between the items done by the fathers and those done by some one else for the home. The seven items from this section which are to be used in the course of study were divided into two jobs,--fitting handles in farm and garden tools and fitting handles into tools which have an opening or throat.



TABLE VI

## Items of Fitting Handles in Tools

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Put handle in hammer	48	23	7	110	1
Put handle in hoe	85	15	4	100	2
Put handle in rake	82	13	11	95	3
Put handle in shovel	72	13	3	85	4.5
Put handle in ax	72	20	5	92	4.5
Put handle in hatchet	68	10	3	78	6
Put handle in pitchfork	64	8	3	72	7
Put handle in chisel	44	9	1	53	8
Put handle in lawnmower	30	5	2	35	9
Put handle in plane	18	3	1	21	10
<u>Items Added by Fathers</u>					
Make ax handle	1				
Put handle in saw	1				
Put handle in knife	1				
Put handle in electric iron	1				

Finishing

In Table VII, which contains the items of finishing, we find that few items were added to the list, indicating, perhaps, that the original items on the check list covered the work quite thoroughly. This table also shows that these jobs are being done in the homes to a great extent. In making the course of study, eighteen of the twenty-seven original items were used. These were combined into seven



TABLE VII

## Items of Finishing

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Paint interior woodwork of house	70	55	25	125	1
Paint floors	68	46	28	114	2.5
Paint screen frames	68	34	27	102	2.5
Take proper care of brushes	65	38	8	103	4
Varnish floors	63	41	29	104	5
Paint house on outside	62	35	41	97	6
Paint walls of house	60	38	22	98	7
Remove scales of old paint	57	27	16	84	9
Paint outbuildings	57	19	24	76	9
Varnish furniture	57	42	19	99	9
Wax floors	55	48	22	103	11
Enamel interior wood work	54	35	21	89	12.5
Varnish woodwork of house	54	46	23	100	12.5
Enamel furniture	52	37	12	89	14.5
Polish floors	52	47	16	99	14.5
Clean and polish furniture	51	46	9	97	16.5
Whitewash chicken house	51	16	10	67	16.5
Paint screen wire	46	22	14	68	18
Calcimine walls and ceiling	44	21	9	65	19
Remove old finish on furniture	40	31	9	71	20
Paint porch furniture	38	22	8	60	21.5
Refinish old furniture	38	28	15	66	21.5
Refinish woodwork of house	33	16	13	49	23
Refinish floors	30	24	27	54	24
Paint lawn furniture	28	16	7	44	25
Remove old finish on woodwork	25	21	8	46	26
Remove finish from floors	21	15	11	36	27
<u>Items Added by Fathers</u>					
Paint roof	1				
Paint and varnish linoleum	1				



TABLE VII--Continued

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items Added by Fathers</u>					
Oil floors	1				
Enamel stove	1				
Paint porch floor	1				
Paint back porch			1		

basic jobs. Two other items were used as supplementary activities, making a total of twenty items adopted from the original list. The work of finishing is needed in the home and instruction in the proper methods of finishing should have an important part in the home mechanics course.

#### New Work

In Table VIII, pages 36-38, are found the items of new work. There were twenty-five original items on the check list under this heading, and sixty-one jobs were added to the list, making a total of eighty-six items. By far more items were added to this group than to any other section of the check list. Eleven of the twenty-five original activities appear as problems in the course of study which was developed by the writer. Six items are listed in the course of study as supplementary jobs.

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TABLE VIII

## Items of New Work

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Build fence	85	28	17	113	1
Hang pictures	81	48	2	129	2
Make small shelf	70	32	4	102	3
Put shelf in closet	65	25	5	90	4.5
Put on door bolt	65	16	0	81	4.5
Make chicken coop	62	27	2	89	6.5
Fit and lay linoleum	62	41	8	105	6.5
Make saw horse	61	10	5	71	8
Make sled	58	24	0	82	9
Make hen's nest	56	33	2	89	10
Make yard gate	55	9	6	64	11
Make swing	50	20	9	70	12
Make concrete steps or walk	49	17	10	66	13
Make flower trellis	48	25	18	73	14
Make flower box	47	26	13	73	15
Put special lock on door	39	11	6	50	16
Make bird house	32	33	6	65	17
Put up and take down window awning	29	10	3	39	18
Make utility bench	27	10	10	37	19
Make dog house	26	15	4	41	20
Make picture frame	24	13	5	37	21
Make mitre box	21	2	4	23	22
Install shower bath	20	10	12	30	23
Make lawn furniture	15	9	15	24	24.5
Make sand table	15	7	2	22	24.5
<u>Items Added by Fathers</u>					
Put up clothes line	5				
Floored porch	3				
Make work bench	2				
Build kitchen cabinet	2				
Put up coat hangers and hooks	1				



TABLE VIII--Continued

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total</u> <u>1 &amp; 2</u>	<u>Rank</u>
<u>Items Added by Fathers</u>					
Build chimney	1				
Make towel rack	1				
Make doll house	1				
Make window ice box	1				
Make electric table lamp	1				
Cut new doorway and windows	1				
Make new clothes closet	1				
Build kitchen cabinet	1				
Make floor lamp	1				
Make hall tree	1				
Make cement floors	1				
Make cement driveway	1				
Make cement blocks	1				
Lay cement blocks	1				
Make window casing	1				
Make door casing	1				
Put in windows	1				
Make partition in house	1				
Build corner kitchen cabinet	1				
Make magazine rack	1				
Make flower stand	1				
Make end table	1				
Build room on house	1				
Make wagon box	1				
Woodwork on wagons	1				
Make brooder house	1				
Make small table	1				
Make china closet	1				
Make fish pond	1				
Built-in window seat	1				
Make bird bath	1				
Laid hardwood floor in room	1				
Built garage	1				
Changed wall and made bathroom	1				
Built bookcase and shelves	1				



TABLE VIII--Continued

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total</u> <u>1 &amp; 2</u>	<u>Rank</u>
<u>Items Added by Fathers</u>					
Build cabinet in kitchen			2		
Hang doors			2		
Build cupboards in basement			1		
Put ceiling in attic			1		
Make game board			1		
Enlarge basement			1		
Make lily pond			1		
Change partitions between hall and living room			1		
Install hot water system			1		
Make partitions in basement			1		
Make additional clothes closets			1		
Put windows on back porch			1		
Plaster walls in basement			1		
Place canvas over screen on porch			1		
Place canvas on doors over screen			1		
Finish a room with wall board			1		
Make towel rack			1		
Build new porch steps			1		
Make attic room			1		
Make inside basement stairway			1		
Make outside basement stairway			1		

Plumbing and Metal Work

The plumbing and metal work items are found in Table IX, page 39. It would seem that too few items were included in the original check list since there was quite a number of items added to the list. Only three of the six original items were used as basic jobs for the writer's course of



TABLE IX

## Items of Plumbing and Metal Work

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Thaw frozen pipes	79	79	0	112	1
Replace worn washer on compression faucet	78	22	8	100	2
Mend leaking vessel as pan or bucket	61	30	17	91	3
Make a riveted joint	46	14	6	60	4
Solder two pieces of metal together	45	25	3	70	5
Replace Puller ball on faucet	40	19	2	59	6
<u>Items Added by Fathers</u>					
Open drain pipes	7				
Install gas stove	3				
Replace ball copper float	1				
Remove and replace closet stool	1				
Install pipe for sprinkling yard	1				
Install hot air registers	1				
Install hot air furnace	1				
Install cold water pipes, faucets	1				
Install toilet bowl and plumbing	1				
Install bath tub	1				
Install hot water tank	1				
Install hot water heating coil in furnace	1				
Make heater for brooder house	1				
Repair well pump	1				
Install water system	1				
Replace water or sewer pipes	1				
Solder gutter	1				
Replace closet tank ball cock	1				

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study and the other three were listed for supplementary work. Two of the items suggested by the fathers were included in the course as supplementary jobs. There are additional items with high frequency in other studies that would make good jobs for this section of home mechanics work, and might be added as supplementary jobs if the instructor desires to do so.

### Electrical Work

Table X contains the items of electrical work. There were only three items added to the original list. This suggests that the check list included most of the electrical work done in these homes. Only seven of the thirty-one original items were used as basic jobs in the course of study for the frequency of the other jobs did not warrant their inclusion as basic problems although seven of them were suggested as supplementary activities. The correlation was high between the items which the fathers usually did and the things that had been done by others excepting for two items, "Read electric meter" and "Compute electric light bill", which are generally done for most homes by outsiders. The number of things in need of being done is very low compared to the other tabulations. No one item in this division was marked as in need of being done by more than seven of the one hundred men taking part in this survey.



TABLE X

## Items of Electrical Work

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Make common splice of electric light wire	78	30	1	108	1
Replace burnt out fuses	75	38	1	113	2
Put on new light socket	69	19	4	88	3
Put up aerial for radio	65	33	7	98	4
Test for and find burnt out fuses	64	30	1	94	5
Construct extension cord	56	21	2	77	6
Construct and install drop cord	50	19	1	69	7
Solder and tape a splice	45	13	0	58	8
Wire for Christmas tree lights	42	17	0	59	9
Read electric meter	39	89	1	128	10
Install snap switch	37	14	4	51	11
Locate difficulty in circuit	35	17	3	52	12.5
Repair or replace iron element	35	18	4	53	12.5
Tin a soldering iron	34	10	0	44	14
Construct simple lighting circuit in parallel	30	15	1	45	15
Install flush switch	28	15	1	43	16
Adjust difficulty in circuit	27	18	1	45	17
Compute light bill from meter reading	26	86	1	112	18
Install flush receptacle	25	11	5	36	19
Adjust difficulty in motor	23	19	2	42	20
Locate difficulty in motor	22	20	4	42	21
Repair or replace toaster element	19	10	2	29	22.5
Repair or replace hot plate unit	19	5	1	24	22.5
Determine proper size of fuse	18	5	1	23	24
Construct simple light circuit in series	17	10	3	27	26
Repair door bell circuit	17	5	3	22	26
Wire door bell circuit	17	5	2	22	26
Refill burnt out cartridge fuses	16	7	1	23	28.5



TABLE X--Continued

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Repair electric toys	16	5	3	21	28.5
Locate difficulty in refrigerator	9	12	4	21	30
Adjust difficulty in refrigerator	7	11	2	18	31
<u>Items Added by Fathers</u>					
Repair electric fan	1				
Install telephone	1				
Replace telephone batteries	1				

Auto Mechanics

Table XI contains the jobs given under the heading of auto mechanics. We notice the high frequency with which these jobs confront the members of the home. Seventeen of the twenty-two jobs listed on the original check list are included in the course of study. The figures of the second column of the table show that each job has been done a number of times by some one else besides the father. The upkeep of the car seems to be a necessity which every one feels must be looked after. If the owner cannot do the task himself, he will hire some one to do it for him. Therefore, we realize the need of courses that will teach boys the elements of auto mechanics in order that they may be able to do these jobs and do them correctly.



TABLE XI

## Items of Auto Mechanics

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Change tires	91	56	0	147	1
Clean and adjust spark plugs	85	38	6	123	2
Patch tubes	82	51	3	133	3
Preserve car finish by washing	76	39	5	115	4
Change oil in motor	74	51	3	115	5
Empty sediment cup in gas line	71	25	4	96	6
Take proper care of tires	69	36	1	105	7
Preserve car finish by polishing	68	29	4	97	8
Clean and adjust carburetor	65	39	5	104	9
Grease chassis	61	45	14	106	10
Take proper care of auto battery	60	32	1	92	11
Grease differential, transmission	59	47	14	106	12
Adjust auto horn	57	30	4	87	13
Patch tires	56	42	0	98	14
Locate trouble in ignition	55	39	4	94	15.5
Preserve car finish by waxing	55	28	5	83	15.5
Test for trouble in auto lights	54	37	2	91	17
Adjust breaker points	49	30	4	79	18
Change charge rate of generator	48	34	1	82	19
Adjust difficulty in light system	44	34	1	78	20
Align front wheels	39	37	11	76	21
Test for battery troubles	29	39	3	68	22
<u>Items Added by Fathers</u>					
Recondition tractor, truck, car	2				
Adjust brakes on car	2				
Refinish car top	2				
Adjust milking machine	1				
Adjust motor bearings	1				
Grind valves	1				
Put new piston rings in car	1				
Repair washer gas engine	1				



### Furniture Repair

Table XII deals with furniture repair. These items could have been included under general repair, but since they are jobs dealing directly with the upkeep of furniture, they have been treated under a separate heading. For the most part they are small jobs. Some people might at first glance assume that these jobs were too trivial to be included in a home mechanics course. However, if the teaching of how to make these small repairs can instill in a boy a desire to keep things about the home in shape, even to the smaller tasks, there is a place for these problems in a worth-while practical arts course.

### Leather Work

Table XIII lists the items of leather work. There were only seven original items and none were added on the check lists. This indicates that in general there is not a very wide range of activities in this type of work done in the home. Leather work in general is a task for the trained workman. Only three of the items given on the check list were included as basic jobs in the course of study, and no supplementary problems were suggested.

### Screen Repair

Items of screen repair are given in Table XIV. Of the



TABLE XII

## Items of Furniture Repair

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Tighten screw joints in furniture	75	28	10	103	1
Tighten loose hinges	73	28	8	101	2.5
Put knobs on drawer	73	27	11	100	2.5
Tighten belt on sewing machine	67	36	3	103	4
Reglue joints in furniture	62	30	17	92	5
Attach corner braces in furniture	46	10	9	56	6
Readjust sticking drawer to fit	44	16	18	60	7
Reseat chairs	39	25	12	64	8
Re-upholster chair or stool	35	34	16	69	9
Retie broken down springs	28	16	10	44	10
Replace worn webbing	22	9	5	31	11
Recane chair seat	12	8	5	20	12
Recane chair back	7	4	6	11	13
<u>Items Added by Fathers</u>					
Repair latch on kitchen cabinet	1				

eleven items listed nine were included as basic jobs in the course of study. These nine jobs were combined to make six basic jobs on account of the overlapping of tool processes and basic activities. The other two items shown in the table were suggested as supplementary jobs. The fact that virtually all of these items have such high frequencies would indicate that screen repair work is a common type of work in the homes.



TABLE XIII

## Items of Leather Work

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Resole shoes, nailing or glueing	64	51	20	115	1
Retack soles on shoes	56	41	7	97	2
Put caps on heels	53	49	13	102	3
Sewing harness	31	14	6	45	4
Sewing horse collar	24	12	5	36	5
Sewing or stitching shoes	17	37	9	54	6
Patching shoes	12	27	6	39	7

TABLE XIV

## Items of Screen Repair

<u>Jobs</u>	<u>"1"</u>	<u>"2"</u>	<u>"3"</u>	<u>Total 1 &amp; 2</u>	<u>Rank</u>
<u>Items on the Check List</u>					
Put new spring on screen door	87	33	13	120	1
Put new wire on old screen frame	84	26	24	110	2
Rehang screen doors	82	29	5	111	3.5
Put new hooks on screen door	82	33	5	115	3.5
Rehang window screens	80	29	9	109	5
Mend torn screen wire	71	37	11	108	6.5
Put new hooks on window screens	71	26	9	97	6.5
Mend screen frames	70	23	17	93	8
Put new hinges on screens	69	18	8	87	9
Make screen wire frame	49	16	18	65	10
Screen in porch	34	13	14	47	11



Jobs which were in need of being done in at least 20 per cent of the homes were included in the course of study regardless of the number of fathers indicating that they had ever done such jobs in their own homes. Table XV lists these jobs which were added to the course in home mechanics because of the need for their being done. This table also gives the number of homes indicating the need of each job.

TABLE XV

Jobs which Needed to be Done in at least  
20 per cent of the Homes

<u>Job</u>	<u>Frequency</u>
Paper rooms in home	37
Install window strips in windows	32
Sharpen hand saws	31
Sharpen lawn mowers	29
Install weather strips on doors	27
Refinish floors	27

#### Summary and Conclusions

At the beginning of this study, the writer found no check lists available for comparison when the form used in the study was being prepared for the interviews. Since that time, however, the items to be used as basic jobs were compared with other check lists, such as the one given by



Newkirk and Stoddard.<sup>1</sup> Virtually all the items used in the writer's course of study occur in high frequency in Newkirk and Stoddard's list of activities as well as in other similar lists.

The interviews with parents and a study of the data collected show definitely that the home mechanics work as proposed by the writer is desired by the parents of the junior-senior high school boys of Pratt.

The original check list contained 190 items. There were 145 items added by the fathers making a total of 335 jobs. This shows the wide range of activities requiring common tools that are being carried on in the average home in the community of Pratt.

The fathers averaged 105 jobs each, while the average of things done by some one else for their home was 48.8 jobs. The fathers on the average do twice as many practical activities as are done by all outsiders. This indicates the need for training the boys in our high schools to do these tasks better.

The fathers who had taken some industrial arts training in school were doing on the average twenty-five more jobs per person than those with no such training. This should be

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<sup>1</sup>L. V. Newkirk and G. D. Stoddard, "The Teaching Content and Objective Testing in Home Mechanics," The Industrial Arts Magazine, XVII (February, 1926), 47-50.



encouraging to industrial arts teachers and a talking point in "selling" the industrial arts program to the community. With the broadening of the field of activity and the re-organization of general shop and home mechanics courses, the benefits from the industrial arts training should be even more helpful in the years to come than they have been in the past.



## CHAPTER V

### THE COURSE OF STUDY

#### The Criterion Used

At the time of making the check list and selecting the jobs to be included in the course of study, the writer had no other lists available for comparison. It was necessary, then, to set up arbitrarily a criterion whereby the importance of the activities could be determined.

The criterion finally established was that all items which were marked as having been done by 50 per cent of the fathers would be used as activities for the course. In addition to these activities, the items which were in need of being done in at least 20 per cent of the homes were included. This gave a total of 109 activities or jobs. However, a number of jobs are combined into one learning unit: sharpening wedge edged tools includes sharpening pocket knife, paring knife, butcher knife, bread knife, ax, and hatchet. This reduced the number of basic jobs in the outline to seventy-one specific tasks.

Activities which are not used as basic jobs but which were marked by at least one-third of the fathers are listed as supplementary jobs. Items which were added to the check list by at least three fathers are given as supplementary



jobs. In experimenting with the course the first year, the teacher will have to use his judgment in proportioning the activities among the students. For that reason, the writer is not setting up any arbitrary time limit for each unit. In the survey reported in Table I, page 19, it was found that the home mechanics work was being offered in all grades from the fifth to the twelfth, inclusive, but more commonly at the junior high school level. The course outlined here is planned for a senior high school group for one semester.

#### Problems in Teaching Home Mechanics

Before presenting the outline of the course in home mechanics, it may be well to consider some of the problems encountered in teaching this work. In home mechanics classes where there are several activities going on at the same time, it is necessary to have a very definite organization and to use certain aids in teaching in order to give more time for individual instruction. There also must be a very careful organization of the equipment and materials used so that the details will not need to be handled by the instructor. Newkirk and Stoddard<sup>1</sup> in their book, The General Shop, give a number of teaching devices and management devices in Chapters II and III, respectively.

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<sup>1</sup>L. V. Newkirk and G. D. Stoddard, The General Shop, (Peoria: The Manual Arts Press, 1929), pp. 43-93.



The teaching devices are as follows:

1. Individual instruction.
2. Group instruction.
3. Class instruction.
4. Demonstration.
5. Talks by professional and business men.
6. Reference material.
7. Objective tests.
8. Moving pictures and slides.
9. Charts and pictures.
10. Class excursions.
11. Individual instruction sheets.

Perhaps the most helpful of all these devices is the individual instruction sheets. The Manual Arts Press and the Bruce Publishing Company have sets of these job sheets available for many home mechanics jobs. The authors of some job sheets are given in the bibliography of this study. Where possible these should be used in preference to "home made" sheets for the commercial ones have been worked out carefully for general use.

The management devices are as follows:

1. Care of supplies.
2. Shop-foreman system.
3. Shop numbers.
4. Record system.



### 5. Tool arrangement and checking.

While these devices are given specifically for use in the general shop, they are usable in home mechanics work, which is really conducted with the general shop "set up." The main difference being that the jobs in general shop are selected more from a vocational standpoint, while those of the home mechanics course are selected to meet the needs and the interests of the home.

### References for Course of Study

The references which follow are used in the course of study. They are numbered and will be referred to by the code number, which precedes the reference. The pages carrying pertinent material will be cited under each job following the code number. Magazines have code numbers, but the volume, pages, and date for each reference will be given following the code number in the outline.

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## I. Sharpening Tools

### 1. Sharpen wedge edged tools.

Suggested Tools: Pocket knife, butcher knife, paring knife, bread knife, ax, hatchet.

References: (4), job 6; (18), pp. 67-73; (43), pp. 30-34; (48), LVII (January, 1932), 160.

Suggested Outcomes: Ability to sharpen wedge edged tools; knowledge of quality of materials; knowledge of grinding and whetting tools; appreciation of the necessity of keeping tools sharp and in good working order.

### 2. Sharpen bevel edged tools.

Suggested Tools: Hoe, chisel, plane iron.

References: (4), job 7; (7), job 19; (15), pp. 17-19; (16), p. 10; (18), pp. 67-73; (43), pp. 30-34.

Suggested Outcomes: Ability to sharpen bevel edged tools; knowledge of tools with bevel edges; ability to test sharpened tools; knowledge of temper in tools.

### 3. Sharpen skates.

References: None.

Suggested Outcomes: Ability to sharpen skates properly; ability to take proper care of skates to prevent rust.

### 4. Sharpen scissors.

References: (1), p. 196; (18), pp. 67-73; (43), pp. 30-34; (48), LIX (June, 1933), 951-53.

Suggested Outcomes: Ability to sharpen scissors; ability to use a file properly; develop attitude of helpfulness in the home; have an appreciation for sharp tools.

### 5. Sharpen hand saws.

Suggested Tools: Cross cut and rip saw.



References: (19), pp. 64-70; (32), pp. 67-68; (53).

Suggested Outcomes: Ability to sharpen cross cut or rip saw; desire to keep saws in good condition; knowledge of kinds and makes of saws; ability to use a file; ability to use a saw set.

6. Sharpen and repair a lawn mower.

References: Directions with mower; (1), pp. 195-96; (41), Job 22.

Suggested Outcomes: Ability to sharpen and repair a lawn mower; appreciation of the value of precision; ability to save money.

7. Supplementary Jobs: Sharpen auger bits; sharpen drill bits.

## II. General Repair

1. Put up curtain rods.

References: (14), pp. 355-62; (31), pp. 211-17; (45), XXIV (January, 1935), 20.

Suggested Outcomes: Ability to put up various kinds of curtain rods; knowledge of various kinds of rods; develop judgment of visualization; develop aesthetic tastes.

2. Cut and replace broken window glass or reputty glass.

References: (4), Job 15; (9), pp. 215-16; (13); (38), pp. 76-85; (41), jobs 8, 12; (43), pp. 60-61.

Suggested Outcomes: Ability to replace a broken glass in a window sash; ability to use a glass cutter; knowledge of glass manufacturing; desire to keep home in good state of repair; ability to use putty.

3. Cut window shades to fit and hang them properly.

References: none.



Suggested Outcomes: Ability to fit window shades properly; ability to use measuring instruments; develop ability to appreciate home furnishings.

4. Repair door that binds or sticks.

References: (10), pp. 274-76; (34), pp. 68-76; (48), LXII (September, 1934), 454-58.

Suggested Outcomes: Ability to repair a door that does not work properly; knowledge of various ways of repairing doors; develop a desire to keep things working smoothly about the home.

5. Tar a roof or gutter to stop leak.

References: (10), pp. 259-61; (34), pp. 64-67.

Suggested Outcomes: Ability to repair roof or gutter with tar; ability to preserve the exterior of the house by learning to make needed repairs.

6. Stop rat holes or mouse holes.

References: (30), pp. 365-66.

Suggested Outcomes: Ability to close rat holes or mouse holes; ability to keep the home more sanitary.

7. Replace shingles on roof.

References: (10), pp. 14-18; (17), pp. 102-108; (24), pp. 128-37; (34), pp. 80-86; (50), X (October, 1933), 260.

Suggested Outcomes: Ability to replace shingles on roof; knowledge of various kinds of roofing material; ability to preserve exterior of building before damage is done to the interior.

8. Replace worn out boards in porch floors or steps.

References: (37), pp. 77-80.

Suggested Outcomes: Ability to replace boards in porch



floors or steps; ability to select proper kind of materials for this work; develop thrift and neatness.

9. Repair holes in plastering.

References: (34), pp. 40-45; (41), job 48; (48), LXII (September, 1934), 454-58; (50), X (August, 1933), 145.

Suggested Outcomes: Ability to repair a crack or hole in a plastered wall; knowledge of plastering materials; an interest in the upkeep and repair of the home.

10. Mend toys.

References: (3).

Suggested Outcomes: Ability to repair toys; develop a desire to aid others in the home; develop an attitude of thrift.

11. Repair broken spring in mortise lock.

References: (4), job 14; (9), pp. 92-95; (17), pp. 133-36; (41), job 20; (43), p. 50.

Suggested Outcomes: Ability to repair locks; knowledge of a lock and its working parts; ability to reverse a lock; knowledge of proper lubrication.

12. Paper rooms in the home.

References: (10), pp. 243-50; (33), pp. 59-68; (38), pp. 85-104; (50), X (August, 1933), 145, (September, 1933), 197.

Suggested Outcomes: Ability to hang paper properly; a desire to beautify the home; develop ability to select suitable paper as to quality, pattern and intended use.

13. Install weather strips in windows and on doors.

References: (34), pp. 109-13; (41), job 8; (43), pp. 60-61.

Suggested Outcomes: Ability to install weather strips in



doors and windows; ability to add to the comfort of the home; develop the ideal of service.

14. Supplementary Jobs: Adjust window stops to prevent rattling; cut window glass to fit; replace or repair sash cords; repair ice cream freezer; repair and clean flue, chimney, and stove pipe; regulate and repair gas appliances; clean and repair clocks; shoe horses.

### III. Fitting Handles in Tools

1. Put handles in farm and garden tools.

Suggested Tools: Hoe, rake, shovel, pitchfork.

References: None.

Suggested Outcomes: Ability to fit handles in farm and garden tools; ability to select good handles; a desire to keep tools ready for use.

2. Put handles in tools which have opening or throat.

Suggested Tools: Ax, hatchet, hammer, sledge, pick.

References: None.

Suggested Outcomes: Ability to put handles in tools; ability to select good handles; a desire to keep tools ready for use.

### IV. Finishing

1. Use interior paint.

Suggested Units: Paint floors, paint walls, paint wood-work.

References: (7), job 18; (9), chapter 5; (15), pp. 78, 110; (20), pp. 111-13; (38), pp. 19-27, 44-48; (43), pp. 53-55.

Suggested Outcomes: Ability to use interior paint; ability



to mix interior paint; knowledge of the ingredients of good paint; knowledge of how to use a brush properly.

2. Remove scales of old paint and use outside paint.

Suggested Units: Remove scales of old paint; paint house; paint outbuildings; paint screen frames.

References: Paint catalogues; (4), job 18; (7), job 18; (38), pp. 19-27, 27-41; (50), X (July, 1933), 95.

Suggested Outcomes: Ability to use outside paint; ability to mix outside paint for various coats; ability to prepare a surface for new paint; appreciation of a well kept home; knowledge of why things should be kept painted; knowledge of the ingredients of good paint.

3. Take proper care of brushes.

References: (19), p. 240; (34), pp. 202-205; (38), pp. 15-19, 95.

Suggested Outcomes: Ability to take proper care of brushes; knowledge of various solvents used in painting and in cleaning brushes; ability to know the characteristics of a good brush.

4. Revarnish furniture, woodwork, or floors, removing old finish if necessary.

References: (4), job 19; (20) pp. 110-19; (38), pp. 45-76; (45), pp. 53-55.

Suggested Outcomes: Ability to refinish furniture or woodwork in the home; ability to remove old finish; desire to have the home in good condition; desire to do thorough, careful work; appreciation of the independence from the specialist for many home needs of a mechanical nature.

5. Enamel furniture or woodwork.

References: (20), chapter 8; (33), pp. 45-47; (45), XVII (June, 1928), 223-24.

Suggested Outcomes: Ability to enamel furniture or woodwork; desire for better home surroundings; ability to



select desirable material.

6. Clean, polish, and wax floors and furniture.

References: (10), pp. 218-24; (20), chapter 5; (45), XXXII (March, 1931), 303.

Suggested Outcomes: Ability to clean, polish, and wax floors and furniture; desire to beautify and to keep the home in good condition; ability to use common materials effectively.

7. Whitewash chicken house.

References: (34), pp. 24-27; (38), pp. 104-10.

Suggested Outcomes: Ability to use whitewash on chicken house or other things about the home; desire to preserve and beautify the buildings and trees about the home.

8. Supplementary Jobs: Paint screen wire; calcimine walls and ceiling of a room.

## V. New Work

1. Build fence.

References: (44), IX (May, 1931), 47; (48), LX (August, 1933), 265; (50) II (April, 1929), 21.

Suggested Outcomes: Ability to build a suitable fence; knowledge of various materials used in fences; develop a desire to add to the appearance of the home surroundings.

2. Make picture frame and hang picture.

References: (36), pp. 164-75; (41), job 13; (43), pp. 60-61.

Suggested Outcomes: Ability to make a suitable picture frame; ability to hang a picture properly; knowledge of a mitre joint; ability to select a desirable moulding; desire to have good pictures.



3. Make a small shelf and install shelves in closet.

References: (2), p. 174; (3), p. 20; (7), job 10.

Suggested Outcomes: Ability to make a small shelf; ability to make shelving in closet; attitude of usefulness about the home; ability to use woodworking tools; knowledge of various constructions used.

4. Put on a door bolt.

References: (34), pp. 78-79; (43), p. 50.

Suggested Outcomes: Ability to install a door bolt; knowledge of various kinds of hardware for this work.

5. Make a chicken coop.

References: (5), plate 52, p. 112; (6), plate 11, p. 30.

Suggested Outcomes: Ability to make a chicken coop; incentive or desire to raise poultry for profit.

6. Fit and lay linoleum.

References: None.

Suggested Outcomes: Ability to fit and lay linoleum properly; knowledge of various kinds and makes of linoleum.

7. Make a saw horse.

References: (35), I, 188; (41), job 1; (43), pp. 19, 145.

Suggested Outcomes: Ability to make a saw horse; appreciation of good construction design from point of strength; appreciation of the value of labor saving devices.

8. Make a sled.

References: (5), pp. 78-84; (43), pp. 114-15.

Suggested Outcomes: Ability to make a sled; ability to



use various fastening devices.

9. Make a hen's nest.

References: (6), plate 10, p. 28; (40), p. 85; (43), pp. 172-81.

Suggested Outcomes: Ability to make a hen's nest; ability to select suitable materials; ability to make shelter for pets.

10. Make yard gate.

References: (6), plate 21, p. 50; (44), X (April, 1932), 42.

Suggested Outcomes: Ability to make a yard gate; ability to compute cost of lumber; appreciation of one's own ability to perform a mechanical task.

11. Make a swing.

References: (6), plate 24, p. 56; (48), CXX (June, 1932), 93.

Suggested Outcomes: Ability to make a swing; ability to tie common knots; ability to construct an object from a working drawing.

12. Supplementary Jobs: Make concrete steps or walk; make flower trellis; make flower box; put special lock on door; put up clothes line; put floor in porch.

VI. Plumbing and Metal Work

1. Thaw frozen pipes.

References: (10), pp. 153, 173-77; (34), pp. 185-87.

Suggested Outcomes: Ability to thaw frozen pipes; ability to be independent of specialists; knowledge of various ways employed by plumbers; appreciation of skill required of, and the difficulties met by the mechanic in doing jobs which may appear easy to the layman.



2. Replace worn washer on compression faucet.

References: (1), pp. 120-22; (4), job 20; (10), pp. 156-161; (22), pp. 88-93; (41), job 24.

Suggested Outcomes: Ability to repair leaking compression faucet; knowledge of various part of the compression faucet; ability to distinguish different types of faucets; ability to save expense of plumbing bill; ability to prevent damage to plumbing fixtures.

3. Mend leaking vessel as pan or bucket.

References: (4), job 9; (41), job 17; (43), pp. 217-19; (52).

Suggested Outcomes: Ability to mend a leaking vessel; knowledge of metals which may be soldered; knowledge of use of soldering flux.

4. Supplementary Jobs: Make a riveted joint; solder two pieces of metal together; replace fuller ball on faucet; open drain pipes; install gas stove.

## VII. Electrical Work

1. Make a common splice of electric light wire.

References: (39), pp. 2-29; (41), job 29; (43), p. 266.

Suggested Outcomes: Ability to make a common splice of electric light wire; knowledge of electric wiring; knowledge of the need of safety precautions.

2. Test for and replace burnt out fuses.

References: (4), job 30; (22), p. 334; (41), job 33; (42), pp. 54-55, 62.

Suggested Outcomes: Ability to detect burnt out fuses and replace them; knowledge of principle of a fuse and appreciation of its use; interest in electric wiring; appreciation of the importance of the knowledge of electricity to worthy home membership.



3. Put on a new socket for light.

References: (4), job 32; (21), pp. 166-67; (41), job 35.

Suggested Outcomes: Ability to put on a new light socket; appreciation of the fact that timely repair is more economical than replacements.

4. Put up aerial for radio.

References: (29), p. 74; (48), XLIII (January, 1925), 143, XLIV (October, 1925), 649-51, XLVII (April, 1927), 649-51

Suggested Outcomes: Ability to put up aerial for radio; knowledge of various types of aerials; knowledge of insulators and ground.

5. Construct and install drop cord.

References: (4), job 32; (11), pp. 128-29; (22), p. 327; (41), job 35.

Suggested Outcomes: Ability to construct and install a drop cord; ability to estimate materials needed; knowledge of electric circuits; appreciation of the need of good insulation.

6. Construct an extension cord.

References: (4), job 32; (21), pp. 166-67; (22), p. 241; (41), job 35.

Suggested Outcomes: Ability to make an extension cord; ability to make electric repairs about the home; appreciation of the need of good insulation.

7. Supplementary Jobs: Solder and tape a splice; wire for Christmas tree lights; read electric meter; install snap switch; locate difficulty in electric circuit; repair or replace electric iron element; tin a soldering iron.



VIII. Auto Mechanics1. Take proper care of tires.

Suggested Units: Inspect tires and keep inflated properly; change tires; patch tires; patch tubes.

References: (26), pp. 422-25; (27), jobs 673-77, 679, 680, 684, 685; (28), pp. 519-38, jobs 202-4, 206, 209.

Suggested Outcomes: Ability to take proper care of tires; knowledge of pressure gauges and uses; knowledge of methods used to conserve life of casings; appreciation of proper driving in relation to life of tires.

2. Preserve car finish.

References: Automobile manuals; bulletins issued by the Simoniz Company.

Suggested Outcomes: Ability to preserve car finish; knowledge of various methods of procedure; develop pride in keeping car in good condition.

3. Change oil in motor.

References: (12), pp. 196-205; (27), job 377; (28), p. 190, job 72.

Suggested Outcomes: Ability to change oil in crankcase; knowledge of grades and kinds of oil; ability to check oiling system; knowledge of types of oiling systems.

4. Clean and adjust carburetor and empty sediment cup in gasoline line.

References: (12), pp. 142-185; (27), pp. 647-48; (28), jobs 84-100; automobile manuals.

Suggested Outcomes: Ability to clean and adjust carburetor and empty sediment cup; knowledge of principles underlying use of carburetor; knowledge of various makes of carburetors.

5. Grease chassis of car.



References: (27), job 1, pp. 20-24; (28), jobs 3-4.

Suggested Outcomes: Ability to grease chassis; knowledge of kinds of grease to use; ability to economize; knowledge of proper lubrication for car.

6. Take proper care of auto battery.

References: (12), pp. 416-17; (27), jobs 470, 472-73; (28), pp. 286-88, 293-96.

Suggested Outcomes: Ability to take good care of auto battery; knowledge of electric system of car; knowledge of the construction of a storage battery; knowledge of the functions of a battery.

7. Grease differential and transmission.

References: (12), pp. 45-51, 670-71, 932; (28), pp. 48-53, 73-81, job 40.

Suggested Outcomes: Ability to grease the differential and transmission; ability to appreciate the need for proper lubrication of moving parts; knowledge of the function of the differential and transmission.

8. Adjust auto horn.

References: (27), job 639.

Suggested Outcomes: Ability to adjust the auto horn; knowledge of the mechanism of the auto horn; knowledge of causes of defective operation.

9. Test for trouble in auto lighting system.

References: (12), pp. 416-17; (27), jobs 645-49; (28), jobs 196-200.

Suggested Outcomes: Ability to test out lighting system of car; ability to locate trouble and remedy minor defects in lighting circuits of car; ability to focus and clean automobile lights.



# 10. Locate trouble in ignition

References: (12), pp. 219-22; (27), job 516; (28), jobs 116-22.

Suggested Outcomes: Ability to locate and adjust trouble in ignition system; knowledge of characteristics to look for and the functions of various parts.

# 11. Clean and adjust spark plugs.

References: (26), pp. 234-38; (27), jobs 518-19; (28), jobs 261-62.

Suggested Outcomes: Ability to clean and adjust spark plugs; knowledge of the function of spark plugs; knowledge of the various methods of cleaning spark plugs.

# 12. Supplementary Jobs: Adjust breaker points of an ignition system; change charge rate of generator; adjust difficulty in lighting system; align front wheels to prevent undue wear on tires.

## IX. Furniture Repair

### 1. Repair joints in furniture.

References: (1), p. 77; (4), jobs 3,5; (18), pp. 100-19; (41), jobs 3, 5; (43), p. 51.

Suggested Outcomes: Ability to repair a piece of furniture in which the joints are loose; knowledge of the best kinds of joints to use in woodworking; knowledge of glue; desire to keep the home in good repair.

### 2. Tighten loose hinges.

References: (15), pp. 71-73; (43), pp. 49-50.

Suggested Outcomes: Ability to tighten loose hinges; knowledge of types of hinges; knowledge of the methods employed in setting hinges.



3. Put knobs on drawer.

References: (15), pp. 116-18.

Suggested Outcomes: Ability to place knobs on drawers; knowledge of the type of knob needed for a certain dresser; desire to keep the "little things" in a home in good condition.

4. Tighten belt on sewing machine.

References: (41), job 11.

Suggested Outcomes: Ability to tighten sewing machine belt; knowledge of the value of labor-saving devices in the home; develop the habit of thoughtfulness of others.

5. Supplementary Jobs: Readjust sticking drawer to fit properly; reseat chairs; recover an upholstered chair or stool.

X. Leather Work

1. Retack sole on shoes or resole shoes, nailing or glueing.

References: (25), pp. 15, 41, 43, 48, 52; (41), job 44; (43), pp. 241-51.

Suggested Outcomes: Ability to retack sole on shoes; ability to resole shoes; appreciation of the fact that the cheapest materials are not always the best to buy; develop the habit of neat and careful workmanship.

2. Put caps on heels.

References: (25), pp. 61-73; (41), job 44; (43), pp. 241-45.

Suggested Outcomes: Ability to put caps on heels; promote ideals of thrift.



## XI. Screen Work

### 1. Put new spring on screen door.

References: (34), pp. 102-3.

Suggested Outcomes: Ability to put a new spring on screen door; knowledge of health precautions; understanding of one's responsibilities to others in the performance of his tasks.

### 2. Rehang window screens or door screen or put new hinges on them.

References: (4), job 13; (7), job 16; (19), pp. 295-96; (32), pp. 131-32; (43), pp. 49-50.

Suggested Outcomes: Ability to hang a door or window screen or repair loose or sagging hinges; knowledge of common types of hinges.

### 3. Put new wire on old screen frame.

References: (18), p. 116; (34), pp. 98-100; (41), job 7; (43), pp. 25-26.

Suggested Outcomes: Ability to put new wire on old screen frames; ability to measure and cut screen wire correctly; knowledge of the proper care of screens.

### 4. Put new hooks on window or door screens.

References: (34), pp. 102-3.

Suggested Outcomes: Ability to place correctly new hooks on window or door screens; appreciation of one's ability to perform small household tasks.

### 5. Mend screen frames.

References: (41), jobs 3, 5; (43), p. 51.

Suggested Outcomes: Ability to use corner plates, braces and corrugated fasteners for repair work in the home; desire for efficient and worthy performance of work.



6. Mend screen wire.

References: (47), CVI (July 12, 1930), 28.

Suggested Outcomes: Ability to mend screen wire; develop the habit of giving attention to details in the performance of a task.

7. Supplementary Jobs: Make screen wire frames; screen in porch.



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APPENDIX



## CHECK LIST

Name.....Occupation.....Date.....

What school work in manual training and industrial education have you had?.....

.....

.....

Our purpose is: To find out what has to be done about the house, the doing of which requires the use of tools.

You are asked to do six things:

First. Examine carefully the following list of things which could be done about a home.

Second. Place a "1" before each thing which you have done in your home.

Third. Write at the end of the list on the lines provided any other things you have done about your home that are not already listed.

Fourth. Place a "2" before each thing which some member of your family or some other person has done for your home. (You may include any of the items already marked with a "1".)

Fifth. Place a "3" before those things that need to be done about your home. (You may include any items already marked.)

Sixth. Then write additional things which need to be done about your home on the lines provided at the end of the list.



"1" "2" "3"

### I. Sharpening Tools

- |     |     |     |     |                         |
|-----|-----|-----|-----|-------------------------|
| 1.  | ___ | ___ | ___ | Sharpen scissors.       |
| 2.  | ___ | ___ | ___ | Sharpen paring knives.  |
| 3.  | ___ | ___ | ___ | Sharpen hoes.           |
| 4.  | ___ | ___ | ___ | Sharpen axes.           |
| 5.  | ___ | ___ | ___ | Sharpen lawnmowers.     |
| 6.  | ___ | ___ | ___ | Sharpen butcher knives. |
| 7.  | ___ | ___ | ___ | Sharpen hand saws.      |
| 8.  | ___ | ___ | ___ | Sharpen planes.         |
| 9.  | ___ | ___ | ___ | Sharpen chisels.        |
| 10. | ___ | ___ | ___ | Sharpen pocket knives.  |
| 11. | ___ | ___ | ___ | Sharpen scrapers.       |
| 12. | ___ | ___ | ___ | Sharpen auger bits.     |
| 13. | ___ | ___ | ___ | Sharpen drill bits.     |
| 14. | ___ | ___ | ___ | Sharpen bread knives.   |
| 15. | ___ | ___ | ___ | Sharpen skates.         |

### II. General Repair Work

- |     |     |     |     |  |
|-----|-----|-----|-----|--|
| 16. | ___ | ___ | ___ | Reputty glass.                                   |
| 17. | ___ | ___ | ___ | Cut window glass to fit.                         |
| 18. | ___ | ___ | ___ | Replace broken window glass.                     |
| 19. | ___ | ___ | ___ | Replace or repair sash cords.                    |
| 20. | ___ | ___ | ___ | Adjust window stops to prevent rattling.         |
| 21. | ___ | ___ | ___ | Install weather strips in windows.               |
| 22. | ___ | ___ | ___ | Install weather strips on doors.                 |
| 23. | ___ | ___ | ___ | Repair door that binds or sticks.                |
| 24. | ___ | ___ | ___ | Repair broken lock springs in mortise lock.      |
| 25. | ___ | ___ | ___ | Make keys for door lock.                         |
| 26. | ___ | ___ | ___ | Cut window shades to fit.                        |
| 27. | ___ | ___ | ___ | Hang window shades.                              |
| 28. | ___ | ___ | ___ | Put up curtain rods.                             |
| 29. | ___ | ___ | ___ | Repair holes in plastering.                      |
| 30. | ___ | ___ | ___ | Paper rooms in home.                             |
| 31. | ___ | ___ | ___ | Repair coal chute.                               |
| 32. | ___ | ___ | ___ | Mend toys.                                       |
| 33. | ___ | ___ | ___ | Repair ice cream freezer.                        |
| 34. | ___ | ___ | ___ | Stop rat holes or mouse holes.                   |
| 35. | ___ | ___ | ___ | Repair lawnmower.                                |
| 36. | ___ | ___ | ___ | Replace shingles on roof.                        |
| 37. | ___ | ___ | ___ | Tarring roof or gutter to stop leaks.            |
| 38. | ___ | ___ | ___ | Replace worn out boards in porch floor or steps. |

PORTER LIBRARY



### III. Fitting Handles in Tools

- |     |     |     |     |                           |
|-----|-----|-----|-----|---------------------------|
| 39. | ___ | ___ | ___ | Put handle in rake.       |
| 40. | ___ | ___ | ___ | Put handle in hoe.        |
| 41. | ___ | ___ | ___ | Put handle in shovel.     |
| 42. | ___ | ___ | ___ | Put handle in pitch fork. |
| 43. | ___ | ___ | ___ | Put handle in hammer.     |
| 44. | ___ | ___ | ___ | Put handle in ax.         |
| 45. | ___ | ___ | ___ | Put handle in hatchet.    |
| 46. | ___ | ___ | ___ | Put handle in plane.      |
| 47. | ___ | ___ | ___ | Put handle in lawnmower.  |
| 48. | ___ | ___ | ___ | Put handle in chisel.     |

### IV. Finishing

- |     |     |     |     |                                    |
|-----|-----|-----|-----|------------------------------------|
| 49. | ___ | ___ | ___ | Take proper care of brushes.       |
| 50. | ___ | ___ | ___ | Remove scales of old paint.        |
| 51. | ___ | ___ | ___ | Paint house on outside.            |
| 52. | ___ | ___ | ___ | Paint floors.                      |
| 53. | ___ | ___ | ___ | Paint interior woodwork of house.  |
| 54. | ___ | ___ | ___ | Paint walls of house.              |
| 55. | ___ | ___ | ___ | Paint screen frames.               |
| 56. | ___ | ___ | ___ | Paint screen wire.                 |
| 57. | ___ | ___ | ___ | Paint outbuildings.                |
| 58. | ___ | ___ | ___ | Paint lawn furniture.              |
| 59. | ___ | ___ | ___ | Paint porch furniture.             |
| 60. | ___ | ___ | ___ | Enamel interior woodwork of house. |
| 61. | ___ | ___ | ___ | Enamel furniture.                  |
| 62. | ___ | ___ | ___ | Varnish woodwork of house.         |
| 63. | ___ | ___ | ___ | Varnish furniture.                 |
| 64. | ___ | ___ | ___ | Varnish floors.                    |
| 65. | ___ | ___ | ___ | Polish floors.                     |
| 66. | ___ | ___ | ___ | Clean and polish furniture.        |
| 67. | ___ | ___ | ___ | Wax floors.                        |
| 68. | ___ | ___ | ___ | Remove old finish on furniture.    |
| 69. | ___ | ___ | ___ | Refinish old furniture.            |
| 70. | ___ | ___ | ___ | Remove old finish on woodwork.     |
| 71. | ___ | ___ | ___ | Refinish woodwork of house.        |
| 72. | ___ | ___ | ___ | Remove finish from floors.         |
| 73. | ___ | ___ | ___ | Refinish floors.                   |
| 74. | ___ | ___ | ___ | Calcimine walls and ceiling.       |
| 75. | ___ | ___ | ___ | Whitewash chicken house.           |



V. New Work

- |      |     |     |     |                                      |
|------|-----|-----|-----|--------------------------------------|
| 76.  | ___ | ___ | ___ | Make bird house.                     |
| 77.  | ___ | ___ | ___ | Make dog house.                      |
| 78.  | ___ | ___ | ___ | Make hen's nest.                     |
| 79.  | ___ | ___ | ___ | Make chicken coop.                   |
| 80.  | ___ | ___ | ___ | Make flower trellis.                 |
| 81.  | ___ | ___ | ___ | Make flower box.                     |
| 82.  | ___ | ___ | ___ | Make utility bench.                  |
| 83.  | ___ | ___ | ___ | Make lawn furniture.                 |
| 84.  | ___ | ___ | ___ | Make small shelf.                    |
| 85.  | ___ | ___ | ___ | Put shelves in closet.               |
| 86.  | ___ | ___ | ___ | Build fence.                         |
| 87.  | ___ | ___ | ___ | Make yard gate.                      |
| 88.  | ___ | ___ | ___ | Make swing.                          |
| 89.  | ___ | ___ | ___ | Make sled.                           |
| 90.  | ___ | ___ | ___ | Make sand table.                     |
| 91.  | ___ | ___ | ___ | Make mitre box.                      |
| 92.  | ___ | ___ | ___ | Make picture frame.                  |
| 93.  | ___ | ___ | ___ | Hang pictures.                       |
| 94.  | ___ | ___ | ___ | Put on door bolt.                    |
| 95.  | ___ | ___ | ___ | Put special lock on door.            |
| 96.  | ___ | ___ | ___ | Put up and take down window awnings. |
| 97.  | ___ | ___ | ___ | Make concrete steps or walk.         |
| 98.  | ___ | ___ | ___ | Install shower bath.                 |
| 99.  | ___ | ___ | ___ | Fit and lay linoleum.                |
| 100. | ___ | ___ | ___ | Make saw horse.                      |

VI. Plumbing and Metal Work

- |      |     |     |     |  |
|------|-----|-----|-----|--|
| 101. | ___ | ___ | ___ | Replace worn washer on compression faucet. |
| 102. | ___ | ___ | ___ | Replace Puller ball on faucet.             |
| 103. | ___ | ___ | ___ | Thaw frozen pipes.                         |
| 104. | ___ | ___ | ___ | Solder two pieces of metal together.       |
| 105. | ___ | ___ | ___ | Mend leaking vessel as pan or bucket.      |
| 106. | ___ | ___ | ___ | Make a riveted joint.                      |

VII. Electrical Work

- |      |     |     |     |  |
|------|-----|-----|-----|--|
| 107. | ___ | ___ | ___ | Make a common splice of electric light wire.   |
| 108. | ___ | ___ | ___ | Tin a soldering iron.                          |
| 109. | ___ | ___ | ___ | Solder and tape a splice.                      |
| 110. | ___ | ___ | ___ | Construct simple lighting circuit in parallel. |
| 111. | ___ | ___ | ___ | Construct simple lighting circuit in series.   |



- |      |       |   |
|------|-------|---|
| 112. | _____ | Construct and install drop cord.                |
| 113. | _____ | Install flush switch.                           |
| 114. | _____ | Install snap switch.                            |
| 115. | _____ | Install flush receptable.                       |
| 116. | _____ | Construct extension cord.                       |
| 117. | _____ | Wire for Christmas tree lights.                 |
| 118. | _____ | Wire door bell or buzzer.                       |
| 119. | _____ | Repair door bell circuit.                       |
| 120. | _____ | Determine proper size of fuse for circuit.      |
| 121. | _____ | Test for and find burnt out fuses.              |
| 122. | _____ | Replace burnt out fuses.                        |
| 123. | _____ | Refill burnt out cartridge fuses.               |
| 124. | _____ | Put on new socket for light.                    |
| 125. | _____ | Put up aerial for radio.                        |
| 126. | _____ | Locate difficulty in electric circuit.          |
| 127. | _____ | Adjust difficulty in electric circuit.          |
| 128. | _____ | Read electric meter.                            |
| 129. | _____ | Compute electric light bill from meter reading. |
| 130. | _____ | Repair or replace electric iron element.        |
| 131. | _____ | Repair or replace electric hot plate element.   |
| 132. | _____ | Repair or replace electric toaster element.     |
| 133. | _____ | Locate difficulty in electric motor.            |
| 134. | _____ | Adjust difficulty in electric motor.            |
| 135. | _____ | Locate difficulty in electric refrigerator.     |
| 136. | _____ | Adjust difficulty in electric refrigerator.     |
| 137. | _____ | Repair electric toys.                           |

### VIII. Auto Mechanics

- |      |       |  |
|------|-------|--|
| 138. | _____ | Proper care of auto battery.                   |
| 139. | _____ | Test for auto battery troubles.                |
| 140. | _____ | Locate trouble in ignition.                    |
| 141. | _____ | Adjust breaker points of auto ignition system. |
| 142. | _____ | Test for trouble in auto lighting system.      |
| 143. | _____ | Adjust difficulty in lighting system.          |
| 144. | _____ | Adjust auto horn.                              |
| 145. | _____ | Clean and adjust spark plugs.                  |
| 146. | _____ | Change charge rate of generator.               |
| 147. | _____ | Empty sediment cup in gasoline line.           |
| 148. | _____ | Clean and adjust carburetor.                   |
| 149. | _____ | Preserve car finish by washing.                |
| 150. | _____ | Preserve car finish by polishing.              |
| 151. | _____ | Preserve car finish by waxing.                 |
| 152. | _____ | Change oil in motor.                           |
| 153. | _____ | Grease chassis.                                |
| 154. | _____ | Grease differential and transmission.          |
| 155. | _____ | Take proper care of tires.                     |



- |      |     |     |     |  |
|------|-----|-----|-----|--|
| 156. | ___ | ___ | ___ | Patch tubes.                                       |
| 157. | ___ | ___ | ___ | Patch tires.                                       |
| 158. | ___ | ___ | ___ | Change tires.                                      |
| 159. | ___ | ___ | ___ | Align front wheels to prevent undue wear on tires. |

#### IX. Furniture Repair

- |      |     |     |     |   |
|------|-----|-----|-----|---|
| 160. | ___ | ___ | ___ | Tighten screwjoints in furniture.         |
| 161. | ___ | ___ | ___ | Reglue joints in furniture.               |
| 162. | ___ | ___ | ___ | Attach corner braces in furniture.        |
| 163. | ___ | ___ | ___ | Readjust sticking drawer to fit properly. |
| 164. | ___ | ___ | ___ | Put knobs on drawer.                      |
| 165. | ___ | ___ | ___ | Reseat chairs.                            |
| 166. | ___ | ___ | ___ | Recane chair seat.                        |
| 167. | ___ | ___ | ___ | Recane chair back.                        |
| 168. | ___ | ___ | ___ | Tighten loose hinges.                     |
| 169. | ___ | ___ | ___ | Tighten belt on sewing machine.           |
| 170. | ___ | ___ | ___ | Replace worn webbing.                     |
| 171. | ___ | ___ | ___ | Retie broken down springs.                |
| 172. | ___ | ___ | ___ | Recover an upholstered chair or stool.    |

#### X. Leather Work

- |      |     |     |     |                                   |
|------|-----|-----|-----|-----------------------------------|
| 173. | ___ | ___ | ___ | Resole shoes, nailing or glueing. |
| 174. | ___ | ___ | ___ | Put caps on heels.                |
| 175. | ___ | ___ | ___ | Retack soles on shoes.            |
| 176. | ___ | ___ | ___ | Sewing or stitching shoes.        |
| 177. | ___ | ___ | ___ | Patching shoes.                   |
| 178. | ___ | ___ | ___ | Sewing harness.                   |
| 179. | ___ | ___ | ___ | Sewing horse collar.              |

#### XI. Screen Repair

- |      |     |     |     |                                   |
|------|-----|-----|-----|-----------------------------------|
| 180. | ___ | ___ | ___ | Make screen wire frame.           |
| 181. | ___ | ___ | ___ | Put new wire on old screen frame. |
| 182. | ___ | ___ | ___ | Put new spring on screen doors.   |
| 183. | ___ | ___ | ___ | Rehang window screens.            |
| 184. | ___ | ___ | ___ | Rehang screen doors.              |
| 185. | ___ | ___ | ___ | Put new hinges on screens.        |
| 186. | ___ | ___ | ___ | Screen in porch.                  |
| 187. | ___ | ___ | ___ | Mend torn screen wire.            |
| 188. | ___ | ___ | ___ | Put new hooks on screen door.     |



189. \_\_\_\_\_ Put new hooks on window screens.  
190. \_\_\_\_\_ Mend screen frames.

Other Things I Have Done about My Home

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....

Additional Things Which Need to be Done about My Home

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....