

A STUDY OF HOME SHOPS IN OREGON IN  
RELATION TO CERTAIN OBJECTIVES  
OF SECONDARY EDUCATION

by

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## INTRODUCTION

A desire to determine the status of the home shop, to ascertain the extent of the movement in Oregon, and to recognize factors responsible for its origin has led to this thesis. It has been the purpose of this study to gather material from the schools of Oregon and to compile the results in the light of the need, importance, and value of the home shop in its contribution to the home.

To step outside of the school room to seek evidence by which to judge the objectives of education, might not conform to modern trends. It is believed, however, that there is sufficient unmeasured evidence to prove the home shop is contributing directly to at least two of the objectives of education. Educators are placing considerable emphasis on leisure time. This educational objective is more fully realized in the home shop movement than some of the others. To wisely use one's leisure time in the home shop is to contribute directly to worthy home membership. The study should reveal some pertinent reasons whether or not an industrial arts program might be more fully developed in our schools.

In order to find the information as it exists in the home, questionnaires were sent to the shop teachers of Oregon and distributed by them to the boys in the grade and high school shop classes. The study was extended over enough schools to get results from every type of home and school.

A number of articles on the home shop movement and its relation to general education have appeared in magazines and newspapers,

but exact studies of the shop movement have been limited. A preliminary study of the problem was conducted by contacting seven institutions of higher learning offering industrial arts education programs, namely:

Iowa State College, Ames.

Ohio State University, Columbus.

Kansas State Teachers College, Pittsburg.

Ball State Teachers College, Muncie, Indiana.

Stoute Institute, Menomonie, Wisconsin.

State Teachers College, Oswego, New York.

Washington State College, Pullman.

Replies from the institutions indicated only three studies of this nature. (18-22-25)<sup>1</sup> One thesis based on results from sixty boys in Lima, Ohio, was similar to the present study, but the others, more limited in extent, were developed along different channels.

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1. Numbers in parenthesis in this thesis refer to the bibliography.



## HISTORICAL BACKGROUND

Before the beginning of the apprenticeship system, tradesmen frequently had their shops located in the home. This was an outgrowth of the conditions of the times. "Industry" as we know it today, with its centralized factories, had not developed to the point where it was necessary to move the machinery out of the home.

Trading was done by exchange from house to house or from shop to shop. This eliminated the middle man of present day marketing. Tradesmen were not so concerned with the problems of mass production and capital because of the narrow radius they could serve. To exist was to maintain contacts sufficient to exchange articles of their own manufacture for those made or produced by others. At times, this meant pressing into service every member of the household in order to keep the products for exchange equal to those of consumption. Since many of the tradesmen did find it necessary to use all available help in the household, it was only natural that the shop should be kept in the home.

The apprenticeship system was another factor that more firmly established the shop or "factory" in the home. The very nature of apprenticeship laws made it more convenient for the tradesman to take the apprentice into his home to teach him his trade. While serving his time, the apprentice was a member of the family and was called upon to do any of the ordinary household tasks.

With the centralization of industry and the breaking down of the apprenticeship system, the tradesman's shop at home has been

replaced by the huge and intricate manufacturing system of today.

The very thing that at one time was the cause of the home shops of industry being moved to manufacturing centers is now contributing to their replacement for a modified purpose. In this modern age of mass production and labor saving machines, certain large groups and classes of people have had a great increase in leisure time. Men and boys are turning to the home shop for recreation and as a wise use of leisure time. Thus we find history repeating itself in the evolution of the home shop. The exception is the emphasis now placed upon the purpose and type of work of the home shop. Instead of production for trade and as a principal livelihood, the "home shop" of today offers an opportunity for the wise use of leisure time in construction and repair work for the home, and in the exercise of creative hobbies.

### DEVELOPMENT OF THE QUESTIONNAIRE.

The questionnaire used in this study was designed to gather information on the existence of shops in the homes of pupils in high schools and the upper grades, the length of time the shop had been in the home, who was responsible for starting it, who uses it, and the nature of the equipment.

The second and third pages of the questionnaire listed a number of service and repair jobs commonly done about the home. These were divided into four groups,--- general household service and repair, electrical service and repair, plumbing service and repair, and auto service and repair. The purpose of these two pages was to determine what was being done in the home in the way of service and repair, and what effect the home shops had upon the incentive to do these jobs.

In developing the questionnaire, a series of questions on the home shop was formulated from readings, observation and general purpose. These were arranged and reduced to the smallest number possible so as to get the greatest amount of information with a minimum amount of time on the part of the pupils responding. Questions dealing with the location, the nature of equipment other than tools, amount of time spent in the home shop, and parents reactions were eliminated, because they were considered less important in view of the objectives and extent of this study.

A copy of the questionnaire, and the forms used in contacting the teachers through whom they were distributed, will be found in the appendix.

#### PROCEDURE OF SENDING QUESTIONNAIRES.

Letters of transmittal and a sample of the questionnaire were sent to the shop instructors of the different schools. They were asked to cooperate and to return the self addressed card with the number of questionnaires needed indicated in the space provided. The questionnaires requested and a sheet of instructions were mailed as rapidly as the return cards were received. A copy of the letter of transmittal and the letter of instructions will be found in the appendix, page thirty-six.

## RETURNS FROM QUESTIONNAIRES.

The letters of transmittal, enlisting the cooperation of shop teachers, were sent to 130 supervisors and instructors. The Salem and Portland supervisors arranged with their instructors to cooperate. This made a total of 164 instructors contacted, representing ninety-nine school systems. The returns indicated 103 supervisors and shop instructors responded, or sixty-three per cent of the total contacted. The 103 supervisors and shop instructors represented forty-four school systems or forty-four per cent of the total school systems contacted. Within these forty-four school systems were eighty-five individual schools.

Requests from the instructors called for a total of 11,200 questionnaires, but the final results showed a return of only fifty-five per cent of the total. As an illustration, the Portland schools requested five thousand but returned only 1809. It is suspected the tendency to estimate in liberal round numbers "the number of questionnaires needed" accounts for the initial request being so much higher than the number returned. Others are still to be returned, but the necessity of terminating the study at a given time has prevented the use of those received later than April fifteenth. The study submitted herewith is based upon 6133 questionnaires filled out by pupils in the upper grades and high schools of Oregon.

## TABULATED DATA AND DEDUCTIONS

The extent of support given to the home shop study is shown by Table I.

TABLE I  
Number of Agriculture, Industrial Arts,  
and Trade Education Instructors Responding to Questionnaires,  
Based on 130 Contacts in the State of Oregon.

Classification	Contacts	Response	Per Cent
Agriculture	33	9	27
Industrial Arts	119	77	65
Trade Education	<u>12</u>	<u>9</u>	<u>75</u>
Total	164	95	58

Three classifications of instructors were contacted with the letter of transmittal, Agriculture, Industrial Arts and Trade Education. Twenty-seven per cent of the Agriculture group responded, sixty-five per cent of the Industrial Arts group, and seventy-five per cent of the Trade Education group. Nearly three-fourths of the total 164 contacted were Industrial Arts instructors, while one fifth were Agriculture instructors and seven per cent were Trade Education instructors.

To attempt to evaluate the relative importance of the individual instructing groups to the home shop would not be in complete fairness because of the difference in numbers of each group. It is suspected, however, that a study of this nature and the implications accompanying it would receive more favorable support from the

Industrial Arts and Trade Education groups than from the Agriculture staff. Such a study or movement of the home shop is more in keeping with the objectives of Industrial Arts and Trade Education groups than the Agriculture group.

The survey was not restricted to a hard and fast definition of the home shop. The matter of interpreting what constituted a home shop was left open so as to get as many reactions as possible. It was felt that the boy's judgment would distinguish where a home shop began and where a few hand tools were kept in the home. The nature of the questions in the questionnaire gave evidence of the extent of the home shop. The following definition was derived from that information. Any place, regardless of location, with even meager equipment for performing service and repair jobs about the home. It is necessary to examine the final results of the study in terms of this definition.

TABLE II

Number of Home Shops  
Reported by Grades, Based on Total  
of 6133 Responses.

Grade	Number	Number of Shops	Per cent	Percentage				
				15	30	45	60	75
7	1538	911	59					
8	1758	1079	61					
9	1055	673	64					
10	817	512	63					
11	521	354	68					
12	444	391	66					
<b>Total</b>	<b>6133</b>	<b>3820</b>	<b>62</b>					

By glancing at the percentage column of Table II, one can readily ascertain the significance of the development of the home shop with that of the development of the individual. In no grade was there less than fifty per cent home shops. The seventh grade showed the lowest and the eleventh grade the highest. It is comforting to note that there is but a slight decrease of home shops during the senior year. In some instances, this might point to the continuation of the home shops after the boys have become adults. It is hoped that a future study may be conducted to ascertain this fact.

TABLE III

Number of Boys in a  
Given Age and Grade, Based on Total  
of 6133 Responses.

Grade	7	8	9	10	11	12	Total
Age Median	12.9	13.8	15.1	16.1	17.1	18.2	14.6
Age 10	1						1
11	93	4	2				99
12	<u>745</u>	143	2				890
13	426	<u>852</u>	51	7			1336
14	185	527	444	55	1		<u>1212</u>
15	74	181	<u>388</u>	330	35		1008
16	10	44	129	<u>275</u>	202	28	688
17	3	6	33	119	<u>183</u>	156	500
18	1		4	25	80	<u>162</u>	272
19		1	1	5	16	76	99
20				1	2	16	19
21					1	5	6
22			1				1
23					1		1
24						1	1
Total	1538	1758	1055	817	521	444	6133

Table III gives the grouping of the boys in the seventh,



eight, ninth, tenth, eleventh, and twelfth grades according to age. There is a range of nine years in the seventh grade, from ten to eighteen, with the median falling on the year twelve and nine tenths. The range in the eighth grade was nine years, from eleven to nineteen, with the median on thirteen and eight tenths. A marked increase in range of years is noted in the ninth grade, probably due to the transition between grade and high school. This range of twelve years, from eleven to twenty-two, marks the greatest of the six grades represented. The median for grade nine is fifteen and one tenth. In the tenth grade, the span from thirteen to twenty represents a range of eight years with the median located on age sixteen and one tenth. Grade eleven ranges from fourteen to twenty-four years, a ten year spread with the median on seventeen and one tenth, only three years above the minimum. The senior year is represented by a range of eight years from ages sixteen to twenty-three. The tenth and twelfth grades share the same range, but the median lies on age eighteen and two tenths for the senior year. The four years of high school are marked with an increase of one year in median per increase of one year in school. The median for the total 6153 was fourteen and six tenths with a range of fifteen years, from ten to twenty-four. It is significant to note how well the range in the senior year corresponds with accepted theories regarding elimination from school and the more homogeneous grouping.

The results of Table IV, page twelve, throws some additional light on the home shop movement in comparison to the general yearly economic trends. "About 1900" was the earliest date reported for the

establishment of a home shop. Some gave their grandfathers credit for having started the shop, but in most cases failed to indicate the year. Most of the earlier dates indicated, fell between the years of 1880 and 1890.

TABLE IV  
Number of Home Shops  
Started in a Given Year, Based on  
a Total of 3820 Shops.

Year	Number	Per Cent	Percentage																				
			2	4	6	8	10	12	14	16	18	20	22	24									
1936	68	2																					
1935	406	11																					
1934	349	9																					
1933	389	10																					
1932	224	6																					
1931	188	5																					
1930	359	9																					
1929	221	6																					
1928	167	4																					
1927	68	2																					
1926	98	3																					
1925	126	3																					
1924	43	1																					
1923	42	1																					
1922	34	1																					
1921	35	1																					
1920	107	3																					
1919	16	0.4																					
1918	30	1																					
1917	12	0.3																					
1916	12	0.3																					
1915	14	0.4																					
1910	24	1																					
1900	12	0.3																					
Year not Indicated	776	20																					
<b>Total</b>	<b>3820</b>	<b>100</b>																					

Establishing 1900 as a basic date, the home shop developed in cycles. A period of nineteen years shows but few marked differences in development. The year 1920 stands out between the first and sec-

ond cycle as a bumper year for home shops. In 1920 there was a noticeable increase in the number of shops over that of the previous year. This increase is probably due to the post-war conditions when many turned to new and different activities. This sharp increase in 1920 was marked by a decided slump during the next four years. Another sharp rise in 1925 tapered off for two years to again appear as the beginning of the gradual development in 1928. Strange as it may seem, the rise has been nearly constant since the year 1928, with the exception of the post-depression year of 1931, when it dropped, even though the year 1930 showed a substantial gain. It is to be expected that many of these dates were not easily established in the minds of the boys; however, it is indicative to note that as the boys reached maturity the rate of development of home shops likewise increased. The difficulty of establishing definite dates is shown by the large number wherein the year was not indicated.

There were 6133 boys who filled out the questionnaires. Contained in this group were 3820 home shops or a percentage of sixty-two. Of this number, over twenty per cent indicated the shop as their property or possession, with thirty per cent of the shops owned by fathers. Indications point toward joint ownership in many of the cases, as seventy-five per cent showed the shop was used jointly by father and son. In some instances, the shop was owned by some other member of the family, usually a brother, but rarely was the boy kept from using it.

One of the most illuminating results of this study has been

the location of the responsibility for the development of the home shops. Some of the credit claimed by educators for the development of the child is over-balanced. A recent philosopher of education divides the effect of agencies influencing the development of the individual child as follows: (listed in order of importance) parents, playmates, club leaders, school teachers, and Sunday School. According to this study, parents are still doing their share in the development of the child. Suffice to say that sixty-eight per cent of the total of 3820 boys having home shops gave the credit for its existence to their fathers. Over twenty per cent took the initiative and developed their own shops; and only a little over one per cent gave the credit to shop teachers. Scout leaders were given less than one per cent credit; friends three per cent, and others (relatives and unnamed persons) nine per cent. Another phase of the responsibility of the home shop closely related to the high percentage of credit given to fathers was the fact that eighty-two per cent of the home shops were started before the boys had enrolled for shop work in school.

The cooperation of the Portland grade schools made possible an interesting comparison of the home shop development. For at least two years it has been the policy of the industrial arts teachers of Portland grade schools to sponsor and encourage home shops. The per cent of home shops in the seventh grade in Portland was greater than for the seventh grade in schools outside of Portland. Portland indicated sixty-four per cent of home shops in the seventh grade, while outside of Portland there were only fifty-four per

cent in the same grade. The percentage of home shops for the eighth grade was sixty-six in Portland and fifty-eight outside of Portland. No questionnaires were returned from Portland for grades above the eighth.

While the Portland report shows a larger percentage of home shops in the seventh and eighth grades, the difference is probably due as much to the differences in opportunities for other types of recreation and use of leisure in the smaller towns as to the sponsorship of home shops by the Portland industrial arts teachers. In truth, the differences in the percentages of home shops in and out of Portland are small, suggesting the spontaneous development of the home shop movement because of broader influences than those exerted by teachers, however desirable the teachers' efforts and influence may be.

Twenty-five of the Portland boys gave their shop teachers credit for encouraging or aiding them in starting a home shop. This was nearly half of the total of fifty-seven for the whole state. There seems to be a general movement towards the development of home shops regardless of the support of shop teachers. Probably the ever increasingly attractive line of home-shop power tools has had much to do with the home shop impetus.

It might be suspected that the type of school, because of its geographical location, industry, and population, had something to do with the development of home shops. A study of Table V, pages sixteen and seventeen, does not bear out such suspicions. The home shop movement seems to be a definitely established factor in all homes of

Oregon regardless of type of community, climate, location, population, or industry represented. The lowest percentage of home shops was at Bend and Gold Hill, where forty per cent of those reporting showed they had shops in the home. Two communities returned reports of 100 per cent home shops among the pupils in the industrial arts classes. These were Knappa and Sandy. Portland, the only large city in the state, reported sixty-four per cent. The range, therefore, shows no preference for any type of community, as the lowest and the highest are small, rural communities, and all other cases are well scattered between these.

The map, page eighteen, illustrates the sampling of the schools throughout the state. As is to be expected, a greater number of responses was received from the Willamette Valley. A check of those cities does not reveal any great differences in percentage of home shops. The eastern section of the state was somewhat lacking in a representative number responding. Of the total counties of the state, twenty-five are represented and eleven are not represented.

TABLE V  
School Systems Responding  
to Questionnaire, and Number of Home  
Shops in Each Community.

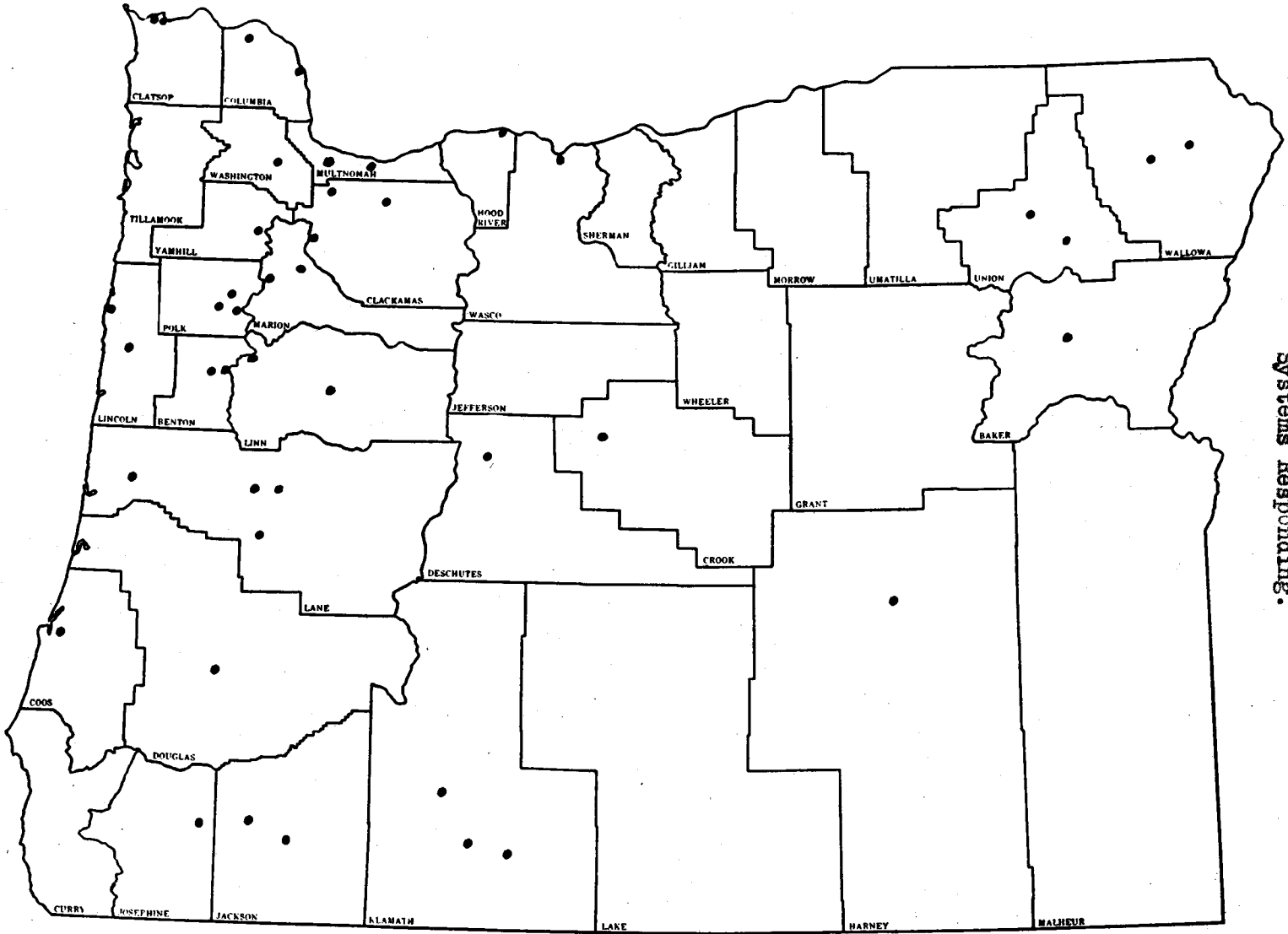
School	Number Responding	Number of Home Shops	Per Cent
Albany	182	129	71
Astoria	56	49	88
Baker	76	32	42
Bend	46	18	40
Bonanza	31	21	68
Burns	34	24	71
Canby	41	21	51

(Continued on next page.)

TABLE V (continued)

School	Number Responding	Number of Home Shops	Per Cent
Chiloquin	48	33	69
Clatskanie	82	58	71
Corvallis	213	113	53
Cottage Grove	18	16	89
Dallas	62	56	90
Enterprise	28	18	64
Eugene	550	249	45
Falls City	7	4	52
Gold Hill	5	2	40
Grants Pass	35	32	91
Gresham	64	47	73
Halfway	28	18	64
Hillsboro	84	58	69
Hood River	135	61	45
Klamath Falls	296	153	52
Knappa	11	11	100
La Grande	41	33	80
Mapleton	9	4	44
Marshfield	158	111	57
McMinnville	134	68	51
Medford	251	122	49
Milwaukie	123	60	49
Monmouth	38	19	50
Philomath	30	22	73
Portland	1809*	1159	64
Prineville	43	27	63
Roseburg	81	59	73
Salem	652	511	78
Sandy	20	20	100
Siletz	16	15	94
Silverton	91	55	60
Springfield	117	77	66
St. Helens	42	22	53
Sweet Home	33	18	55
Taft	26	15	58
The Dalles	223	131	59
Union	60	40	67
<b>Total</b>	<b>6133</b>	<b>3820</b>	<b>62</b>

\* Partial report. Other questionnaires delayed too long to be included in this study. See pages 7 and 15.



Map, Showing Distribution of School Systems Responding.



The nature of the equipment in the home shop was largely hand tools. Eighty-two per cent had mostly hand tools and twenty-one per cent had hand and power tools.

There were many illustrations of a very well equipped power-tool shop. Table VI shows the frequency of power tools. The wood lathe heads the list with over eleven per cent, followed by the grinder, circular saw, jig saw, drill press, band saw, sander, jointer, screw-cutting lathe, planer, buffer, and polisher. A number of boys seemed to take pride in adding that their wood lathe or power saw was "home made". One home shop in Hood River had every power tool represented in the table. The machine or screw-cutting lathe, in a few cases, was an attachment to the wood lathe.

TABLE VI  
Number of Power Tools Reported  
in Home Shops, Based on Total of 3820 Shops.  
(Arranged in Order of Frequency.)

Tool	Number	Per Cent	Percentage														
			1	2	3	4	5	6	7	8	9	10	11	12	13		
1. Wood lathe	448	12															
2. Grinder	289	8															
3. Circular saw	260	7															
4. Jig saw	223	6															
5. Drill press	217	6															
6. Band saw	90	2															
7. Sander	40	1															
8. Jointer	25	1															
9. Screw-cutting lathe	20	1															
10. Planer	19	0.5															
11. Buffer	14	0.4															
12. Polisher	11	0.3															

Forty-six per cent of the home shops have some tools for metal

**TABLE VII**  
**Number of Metal Working Tools**  
**Reported in Home Shops, Based on a Total of 3820 Shops.**  
**(Arranged in Order of Frequency.)**

Tool	Number	Per Cent	Percentage									
			2	4	6	8	10	12	14	16	18	20
1. Hack saw	720	19	[Bar extending to 19%]									
2. Tin snips	521	14	[Bar extending to 14%]									
3. Drill bits	514	13	[Bar extending to 13%]									
4. Cold chisel	356	9	[Bar extending to 9%]									
5. Soldering copper	336	9	[Bar extending to 9%]									
6. File	283	7	[Bar extending to 7%]									
7. Wrenches	182	5	[Bar extending to 5%]									
8. Anvil	133	3	[Bar extending to 3%]									
9. Forge	132	3	[Bar extending to 3%]									
10. Torch	109	3	[Bar extending to 3%]									
11. Pliers	79	2	[Bar extending to 2%]									
12. Ball pion hammers	52	1	[Bar extending to 1%]									
13. Tap and dies	50	1	[Bar extending to 1%]									
14. Tongs	20	1	[Bar extending to 1%]									
15. Vise	16	0.4	[Bar extending to 0.4%]									
16. Pipe wrench	16	0.4	[Bar extending to 0.4%]									
17. Pipe cutter	12	0.3	[Bar extending to 0.3%]									

working. In Table VII these tools are listed according to frequency, with the hack saw topping the list. Farm home shops accounted for the greatest per cent of the metal tools, particularly forges, anvils, tongs, wrenches, tap and dies, vises, and pipe cutters.

Eighty per cent of the home shops have tools primarily for wood working. Since it was considered undesirable to have these listed in detail on the questionnaire, there is no way of indicating the exact nature of the woodworking tools.

Service and Repair  
Jobs Commonly Done About the Home.

The second and third pages of the questionnaire were devoted to a list of repair and service jobs commonly done about the home. The boys were asked to check the jobs they had completed at home. This part of the questionnaire was eliminated in the Portland schools because many of the electrical and plumbing service jobs are prohibited by ordinance or trade union regulations. Portland teachers preferred to omit the electrical and plumbing jobs as it was felt they might imply or suggest the tasks might be done by the boys in the home, whereas such a practice would conflict with local regulations.

The purpose of this part of the study was to determine what was being done in the homes and to what extent home shops were contributing to the completion of the jobs listed. When this list was compiled, it was felt that there were few, if any, tasks omitted. The few additional jobs listed may be an indication of the completeness of the original list. Jobs were selected with the intention of getting those of simple nature as well as those of more complex nature. It was discovered that no one job was too complex to be done, as each one was checked 243 times or more in the household service and repair group, 433 times or more in the electrical group, 287 times or more in the plumbing group and 725 times or more in the automotive group.

The results of these two pages are based on a total of 4324 responses. It is significant to note the response in filling out

the service and repair jobs is equal to the total number of boys contacted. In other words, certain service and repair jobs are performed regardless of whether there is a home shop or not, a thought not in full support of the real value of the home shop. On the other hand, the jobs indicated by those without home shops most often were of a type requiring no extensive shop equipment such as replacing a blown fuse, testing or replacing a light bulb, and washing and polishing a car, etc..

The real value of a home shop lies in terms of its good to the boy in his use of leisure time and the activities that tie him to the members of the family, as an asset and not a liability. An article printed in the November 1934 issue of the Industrial Education Magazine by L. E. Thurman<sup>2</sup> substantiates this statement.

"The creative ambitions of the teen-age boy are well known to all of us. Starting at a surprisingly early age he wants to use tools, and this interest leads quickly to the desire to make something. To guide this interest properly is the duty and privilege of the parent. If the boy is scolded or punished for breaking or dulling tools, he naturally seeks some other outlet for his energy.

"Any mother and 'Dad' could profitably endure a little noise, and entertain the 'gang' in the basement or the home workshop, rather than have their son follow the 'gang' away some place, to participate in far less profitable activities. It may be a radical view, but if parents could think of their sons as possible criminals who must be steered in the direction of worthwhile, manly pursuits, the home workshop idea would receive even greater support."

Table VIII, pages twenty-three, twenty-four, and twenty-five, shows General Household Service and Repair Jobs completed by boys,

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2. Thurman, L. E., The Home Workshop for Boys, Industrial Education Magazine, Vol. XXXVI Nov. 1934, pp. 252.

arranged in the order of frequency. It includes sixty-seven of the more common jobs done about the home. There was no indication that the location had any influence on any job or group of jobs. They were checked quite consistently throughout the state. More than half of the jobs were checked by at least one-third of the boys reporting. This indicates that at least half of the jobs listed are commonly performed in the home.

The additional jobs were so few that the totals for those that seemed to be common were very low. Additional jobs consisted, in the main, of repair work of some type. Boys from rural communities stressed tractor and engine repair, while bicycle repair was mentioned more frequently by those from the cities. Considerable repair work was done on cars by both the rural and the city boys.

TABLE VIII  
General Household Service and Repair Jobs  
Performed About the Home, Based on a Total of 4324 Responses  
( Listed According to Frequency )

Job	Number	Per Cent
1. Sharpen a kitchen knife.	3629	84
2. Install a handle in a hammer or axe.	3474	80
3. Sharpen a garden hoe.	2891	67
4. Make a bird house.	2742	63
5. Repair clothes line.	2645	61
6. Clean and polish woodwork.	2503	58
7. Paint old furniture.	2458	57
8. Lay linoleum or carpet.	2369	55
9. Repair or replace hoe or rake handle.	2361	55
10. Shingle a roof.	2350	54
11. Repair porch steps.	2072	48

(Continued on next page.)

TABLE VIII (continued)

Job	Number	Per Cent
12. Clean and oil sewing machine.	2059	48
13. Repair a piece of furniture.	2021	47
14. Put on rubber heels.	1962	46
15. Trim hedge or shrubs.	1896	44
16. Wax Floors.	1891	44
17. Install screen wire on window or door frame.	1883	44
18. Put on half-soles.	1731	40
19. Attach drawer pulls.	1725	40
20. Make a piece of furniture.	1705	39
21. Make a tray or drawer for nails or screws.	1690	39
22. Build a rabbit pen.	1676	39
23. Re-varnish old furniture.	1658	38
24. Clean and polish silverware.	1655	38
25. Make a work bench.	1643	38
26. Repair wooden walk.	1634	38
27. Replace window glass.	1550	36
28. Sharpen scissors.	1548	36
29. Make a bread board.	1517	35
30. Paint interior woodwork.	1508	35
31. Repair and tighten sewing machine.	1480	34
32. Hang a door.	1465	34
33. Build a chicken house.	1461	34
34. Varnish new wood.	1461	34
35. Repair window shade.	1454	33
36. Frame a picture.	1451	33
37. Clean gutters.	1441	33
38. Set up stove.	1356	31
39. Make a porch flower box.	1339	31
40. Build a dog kennel.	1310	30
41. File a key.	1278	30
42. Solder a kitchen utensil.	1254	29
43. Paint exterior of house.	1194	28
44. True up a door that sags or binds.	1175	27
45. Sharpen a lawn mower.	1143	27
46. Paint porch floor.	1051	24
47. Repair a round leather belt.	986	23
48. Repair a drawer.	979	23
49. Make a plant trellis.	874	20
50. Reseat a chair.	831	19

(Continued on next page.)

TABLE VIII (continued)

Job	Number	Per Cent
51. Repair window lock.	770	18
52. Repair scratched table top.	761	17
53. Repair concrete walk or floor.	738	17
54. Clean flue.	712	16
55. Clean wall paper.	710	16
56. Make a window cooler cupboard.	632	15
57. Repair a leaking gutter.	559	13
58. Repair cracks in a plastered wall.	559	13
59. Build concrete walk or floor.	556	13
60. Remove rust and paint gutters.	535	12
61. Screen a porch or milk house.	487	11
62. Replace a defective spring in a mortise lock.	399	9
63. Make a wooden spoon.	356	8
64. Replace a sash cord.	346	8
65. Make a fly trap.	290	7
66. Make concrete ornaments.	281	6
67. Make a scratch awl.	213	5
Additional jobs listed.		
1. Repaired car.	56	1.3
2. Repaired bicycle.	26	0.6
3. Build a building.	25	0.6
4. Build airplane model.	20	0.5
5. Repaired farm engine and tractor.	13	0.3

Table IX, page twenty-six, shows the electrical service and repair jobs performed about the home. The percentages for this group did not run as high as in the general household service and repair jobs. The lack of power in some of the rural communities would be the first thought that might explain this, but upon examin-

ing the table it is revealed that nearly seventy-five per cent must have had power. Item one ----- test or replace a light bulb -- was checked by seventy-three per cent of the total. About half of the jobs listed were checked one-third or more times. This gave a fair representation of the type of electrical work commonly done in the average home.

TABLE IX  
Electrical Service and Repair Jobs  
Performed About the Home, Based on a Total of 4324 Responses  
(Listed According to Frequency)

Job	Number	Per Cent
1. Test or replace light bulb.	3152	73
2. Install radio ground wire.	2334	54
3. Install radio aerial wire.	2229	52
4. Replace blown fuse.	2051	48
5. Repair or install a light socket.	1964	46
6. Make or repair an extension cord.	1858	43
7. Clean and oil washing machine.	1700	39
8. Clean light fixtures and shades.	1525	35
9. Repair light switch.	1262	29
10. Install dry cells in radio, telephone, or door bell circuit.	1031	24
11. Remove a short circuit.	806	19
12. Repair door bells.	771	18
13. Clean and oil vacuum-cleaner motor.	754	17
14. Clean and polish electric range.	603	14
15. Adjust door bell breaker points.	445	10
16. Install floor or wall outlet.	433	9

Table X, page twenty-seven, gives the results of the plumbing service and repair jobs. It is the least significant of the four groups of service and repair jobs.



TABLE X  
 Plumbing Service and Repair Jobs  
 Performed About the Home, Based on a Total of 4324 Responses.  
 (Listed According to Frequency.)

Job	Number	Per Cent
1. Repair garden hose.	2520	58
2. Repair leaking faucet.	2015	47
3. Repair a pump.	1164	27
4. Adjust flush tank float.	617	14
5. Drain and clean a plumbing trap.	614	14
6. Install a new flush tank ball.	322	7
7. Repair flush tank valve.	287	7

Items four, five, six, and seven represent a type of job that might be a little too complex for the average boy.

The Auto Service and Repair group Table XI, page twenty-eight, revealed some of the most frequent tasks performed about the home. Soldering a radiator was the job done the least number of times. It was checked seventeen per cent of the total 4324 responses. Over half of the jobs were checked by one-third of the total of 4324 boys responding. It was thought items eleven, twelve, and thirteen would be too complex for many to have attempted, but the Automotive Trade group from Salem brought the total for these three items up higher than the most complex jobs of the other groups. Few tasks in the general household, electrical and plumbing groups were as difficult as item thirteen in the Auto Service and Repair group -- solder a leaking radiator -- and item twelve -- grind valves. It is significant, however, that relatively few boys outside of the schools

giving automotive instruction, as a part of the shop program checked these two items.

TABLE XI  
Auto Service and Repair Jobs Performed  
About the Home, Based on a Total of 4324 Responses  
(Listed According to Frequency.)

Job	Number	Per Cent
1. Wash and polish car.	3340	77
2. Repair inner tube.	2982	69
3. Change tire and inflate.	2850	66
4. Grease car.	2038	47
5. Repair wind shield wiper.	2035	47
6. Clean and adjust spark plugs.	1572	37
7. Drain, and refill crankcase with new oil.	1571	37
8. Test and fill battery.	1411	33
9. Adjust brakes.	1202	28
10. Install new radiator hose.	1179	27
11. Adjust carburetor.	992	21
12. Grind valves.	853	20
13. Solder a leaking radiator.	625	17

Table XII, page twenty-nine, gives sixteen of the highest frequency jobs. It includes only those checked by fifty per cent or more of the total number of boys responding. It will be noted that this list is made up of jobs from the general household, electrical, plumbing and automotive groups. This shows the diversity of jobs being performed in the home. While the results of these jobs are based upon a mixture of courses, woodworking, auto mechanics, and home mechanics, this list should offer definite help in the determination of what should be taught in the school shop to furnish a background of information and skills for the common tasks about the home.

TABLE XII  
 Service and Repair Jobs Performed  
 About the Home, Based on a Total of 4324 Responses.  
 (Fifty or Higher Per Cent Frequency.)

Job	Number	Per Cent
1. Sharpen a kitchen knife.	3629	84
2. Install handle in hammer or axe.	3474	80
3. Wash and polish car.	3340	77
4. Repair inner tube.	2982	69
5. Sharpen a garden hoe.	2891	67
6. Change tire and inflate.	2850	66
7. Make a bird house.	2742	63
8. Repair clothes line.	2645	61
9. Repair garden hose.	2520	58
10. Clean and polish woodwork.	2503	58
11. Paint old furniture.	2458	57
12. Lay linoleum or carpet.	2369	55
13. Repair or replace hoe or rake handle.	2361	55
14. Shingle a roof.	2350	54
15. Install radio ground wire.	2334	54
16. Install radio aerial wire.	2229	52

They could well serve as a basis of judging what the boy should be able to do in the home to be a worthy member of the family. They serve to arouse incentives for the development of home shops for repair work and to give the boy an opportunity of doing worth while things during his leisure time. This may serve as one of the greatest possibilities for the development of the Industrial Arts program in the schools. Considerable interest is being shown in this phase of education. From the United States Bureau of Education, Bulletin No. 35, 1918, "Cardinal Principles of Secondary Education" we have..

"Work in Mechanic Arts provides opportunities for fuller control of certain fundamental processes through the application of arithmetic and drawing, and the reading of printed material bearing on the job. The abilities

acquired in the work equip a pupil for more effective participation as a member of a home and include skill, knowledge, and helpful interests that may find expression in profitable leisure time activities."

and from the first report of the Committee on "Standards of Attainment in Industrial Arts Teaching", American Vocational Association, December, 1934, page nine, we find,

"The industrial-arts work is justified not because the objectives of the industrial-arts teacher are essentially different from the objectives of the general-education teacher, but because the experiences provided in industrial arts offer a more effective and more economical means of developing certain desirable objectives which are given as the aims of general education than do the experiences provided in the so-called academic subjects. For example, it is doubtful whether any academic subject affords experiences so effective in developing the attitudes and habits which contribute to "Worthy use of leisure", "Worthy home membership", or "Vocational interests", as do the experiences in the field of industrial arts. In attaining many of the other objectives of general education also, the industrial-arts experiences are more effective than the experiences offered in academic subjects."

To educators, the problem of how to educate in the light of individual differences, offers one of the most difficult obstacles to overcome. Since interest and attention are characteristics different in every individual, it should serve as a warning to teachers, and particularly shop teachers, that what the boy does at home during his leisure time might point directly to his interest in life.

A similar note of warning is expressed by E. E. Ericson<sup>3</sup> in "The Home Workshop", from the Industrial Education Magazine, July 1926 issue.

"Perfunctory service on the part of the teacher in satisfying the minimum hours, will never produce home workshops. A knowledge of subject-matter alone will not in-

spire students to home activities. A knowledge of boy temperament must be added, as well as an interest in what he does with his leisure time; and most important of all, the energy and willingness required to become more to the boy than just his 'teacher'. The teacher who is able to do these things and willing to make the sacrifice which they demand, need not worry about the enrollment for his shop for the following semester, nor will he need to complain that the manual arts are losing ground in the schools."

## SUMMARY AND IMPLICATIONS.

The approach in this thesis has been through two phases:

First, the extent of home shops in Oregon, and the nature of the equipment. Second, the extent to which home shops are used for construction, repair and service jobs contributing to the objectives of "Worthy home membership" and "Wise use of leisure time", and the relation of the home shop to the school shop.

First, it was found that sixty-two per cent of the homes covered by the survey have home shops. Boys in general showed a keen interest in the development of home shops and fathers showed a corresponding interest. In a majority of cases the shop is used jointly by father and son. Fathers were given the credit for the responsibility of the shop, by a great margin; the boy established his own shop in about one-fifth of the homes. Shop teachers were entirely out of the picture with a mere one and five tenths per cent credit given to them for having been responsible for the development of home shops.

Most of the home shops were equipped with only hand tools, but one-fifth of them indicated some very well equipped power-tool shops. The hand tools were primarily for woodworking. About half indicated metal working tools of some kind.

Second, general household, electrical, plumbing, and automobile service and repair jobs commonly done about the home were surveyed to see what is actually being done in the home. The scope of the jobs was wide enough to include most of the tasks found in any home where modern conveniences exist. Even though only sixty-two per cent of

per cent of the homes surveyed indicated the existence of home shops, 100 per cent of the boys indicated they had done some of the service or repair jobs listed in the questionnaire. This was to be expected as the list of jobs submitted included several for which no specific instruction and only meagre equipment was necessary. It is left to the imagination to picture the boys trying to do some of the more advanced jobs without even a semblance of a kit or a collection of hand tools. No wonder they become discouraged and turn to unproductive activities of less desirable social and moral value as a release for energies that must be employed.

It is hoped that this study will serve to point the way for shop teachers in "selling their product" to the public. Activities of the home shop are closely related to "Worthy home membership", and "Wise use of leisure time", two important objectives of secondary education. The shop teacher has a very great opportunity to encourage and help the boy in the development of these objectives. Without a home shop there is no opportunity to apply the school shop instruction to meet the objectives of "Worthy home membership", and "Wise use of leisure time". The industrial arts teacher who overlooks the development of home shops is falling short in his obligations to the boy, to the home, and to his own profession. We need school shops definitely tied up with home shops if we are to expect a reasonable amount of carry over in the industrial arts instruction of the secondary schools.

A household mechanics course properly taught at school will add to the boys' ability to do construction and service jobs about the home, and help in establishing a systematic procedure. A course of

this nature articulated with the home shop would get the greatest results from the average boy. If this study does nothing more than awaken the shop teacher to the possibilities before him in the development of a home shop movement, it will have served its purpose.



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**APPENDIX**

OREGON STATE AGRICULTURAL COLLEGE  
SCHOOL OF EDUCATION  
CORVALLIS, ORE.

Letter of Transmittal

In keeping with the general national movement for the worthy use of leisure time, and because of the relationship between the school shop, the home shop, and the Future Craftsmen, a National organization of considerable promise, there is reason to determine the extent of homeshop work. There is possibly sufficient unmeasured evidence to prove that the home work shops are serving a real and appreciated need, but more objective evidence is desired.

With this in mind, a survey is proposed to determine the possible contribution of school shop work (industrial arts, trade education, and/or farm shop) to the development of home shops. So far as possible we hope also to find what is being done in these shops, and what agencies were responsible for their development.

It is desirable to make the Oregon survey representative of the whole state, for a possible comparison with similar surveys in other states. Because of your interest in shop work, and its application in the home, it is our belief that you will be interested in this study.

If you and your students (grade and/or high school) wish to cooperate, please use the inclosed postal card to indicate the number of forms needed -- one for EACH student now enrolled in shop work.

Yours very truly,

---

Coordinator.

Approved:

---

Professor of Industrial Education

## SAMPLE OF RETURN CARD

---

We shall be glad to cooperate in your study of home work shops in Oregon. We shall need \_\_\_\_\_ questionnaires for distribution to the students enrolled in school shop work.

It is my understanding that the forms will be distributed to the students, and that I am to return them at your expense as soon as possible.

Signed \_\_\_\_\_

School \_\_\_\_\_

Address \_\_\_\_\_

---

OREGON STATE AGRICULTURAL COLLEGE  
SCHOOL OF EDUCATION  
CORVALLIS, ORE.

Letter of Instructions

January 18, 1936

To the Shop Teachers of Oregon:

These are the questionnaire forms sent in response to your expression of a willingness to cooperate in the home shop survey of Oregon.

The forms are for distribution to your students. Please have them filled out by the students, then collect and return them to us by the same method in which they were sent to you; that is, if yours came by mail, return them in the envelope furnished. If yours came by express, return them by express-collect.

An extra copy of the questionnaire is attached for your files, and for reference when the summary of the study is made available. It is our plan to make this summary available to all who participate, either in a professional magazine of our field, or in a personal report.

We wish to express our appreciation and thanks to you and your students for your splendid cooperation in this survey.

Very truly yours,

Coordinator.

A Questionnaire on  
THE DEVELOPMENT AND WORK OF HOME SHOPS

Name \_\_\_\_\_ Age \_\_\_\_\_

School \_\_\_\_\_ Grade \_\_\_\_\_

1. Is there a work shop in your home?.....
2. Is it your shop?.....Or your father's?.....  
Or do you both use it?.....
3. About when was your home shop started? (year).....
4. Who was responsible for starting the shop in your home?  
Your father.....  
You.....  
Your shop teacher.....  
Scout leader.....  
A friend.....  
Others.....
5. Was your home shop begun before you enrolled for shop work  
in school?.....
6. What is the nature of the equipment in your shop?  
(a) Mostly hand tools.....  
(b) Both hand and power tools.....  
(c) What power tools have you, if any?.....  
(d) Are the hand tools primarily for woodworking?.....  
(e) Does your equipment include tools for metal work?.....  
(f) If so, what are they?.....

Following is a list of repair and service jobs commonly done about the home. Please check the jobs you have done in your home. Do not include things you have done in the school shop, but have never done at home. Indicate the jobs you have completed at home by placing a check mark (✓) in the parenthesis beside the statement that most nearly describes them.

#### GENERAL HOUSEHOLD SERVICE AND REPAIR

- |  |   |
|--|---|
| 1. ( ) Make a piece of furniture.                      | 39. ( ) Replace sash cord.                            |
| 2. ( ) Make a bird house.                              | 40. ( ) Clean gutters.                                |
| 3. ( ) Make a plant trellis.                           | 41. ( ) Remove rust and paint gutters.                |
| 4. ( ) Build a chicken house.                          | 42. ( ) Repair a leaking gutter.                      |
| 5. ( ) Build a dog kennel.                             | 43. ( ) Sharpen garden hoe.                           |
| 6. ( ) Build a rabbit pen.                             | 44. ( ) Sharpen lawn mower.                           |
| 7. ( ) Make a fly trap.                                | 45. ( ) Sharpen kitchen knife.                        |
| 8. ( ) Make a wooden spoon.                            | 46. ( ) Sharpen scissors.                             |
| 9. ( ) Make a scratch awl.                             | 47. ( ) Repair window lock.                           |
| 10. ( ) Shingle a roof.                                | 48. ( ) Repair window shade.                          |
| 11. ( ) Make concrete ornaments.                       | 49. ( ) Clean and polish silverware.                  |
| 12. ( ) Repair concrete walk or floor.                 | 50. ( ) Clean and oil sewing machine.                 |
| 13. ( ) Build concrete walk or floor.                  | 51. ( ) Repair and tighten sewing machine.            |
| 14. ( ) Make window cooler cupboard.                   | 52. ( ) Clean flue.                                   |
| 15. ( ) Make porch flower box.                         | 53. ( ) Set up stove.                                 |
| 16. ( ) Make a work bench.                             | 54. ( ) Solder kitchen utensil.                       |
| 17. ( ) Make a tray or drawer for nails or screws.     | 55. ( ) File a key.                                   |
| 18. ( ) Repair porch steps.                            | 56. ( ) Replace a defective spring in a mortise lock. |
| 19. ( ) Clean and polish woodwork.                     | 57. ( ) Put on rubber heels.                          |
| 20. ( ) Repair scratched table top.                    | 58. ( ) Put on half soles.                            |
| 21. ( ) Repair a piece of furniture.                   | 59. ( ) Repair a round leather belt.                  |
| 22. ( ) Paint old furniture.                           | 60. ( ) Install a handle in a hammer or axe.          |
| 23. ( ) Re-varnish old furniture.                      | 61. ( ) Repair or replace hoe or rake handle.         |
| 24. ( ) Varnish new wood.                              | 62. ( ) Repair a drawer.                              |
| 25. ( ) Reseat chairs.                                 | 63. ( ) Frame a picture.                              |
| 26. ( ) Lay linoleum or carpet.                        | 64. ( ) Attach drawer pulls.                          |
| 27. ( ) Wax floors.                                    | 65. ( ) Make a bread board.                           |
| 28. ( ) Hang a door.                                   | 66. ( ) Repair clothes line.                          |
| 29. ( ) Clean wall paper.                              | 67. ( ) Trim a hedge or shrubs.                       |
| 30. ( ) Repair cracks in plastered wall.               |   |
| 31. ( ) True up door that sags or binds.               |   |
| 32. ( ) Paint interior woodwork.                       |   |
| 33. ( ) Paint exterior of house.                       |   |
| 34. ( ) Paint porch floor.                             |   |
| 35. ( ) Repair wooden walk.                            |   |
| 36. ( ) Install screen wire on a window or door frame. |   |
| 37. ( ) Screen a porch or milk house.                  |   |
| 38. ( ) Replace window glass.                          |   |

Additional jobs may be listed here:



ELECTRICAL SERVICE AND REPAIR

- 1. ( ) Clean light fixtures and shades.
- 2. ( ) Test or replace light bulb.
- 3. ( ) Repair or install a light socket.
- 4. ( ) Replace a blown fuse.
- 5. ( ) Repair light switch.
- 6. ( ) Remove a short circuit.
- 7. ( ) Clean and oil vacuum-cleaner motor.
- 8. ( ) Clean and oil washing machine.
- 9. ( ) Clean and polish electric range.
- 10. ( ) Make or repair an extension cord.
- 11. ( ) Install floor or wall outlet.
- 12. ( ) Repair door bells.
- 13. ( ) Adjust door bell breaker points.
- 14. ( ) Install dry cells in radio, telephone, or door bell circuit.
- 15. ( ) Install radio aerial wire.
- 16. ( ) Install radio ground wire.

PLUMBING SERVICE AND REPAIR

- 1. ( ) Repair garden hose.
- 2. ( ) Repair leaking faucet.
- 3. ( ) Repair a pump.
- 4. ( ) Drain and clean a plumbing trap.
- 5. ( ) Install a new flush tank ball.
- 6. ( ) Repair flush tank valve.
- 7. ( ) Adjust flush tank float.

AUTO SERVICE AND REPAIR

- 1. ( ) Wash and polish car.
- 2. ( ) Grease car.
- 3. ( ) Drain, and refill crankcase with new oil.
- 4. ( ) Test and fill battery.
- 5. ( ) Repair inner tube.
- 6. ( ) Change tire and inflate.
- 7. ( ) Adjust carburetor.
- 8. ( ) Adjust brakes.
- 9. ( ) Clean and adjust spark plug.
- 10. ( ) Grind valves.
- 11. ( ) Solder a leaking radiator.
- 12. ( ) Install new radiator hose.
- 13. ( ) Repair wind shield wiper.