

AN ABSTRACT OF THE THESIS OF

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for the

MS

in

HEd

(Name)

(Degree)

(Major)

Date Thesis presented

July 3, 1942

Title

"Laboratories, Equipment, and Practices Used in  
Teaching Foods in Oregon High Schools, 1940"

Abstract Approved:

(Major Professor)

This is a study of the plant and facilities used for the instruction of foods in 165 secondary schools in Oregon, and the practices of 175 teachers of foods in these same high schools during 1940.

In more than two-thirds of the schools there is a separate laboratory for food instruction. In the other schools there is a combination homemaking room.

Built-ins, almost half of which are obtained from the local carpenter, were arranged in either unit kitchens or unit desks in one-third of the schools. In the other two-thirds the arrangement did not meet the requirements of any one type of organization.

This present arrangement of equipment is relatively new since the laboratories in approximately two-thirds of the schools have been used five years or less. These data indicate that when laboratory arrangements are made, there is a tendency for schools to purchase new equipment.

Schools offer courses in Homemaking One, Two, and Three for grades nine, ten, eleven and twelve, respectively, as recommended in the course of study. A class enrollment of ten to fifteen pupils is most frequently reported. In the smaller high schools laboratories are equipped for 16 or fewer pupils. In the larger schools equipment is planned for 17 or more pupils. The number for which laboratories are equipped is adequate for the class enrollment in three-fifths of the schools.

The floor space per pupil tends to exceed recommendations of the State Department of Vocational Education in Oregon.

Approximately two-thirds of the laboratories are equipped with work tables, storage cabinets, book or magazine shelves, lockers, drying rack or closet, bulletin board, blackboard, and seating facilities. There is a shortage of refrigerators or coolers, exhibit cases, tables for meal service, supply tables, and sinks and stoves in the quantity needed

In 50 per cent of the schools less than one hundred dollars was spent for food supplies and equipment for the school year 1939-1940. Approximately one-half of this group used less than fifty dollars.

The length of foods units tends to exceed the time suggested in the course of study. Of the time used for teaching foods, one-half is given over to laboratory activities. In spite of the present-day emphasis on the meal as the basis of instruction, less than one-third of the laboratory time is used for meals by the majority of the teachers.

Teachers reported that pupils worked in groups of two, in groups of four, and individually. A group of two was used by 137 of the 150 teachers reporting. Of the 137 teachers, 103 used this grouping for half or more of the time. When meals were prepared, a pupil group of four was the most common practice.

After the food has been prepared in class, the pupils serve it at desks, at small tables, at dining tables located in a room other than the laboratory, or while standing (mainly for sampling food). Since all schools do not have tables for meal service, it is obvious that the desks are used in some schools.

Careful planning of general arrangements for foods laboratories and placing equipment for convenience in working areas would improve the plant and facilities for foods instruction in the secondary schools of Oregon.



LABORATORIES, EQUIPMENT, AND PRACTICES USED IN  
TEACHING FOODS IN OREGON HIGH SCHOOLS, 1940

by

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A THESIS

submitted to the  
OREGON STATE COLLEGE

in partial fulfillment of  
the requirements for the  
degree of

MASTER OF SCIENCE

June 1943

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### ACKNOWLEDGEMENT

The writer expresses appreciation to Dr. Florence E. Blazier, Head of the Department of Home Economics Education at Oregon State College, for her continuous guidance throughout the development of this study. The Oregon home economics teachers of the year 1940-41 were cooperative in furnishing the information which was necessary for this study.

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# LABORATORIES, EQUIPMENT, AND PRACTICES USED IN TEACHING FOODS IN OREGON HIGH SCHOOLS, 1940

## CHAPTER I

### INTRODUCTION

The plant and facilities used for the teaching of foods in the secondary schools have been of concern to those teachers who are confronted with the problem of rearranging old equipment or with the planning of a new department. School administrators do not always see the situation from the home economist's point of view. Architects are only beginning to recognize the necessity of giving special consideration to the placing and arranging of the homemaking department.

As a result of the scarcity of information and a recognition of the need for additional information concerning equipment, an intensive research problem in equipment for teaching foods has been undertaken by the Home Economics Education Department at Oregon State College. At present three major problems are under consideration: first, a study of dimension standards; second, standardization of a set of utensils; third, a study of opinions of home economics educators as to desirable plans and equipment.

Since the purpose of the research was to furnish useful information for the Home Economics Departments of

Oregon, there was also a need for a survey of conditions existing in the schools where instruction in foods takes place.

A study of the present provisions for the teaching of foods in the secondary schools in Oregon will be useful to the home economists, administrators and architects who are involved in some phase of the planning of the physical arrangements for this instruction. A state-wide survey of this kind has never before been made in the state of Oregon, nor in any other state, so far as the writer was able to determine. Thus the present study, which is a fourth problem of this intensive research on equipment for homemaking laboratories, was undertaken. These four studies will give information which will be valuable as a guide in planning new departments and for more complete utilization of present ones.

#### Scope of Present Study

This is a study of foods laboratories, equipment, and practices used in Oregon secondary schools of grades nine through twelve during the first semester of the 1940-41 school year. The writer has attempted to answer the following questions:

What plans of arrangement are used for the foods laboratories? How extensive is the use of unit kitchens?



What types of equipment do the laboratories contain? For how many pupils is equipment provided? From what source is equipment obtained?

In what grades are Homemaking One, Two, Three, and Four taught in Oregon high schools? What number of pupils is enrolled in these classes?

During the school year of 1939-40 what was the cost of the foods department?

What use does the school and community make of the laboratory in addition to the regular class use?

How much time in each year's program in homemaking is spent in teaching foods?

What is the size of pupil groups during laboratory activities of meal preparation and service?

These questions are pertinent to a knowledge of situations existing in foods departments in Oregon. It will be helpful in discussing these to know the findings of studies made elsewhere concerning laboratories, equipment, and practices used in teaching foods.

### Review of Literature

In the Nineteenth Yearbook of the American Association of School Administrators, "Education for Family Life" (1:124-125) the function of homemaking is described thus: "The all-important phase of homemaking is the matrix of satisfying home life. In the beginning of education for home living the housekeeping aspects were most obvious and, therefore, received first attention in the curriculum of the schools and colleges. Gradually, as understanding

of human growth has developed, living in families is viewed as a way to the realization of basic needs and aspirations. Education for homemaking is no longer wholly in terms of skills, management, and information. It is seen as a means of creating designs for living in which ways of satisfying basic human needs and desires are discovered. Information, technics, standardized procedures, furniture and equipment, gadgets, and labor saving devices, as well as budgeting and purchasing, become focused upon these intangible, but vital outcomes of living in homes."

Home economics, then is a fruitful area, because it deals with the process of living together in families. Each of its subject matter areas is centered about major life activities. Spafford (19:4) has emphasized that one of these activities of vital concern is the feeding of the family and its individual members. For many years this study was known as the cooking class. Today it has been largely incorporated in the homemaking program. These two terms are indicative of a change in emphasis in teaching, from skill in cookery apart from the family to an understanding of nutrition and meal preparation for the family under circumstances resembling those at home. It is not enough for pupils merely to have the learning—it must be functional as well.

How can the program be made functional? A knowledge of the situations which influence the people who are served is essential to the development of any program. In view of this and the interest of Oregon home economists in making the program functional, usable data were obtained from 600 girls in Oregon high schools during the school year of 1935-1936 (26). With these data and the philosophy of homemaking as a basis, the teachers' guide "Homemaking Education for Secondary Schools" (23), containing a two-year program, was developed in 1937 and supplemented with a plan for a third-year course in 1940.

An examination of the units "Foods and Health for the High School Girl" (23:53-67) and "Satisfying Family Meals" (23:102-108) shows that the teaching of foods should provide for pupil experiences in the management of time, money and people in the planning, preparing, and serving of meals adapted to the family unit. Hence, the fundamental philosophy of homemaking education has been carried into the plans recommended for use in the secondary schools of Oregon.

Other states, territories, and cities have followed similar procedures in the construction of guides to be used by foods teachers in their respective areas. From these courses of study similar practices for the teaching of foods are suggested.



The importance of "meals" rather than "dishes" as an activity for the foods laboratory is discussed by Kaufman (10) in her publication "Teaching Problems in Home Economics". Miller (14, 15) describes procedures to use in developing the ability in pupils to think and to manage several food activities at one time. Further reference to these will be made in the treatment of data.

These discussions and the courses of study are limited to general recommendations about procedures, but represent together with the frequent revisions of the courses of study, the best sources of information about practices available. Since, obviously, a state course cannot show adaptations made by individuals, this present study indicating specific practices of the Oregon home economics teachers will be of interest.

Dyer (6) made a study of practices used and practices desired in the administration of home economics in city schools in 1928. The fifty statements of practices were grouped about three problems, namely: the placement of home economics in the school program; the curricula and organization of classes; school provisions for the program. This extensive study reports situations in cities of three sizes, in 46 of the 48 states, and in the four regional areas—east, south, central, and west.



This study of Dyer is the only one of its kind that has been made and reported. Furthermore, the findings were typical of existing situations and desired situations in the area of the United States. Dyer's study is limited to the phase of foods instruction. Furthermore, facts for Dyer's study were obtained from administrators of schools and home economics while the data for the present study were obtained from the classroom teachers of food. One other limitation is that Dyer's study was made 14 years ago. It is obvious that during the lapse of this amount of time developments in the programs have taken place.

What is the relation between the teaching of foods and the room in which the teaching takes place? Spafford (19:196) has to say about the value of the workshop in which homemaking activities are carried on: "Home economics departments should be attractive, colorful, pleasant places in which to work; furnishings and equipment should not be too far removed from the level of those who will work there. They should be places in which students learn by being in them as well as by the things they do in them. . . . Equipment and furnishings in kind, use, and arrangement should be related to the purposes of the course so far as the peculiarities of school situations and conditions for learning can approximate this."

Goodykoontz and Coon (7:207), representing the National Curriculum Committee, are in agreement with this idea, adding that "The friendly informal atmosphere provided. . . .may be one of the significant elements in young peoples' heterosexual adjustments."

With the value of a desirable department recognized, attention is turned toward the specific requirements for it. An architect has aptly said (21) "Planning a home economics department is the most complicated simple job I have ever met". A reason for such an attitude is that studies about departments and equipment are scarce.

Brodshaug (4) prior to 1932 studied departments and equipment for teaching home economics in 39 secondary schools located in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania. These schools were selected from a list of schools highly recommended by state supervisors of home economics. The population of the cities in which the schools were located was between 10,000 and 500,000 people.

One of the purposes of Brodshaug's study was to determine the characteristics of plants suitably designed for home economics instruction. It deals specifically with requirements of the food laboratory and for this reason is suitable for comparison with findings of the present study. In comparing data it must be remembered

that Brodshaug attempted to determine only the most desirable school facilities for home economics instruction in cities of the Atlantic states, whereas the present study is a survey of situations existing in foods laboratories of all the secondary schools in the entire state of Oregon.

In 1935 under the supervision of Adelaide S. Baylor, at that time chief of the home economics education service, the bulletin, "Space and Equipment for Homemaking Instruction" (27) was prepared. This bulletin was very carefully written and is exact in details presented. Its wide usage is indicative of its value. The bulletin is a compilation of material from the states and was intended as a general guide for planning homemaking departments. It emphasizes the importance of planning each department in view of the needs of the local community.

Bennett (2) made a study of school posture and seating in 1924-25. He measured more than 3700 children in elementary and high school grades in five different cities. From the data obtained he determined the characteristics of seats that would be an aid in the improvement of pupil postures while the nation's youth are in its schools. This treatise has a relation to the present study since seating equipment is essential in the foods laboratories.

Williamson and Lyle (28:398-412) have presented in their revised edition of "Homemaking Education in the High



School" a general discussion of arranging and equipping a homemaking department, with emphasis on modernizing departments now in existence. They recognize the need for space and equipment essential for all kinds of home-making activities. They recommend a room arrangement that it flexible enough to permit shifting of furnishings so as to provide for more variety in pupil experiences. Since cost of equipment for foods laboratory is high, a plan is suggested for reducing this expense. The foods laboratory need have only enough unit kitchens to accommodate one-half of the class. The other space could then be arranged as centers for reading and study, for living area, and for sewing activities. Such an arrangement would be valuable for its provision for types of activity in addition to reducing costs of equipment. They state further that the homemaking department should also provide for more social activities. A desirable plan for this would include a living room to supplement the unit kitchen, both of which would be accessible to school groups. Home economics teachers have been slow to recognize the opportunities they have for providing social development of pupils. Social development is an important purpose of homemaking instruction and attention should be directed to planning the physical arrangements so departments are usable for social activities.



The selection of equipment for a homemaking department should be based on the goals of homemaking education and the courses included in the homemaking program. Other factors which should be considered include the type of community, the amount of space allocated to the homemaking department, the number of pupils enrolled in classes, and the financial conditions. Brown and Haley (5:304-320) discuss the general selection of equipment in view of these factors. Reference will be made later to the details applicable to parts of this study.

Emphasis has been given to the philosophy of homemaking education and the subject matter of foods and nutrition rather than to plant facilities and equipment. This situation is recognized by Kent (11:412) thus, "In a field where plant and equipment is so closely related to the learning process as it is in homemaking education, experimentation in curriculum reorganization must be paralleled by experimentation in plant and equipment organization".

#### Summary

It is evident from a survey of literature on the plant and equipment used in teaching foods that material treating this phase of homemaking is very limited, though there is an abundance of information about school building

in general. A difference of viewpoints may be partly responsible for the absence of standards. One idea is that because needs of the community must be considered, it is not necessary to publish standards; rather let the local teacher of homemaking, the administrators, and architect determine what plan is to be used. This makes it important for the homemaking teacher to be fully informed about the philosophy and aims of homemaking in general, and in addition, many details of arrangements.

## CHAPTER II

### PROCEDURE

It was decided that the information needed for the present survey could be obtained by use of the questionnaire method, since all of the Oregon teachers are known personally by the State Supervisor of Home Economics and would cooperate in such an undertaking. This chapter deals with the construction of this questionnaire, its distribution, the follow-up devices used, the classification of the teachers, and analysis of data.

#### Construction of the Questionnaire

An outline of the information desired from the secondary schools in the state was made. The necessary information included general items about the laboratory and equipment, the activities for which the laboratory was used by the school and community, types of things stored, a description of the homemaking classes, and a detailed floor plan.

The criteria against which each item was weighed consisted of these two questions: Can this information be accurately reported? Will data reveal conditions that exist?

A preliminary mimeographed form was devised. Testing this original form took place on Homecoming Day at Oregon

State College. Alumnae who were teaching home economics were requested to meet at the Home Economics building to read and answer the questionnaire prepared. Nineteen teachers responded. These returns were checked for types of answers given and for clarity of meaning. As a result of this test the questionnaire was revised and printed. A copy of the final form is found in the appendix. (See appendix pp. 1, 11.)

#### Distribution of the Questionnaire

A copy of the questionnaire accompanied by a letter (Appendix p. 111) from Miss Bertha Kohlhausen, State Supervisor of Home Economics Education for Oregon, and a stamped addressed envelope for the return were mailed to 248 teachers of home economics in Oregon. Those who were known at that time to teach clothing and related work only were excluded from this list. In those schools having more than one homemaking instructor teaching foods, copies were sent to each teacher. It was requested that each of these teachers furnish complete information about her schedule of classes and practices and that they cooperate in furnishing details of the department inasmuch as duplication of details of the department was not necessary.



### Follow-up Devices

Approximately one-third of the teachers responded with an answer by the end of the first month. At this time a double postcard was sent to all who had not returned the questionnaire. This was sent not only as a reminder, but also as a check to determine whether the teacher had received the questionnaire. A duplicate copy was then sent to those who did not receive the original one.

To those who had failed to respond to the second appeal, a form letter urgently requesting prompt attention was sent. Two additional attempts were made at later dates to obtain information about all schools.

### Preliminary Checking of Reports

The questionnaires were examined for completeness and accuracy as they were received. Since a number of teachers omitted important details, it was found necessary to write for additional information. This was done by indicating on a duplicate questionnaire which questions were not answered and explaining in further detail when it seemed necessary. Each questionnaire was accompanied by a letter in which the need for complete information was stated.

### Classification of Teachers and Schools

Some exclusions of teachers' reports from this study were made when questionnaires that were returned contained reports that the person taught clothing only and no foods units. Later, reports from teachers who taught foods in the elementary schools only were withdrawn since conditions of work and programs were not comparable to those existing in the high schools. These reasons account for the removal of 50 cases from the 248 originally included to whom questionnaires were sent, leaving 198 teachers whose reports were desired for this study.

The 198 teachers were classified into four groups on the basis of the enrollment, which was obtained from the "Daily Class Schedule of Teachers and Supervisors". (See appendix p. iv.) This official report of each school is on file in the office of the State Superintendent of Public Instruction.

Table 1 shows the distribution of these teachers and schools in the four groups and the number of teachers returning the questionnaires.

Table 1

Distribution of the Teachers and Schools  
According to the Enrollment of the  
Pupils in the High School

Groups	Students enrolled in high school	Questionnaires to teachers				Schools represented*	
		Sent		Returned			
		N	%	N	%	N	%
Total	20-2332	198	100.0	175	100.0	165	100.0
I	over 375	50	25.5	48	27.4	38	23.0
II	150-374	50	25.5	46	26.3	46	27.9
III	85-149	49	24.5	37	21.1	37	22.4
IV	20-84	49	24.5	44	25.2	44	26.7

\*In each of nine schools two or more teachers use the same laboratory. In this study these are counted as nine school laboratories. In the Girls Polytechnic High School, Portland, the three teachers reporting have separate laboratories. Since this is the only situation of its kind, each of these is reported as if in a separate school.

From Table 1 it will be observed that 175, or 88 per cent, of the questionnaires were returned. Because of the high percentage of returns it may be assumed that the findings in this study describe accurately the plant and facilities for teaching of foods in the secondary schools of Oregon.

Throughout the study the terms "Group I", "Group II", "Group III", and "Group IV" are applied to the classification used in Table 1. In order to make the groups as

nearly uniform as possible, the number of pupils enrolled in each high school was determined and the schools divided into four groups.

In order to study the data more effectively, the teachers were grouped into three divisions on the basis of the number of home economics classes taught daily by each teacher. There were 69 teachers who taught home economics only, and they will be hereafter designated as "full-time" teachers. Occasionally the full-time teacher might have been assigned one period daily to study hall supervision or one period to extra-curricular activities. The second group of 35 teachers who taught more than two classes in home economics daily but whose teaching schedule also included classes outside the field of home economics will be hereafter designated as those teaching "more than two periods but less than full time". The third group includes 71 teachers who taught one or two classes in home economics daily, and they will be hereafter designated as those teaching "one or two classes in home economics".

In Table 5, page 33, will be found a complete classification of the 165 schools according to the size of school as determined by number of pupils and the teacher groups based on the number of home economics classes taught.



### Analysis of Data

Since all teachers did not furnish complete information about each of the 24 questions, the writer found it necessary to include only as many cases as there were reports on each item. The writer is of the opinion that incomplete data from teachers are due to inexperience, to facts not readily available for their use, to lack of time to spend in studying the questionnaire, and to misinterpretation of questions.

The writer has classified the data in three parts, namely, a description of the laboratories and equipment, conditions under which the departments are operated, and practices used in the teaching of foods (Chapters III, IV and V). Throughout each of these sections the investigator has attempted to analyze the data to determine central tendencies and compare these with findings in other studies. Limitations of facilities have been noted and also places in which improvements are needed.

### CHAPTER III

#### DESCRIPTION OF OREGON FOODS LABORATORIES

When educators became convinced that learning took place more rapidly when pupils were given a chance "to do" rather than merely "talk about" things, laboratories were provided wherein specific activities could be carried on. Thus in a foods laboratory space was provided for activities related to food preparation. This single phase of activity has become enlarged until it commonly involves pupil planning, preparing, and serving of meals suitable for family groups. This wider aspect includes problems in management of processes, money, time, and people and is not limited to food preparation. With the inclusion of these problems in addition to the skills of cookery, the activities to be carried on in the school laboratory become similar to those found in the homes.

Kent (11) says that if the situation under which the pupil learns to do certain things at school is very different from that in which the pupil must practice at home, the pupil must modify his learning, and the greater the difference in the two situations the more likely it is that the adjustment cannot be made economically and successfully. For this reason if the school situation can be made to resemble desirable home standards, the teaching

that takes place at school will be functional in the homes of the pupils.

In evaluating the space and equipment used for teaching of home economics, Brodshaug (4:57) submitted these two criteria, namely, that the equipment "(1) should simulate life situations and (2) improvement over current home or industrial practice" to his 31 judges. The first criterion was accepted without qualification by 28 of these judges, and the second by 24 judges. This, in the opinion of the writer, indicates the desirability of these factors in determining the laboratory plan and the selection of equipment for instruction in foods as much or more than for any other subject matter in home economics.

In this chapter the writer attempts to describe the laboratories used in teaching foods in secondary schools in Oregon by determining general plans used for arrangement, by indicating how long these arrangements have been in use, and by tabulating the size of the laboratories. Findings pertaining to the source of certain types of equipment, to the kinds of equipment used, and to the amount of equipment in relation to the number of pupils are also presented. Of further interest will be the storage arrangements for aprons or smocks, the types of fuel used for cooking, and the methods of heating water.

### Plan of Foods Laboratories

In studying the plans of the foods laboratories it was found that they could be arranged in three groups, namely, a one-room combination for all activities, a separate laboratory for foods, and plans which could not be classified. Table 2 was designed to show these three groupings.

Table 2  
General Plan of Foods Laboratories

	Total number of schools		Combination homemaking room		Separate laboratory for foods		Unclassified plans	
	N	%	N	%	N	%	N	%
Total	163	100	43	26.4	113	69.3	7	4.3
Group I	38	23.3	3		32		3	
Group II	45	27.6	8		36		1	
Group III	37	22.7	15		21		1	
Group IV	43	26.4	17		24		2	

It will be observed from Table 2 that separate laboratories for foods are most frequently used since 69.3 per cent of schools reported these. Of every three schools reporting, more than two have a separate laboratory in which to teach foods. In each classification of schools



and teachers used in this study the separate laboratory was found more frequently than was the combination laboratory.

The location of the greater number of combination rooms in Groups III and IV is in accordance with the recommendation in the Bulletin "Space and Equipment for Home Making Instruction" (27:16) which says that this type of laboratory is most desirable in the small schools, since it is more economical of space and when well arranged, will permit a broad program.

#### Arrangement of Equipment within the Laboratory

The arrangement of equipment within the laboratory is of importance whether the laboratory is a combination room or a separate foods laboratory, since the convenience of working areas is largely determined by the arrangement of equipment. An examination of the floor plans of the laboratories showed that there were unit kitchens, unit desks, miscellaneous arrangements, and a combination of these.

Unit Kitchens. The unit kitchen is a certain restricted area which resembles a home kitchen and in which the work table, sink, and stove are located so that they form boundaries of the work space. Tables suitable for serving of meals may or may not be included. The use of the space thus arranged is ordinarily limited to a group

of four or fewer pupils, thus preventing interference which results from crossing of this space by other members of the class.

Of the 160 schools providing floor plans, the unit kitchen plan is found in 33 schools. (See Table I, appendix p. v.) Of these 33 schools, seven have only one unit kitchen each and either unit desks or an unclassified arrangement provided for the remainder of the class. The 26 schools using unit kitchens exclusively were distributed in all four groups.

Since the purpose of teaching foods in high school is to provide experiences that will be usable immediately by pupils in their present homes and prepare them for the responsibilities of homemaking later, the arrangement of the laboratory equipment into unit kitchens simulating home settings can be justified and recommended. McLoughen (13), who has had experience teaching with the unit kitchen plan and unit desk plan, says in referring to unit kitchens: "This arrangement of a foods laboratory places the school work as nearly as possible in the home situation, though it makes supervision of the work somewhat more difficult. The older students very much prefer the above type of equipment to the unit desk".

The opinion of the educators reported in the O'Reilly study (18) confirms this opinion concerning the unit kitchens.

Unit Desks. The unit desk plan consists of a combination of a work table, a stove, and a sink located in close proximity to each other within the central part of the room. The stove and sink may be either at the ends of the work table or one may be at the end of the work table and the other on a wall which is nearby. The working area is the aisle through which other pupils may pass at any time.

Unit desks are reported by 22 schools in addition to the five having these in combination with a unit kitchen. It is interesting to observe that 20 of the 22 schools are found in Groups I and II or the larger high schools. Only two schools in Group III have unit desks, and there are none in Group IV. (See Table I, appendix p. v.)

Unclassified Arrangements. All other arrangements which cannot be described as a unit kitchen or unit desk are listed as unclassified. Of the 160 schools providing floor plans, 105 have such an arrangement. In these arrangements consideration has not been given to placing sinks, stoves and work tables so they form a unit for activities by a group of pupils. It is not uncommon to find work tables in the center of the room with all sinks at one end and all stoves at the other end of the laboratory. The writer is of the opinion that this placement

has been made because of convenience in plumbing and stove connections, which resulted in lowered installation costs. In all of these schools an insufficient number of sinks and stoves makes it impossible to arrange efficient working units for the pupils. It is encouraging, however, to note from the original data<sup>1</sup> that only 11 of these 105 schools with unclassified arrangements have a hollow-square plan at present. This is particularly interesting since the hollow-square was not only a much used plan but was at one time recommended as a desirable plan to use. The few cases at the present time indicate that administrators and teachers are recognizing the weaknesses of the hollow-square arrangement.

Number of Years that the Present Arrangement of the  
Laboratories has been in Use

Table 3 was arranged to show how long the present arrangements of the laboratories have been in use. It will be interesting to note the number of arrangements which are relatively new as well as the number which are more than 15 years old.

<sup>1</sup>Data on file in the office of Home Economics Education



Table 3

Number of Years that the Present Arrangement  
of the Laboratories Has Been in Use

	Total number of schools		Number of years							
	N	%	One year or less	2-3	4-5	6-7	8-9	10-14	15-19	20-up
Total No.	153		29	31	37	9	5	22	13	7
Per cent		100	18.9	20.3	24.2	5.9	3.2	14.4	8.5	4.6
Group I	33	21.6	7	2	9	1	0	9	5	0
Group II	44	28.7	9	10	11	3	1	5	1	4
Group III	37	24.2	3	10	9	2	2	4	5	2
Group IV	39	25.5	10	9	8	3	2	4	2	1

It can be seen by referring to Table 3 that 97 schools or 63.4 per cent of the 153 schools reporting have foods laboratories which have been used as they now are for five years or less. Of this group 60 have been newly made or rearranged in the past three years. There are 36 foods laboratories or 23.5 per cent of all schools in which the present arrangement has been used between six and fourteen years. Only 20 laboratories or 13.1 per cent have been used as they are for 15 years or more. The time foods laboratories have been in use varies from a few months to 27 years.

How can so much rearranging during the last five-year period be accounted for? In answer to this question one finds that it was during this time that the Federal government gave an impetus to the program of school building by providing money and labor for such purposes. In addition to this, some recovery following the depression period must be noted.

At what time were the unit kitchens and unit desks installed and what is the tendency in the recent rearrangements? It is interesting to note from the original data<sup>1</sup> that 28 of the 33 unit kitchens have been used for five years or less. The five remaining unit kitchens have been

<sup>1</sup>On file in the Home Economics Education Office

in use from 14 to 18 years and are all single kitchens which are used in addition to unit desks or unclassified arrangements.

Furthermore 24 of the 60 laboratories which have been built within the last three years are unit kitchens. This indicates to the writer that this type of plan for foods laboratories has been recognized as desirable. That unit desks represent a plan which is falling into disfavor is shown by the fact that only two have been installed in the last three years, while twelve were included four or five years ago and eight were planned from six to fourteen years ago.

Unit kitchens and unit desks account for only 50 of the 97 laboratories arranged in the last five years. This leaves 47 unclassified arrangements. The writer believes that this large number of unclassified arrangements during this recent period of time indicates again that:

First, either teachers are not fully prepared to know what to recommend when consulted about plans and equipment for the foods laboratory, or

Second, that financial conditions of the district may be so limited that expenses have been curtailed by omitting a sufficient number of sinks and stoves for use in the foods laboratory or by installing sinks and stoves without consideration of convenience to working spaces.

Equipment which was Obtained when Laboratory Arrangement  
Was Made

To determine whether schools bought all new furnishings when the laboratory arrangement was made, the question was asked as to how long certain pieces of essential equipment had been in use. This essential equipment was limited to four types, namely, sinks, stoves, cabinets, and work tables. The information received was arranged in Table 4 to show the amount of equipment purchased when the present laboratory arrangement was made.



Table 4

Amount of Equipment Purchased When Laboratory  
Arrangement was Made

	Total number of teachers		Number of types of equipment purchased when present arrangement of laboratory was made				
	N	%	Four*	Three	Two	One	None
Total No.	151		77	28	16	17	13
Per cent		100	51.0	18.6	10.6	11.2	8.6
Group I	32	21.2	18	6	4	3	1
Group II	44	29.1	18	12	4	6	4
Group III	36	23.9	23	4	1	5	3
Group IV	39	25.8	18	6	7	3	5

\* This table should read: Four types of equipment, namely, sinks, stoves, cabinets, and work tables were installed at the time the present arrangement of the laboratory was made.

From Table 4 it will be observed that approximately half of the schools report the purchase of all four types of equipment at the time of making the present laboratory arrangements and an additional one fifth purchased three types. In other words, 70 per cent of all the schools purchased most of their equipment at the time of remodeling or equipping the department for the first time.

#### Amount of Equipment in Relation to Number of Students

The amount of equipment needed in any foods laboratory is dependent on these two items: first, the number of pupils who will be using the laboratory at one time; and second, the organization of the class in proceeding with the program that is developed.

It will be interesting to know the number of students for whom the foods laboratory was equipped and to make comparisons with the size of classes using that laboratory. This section was prepared so that these relations may be shown.

#### Number of Pupils for Whom Laboratory was Equipped

To determine the number of pupils for whom the laboratory was equipped, Table 5 was arranged.

Table 5

## Number of Pupils for Whom Laboratory was Equipped

	Total number of schools		Number of pupils					
	N	%	4-8	9-12	13-16	17-20	21-24	25-28
Total No.	156		15	31	33	30	36	11
Per cent		100	9.6	19.9	21.2	19.2	23.1	7.0
Group I	38	24.4	0	1	0	14	16	7
Group II	44	28.2	0	1	10	12	18	3
Group III	36	23.0	3	8	18	4	2	1
Group IV	38	24.4	12	21	5	0	0	0
"Full-time"								
Total	62	39.7	0	1	5	18	31	7
I	36	23.1	-	1	-	13	16	6
II	26	16.6	-		5	5	15	1
"More than two classes"								
Total	31	19.9	4	4	9	8	4	2
I	2	1.3	-	-	-	1	-	1
II	14	9.0	-	-	3	7	3	1
III	12	7.7	2	3	6	-	1	
IV	3	1.9	2	1		-		
"One or two classes"								
Total	63	40.4	11	26	19	4	1	2
I								
II	4	2.6		1	2			1
III	24	15.4	1	5	12	4	1	1
IV	35	22.4	10	20	5			

That the number of students for whom the laboratory is equipped is determined by the size of the school is verified by the data in Table 5. Of the 79 schools equipping laboratories for 16 or fewer pupils, 67 are among the schools of smaller sizes as represented by Groups III and IV. Of the laboratories equipped for 17 or more pupils, 70 of the 77 are found in schools of larger sizes (Groups I and II). Of the 62 "Full-time" teachers 56 have a laboratory that is equipped for 17 or more pupils.

The question arises as to whether these laboratories are adequate for the pupil enrollment in homemaking classes. To show this relation Table 6 was devised.



Table 6

Comparison of Class Enrollments with the Number  
for Which the Laboratory is Equipped

	Total number of teachers		Schools reporting laboratory equip- ment as inadequate* for a specified number of classes			
	N	%	None	One	Two or three	More than three
Total No.	153		91	34	24	4
Per cent		100.0	59.5	22.2	15.7	2.6
Group I	37	24.2	16	8	12	1
Group II	43	28.1	24	8	8	3
Group III	35	22.9	21	11	3	-
Group IV	38	24.8	30	7	1	-

\* Adequate is defined as enrollment equal to or less than the number for which the laboratory was equipped.

From Table 6 it will be observed that 91, or 59.5 per cent of the 153 schools reporting, have equipment for the students who enroll in home economics. Of the 62 schools which do not meet this standard, 34 could be considered inadequate for only one class, leaving 28 schools which definitely do not provide enough equipment so that all students may work at the same activities.

To determine the number of pupils for which unit kitchens are equipped, the original data<sup>1</sup> were examined.

<sup>1</sup> On file in the Home Economics Education Office

Of the 26 laboratories having the unit kitchen plan, it was found that one school in Group III equipped units for two pupils; four schools in Groups III and IV equipped units for three people; fifteen schools distributed in all groups equipped unit kitchen for four pupils; five schools in Groups I, II, and III equipped units for five pupils; and only one school in Group II equipped the unit kitchen for six pupils. Thus equipping unit kitchens for a group of four pupils is a common tendency, conforming to the standard advocated in the O'Reilly study (18:176).

#### Relation of the Number of Sinks and Stoves to the Number of Students

In checking the original data<sup>1</sup> the writer found that all schools had at least one sink and one stove, which would be the minimum if food preparation is to take place. Since the numbers of sinks and stoves varied, they were studied in relation to the number of pupils for whom the laboratory was equipped.

Sinks. In Bulletin 181, "Space and Equipment for Homemaking Instruction" (27:55) these statements are found. "The number of sinks required is definitely determined by the number of working units. This usually means the provision of one sink for each four pupils." When compared

<sup>1</sup> On file in the Home Economics Education Office

to this standard, only one-third of the foods laboratories of Oregon have enough sinks. (See Table II, appendix p. vi.)

Of the two-thirds who do not meet the standard of at least one sink to each four students, 17 per cent of the total group provide one sink for five or six girls, whereas 50 per cent of all the schools reporting plan to have from seven to twenty-eight girls use one sink.

Could not the question be raised here as to whether false economy was practiced in many Oregon high schools in providing too few sinks in their foods laboratory?

Stoves. Of the 149 schools reporting, 57 (38 per cent) of the schools have enough stoves so that each stove is used by four or fewer pupils. (See Table III, appendix p. vii.) Approximately the same number of schools report one stove for five to six pupils as report one stove for seven to twelve pupils. Only nine schools indicated that more than 12 pupils use one stove. From Bulletin 181, "Space and Equipment for Homemaking Instruction" (27:53) this statement is quoted. "The standard practice generally followed is to install one 4-burner stove with built-in baking and broiling oven for each four pupils." Assuming that the stoves used in the foods laboratories meet this description, they are inadequate in numbers since five or more pupils must use one stove in more than three-fifths of the schools.

### Size of Foods Laboratories

Mistakes have been and are still being made in the amount of space allowed home economics departments. Brodshaug (4:37) says, "A sound plan must eliminate waste and at the same time avoid over-crowding. In other words, it must fit the plant to the needs of the program and the activities to be carried on therein".

In "Space and Equipment for Homemaking Instruction" (27:47) is found the suggestion that in planning for a department the total space required for all furniture and equipment should be secured and the exact amount of space estimated, allowing for adequate working space. These figures should then be checked against figures for specific types of rooms as have been found satisfactory in other localities.

The writer has determined from the dimensions of the foods laboratory and the number of pupils for whom the foods laboratory was equipped the number of square feet allowed for each pupil. A report of these data is shown in Table 7.



Table 7

## Floor Space Per Pupil in Foods Laboratories

	Total number of schools		Range in square feet				
	N	%	20-29	30-39	40-49	50-59	60 and over
Total No.	140		20*	39	31	19	31
Per cent		100	14.3	27.9	22.1	13.6	22.1
Group I	34	24.3	4	12	8	6	4
Group II	42	30.0	7	17	12	3	3
Group III	31	22.1	4	8	8	1	10
Group IV	33	23.6	5	2	3	9	14

\* Table 54 should read: Twenty schools furnished information on room dimensions and number of pupils, from which it was calculated that from 20 to 29 square feet are allowed per pupil.

After studying the floor space allowed for pupils in the foods laboratories of the secondary schools of Oregon, it will be interesting to check these figures against some which have been recommended in other studies.

Brodshaug (4:174) lists 35 square feet per pupil as the desired size for foods laboratories. In "Space and Equipment for Homemaking Education" (27:42) the recommended floor space requirements are tabulated separately for combination homemaking rooms and for separate foods and cloth-

ing laboratories. For the combination homemaking room the recommendations vary from 38.5 square feet per pupil in the state of Nebraska to a variation from 51.3 to 62.4 square feet per pupil in West Virginia. For the foods or clothing laboratory 27.5 square feet per pupil are recommended by Florida and 43.2 to 54 square feet per pupil in Kansas.

In "Manual of the Construction and Care of School Buildings", published by the Oregon Office of Superintendent of Public Instruction, (17:54) 50 square feet per pupil are recommended for a combination homemaking room, and 35 to 40 square feet per pupil when there are two separate rooms. This shows that there is considerable variation in the standards adopted by the various states.

The 140 schools providing the data for Table 7 indicate that Oregon schools tend to exceed the size recommended, since 50 per cent of the foods laboratories range in size from 30 to 49 square feet, whereas approximately 37 per cent exceed 50 square feet per pupil.

Of the 50 schools having 50 or more square feet per pupil, 34 are located in Groups III and IV, or the smaller high schools. This situation corresponds with the generalization in "Space and Equipment for Homemaking Instruction" (27:41): "At present one may find a school with a total enrollment of 60 pupils where as much space for

homemaking instruction has been set aside as in schools of 160 pupils". It appears to the writer that in these schools the needs have not been carefully anticipated. Brodshaug (4:37) says, "In some situations hopes and aspirations rather than facts appear to have determined the plans".

It must be remembered that slightly more than one-fourth of the laboratories studied are combination rooms in which 50 square feet per pupil are recommended.

It is also probable that some foods laboratories have been arranged for particular community uses which were not indicated. Another probable reason is that some laboratories were made in old buildings where the best arrangements had to be made in the space available.

#### Source and Type of Furniture

In order to study the sources from which school equipment is obtained, five types of furnishings of two kinds, built-ins and movable, were selected, namely, book or magazine shelves; exhibit cases; lockers; storage cabinets for dishes, utensils, and supplies; and work tables or unit desks. These types of furnishings were assumed to be obtained from five sources: the local carpenter, the school shop, the cabinet works, the building contractor, and commercial firms. It is taken for granted that the local



carpenter, school shop, building contractor, and cabinet works would build furnishings according to specified plans for the particular school.

Table 8 was designed to show the sources from which these certain types of equipment have been procured.



Table 8  
Source of Furniture in 163 Schools

Type of Equipment	Total		Where equipment was obtained				
	N	%	Local carpenter	School shop	Cabinet works	Building contractor	Ready-made
Total No.	732		358	144	97	41	92
Per cent		100	48.9	19.7	13.3	5.6	12.5
Work tables	237	32.4	106	35	36	11	49
Storage cabinets	208	28.4	121	30	28	11	18
Book or magazine shelves	162	22.1	70	51	19	10	12
Lockers	98	13.4	53	21	9	5	10
Exhibit cases	27	3.7	8	7	5	4	3

### Type of Furniture in Foods Laboratories

From Table 8 it will be observed that 732 articles of the five types of furnishings were reported by the teachers in 163 schools. Of this list 237 were work tables. That there are more work tables than schools can be accounted for by the fact that some schools had both movable and built-in work tables.

There were 208 storage cabinets for dishes, utensils, and supplies of which 155 were built in and 53 were movable. (See Table IV, appendix p. viii).

Since 162 teachers report book or magazine shelves, it is obvious that this article of furniture is considered essential. Two-thirds of these are built in; the remaining one-third are movable. (See Table IV).

Less than two-thirds of the schools have lockers. For those not having lockers, aprons are stored in places such as drawers or closets. The reader is referred to page 66 for additional information concerning the storage of aprons.

Exhibit cases are reported in only 27 schools. Of these 21 are built in. (See Table IV). The fact that there are so few exhibit cases reported does not indicate that displays of class products and illustrative material are not arranged in the foods laboratory, for the ingenious foods teacher can utilize various places within and without

the laboratory for display of educational exhibits.

From these findings the writer has concluded that the foods laboratories in Oregon high schools are equipped with work tables, storage cabinets, and book or magazine shelves, whereas only two-thirds of the foods laboratories have lockers, and exhibit cases are included in only one-sixth of the schools.

Reference has already been made to the fact that these furnishings are of built-in and movable kinds. The reader will be interested to learn that 33 schools reported no movable equipment.<sup>1</sup> Of the 732 types of equipment reported, only 233, or 31.8 per cent, were movable. The remaining 499 pieces, or 68.2 per cent, were built in. (See Table IV, appendix p. viii).

It is essential that certain articles be made so they are stationary. Cabinets used for storage of dishes or utensils are ordinarily more compact and stable when they are securely fastened to walls and floor. With built-in furnishings space may be more completely utilized. An economy of space may result when a magazine rack is attached to a wall rather than standing on the floor.

At present there is much interest in movable equipment because of the possible flexibility of the arrange-

<sup>1</sup> Original data on file in the Home Economics Education office



ment. Williamson and Lyle (28:400) state, "For real homemaking education provision needs to be made for all the various kinds of home activities. In some small schools one room is adequate, if it is large enough and has movable furnishings so that it may be arranged at will to function as various rooms in the average home".

### Source of Furniture

Local Carpenter. The most important single source for each kind of equipment is the local carpenter, since he alone has furnished 48.9 per cent or almost half of the total amount of equipment reported. The other four sources combined have produced very little more than has the local carpenter alone.

School Shop. Second in importance in supplying equipment is the school shop, although it supplies only two-fifths as much as does the local carpenter. More than one-third of the 144 pieces reported are book or magazine shelves. It is interesting that the school shop builds more lockers, exhibit cases, and storage cabinets than any other source except the local carpenter. It is probable that furniture with much detail is likely to be too complicated to be undertaken in many school shops. Simpler problems such as those involved in making book or magazine shelves are appropriate for high school shop classes.



From the original data<sup>1</sup> it was noted by the investigator that the school shop is used most frequently in the schools employing a full-time home economics teacher. This may indicate that schools which have an extensive homemaking program also have a well-developed shop program.

Cabinet Works. While the cabinet works or mills have the facilities and the skilled workmen to produce professional pieces of furniture, they are considered too expensive or are frequently too far removed from the schools to be consulted about specific articles needed. Of the 97 pieces obtained from this source, 36 are work tables and 28 are storage cabinets. The remaining 33 are a combination of the three items, book or magazine shelves, lockers, and exhibit cases.

Building Contractor. Only 5.6 per cent, or 41 pieces of equipment, were reported to be obtained from the building contractor. Since the building contractor may have the services of a local carpenter or cabinet works to build equipment according to specified plans, this source does not seem at this time to be of great significance.

Ready-made from Commercial Firm. Only one-eighth of all equipment is purchased ready-made. Almost half of the

<sup>1</sup> On file in the Home Economics Education Office

pieces reported are work tables and of these three-fourths are found in the larger schools (Groups I and II) reporting. When ready-made equipment is purchased, it is doubtful that space will be efficiently utilized. Brown and Haley (5:319) say, "It is more satisfactory to have cupboards and lockers built in than to buy this equipment. The final cost is usually much less and every inch of available space may be utilized by a carpenter, while commercially built cupboards are often misfits. The built-in cupboards can be made to provide space for the storing of all types of equipment and supplies".

Summary. From these findings it can readily be seen that 87.5 per cent of the furnishings in the foods laboratories have been made to order, while only 12.5 per cent have been purchased ready-made. This practice is in keeping with modern opinion that furniture built to order will be more satisfactory than purchasing ready-made since it will utilize the space more efficiently.

#### Other Equipment in the Foods Laboratory

The purpose of this section is to disclose types of equipment found in the foods laboratories of Oregon high schools at the present time; to discover kinds of equipment provided when laboratory arrangements are made; to determine the provision for seating and discussion areas.

### Types of Equipment in the Foods Laboratory

From Table 8 (page 43) it was learned that work tables, storage cabinets, and book or magazine racks were found in practically all of the foods laboratories in Oregon high schools. Also, it was found that only two-thirds had lockers, and one-sixth had exhibit cases. Reference has also been made (page 36) to the location of sinks and stoves in the foods laboratories. While four of these articles, namely, the stove, sink, work table, and storage cabinet are essential pieces of equipment, there are others which are desirable. Table 9 is intended to show the extent to which other desirable equipment is found in the foods laboratories. This equipment includes refrigerators, coolers, tables for meal service, supply tables, drying racks or closets, blackboards, and bulletin boards.

Floor plans were furnished by teachers in 161 of the 165 schools included in this study. The placement of equipment and the number of pieces of equipment were shown in the sketches submitted. However, in tabulating for Table 9 recognition was given only to the presence of each item of equipment in a laboratory without regard to quantity.

Table 9 is a report of other equipment in foods laboratories.



Table 9

## Other Equipment in Foods Laboratories

	Total number of schools		Types of equipment						
	N	%	Refrigerator	Cooler	Eating table*	Supply table	Drying rack or closet	Black board	Bul. Board
Total No.	161	100.0	82**	45	89	76	133	130	116
Per cent			50.9	27.9	55.3	47.2	82.6	80.7	72.0
Group I	36	22.4	26	11	21	22	33	32	33
Group II	46	28.5	36	11	20	33	37	37	28
Group III	36	22.4	10	14	24	12	28	34	31
Group IV	43	26.7	10	9	24	9	35	27	24
"Full-time"									
Total	60	37.3	47	17	28	44	54	53	47
"More than two classes"									
Total	33	20.5	18	13	17	15	26	26	23
"One or two classes"									
Total	68	42.2	17	15	44	17	53	51	46

\* This included all tables in foods laboratory used for meal service. Some of these were used in connection with unit kitchens.

\*\* This table should read: Eighty-two schools have at least one refrigerator.



Refrigerators. Of the 82 refrigerators in slightly more than half of the schools, 62, or 75.6 per cent, are found in Groups I and II. The remaining 24.4 per cent are equally distributed in Groups III and IV. From the original data<sup>1</sup> it was learned that no refrigerators had been in use longer than 12 years. Although there are no data reported on this point, it seems reasonable to assume that these recently purchased refrigerators are of the mechanical type.

Coolers. Although the cost of making a cooler is low, only 45, or 27.9 per cent, of the schools report having this convenience in their foods laboratory. There are 19 of these 45 schools which also have a refrigerator. This leaves 53 schools or almost one-third of the 160 schools reporting which have no provisions for storage of foods that require temperatures lower than that usually maintained in the room. Foods requiring a lower than room temperature for satisfactory care are essential parts of an adequate diet for a family. Since this is the case, it appears that all schools should have suitable storage provided when it can be had at a reasonable cost.

Tables for Serving Meals. Reference has previously been made to the fact that serving of meals is an important activity for which equipment should be provided. Tables

<sup>1</sup> On file in the Home Economics Education Office

around which pupils may be comfortably seated are essential for this activity in order that desirable home standards can be practiced in the foods laboratory. If the food prepared in class must always be eaten while pupils are standing, or while they are sitting on a stool at a desk, the situation is so different from acceptable meal practices that pupils will not learn desirable standards.

From Table 9 it should be noted that tables for meal service are provided in only 89 foods laboratories. This means that 72 laboratories do not have suitable tables in the laboratory. However, reports indicate that 13 of these 72 schools have tables which are satisfactory for meal service in either a dining room or a clothing room. This means that 59 schools, or 36.6 per cent, lack this necessary equipment for teaching meal service.

Supply Tables. Since less than half, or 47.2 per cent of the laboratories, have a supply table, the writer has deduced that either supplies are distributed to desks where individual pupils work, or that students go to cupboards for needed articles, or that some space which could not be designated as a "supply table" is used.

Of the 76 schools having supply tables, 55 are located in Groups I and II, while in the smaller schools of Groups III and IV only 21 are reported. In view of this it appears that the necessity of supply tables is recognized in larger schools. It is the opinion of the writer that as a general

rule the use of a supply table particularly if it is movable will be conducive to more efficient use of class time.

Drying Rack or Closet. Of all items reported in Table 9, more schools report having a drying rack or closet for towels than any other single item. However, slightly more than one-sixth, or 28 schools, report no facilities for hanging towels to dry. The writer believes that some teachers failed to indicate the location of the drying rack or closet, but also that some of the schools, particularly where only one or two classes of home economics are taught, do not have provisions for drying towels. In those few laboratories having no drying closets or racks it seems that desk or table tops and sinks must necessarily be used until the towels have dried, a standard not recommended.

Blackboard. It will be seen by referring to Table 9 that four-fifths of the foods laboratories have blackboards. The amount needed is reported in "Space and Equipment for Homemaking Instruction" (27:82) as five to ten feet but can be varied according to the uses for which it is intended. An excessive amount of space given over to blackboards is wasteful of wall space but it is generally recognized that a blackboard is desirable. For the one-fifth of the schools which do not now have blackboards, movable ones might be employed and serve well in several rooms.



Bulletin Boards. Attractively used bulletin boards in the laboratory create interest in the department. Flat illustrative material of which there is a quantity that is well designed can be effectively displayed on a bulletin board. It makes material for a particular unit constantly available for a pupil's use. In view of its value it is interesting to note that 116, or 72 per cent of the 161 schools, have bulletin boards in the foods laboratory. No information is available at present to indicate the number of schools using a bulletin board located elsewhere for illustrative material related to foods and nutrition.

#### Seating Equipment

For the purpose of studying seating equipment in foods laboratories, four types were selected, namely, chairs with tablet arms, chairs without tablet arms, stools attached to desks, and movable stools. Space was allowed to permit description of any other types used. To determine the distribution of these four types of seating equipment in foods laboratories Table 10 was arranged.



Table 10  
Types of Seating Equipment in Laboratory

	Total number of schools		Number of schools reporting types of seats*				
	N	%	Chairs with tablet arms	Chairs without tablet arms	Stools attached to desks	Movable stools	Others**
Total No.	156		7	88	20	72	33
Per cent		100	4.5	56.4	12.8	46.1	21.1
Group I	37	23.7	5	14	6	27	8
Group II	45	28.9	0	19	5	25	11
Group III	34	21.8	1	24	5	11	6
Group IV	40	25.6	1	31	4	9	8

\* Table 10 should read: Of the 156 schools reporting, seven stated that they had chairs with tablet arms. Since there were 220 reports on types of seats, it is obvious that some schools have two or more types. For information concerning the numbers of types of seating equipment see data on file in the Office of Home Economics Education.

\*\* Includes six benches, five folding chairs, eight chairs brought in as needed, three teacher's chairs, and eleven unexplained.

It is apparent from the findings in Table 10 that the chairs without tablet arms are used in more than half of the foods laboratories. This frequent usage is not surprising since the chair without tablet arm may be used around tables for meal service, for discussion, or for study in the laboratory.

Second, in importance, is the movable stool which is used in 72, or 46.1 per cent of the schools. Movable stools are especially desirable in school and home kitchens for use at work centers to permit sitting while performing various activities of a routine type, provided that there is enough knee space so that a satisfactory posture can be maintained. In a discussion on stools in the government bulletin (27:59) this statement is made: "They should never be used for discussion groups because of the discomfort to pupils and the development of poor posture". Since in this Oregon study only 61 per cent have chairs with or without tablet arms, it is likely that the stools are used for discussion groups even though they are not suitable.

Number of Seats in Laboratories. There are several questions with which one is yet confronted in determining the adequacy of seats provided at the present time in the foods laboratories. One of these is: Are there enough seats provided to seat as many pupils as the laboratory

was originally intended to serve? To ascertain the relation in numbers between other equipment and seating equipment, Table 11 was drawn up. Attention is called to the fact that the number of seats in one set corresponds with the number of pupils for which each particular laboratory is equipped.

Table 11

Relation of the Number of Seats to the Number of Pupils for which the Laboratory is Equipped

	Total number of schools		Number of sets*				
			Less than one set	One set	One set plus a few extra	Two sets	More than two sets
	N	%					
Total No.	115		21	33	45	5	11
Per cent		100	18.3	28.7	39.1	4.3	9.6
Group I	30	26.1	3	7	17	0	3
Group II	33	28.7	10	12	10	0	1
Group III	26	22.6	2	7	11	2	4
Group IV	26	22.6	6	7	7	3	3

\* Each set has as many seats as the number of pupils for which the laboratory is equipped.

In analyzing the data shown it should be noted that 41 of the 156 schools for which data on seating equipment were available could not be used in Table 11 because of an



omission of the number of seats or the number of pupils for which the laboratory was equipped.

Of special significance is the fact that only 21 laboratories, or 18.3 per cent of the 115 schools, have seats fewer in number than pupils for which the laboratory was equipped. Thus, more than four-fifths of the schools have an adequate number of seats.

Location of Discussion Areas. For group instruction and discussion a satisfactory seating arrangement is essential. To determine the place where this center was located the writer studied each case separately. Helpful information was provided in answers to questions eight and twenty-four of the original questionnaire (appendix, pp. 1, 11) and further explanations made by some teachers on the questionnaire or attached to it.

From this investigation of original data<sup>1</sup> it was found that 93 schools reported discussion areas. The foods laboratory was used for discussions in 79 per cent of the schools; the clothing room was used in 16 per cent of the schools; and a separate class room was used in 5 per cent of the schools.

<sup>1</sup> On file in the Home Economics Education Office



### Fuel Used for Cooking

In selecting types of fuel for the school laboratory, the fuels used in the homes of the community should be considered. From data obtained from high school girls enrolled in homemaking classes (23:6) about Oregon homes, it was found that wood was used in 87 per cent of the 600 homes studied. Electricity was next in importance as it was used in 21 per cent of the homes. Gas, coal, oil, and gasoline followed in this order. About one-fourth of the homes used more than one type of fuel.

### Number of Types of Fuel Used

That more than half of the foods laboratories use only one type of fuel is shown by the findings listed in Table V (appendix p. ix) reporting this to be the case in 93 of the 165 schools. The question arises as to what fuel is used when only one kind is available in the laboratory. It was found in checking the original data<sup>1</sup> that in the larger schools it was electricity, while in the smaller schools wood was the single fuel used.

The reader will be interested to note that 72, or 43.6 per cent of the schools, use two or three types of fuel (Table V, appendix p. ix) in their foods laboratories. As would be expected, this plan of using more than one fuel

<sup>1</sup> On file in the Home Economics Education Office

is more commonly found in the larger schools than it is in the smaller high schools. This is verified in Table V (appendix p. ix) which shows that more than one type of fuel is used by 68.4 per cent of the schools in Group I, by 41.3 per cent of schools in Group II, by 51.3 per cent of schools in Group III, and by 18.1 per cent of schools in Group IV. Of further concern will be the combinations of fuels used. In the larger schools piped gas supplemented electricity. In the smaller schools either electricity or piped gas was used in addition to wood.

#### Types of Fuel Used

Table 12 was compiled to show the number of schools using electricity, piped gas, wood, or other fuel for cooking purposes.

Table 12

## Types of Fuel Used for Cooking in Laboratories

	Total number of schools		Kinds of fuel			
	N	%	Electricity	Piped Gas	Wood	Other
Total No.	165	100.0	137*	53	42	11
Per cent			83.0	32.1	26.1	6.7
Group I	38	23.0	37	27	0	0
Group II	46	27.9	42	13	11	2
Group III	37	22.4	31	8	16	3
Group IV	44	26.7	27	5	15	6

\* Table 12 should read: 137, or 83.0 per cent of the 165 schools, used electricity.

Electricity. It has already been noted that electricity is an extensively used fuel in the foods laboratories of Oregon high schools. By referring to Table 12 it will readily be noted that 137 of the 165 schools reporting, or 83 per cent, do have electricity for use as a fuel for cooking. This indicates wide distribution of electricity in rural areas as well as urban centers and cities, which is not surprising when it is recalled that its use for lighting purposes is as yet unexcelled. However, it is not used for fuel in some homes because of high costs. School administrators should remember that



because of the volume used in schools their rates are greatly reduced when compared to the rates offered for home use of electricity for a fuel. The use of electricity as a fuel for cooking has the advantages of cleanliness, immediate availability of heat, and ease and safety of operating electric stoves.

Piped gas. Second in importance of number of schools using it is piped gas. This is reported to be used in 32.1 per cent of the schools, or approximately one-third of all schools. It is the opinion of the writer that its availability to communities is dependent on the size of the community and the denseness of population in nearby centers. This is indicated also by the fact that 27 schools in Group I, or large high schools, use gas for fuel, while only five of the small high schools in Group IV report the use of gas. It must be admitted that gas has certain features including immediate heat and high temperature, and relatively low cost of ranges and operating, that make it a desirable fuel, especially when one-hour class periods are a common practice.

Wood. It will be recalled that 85 per cent of the homes reported the use of wood as the fuel for cooking. From Table 12 it was learned that this fuel is used in 42 laboratories, or 26.1 per cent of all schools reporting. The schools which do use wood are located in Groups II, III,



and IV or schools having smaller enrollments. Comments previously made have indicated that unless the school environment is similar to that found at home there must be adjustments made by pupils to transfer learning from the one environment to the other. To make provisions for instruction on the use of wood ranges when none are available in the foods laboratory and when girls must use them at home is a challenge to the teacher of foods.

The disadvantages of the use of wood over electricity and gas as a fuel for cooking are: the control of heat is more difficult, the time required for producing heat is greater, more care and cleaning of stove and cooking utensils is required, additional storage space in the laboratory for fuel is essential, and unless properly installed, the wood stove may be a fire hazard to the building. The fact that wood is extensively used at home as a fuel for cooking and that it is available at low cost should not be considered lightly in planning foods laboratories.

#### Facilities for Heating of Water

Dish-washing, a necessary activity of food preparation classes, requires hot water. A satisfactory system should be provided not only for convenience but to demonstrate a practical method suited to homes in the communities (2u:111). Three common methods in use for heating

of water include the central heating system, separate heaters which may be placed in the foods laboratory and are operated with electricity or gas, and coils in a wood or coal stove. In Table 13 will be found the number of schools using each of these methods to obtain hot water.

Table 13  
Methods of Heating Water

	Total number of schools		Methods used*		
	N	%	Central heating system	Coils in stove	Hot water heater
Total No.	162		133	13	18
Per cent		100	82.1	8.0	11.1
Group I	37	22.8	36	0	2
Group II	46	28.4	37	3	7
Group III	35	21.6	27	3	5
Group IV	44	27.2	33	7	4

\* Two schools used more than one method.

Table 13 clearly illustrates that there is one important means of heating water, namely, the central heating system which is used in 133 schools. Only two of the schools using this means depended on any other source; one of these used coils in the stove, and the other used a hot water heater to supplement the central heating system.

In no other school was more than one method reported to be used for obtaining hot water.

This system so prevalent in Oregon high schools is recognized as the simplest method to use since no extra cost is involved (27:112). At times when the building heat is not needed, the central system can usually be adjusted simply to supply at a nominal cost the necessary hot water.

It is interesting to note that only Group I does not have a single school which uses the coils in the stove for heating of water. This can be accounted for by the fact that wood is not used for fuel by any school in this group (see Table 12, page 61). ✓

With a satisfactory system provided to supply hot water, pupil time can be more economically used during the class periods when food preparation is involved.

#### Storage Arrangement for Aprons or Smocks

To maintain satisfactory standards of appearance and cleanliness while pupils are working with food in the laboratory, an apron or smock is commonly used. Since this article is required for active participation in the foods laboratories and activity in food preparation occurs frequently during foods unit, some provision for storage



of aprons or smocks is essential. In checking the various places used for storage of these garments, five were commonly found, namely, lockers, drawers, closets, hooks on the wall, and shelves. In Table 14 the relative importance of these places, based on frequency of use, can be seen.

Table 14

Places in which Aprons or Smocks are Stored

	Total number of schools		Locker	Drawer	Closet	Other places
	N	%				
Total No.	163*	100	31	84	51	20
Per cent		100	19.0	51.5	31.3	12.3
Group I	38	23.3	11	13	9	8
Group II	46	28.2	8	23	15	4
Group III	37	22.7	3	23	14	4
Group IV	42	25.8	9	25	13	4

\* Of the 163 schools reporting, there were 22 who reported two or more places are used for storage of aprons or smocks.

It will be observed from Table 14 that of the 163 schools reporting, 84, or 51.5 per cent, used drawers as the storage place for aprons or smocks. It is the opinion of the writer that drawers are suitable for storage of



aprons or smocks only when the size and shape of the drawer are such as to be convenient for either of these articles and when the number of pupils using the drawer is limited to one or two.

Closets are second in importance as a place for pupils' uniforms and are reported by approximately one-fourth of all the schools. These closets are not used exclusively for aprons since food supplies or laboratory equipment or utensils are stored in a part of the same closet.

In 31, or 19 per cent of the schools, aprons or smocks are stored in lockers. These lockers may be located in the foods laboratory or they may be in a hall and could be used for pupils' school supplies and would thus not be used exclusively for foods uniforms.

From this study it was found that generally some provisions are made for the storage of an apron or smock for use by pupils in the laboratory. With no further knowledge of these storage places it is not possible to determine which of these is most satisfactory.

### Summary

Instruction in foods involving both activity and discussion in the secondary schools of Oregon takes place in a spacious laboratory designed specifically for foods

work. It is spacious because in 50 per cent of the schools there are 30 to 49 square feet per pupil, and an additional 37 per cent of schools exceed 50 square feet per pupil.

These laboratories are arranged with a unit kitchen, unit desk, or an unclassified arrangement. It is encouraging to note that one-fifth of the schools do have a unit kitchen and that there is a trend toward installation of this type as laboratory arrangements are changed.

Foods laboratories in Oregon are relatively new in their arrangements since almost two-thirds have been in use for five years or less. There is a tendency to purchase equipment for the laboratories when the laboratory arrangement is made. This is the case in 70 per cent of the schools.

Laboratories are equipped for 16 or fewer pupils in the smaller schools and for 17 or more pupils in the larger schools. When the number for which the laboratories were equipped was compared with the enrollment of pupils in the classes, the laboratories in three-fifths of the schools were found to be adequate.

Sinks and stoves are found in all food laboratories, but the number is insufficient. In only one-third of the laboratories do four or fewer pupils have the use of one sink. Stoves for four or fewer pupils are found in only two-fifths of the food laboratories.

Pieces of equipment found in this typical laboratory include work tables, storage cabinets, book or magazine shelves, lockers, drying racks for towels, blackboards, bulletin boards, and an adequate number of seats. Additional furnishings found in less than two-thirds but more than one-third of the schools include refrigerators, tables for meal service, and supply tables. Coolers and exhibit cases are located in but one-fourth and one-sixth of the schools, respectively.

Electricity is provided for fuel for cooking purposes. Water is heated by the central heating system.

Some storage for aprons or smocks is generally provided in a drawer or closet.

While this is a general description of all foods laboratories, there are a few differences to be found between high schools of large and small size. Slightly less equipment is found in the foods laboratories of the smaller schools in the state included in Groups III and IV when compared to the larger schools represented by Groups I and II. Data recorded in this chapter show that there are fewer refrigerators, supply tables, and stools for these smaller schools.

Smaller schools commonly have excess floor space, as is shown by the fact that 34 schools, or 53.1 per cent, have more than 50 square feet per pupil, while only 16, or



21.05 per cent of the larger schools, have this amount of space per pupil. Another difference between the larger and smaller schools is the type of fuel used. Fewer of the smaller schools use piped gas or electricity; an increasing number use wood for fuel. Because of an increased number of smaller schools using wood for fuel there are more schools in this group than among larger schools heating water by coils in a stove.

Except for these differences the size of the secondary school does not indicate superior or inferior arrangement or equipment in foods laboratories at least as far as these data furnish proof.

## CHAPTER IV

### CONDITIONS UNDER WHICH FOODS DEPARTMENTS ARE OPERATED

In this chapter the conditions reported in the foods departments of the secondary schools of Oregon are organized into four groups as follows: those pertaining to the placement, size, and length of home economics classes; those which deal with financial accounts; those in which uses of the laboratory are described; and those related to the provisions for cafeteria. Each group is discussed separately.

#### Information Concerning Home Economics Classes

##### Grades in Which Homemaking is Taught

The Oregon State Course of Study (24) provides curricular materials for Elementary Homemaking (seventh and eighth grades) and for three years' work known as Homemaking One, Two, and Three, planned to meet the needs of the ninth, tenth, eleventh, and twelfth grade girls.

How generally schools offer these courses will be of interest. Table 15 was prepared to show the grades and combinations of grades in which Homemaking One, Two, and Three are taught. Since some schools report classes in Homemaking Four, these are also indicated on Table 15.

Table 15  
Grade Placement of Homemaking Classes

Grades in which homemaking classes are taught	Number of schools reporting in groups					
	Total No.	%	I	II	III	IV
Homemaking One*	134	100.0	25	39	32	38
Grade 9	73	54.5	19	26	17	11
Grade 10	24	17.9	0	8	10	6
Grades 9 and 10	21	15.7	4	2	1	14
Other combinations	16	11.9	2	3	4	7
Homemaking Two	100	100.0	22	33	27	18
Grade 10	49	49.0	13	20	11	5
Grades 10 and 11	12	12.0	3	5	3	1
Grades 10, 11, 12	10	10.0	5	1	3	1
Grades 11 and 12	21	21.0	1	6	5	9
Other combinations	8	8.0	0	1	5	2
Homemaking Three	52	100.0	23	21	6	2
Grade 11	9	17.4	4	2	3	
Grades 11 and 12	34	65.4	17	13	2	2
Grade 12	7	13.4	1	5	1	
Other combinations	2	3.8	1	1		
Homemaking Four	7	100.0	5	2	0	0
Grade 12	5	71.4	4	1		
Other combinations	2	28.6	1	1		

\* Table 15 should read: Of 134 schools reporting classes in Homemaking One, 73 schools offered this course in ninth grade, 24 in tenth grade, 21 in grades nine and ten, and 16 had other grade combinations.

From Table 15 it will be observed that Homemaking One is placed in the ninth or a combination of the ninth and tenth grades in 70.2 per cent of the schools reporting. In 24 additional schools (17.9 per cent) it is restricted



to tenth grade. It is the opinion of the writer that in these schools no homemaking is offered in the junior high school or that the first year of homemaking is placed a year later because of program limitations.

Homemaking Two is taught in grade ten in almost half of the schools reporting. In 22 per cent of the schools this course is open to pupils in combined grades between ten and twelve. Thus Homemaking Two is taught in grade ten in 72 per cent of the schools.

Fewer schools report Homemaking Three, but in those schools including this course 34 schools, or 65.4 per cent, report placing it in a combination of grades eleven and twelve. This is not restricted to one grade when it is the one advanced course offered. Pupils are permitted to enroll as a junior or senior student according to their own interest and desire. Attention is drawn to the fact that there are nine classes in which this course is taught in grade eleven only.

Thus Homemaking One, Two, and Three are placed mainly in grades nine, ten, eleven and twelve respectively. In smaller schools it is a common practice to allow students in two or more grades to enroll in one course.

The reader will be interested to know the extensiveness of one, two, three, and four year programs of homemaking in Oregon schools. From Table 15 it will be ob-

served that of the 134 schools reporting programs, there were 34, or 25.4 per cent, which offer only one year of homemaking; 48, or 35.8 per cent of the schools, have a two-year program; 45, or 33.6 per cent of the schools, provide for three years of homemaking instruction; and seven schools have a four-year program. The four-year programs are found only in larger schools where "full-time" teachers of home economics are employed.

#### Size of Homemaking Classes

In planning equipment for homemaking classes it is essential that the sizes of the groups to be taught should be known. The teachers cooperating in this study furnished data concerning the size of 418 classes. (For a complete classification see Table VI, appendix p. x).

From Table VI the following calculations were made; 17.5 per cent of the 418 classes had fewer than ten pupils, 37.6 per cent from 10 to 15 pupils, 25.3 per cent from 16 to 20, 11.2 per cent from 21 to 24, and only 8.4 per cent of the schools had over 24 pupils. A class with 10 to 15 pupils is not only the size found most commonly when all of the 418 classes are considered but also is the size class most frequently occurring in the ninth, tenth, eleventh, and twelfth grades.

Classes in which the use of a laboratory is essential and in which much supervision of individual activities is

necessary need a limited enrollment of pupils. In a study of the size of home economics classes, Dyer (6:67) states, "The majority of the judges desire the classes to be not larger than 24 pupils, though they state that the size of a home economics class depends on the subject matter to be taught, the intelligence of the group, and the kind of equipment provided". A significant statement made by the judges in Dyer's study (6:67) was that 16 to 20 pupils would be a desirable size for a foods class.

Brown and Haley (5:309) say, "The majority of schools seem to be setting as a standard 20 to 24 pupils for each class until they can secure results of investigations on this problem".

In comparing the data of the present study with these findings it is seen that the size of the homemaking classes in Oregon is much lower than the size of home economics classes as recommended by Dyer, and by Brown and Haley.

#### Length of Class Periods

The amount of time allocated to each class period in the high school program is of special importance when activities of a time consuming nature are necessary for development of individual abilities. In foods classes the values of lessons are lost if time is insufficient for completion of the work. Brown and Haley (5:305) state,



"If class periods are short, efficient arrangement and choice of equipment must be made to facilitate quick work on the part of pupils".

From the original data<sup>1</sup> for the present study it was found, that of the 155 classes for which length of class periods were reported, 9.7 per cent were less than 50 minutes long, 17.5 per cent were between 50 and 54 minutes, 23.9 per cent were from 55 to 59 minutes, 34.1 per cent were from 60 to 64 minutes, whereas 14.8 per cent were longer than 65 minutes in length. Three-fourths of the schools report a class length between 50 and 64 minutes.

Kohlhagen (12:74-76) reports that 66 per cent of the schools have a period of 55 to 65 minutes in length for the home economics classes. From these two studies it is evident that approximately one hour class periods are found more frequently in Oregon than any other length of class period.

#### Cost of Supplies and Equipment for Teaching Foods

Spafford (20:309) states that "the cost of home economics with its laboratories and laboratory equipment and comparatively small classes often seems to come in

<sup>1</sup>On file in Home Economics Education Office

for more than its share of discussion on the cost of education". Expenditure of money for supplies, equipment, and maintenance of the department is generally recognized as essential for this instruction.

In order to determine the cost of the foods work in Oregon, the teachers were asked to state the amount of money spent for various items including large equipment, utensils, foods, illustrative materials, and other articles purchased for the school year of 1939-40.

An analysis of the reports shows that information from only 137 of the 165, or 83 per cent of the schools in the study, was obtained. The other 28 schools, or 17 per cent, furnished no data for the following reasons:

1. No foods classes were taught during 1939-40 school year in four schools.
2. Cafeteria accounts were combined with those of the foods departments in six schools.
3. Records for 1939-40 were not available in seven schools.
4. No reason was stated for absence of information in 11 schools.

The reader will be interested to know that only 22 per cent of the reports or slightly more than one-fifth were based entirely on records; that in 40 per cent estimates were given; while 25 per cent obtained some items

from records and estimated other items; and in 13 per cent there was no indication as to which method was used. It is the opinion of the writer that the use of so many estimates indicates an absence of records in the homemaking departments.

In "Data Supplied by 600 Oregon High School Girls," (23:10) 57 per cent of the girls report that their families keep accounts of finances. This shows that there is a higher percentage of parents of high school students keeping financial records than there are records kept of expenses of home economics departments. It seems desirable to have more attention given to this detail. Dyer (6:85) reports the comparison of costs of one department for two successive years as a desired practice for home economics departments.

The writer is of the opinion that financial accounts, if kept, would be valuable not only for comparison but at times as a guide to a new teacher coming into the department.

In studying the returns it was found that all of these purchases could be classified as equipment or supplies. These data were then organized into a table to show the range and the median amount of money spent for foods instruction. (See Table VII, appendix p. xi). Since this table did not show the distribution of amounts



of money, Table 16 was constructed to indicate the total cost of foods instruction.

Table 16

Total Cost of Supplies and Equipment for  
Teaching Foods, 1939-40

Money spent in dollars	Total number of schools		Groups							
			I		II		III		IV	
	N	%	N	%	N	%	N	%	N	%
Total number	137		26		42		35		34	
Per cent		100.0		19.0		30.7		25.5		24.8
Less than \$50	33	24.1	2		8		7		16	
50-99	37	27.0	3		15		9		10	
100-199	27	19.7	6		9		9		3	
200-299	16	11.7	4		3		7		2	
300-399	8	5.8	4		3		0		1	
400-499	3	2.2	1		1		1		0	
500-999	6	4.4	4		1		1		0	
1000 or more	7	5.1	2		2		1		2	

In referring to Table 10 it will be observed that 70 (51 per cent) of the 137 schools reported a yearly expense of less than one hundred dollars for supplies and equipment. Approximately one-half of this group spent less than fifty dollars. It seems likely that with such a small amount of money to spend, little could be used for equipment. The investigator consequently made a check of

the original data<sup>1</sup> and found that only six of the 70 schools had used 20 dollars or more for equipment. While it is true that the remaining 49 per cent of the schools reported an expenditure varying from \$100.00 to \$1900.00, this does not give a true picture of the financial situation, since 20 per cent received between \$100.00 and \$199.00 and 12 per cent between \$200.00 and \$299.00, thus leaving only 17 per cent of the total number of schools reporting which had more than \$300.00 for supplies and equipment for one year.

For the schools having the largest expenditures, it is likely that equipment has been purchased for a rearranged laboratory. While it is not probable that this same amount of money will be spent yearly in these schools, it is likely that in other years other schools will be purchasing equipment, so these findings, in the writer's opinion, represent a normal distribution of costs of the foods department.

Of interest to the reader is the range from \$1.17 to \$1867.50 for the total cost of equipment and supplies, a range of \$0.18 to \$1792.50 for total equipment, and a range from \$0.99 to \$352.00 for food and other supplies. The money allocated to the homemaking departments does not seem adequate in many cases. Three schools in Group

<sup>1</sup> On file in the Home Economics Education Office

III permit some food supplies to be brought from home to supplement foods purchased by school money. Of four schools in Group IV, three must depend on students bringing food so laboratory preparation of food can be experienced. In the fourth school supplies brought by pupils supplement school supplies. This method of having supplies brought from home by class members is described by Spafford (20:10) as an "undesirable financing system". It was also observed by the writer that the money used for supplies varies directly with the size of the school and the number of homemaking classes taught. (See Table VII, appendix p. xi).

No definite amount of money can be recommended for the yearly operation of foods departments because of variable factors as the community wealth, the school policies, the specific purpose of the homemaking instruction, the services available in the community, and the market conditions, all of which may vary from section to section. In view of these factors the data given here is of interest to show costs and variations in costs. It was not the purpose of this study to evaluate the use of money since this could be done only if the particular record and community were studied together.



### Kitchen Supplies Furnished by Pupils

When budgets are limited, it is probable that the ingenuity of the teacher will be called upon to find essential articles which can be furnished by the pupils. Such articles as dish towels, dish cloths, or pot holders might be brought from home. To determine which ones are brought by students, teachers were asked to indicate whether or not students furnished dish towels, dish cloths, or pot holders.

A study of the original data<sup>1</sup> showed that 98 schools, or 61.2 per cent of the schools reporting, required students to furnish one, two, or three of these articles. In only one-third (33) of the 98 schools were students expected to furnish all three articles, while in 52 schools students furnished only pot holders.

### Activities Carried on in the Foods Laboratory

One of the prerequisites to the planning of a foods laboratory designed for a particular community is to determine the purposes for which the laboratory will be used. What activities will the classes carry on in the laboratory? Will the school expect any use of it for other departments or for any social programs? What access to this department will the community desire?

<sup>1</sup> On file in the Home Economics Education Office

Among the recent shifts in educational practices is one from the formal classroom type to an informal activity program. The study of foods has in the past involved much activity, but at present the emphasis is in providing more natural situations and settings for home experiences in the schoolroom. If this attitude is maintained by the administration, then attention will be given to physical surroundings for the activities whether it be used for class, extra-curricular or community purposes.

In this section the discussion will feature the uses these groups have of the foods laboratory according to the facts obtained from the data.

### Class Activities

An analysis of the use of the foods laboratory shows that one or more of the following types of activity may take place during foods instruction: discussion, demonstration, food preparation, study, meal planning, and meal service. It is probable that if the laboratory is not used continuously during the day for foods classes and the building is crowded, other classes would be scheduled to meet in the laboratory regularly. Because of certain facilities in the laboratory such as fuel for cooking purposes and water, other classes may desire to use the room.

Thus from the data obtained, Table 17 was designed to show the kinds of activities which take place in the foods laboratory during a regular school day.

Table 17  
Kinds of Activities Carried on in  
the Foods Laboratory

Kinds of activities	Total number of schools		Groups							
			I		II		III		IV	
	N	%	N	%	N	%	N	%	N	%
Total number	164		38		46		37		43	
Per cent		100.0		23.1		28.0		22.6		26.2
Discussion	122	74.4	33		27		29		33	
Demonstration	157	95.8	37		45		36		39	
Food preparation	164	100.0	38		46		37		43	
Study	102	62.2	29		18		26		29	
Meal planning	113	68.9	32		24		27		30	
Meal service	137	83.5	33		34		34		36	
Other classes regularly	15	0.9	3		4		4		4	
Other classes special service	6	0.36	2		2		2		0	

An examination of Table 17 shows that food preparation is a common activity in each of the laboratories of the 164 schools reporting. Next in frequency are demonstration and meal service. In 27 schools meal service was not reported as an activity taking place in the foods laboratory. Either these schools do not include meal



service or there is a dining room in which meals are served. Of further interest is the number of schools using the foods laboratory for study, meal planning, and discussion. There are four probable reasons for this combination of work and study activities taking place in the foods laboratory. First, the philosophy of teaching foods involves opportunities for thinking, experimenting, examining and doing and is thus not restricted to cooking processes. Second, a one-room department found in 26.4 per cent of the schools combines all home economics work. Third, in two-teacher departments separate clothing and foods laboratories are common, and discussions usually take place in each room. Fourth, the school building may be too completely utilized to allow a separate room for discussion.

In less than one per cent of the schools was the laboratory used regularly as a meeting place for classes other than home economics. Since these schools are distributed in all groups, it is possible that there is a shortage of space and therefore the foods laboratories are used even though they do have specialized equipment.

#### Extra-curricular Uses of the Laboratory

If a foods laboratory is an integral part of a school system, it will be used for extra-curricular work as well

as that curricular in nature. A common procedure today is to combine social activity both in and out of regular class time. Under such conditions it is usual to find the pupils reaping manifold benefits from the added activity program.

To determine the extent of the use of the foods laboratory for preparation and serving of light refreshments, banquets, or dinners, for club meetings, for food sales, and for hot lunches, Table 18 was planned.

Table 18

Extra-curricular Uses of  
the School Laboratory

Extra-curricular activities	Total number of schools		Groups							
			I		II		III		IV	
	N	%	N	%	N	%	N	%	N	%
Total number	156		36		45		34		41	
Per cent		100.0		23.1		28.8		21.8		26.3
Light refreshments	149	95.5	33		44		32		40	
Banquets or dinners	121	77.5	29		31		29		32	
Club meetings	6	3.8	3		1		2		0	
Food sales	7	4.5	1		3		2		1	
Hot lunch or cafeteria	14	9.0	3		3		2		6	

That the laboratories are used commonly for the preparation and serving of light refreshments or banquets and dinners is shown by the high percentage of schools reporting such activities. On the original data<sup>1</sup> only three teachers made the comment that their school kitchen was not used by students aside from the routine classes. Thus it is shown that most of the laboratories are used by students for extra-curricular activities. All activities reported have a direct relation to eating except club meeting, and it is likely that at club meetings some attention was given to food. The writer, as a result of experience in working with high school students, feels that this use of the laboratory should be permitted, but that the privilege should not be abused. A well-defined system for its care is essential to prevent teacher and pupils from assuming a laborsome role of cleaning up after school groups have used the laboratory for preparation of refreshments or dinners.

#### Community Use of the Foods Laboratory

In the Nineteenth Yearbook (1:20) it states that the "Influence of school on family life will be determined somewhat by the degree to which the school inaugurates and encourages activities which children and parents will carry on in the home together". It is assumed that pupils

<sup>1</sup> On file in the Home Economics Education Office



have experiences in the foods laboratory which encourage participation in home activities. Since it was not known whether or not adults used the foods laboratory, teachers were asked to indicate uses which the community had for this laboratory.

Of the 164 schools reporting class activities in the foods laboratory (Table 17), approximately two-thirds (107) indicated community uses of the laboratory. From the original data<sup>1</sup> it was found that of the 107 schools reporting community uses, three-fourths used the laboratory for preparation of light refreshments, two-thirds of the schools used the laboratory for banquets or dinners, and in less than one-fifth of the schools the Parent-Teacher Association, Extension Service, or adult class used the laboratory. Schools should profit by encouraging communities to use the laboratory since the types of activities provided should develop common interests between parents and children.

#### Number of Times the Laboratories are Used for Extra-Curricular and Community Activities

To state that the foods laboratory is used for extra-curricular activities and by the community does not indicate the extent of these uses. However, on further analysis the data showed that the median use of the labora-

<sup>1</sup> On file in the Home Economics Education Office

tories was 19 times during a school year. See Table VIII, appendix p. xii). That there is variation in the number of times laboratories are used is evident since the laboratory was used only once in one school and 285 times in another.

With a knowledge of the purposes for which a foods laboratory is to be used and extent of use, the plans for space and equipment can be made to more nearly provide arrangements which will give satisfaction to each group.

#### Arrangements for Cafeteria

Home economists who teach foods frequently find responsibility for the school cafeteria assigned to them. While they may be well qualified for this job, the part they should assume is debatable. If the cafeteria program can be so arranged that it has a legitimate place in the homemaking program or that it provides learning situations for pupils in home economics, its management by the homemaking teacher can be justified.

The data in the questionnaire (Appendix p. i, ii) concerning the arrangements for cafeteria, were limited since only two questions were asked.

In answer to the question, "Do any of the foods classes assist in cafeteria work during class time?" 24 schools reported that their classes did assist in

cafeteria work during class time. Of the 24 schools, 17 reported that students do assist in cafeteria preparation and there is no separate kitchen. The writer assumes that in these schools cafeteria preparation takes place in the laboratory used for foods. The question is raised: Can this be done in the laboratory and not interfere with the home economics program? It may be that cafeteria work is the program of a certain class, but if this is so, the plan of Homemaking One, Two, or Three as outlined in the Course of Study could not be used as a guide.

It is the opinion of the writer that in these schools in which cafeteria activities are carried on in the foods laboratory that unless classes are scheduled at another time, the preparation of food for cafeteria will cause interruption and inconvenience to the homemaking classes.

In seven of the 24 schools separate cafeteria kitchens were provided. All of these are located in the same group, namely, full-time teachers. It is probable that the program in these schools is extended to include a cafeteria class, or that an advanced class offered in foods has time allocated for cafeteria assistance.

From the original data<sup>1</sup> it was found that in 48 of the 165 schools there was a separate cafeteria kitchen.

<sup>1</sup> On file in the Home Economics Education Office



The data were insufficient to indicate the responsibility of the teacher in these cafeterias.

### Summary

This study concerning home economics classes shows that the secondary schools in Oregon offer the courses in homemaking in a sequential order as recommended in the course of study "Homemaking Education for Secondary Schools" (24). The size of the class most commonly reported has between ten and fifteen pupils enrolled, which permits individual instruction so essential in courses that are informal in character.

Satisfactory teaching of foods requires money for equipment and supplies. In more than half of the schools a total cost of operating this department was listed as less than one hundred dollars for the preceding school year. It is the opinion of the writer that the amount allocated is in these cases insufficient to provide for the experiences that are essential for high school girls to have.

The foods laboratory is used most frequently as a workshop during regular school hours though it is interesting to note that in many schools extra-curricular activities utilize the department, and in still fewer schools community organizations use the laboratory.

These groups use it most frequently as a center for preparation and serving of food, either light refreshments or dinners.

Nutritionists have emphasized the importance of a hot lunch at noon for students. While teachers have recognized the value of cafeteria lunches, they experience a conflict in assuming responsibility for its preparation in the laboratory used for instruction in home-making. Thus the findings of this study showing that only one-tenth of all the schools use the regular laboratory and students' time during class periods for cafeteria are encouraging. It is not the purpose to discount participation in a cafeteria program but rather to urge that each program be planned for in a way which will prevent exploitation of the pupils and teacher.

## CHAPTER V

### PRACTICES USED IN TEACHING FOODS IN THE SECONDARY SCHOOLS

Since in this chapter practices used in teaching foods in the secondary schools in Oregon in 1940 are reported, comments showing shifts in emphasis are significant here. During the past decade the names of home economics classes included in the high school curriculum have been changed from "Foods" or "Clothing" to "Homemaking". An examination of a course of study for these classes would show that the "Homemaking" program is broader and consequently includes instruction in several phases of home activities during a course of one year's duration, rather than being limited to the single phase of foods or clothing. This makes necessary a limitation of foods and clothing to units within the homemaking program.

The emphasis in these units of shorter length pertaining to foods has been placed on the development of appreciation for good nutrition, on the stimulation of keener participation in food problems, on creating greater ability to cook and prepare food and manage several processes at one time, and finally, on the enrichment of family life by teaching cooperation. Thus instead of a single objective, namely, to acquire skill in the art of



cooking, the aims have become more numerous and more meaningful.

These aims are realized through attack on a family problem such as a single meal or a day's food, or an even larger problem such as feeding the family for a week or a month. Such problems would require more than one class period as well as involving items of management and cooking. A procedure such as this keeps the problem constantly before the class, whereas in the study of single dishes, the whole is lost in pursuit of minor phases.

These shifts in emphasis during the past decade should bring about the use of new practices in the classroom. At this point information is definitely lacking: there is no information available concerning specific practices actually being used in the study of foods so far as the investigator could determine this issue. For this reason, the present chapter, in which data are included to show the amount of time allotted to a study of foods, to show organization within foods classes, and to show the amount of laboratory time used for meal preparation and service, should be of particular interest to the teacher.

The reader should note that there are fewer reports of teachers used in this chapter than in the preceding ones. The inexperience of teachers of home economics has

been recognized by Kohlhagen (12:30) who found that 47 per cent of the teachers in 1938-1939 had at that time teaching experience of two years or less in Oregon high schools. Almost half of this group were teaching in high school for the first time. This inexperience of teachers accounts for the lack of desired information concerning question number 23 of the questionnaire (appendix p. 1, 11), since some teachers had not taught foods units at the time they filled out the questionnaire.

#### Time Used in Foods Work

##### Length of Units in Each Year's Program

The Oregon State Course of Study of Homemaking Education for Secondary Schools (24:10) suggests that in Homemaking One, 12 to 13 weeks or approximately one-third of the school year be used for the unit entitled, "Foods and Health for the High School Girl". A similar amount of time is recommended for Homemaking Two for two units related to foods, namely, "Food Preservation" and "Satisfying Family Meals". Advanced Homemaking does not have a unit on foods. However, it is likely that food commodities would be used in the unit "Consumer Buying" requiring from six to nine weeks of time. These recommendations on the amount of time to be used for units in foods work have been made as a result of research and study based on

findings about the home conditions of high school girls (23).

To determine the amount of time that teachers in the State of Oregon are using for foods units, a schedule was designed as number 23 in the original questionnaire (Appendix p. i, ii) in which space for answers was allowed for each course taught. In Table 19 there is a report of the length of foods units as they were taught in 1940.

Table 19  
Length in Weeks of Foods Units Taught

Length of food units in weeks	Teachers reporting		Groups			
	N	%	I N	II N	III N	IV N
Homemaking One	104	100.0				
10 and under	17	16.4	2	5	4	6
11-14	49	47.1	7	15	15	12
15-18	38	36.5	7	14	6	11
Homemaking Two	80	100.0				
10 and under	12	15.0	1	5	4	2
11-14	48	60.0	8	19	13	8
15-18	20	25.0	4	8	5	3
Homemaking Three	24	100.0				
5 and under	9	37.5	4	4	1	-
6 and over	15	62.5	7	3	4	1
Homemaking Four	4	100.0				
5 and under	2	50.0	2	-	-	-
6 and over	2	50.0	1	1	-	-



Examination of Table 19 shows that the larger group, or 52.7 per cent of the teachers having classes of Homemaking One and Homemaking Two, are following the recommendations of 12 to 13 weeks in food study since they were using from 11 to 14 weeks. Slightly less than one-sixth, or 15.8 per cent of the teachers, report utilization of less than ten weeks, while 31.5 per cent of the teachers are using from 15 to 18 weeks for study of foods. Since these two groups total 47.3 per cent of the teachers who use either more or less time for food study than is suggested in the course of study, there is a question concerning the reason. It is the opinion of the writer that ability and preference of the teacher to teach particular phases of homemaking constitute the primary cause for this variation in time. It is possible that poor management of time by the teacher or that the pupils' interest were the causes for the use of more or less time than has been recommended. A slight variation is of little significance but when as many as five or six additional weeks are allocated to food study, some other unit essential for a well rounded program must be slighted.

It should also be noted from Table 19 that 28 teachers report teaching foods units in Homemaking Three and Homemaking Four of approximately five or six weeks in length even though there is no provision for this in the Course

of Study (24). It appears to the writer that this is indicative of an attempt by the teacher to satisfy desires of students and parents in the program.

#### Time Spent in Laboratory Activity

As a home economics person begins her experience as an instructor in the foods unit, she is confronted with numerous problems, of which one is how much of the time should be given to laboratory work. There is no rule, since such factors as laboratory facilities, class size, special problem being studied, and the amount of the budget must be considered. It is possible that the term "laboratory" was not interpreted alike by all teachers. Williamson and Lyle (28:134-135) state, "In homemaking the term laboratory method is used for three types of activity: for construction or manipulative work done under supervision. . . for experimentation to derive certain principles and to develop reasoning ability; for observation to develop the power to derive first-hand information as it is needed".

From the questionnaire the length of foods units in weeks and the time (in days) spent in the laboratory during the units were obtained. It was necessary, therefore, to determine a common unit so that a comparison of time could be made. This was done by calculating the

average number of days during a week that were spent in laboratory activity. Teachers, especially, will be interested in the findings of this present study which show the proportion of class time that is used in the laboratory. This information is supplied by Table 20.

Table 20

Amount of Time Used for Laboratories During  
Foods Units in Homemaking One and Two

Number of days used in labora- tory work in one week	Total		Groups							
	N	%	I N	%	II N	%	III N	%	IV N	%
Total number of reports*	176	100.0	28	15.9	62	35.2	45	25.6	41	23.3
Less than one	25	14.2	6		8		3		8	
One	3	1.7	-		2		1		-	
More than one, less than two	27	15.3	6		10		8		3	
Two	38	21.6	10		13		11		4	
More than two, less than three	42	23.9	3		17		11		11	
Three	41	23.3	3		12		11		15	

\* Table 20 should read: There were 176 reports on the length of foods units and the number of laboratories from teachers (100 from teachers of Homemaking One and 76 from teachers of Homemaking Two). In 25 reports the use of less than one day in a week for laboratories was indicated.



It will be observed from Table 20 that more than two thirds (68.8 per cent) of the 176 reports from teachers of Homemaking One and Homemaking Two indicated that between two and three days of each week were used in Laboratory activities. This means that approximately one-half of the time used for teaching foods is spent in laboratory activity in these schools.

### Methods of Organization in Foods Classes

#### Size of Groups

It is desired that girls know how to plan meals and have the ability to prepare and serve the food attractively, <sup>have</sup> as well as have the initiative and skill to work alone or cooperate congenially with others in meal preparation.

Williamson and Lyle (28:209) summarize their ideas concerning grouping of students as follows: "When possible, all laboratory work should be done individually. . . In foods classes this is rarely possible because of the expense of equipment and supplies involved, so girls usually work in groups of two or more. In many of the best foods laboratories today these groups form families of four or six, each group working as a family - planning meals for the family, preparing, serving, and eating those meals as a family group. Such a grouping needs unit desk or unit kitchen arrangement of equipment with a table for each

group for serving the simple meals. In a home a family has its food preparation, its meal service, and its cleaning up centers. Similar arrangements are needed in a foods laboratory so that each group has a place to prepare food, to serve it, and to clean up afterwards. When a class is organized on such a family basis, the various home responsibilities rotate within the group, each girl assuming different duties in her turn."

To ascertain how far the teachers in Oregon are meeting these criteria, a study of the original data<sup>1</sup> as to organization of classes for laboratory activity was made. With the exception of seven reports which did not fit into any category, the 150 teachers' reports could be classified into four general plans.

Plan I. Reported by 91 teachers.

When this plan is used, students work in groups of two 50 per cent or more of the laboratory time. For the remainder of the laboratory time the classes were organized as follows:

- (1) Individual work only - reported by  
9 teachers
- (2) Groups of four only - reported by  
17 teachers
- (3) Time divided between working individually  
and in groups of four - reported by  
65 teachers

<sup>1</sup> On file in Home Economics Education Office

Plan II. Reported by 21 teachers

When this plan is used, students work in groups of four 50 per cent or more of the laboratory time. For the remainder of the laboratory time the classes were organized as follows:

- (1) Individual work only - reported by  
one teacher
- (2) Groups of two only - reported by  
four teachers
- (3) Time divided between working individually  
and in groups of two - reported by  
sixteen teachers

Plan III. Reported by 19 teachers

When this plan is used, students work individually 50 per cent or more of the laboratory time. For the remainder of the laboratory time the classes were organized as follows:

- (1) In groups of two only - reported by  
four teachers
- (2) In groups of four only - reported by one  
teacher
- (3) Time divided between working in groups  
of two and groups of four - reported by  
fourteen teachers



#### Plan IV. Reported by 12 teachers

When this plan is used, students work in groups of two during all the laboratory time.

From a study of the four plans, one must come to the conclusion that more teachers use groupings of two for laboratory work than use any other method. The writer believes that this practice is due to the inexperience of the teachers and their tendency to copy methods used in their college classes and to the poor arrangement of equipment which makes working in groups of four difficult to carry on.

#### Procedures Used in Serving the Food Prepared

Under what circumstances is the food that is prepared eaten by the pupils? Do they stand and "eat it on the run," so to speak, or do they sit at a table? If they sit at a table, is it intended for two or four people? Information on these questions was obtained by requesting that the teacher indicate the number of times during a semester that pupils eat the food in these ways.

As tabulation of this item proceeded, the investigator found it necessary to build the table with reference only to practices reported. The number of times each practice was reported could not be used because teachers disregarded numbers and reported practices by means of checks, by fractions such as three-fourths of the time, or by descriptive words such as "often" or "frequently".

To summarize the practices used in eating the food prepared, Table 21 was constructed.

Table 21  
Practices Used in Eating the Food Prepared

	Total number of teachers		Practices used			
	N	%	Stand- ing	Sitting at desk	Sitting at small table	Sitting at dining table*
Total No.	152	100.0	63	111	71	94
Per cent			41.4	73.0	46.7	61.8
Group I	38	25.0	15	32	21	23
Group II	43	28.3	16	33	22	38
Group III	36	23.7	18	25	14	16
Group IV	35	23.0	14	21	14	17

\* This dining table is not located in the foods laboratory.

That recognition is given to the social significance of the serving of food is evident from Table 21, which shows that only 41.4 per cent, or 63 teachers, report that students stand while they eat. Of these 63 teachers, there are none who indicate that this was the only method used. However, there were 11 teachers who did use it more than half of the time.<sup>1</sup> To determine whether this could be caused by an absence of seating equipment in the laboratory,

<sup>1</sup> Data on file in the Home Economics Education Office

the writer checked the original data<sup>1</sup> and found that in one laboratory there were no seats, and in three others the number of seats was omitted from the report. Thus in only four schools could this be due to a lack of seating facilities. Four teachers stated that food was served with pupils standing only for sampling of food, and it is possible that others had this in mind but did not indicate it.

The length of the class period may influence the method used in serving food. Kohlhagen (12:74-76) found that 55 to 65 minutes was the time reported in 66 per cent of the schools. According to the present study (p. 76) 75 per cent of the schools report class periods to be 50 to 64 minutes in length. With class periods of this length, food preparation and service must be scheduled with care if time is to be allowed for eating food. Thus it is not surprising to find that adjustments need to be made at times. However, it must be remembered that learning will be lessened if satisfactory standards are not practiced in the foods laboratory.

From Table 21 it can be observed that dining tables in another room and small tables and desks in the foods laboratory were used for meal service with desks being used more frequently than either the dining table or the

<sup>1</sup> On file in the Home Economics Education Office



small table. Obviously teachers used more than one type of space for serving meals.

There is a question as to whether all schools have tables for meal service. From Table 9 (p. 50) it was found that only 89 of the 161 schools have tables for meal service in the foods laboratory. This means that 72 schools do not have tables in the foods laboratory for meal service. In Table 30 it is reported that students eat at tables in a dining room in 94 schools. To determine whether there was any duplication of these schools with those not having tables for meal service in the foods laboratory, the writer checked the original data.<sup>1</sup> This examination of data showed that of the 72 schools having no tables for meal service in the foods laboratory, 34 schools had tables for meal service in another room. This leaves 38 schools in which there are no tables either in the laboratory or elsewhere which can be used for meal service.

#### Meal Preparation During Laboratory Time

Earlier in this chapter reference was made to a new emphasis on laboratory problems, namely, that instead of considering single dishes irrespective of other food needed to make a well-balanced meal, there should be a basic

<sup>1</sup> On file in the Home Economics Education office

problem of larger scope, such as a dinner for a family of four members on a low income level. As plans for a specific meal are developed, there should be opportunity to prepare the entire meal. To learn whether this attitude is local or nation wide it is necessary only to look at prepared study guides for home economics.

In a Syllabus (26) used in New York State, some of the learning activities are as follows:

"10. Planning, preparing, serving meals suitable for high school girls."

"17. Planning three meals a day that a high school girl and boy will like and will be adequate."

"19. Planning meals for a family in a home with limited food storage and preparation facilities or with adequate modern food storage and preparation facilities."

A teaching procedure from a Curriculum Monograph (16) used in the Omaha Public Schools says: "Experience in food preparation becomes more truly a life situation when pupils plan, purchase, and prepare the food for a simple but complete family meal. They should then sit down to the table and enjoy the food, observing the ordinary courtesies throughout the simple serving of the meal."

In the Kansas City, Kansas, guide (9) recommendations are found for serving several breakfasts from the most simple to more difficult meal plans.

An Outline for Mississippi High Schools (25:76) contains this statement, "Each laboratory lesson should be centered around a meal and the following foods studied and prepared during this unit: soups, meats, vegetables, salads, quick and yeast breads, desserts, beverages, etc."

The Alabama Manual (22) in a unit entitled "Home Meals" lists these as "suggested" projects:

- "2. Planning, preparing, and serving a number of simple home suppers.
- "3. Planning simple home meals and preparing parts of each.
- "5. Preparing desserts and serving Sunday dinners.
- "7. Planning, helping prepare and serving home breakfast."

The Connecticut Course of Study (3) outlines a plan whereby the work with family meals begins with simple breakfasts in the seventh grade and continues to more difficult meals in the tenth grade.

From these quotations it can readily be seen that educators are convinced that teaching of foods to be effective must be done through the study of family meals.

With a unit in Homemaking One of 12-13 weeks entitled, "Foods and Health for the High School Girl" and a unit in Homemaking Two entitled, "Satisfying Home Meals" (10-11 weeks) outlined for use in Secondary Schools in Oregon,



the question arises as to how much of the time in the laboratory is actually used for meal service. Of further interest will be the organization of the classes in this activity. What size working groups do teachers use when the entire class serves meals and when only part of the class serves meals? What other plans are in use? These questions are answered in this section.

#### Number of Meals in Relation to Number of Laboratory Periods

In studying the data<sup>1</sup> obtained from teachers of home economics in secondary schools of Oregon pertaining to the number of laboratory periods and the number of meals served, it was evident that the relation could be shown by the proportion of time utilized in meal work.

It was found that one-third or less of the laboratory time is spent in meal service by 65.8 per cent of the 76 teachers of Homemaking One. There is a tendency for teachers to use more of the laboratory time for meal service in Homemaking Two, Three, and Four than in Homemaking One. This shows that as the pupils' maturity is increased, meal problems which involve more management than do simple cookery problems are used more frequently. The reader will be interested to know that all of the laboratory time was used for meal service in 25 classes. Interpreted in another way, this would mean that in one-sixth of the

<sup>1</sup> On file in the Home Economics Education office

reports on laboratory periods and number of meals served all laboratory time was used in meal service. In the opinion of the writer these findings show that the home economics teachers of Oregon high schools recognize the value in teaching foods with family meal problems and are accepting the challenge by featuring meal service in laboratory periods but are not yet organizing their entire unit on a meal basis.

#### Arrangements for Meals

When this present study was undertaken, the investigator was interested in knowing the general arrangement of the classes when meals were prepared. Did the entire class prepare meals at the same time, or did a part of the class prepare meals while other members were busy with other problems such as marketing or planning menus or organizing work? Were guests invited to attend meals prepared in the laboratory? Since there were more data on arrangements for meals and number of meals served for Homemaking One than for Homemaking Two, Three, and Four, tabulations for Table 22 showing arrangements used are limited to Homemaking One.

Table 22  
Meals Prepared in Homemaking One Classes

Methods of organization	Number of teachers reporting	Number of meals reported by teachers in groups									
		Total		Groups							
		N	%	I N	I %	II N	II %	III N	III %	IV N	IV %
Total number		978		155		309		206		308	
Per cent			100.0		15.9		31.6		21.1		31.4
Entire class*	70	584	59.7	102		210		126		146	
Part of class**	36	167	17.1	15		44		27		81	
Guest meals***	53	140	14.3	24		42		29		45	
Other plans	10	87	8.9	14		13		24		36	

\* Entire class, which is divided in groups, eat at the same time.

\*\* Part of class, divided into groups, eat at one time.

\*\*\* Class, either part or whole, prepares meal for guests.



That teachers use more than one method of classroom organization for meal service is apparent from the findings in Table 22. It is significant that 59.7 per cent of all meals reported to be served during foods units in Homemaking One were prepared by the entire class divided into groups of pupils who ate at the same time.

Two other methods used less frequently than the first method are: dividing the class so that only a part will have meal preparation work at a time, or having the class prepare meals for guests.

It is the opinion of the writer that more individual help can be given pupils in meal preparation when only a part of the class is preparing meals. However, groups with different problems must be managed skillfully to prevent loss of time.

It has been shown that there are two general arrangements for preparation of family meals exclusive of guest meals, namely, having the entire class serve at one time, or having only a part of the class serve at one time. When these arrangements are used, how many pupils work together as a group? Is there a difference in the size of groups with each of these two methods? Table 23 was designed to show the size of groups when the entire class was preparing meals.

Table 23

Size of Groups When the Entire  
Class Prepares Meals

	Total number of teachers		Number of pupils in working group							
	N	%	2		4		5 or 6		over 6	
			N	%	N	%	N	%	N	%
Total	128		42		58		23		5	
Per cent		100.0		32.8		45.3		18.0		3.9
Group I	26	20.3	4		16		5		1	
Group II	52	40.7	18		21		9		4	
Group III	25	19.5	9		13		3		-	
Group IV	25	19.5	11		8		6		-	

When the entire class is preparing meals, pupils work together in groups of four in 58 classes and in groups of two in 42 classes, a total of 100, or 78.1 per cent of the 128 classes reported by teachers.

When only part of the class prepares meals at one time, the size of the groups varies somewhat from those mentioned in Table 23. Reports from 75 teachers<sup>1</sup> were available. Of these, 54.7 per cent (41) reported that groups of four were used. The other schools reported as follows: groups of two, six; groups of five or six, sixteen; groups of over six, twelve.

<sup>1</sup> Data on file in Home Economics Education office

The most common number of pupils reported to be working together in serving a meal is four, regardless of whether it is an entire class activity or only part of a class activity. The frequent occurrence of this grouping may be accounted for in the following ways:

1. Some home economics specialists have recommended this size for a family group, as Kaufman (10:3) does in discussing meal lessons for elder girls in these words: "In organizing for this lesson if the class is average size (16-18) it is best to divide into four groups of four or five girls each, with each preparing a meal."
2. Within the group of four girls they may organize themselves into two groups of two each, which is the method used most frequently, or they may work individually. Thus a group of four permits several arrangements.
3. During the time of a single class period, which has been referred to previously as being short, four girls who have made a careful schedule for their work can actually prepare and serve family meals. More than four pupils or fewer than four working together is, in the opinion of the writer, a disadvantage in meal activities when time is considered.



Finally, equipment is often selected that is particularly suited to the use of four people as, for example, tables for breakfast use.

Thus it seems that group activity is a common practice of the teachers of home economics in high schools of Oregon. The ability to work harmoniously together in groups is a good beginning for family life, which, if it is "to be successful must be a group enterprise," according to Spafford (19:4).

#### Summary

Through this study it was found that about half of the teachers of home economics in the secondary schools of Oregon planned foods units of approximately the same length as has been recommended in the Course of Study "Homemaking Education for Secondary Schools" (24). Of the other half, few have shorter units, while the majority increased the length as much as five or six weeks. While this indicated a strong emphasis on foods, it also means that related units must be slighted.

In a typical class room, five of the ten class periods of each two weeks were spent in laboratory activity.

In answer to the question as to what size pupil groups are used during these laboratory periods, it can be said that in five laboratory periods during two weeks of

time, pupils work in groups of two three times, individually once, and in a group of four once. The use of several sizes of groups is advantageous to pupils since it encourages initiative, independence, and the development of a spirit of cooperation with others.

Eating of food under circumstances that are desirable is a phase of the study of foods that has not been overlooked. Teachers report two or more conditions under which food is eaten, including standing or sitting at a desk, small table, or dining table. Standing was a minority practice that was used mainly for sampling of food. Sitting at desks to eat food prepared was a practice reported by almost three-fourths of the teachers. It can be assumed that it is necessary to sit at desks in many schools because approximately one-fourth of the schools have no tables for meal service either in the foods laboratory or in other rooms. Better equipment would lead to improved practices.

Meal preparation and serving was managed chiefly under three plans: first, with the entire class divided into groups serving at the same time; second, with only a part of the class divided into groups serving at one time; third, the class, either part or whole, prepared meals for guests. Ordinarily, these groups consisted of four pupils working together. In fewer instances meals were prepared by groups of two, five, or six pupils.

Of the time allocated to laboratory work, one-third or more was used for meal service. In one-sixth of the cases studied it was specified that all laboratory work featured family meals. This is encouraging because the significant aim of home economics training is to provide experiences that are meaningful for everyday living.



## CHAPTER VI

### SUMMARY AND RECOMMENDATIONS FOR FURTHER RESEARCH

This study was made to determine characteristics of the plant and facilities used for the instruction in foods in the secondary schools of Oregon and to determine the practices used by teachers of foods in these same schools. The relative absence of research of this type was evident to the writer as literature was searched for helpful material.

Through the present study an attempt was made to answer such questions as follow:

What plans of arrangements are used for the foods laboratories? How extensive is the use of unit kitchens?

What types of equipment do the laboratories contain? For how many pupils is equipment provided? From what source is equipment obtained?

In what grades are Homemaking One, Two, Three, and Four taught in Oregon high schools? What number of pupils is enrolled in these classes?

During the school year of 1939-1940 what was the cost of the foods department?

What use does the school and community make of the laboratory in addition to the regular class use?

How much time in each year's program in homemaking is spent in teaching foods?

What is the size of pupil groups during laboratory activities of meal preparation and service?

Data were obtained by the questionnaire method from the teachers of home economics in Oregon high schools in the spring of 1941.

The data were classified in three parts, namely, a description of the laboratories and equipment, the conditions under which the departments were operated, and practices used in the teaching of foods. These were treated in separate chapters. To aid in analysis of data tables were constructed.

In this study it was found that foods instruction took place in a separate laboratory designed especially for foods in 113, or 69.3 per cent, of the schools. A combination homemaking room was used in 43 schools. Of these 32 are located in the schools of smaller sizes. The tendency to have a combination homemaking room in the schools with fewer students and smaller teaching staff is commendable because the space is more completely utilized and a broad program can be carried on.

Unit kitchens are used in 33 of the 160 schools. Of the 33 schools, 26 have more than one unit. In the remaining seven schools there is but one unit kitchen which supplements another plan of arrangement. That the unit kitchen is gaining in popularity is verified by the data

from this study which show that 24 of these unit kitchen arrangements have been used three years or less. Furthermore, these 24 unit kitchen arrangements represent 40 per cent of the 60 laboratories that have been in use for three years or less. These facts indicate a trend toward the installation of unit kitchen arrangements in the foods laboratory.

Foods laboratories are relatively new in their arrangements since almost two-thirds have been in use for five years or less. Three or four types of equipment were purchased when laboratory arrangements were made in 70 per cent of the schools.

The number for whom laboratories are equipped is dependent on the size of the school. In the smaller schools equipment for 16 and fewer pupils was reported. In the larger schools laboratories are equipped for 17 or more pupils. A comparison of the class enrollments of pupils with the number for which laboratories are equipped showed that three-fifths of the laboratories are adequate.

Providing enough sinks and stoves so that the use of each one may be limited to four pupils is recognized as a minimum standard. This standard is found in less than 40 per cent of the foods laboratories of Oregon high schools.



An excess of floor space is a tendency in the foods laboratories. The floor space recommended by the state is 35 to 40 square feet per pupil when there are two separate laboratories or 50 square feet per pupil in the combination homemaking room. In 50 per cent of the foods laboratories of Oregon high schools 30 to 49 square feet of floor space per pupil is reported. In an additional 37 per cent of the schools more than 50 square feet per pupil is reported.

A laboratory such as could be found in two-thirds of the schools would be furnished with work tables, storage cabinet, book or magazine shelves, lockers, a drying rack or closet, a bulletin board, a blackboard, and adequate seating facilities. This list does not include all of the types of equipment considered essential. Exhibit cases are found in only one-sixth of the foods laboratories. While displays can be arranged in the absence of an exhibit case, the type of things that can be arranged is somewhat limited.

Storage of food at lower than room temperature presents teachers with a problem because only 82 schools have refrigerators, and 45 have coolers. Of these 45 having coolers, 19 also have a refrigerator. Thus, of the 161 schools, only 108 have a refrigerator or cooler; this

leaves 53 or about one-third of the schools with inadequate food storage provision.

A third shortage in type of equipment is found in the provisions for the serving of meals. Of the 161 schools, only 89, or 55.3 per cent, have tables for meal service in the foods laboratory. An additional 34 schools have tables for meal service in other rooms. In the remaining 38 schools the training in serving of meals must be inferior, since tables are essential for a satisfactory standard of meal service.

Supply tables are reported in only 76, or 47.2 per cent of the 161 schools. While these are a convenience, other arrangements can usually be made if such a table is not available.

Among the sources from which furniture is obtained the local carpenter has an important place, since he furnishes 48.9 per cent of the work tables, storage cabinets, book or magazine shelves, lockers and exhibit cases. While the school shop ranks second in number of pieces furnished, it supplies only 19.7 per cent. The cabinet works, building contractor and commercial firms together furnish 230 pieces, or 31.4 per cent of those reported.

Electricity was used as the fuel for cooking purposes in 83 per cent of the schools; wood was used in 26.1 per

cent of the schools. Yet from a survey (23) made of homes of high school pupils it was found that wood was the most extensively used fuel. Since 85 per cent of the homes use wood as the fuel for cooking, it seems that, to simulate home conditions, experience in the use of wood ranges should be provided.

In Chapter IV the discussion pertains to conditions under which the foods departments are operated, including grade placement of courses, size of classes, cost of operating the foods department and school and community uses of the laboratory.

The data obtained through this study revealed that classes of Homemaking One, Two, and Three are usually placed in grades nine, ten, eleven, and twelve respectively, which is in accordance with the plan outlined in the course of study "Homemaking Education for Secondary Schools" (24). A tendency in smaller schools is to allow students in two or more grades to enroll in one course.

The 134 schools may be divided into three groups with relation to their offerings in home economics. Approximately one-third offer a two-year course, another third offer a three-year course. Of the other 41 schools, 34 have one year only, and seven schools have a four-year program.



For a determination of the number of pupils enrolled in home economics courses, the enrollment in 418 classes was studied. The classes with 10 to 15 pupils were most commonly found. Since this number is well below the maximum size recommended by Dyer (6) and by Brown and Haley (5), it is considered satisfactory.

Total expenditures for the foods department for the year 1939-1940 varied from as little as \$1.17 to a total of \$1867.50 for equipment and supplies in 137 schools. Of these 137 schools 50 per cent used less than one hundred dollars for these combined expenses and from this group of 70 schools there were 33 or about half whose expenditures were less than fifty dollars. With no more than one hundred dollars to spend, little can be used for equipment, since food and other supplies are essential for operation of the foods laboratory. These findings indicate that the amount of money allocated to home economics is inadequate in at least half of the schools. Another weakness uncovered in examining these reports was that financial accounts are not kept accurately or if kept, they are not accessible to teachers. Improvement in this respect is to be encouraged.

The use of the foods laboratory by school groups is for foods activities such as demonstrations, food preparation, meal planning, meal service, study and discussion.

On occasions when the laboratory is used by extra-curricular groups, refreshments, lunches, or dinners are prepared for guests and likewise the community use of the foods laboratory is chiefly for preparation of light refreshments or dinners. For adult education, extension, or the Parent Teachers Association the laboratories of only 19 schools were used. Even though food preparation is to be expected in a foods laboratory, communities could profit by increasing the use of laboratories for adult education classes and the extension service.

The section of this study treating practices of foods teachers in the secondary schools of Oregon has a special significance in that it shows what is actually occurring in the classroom. Study guides prepared by experts in the field of home economics are of little value unless teachers use them and adapt them to local situations.

A suggestive length of foods units for classes of Homemaking One and Homemaking Two as outlined in the course of study "Homemaking Education for Secondary Schools" (24) is 12 to 13 weeks. However, little more than half of the teachers are allowing from 11 to 14 weeks for foods units. In the remaining group one-third use ten weeks or less, and two-thirds use from 15 to 18 weeks for foods instruction. With one-third of all

teachers using excess time for foods units, it follows that other units must suffer even though foods units may be taught more thoroughly.

The practice of teachers in the 30 schools having classes of Homemaking Three or Four is to include a foods unit of approximately five weeks in their program. Since no time is allotted for these units in Advanced Homemaking, this practice proves that here also there is a tendency to increase the time spent for foods instruction during a year's program.

From the length of the foods unit and the number of laboratory classes reported during the unit, the writer found that approximately one-half of the time of foods units is used for laboratory activities. Of the time used in laboratory activities, one-third or less is used for meal service by approximately two-thirds of the teachers of Homemaking One. Interpreted in frequency of meals, this would mean that approximately two meals would be served in every three weeks of time during the foods unit. That more emphasis is given meal service in Homemaking Two, Three, and Four is shown by an increased number of teachers using more than one-third of the laboratory time for this activity.

A debatable issue is what number of pupils should work together in the foods laboratory. In Oregon high schools



students do not work in a group of a set number for the duration of the unit in foods. Evidence for this statement is found in the data which show that pupils work individually, in groups of two, and in groups of four. Most commonly used is the group of two reported by 137 of the 150 teachers and used half or more than half of the time by two-thirds of these teachers. Beyond the grouping by two, classes were arranged about as frequently in groups of four as were those where they worked individually.

For meal preparation and service a group of four is most frequently used whether the entire class or only a part of the class is engaged in this activity. A group of two is used by approximately one-third of the teachers when the entire class is preparing meals. Meal preparation by individuals was not indicated as a laboratory practice at school. As a home activity this can be highly recommended, but school facilities, limited budgets, short class periods, relatively short foods units with numerous problems and classes even with as few as ten to fifteen pupils add to the complexity or difficulty in directing meal preparation with individual participation.

Pupils eat the food prepared in the laboratory while they are sitting at their desks, sitting at small tables, sitting at dining tables, or standing. The 152 teachers report that more than one of these methods is used during

the foods unit. Obviously, sitting at the desk would be essential for meal service in some laboratories since 38 schools do not have tables for meal service as a part of their equipment in the foods laboratory or elsewhere. Sitting at the desk to eat food is reported by almost three-fourths of the teachers. Sitting at the table in the dining room is indicated by 94 teachers, or 61.8 per cent of the 152 reporting, while 41 teachers, or 46.7 per cent, specify that food is served at small tables for two or four. Although standing while eating the food prepared was reported by 63 teachers, this practice is mainly for the purpose of sampling the food that is prepared.

The findings of this study show deficiencies exist in the laboratories and equipment used in teaching foods in the Oregon high schools in 1940. With careful planning of general arrangements in the laboratories and installation of stoves and sinks within the room instead of around the room, more unit kitchens would be available. Provisions for storage of perishable food are at present inadequate in the foods laboratories.

One type of equipment so essential in the establishment of desirable standards of meal service is not found in almost half of the foods laboratories. The inclusion of tables for meal service is urged for those schools not having them at present.

As this reseach is nearing completion, so also are other intensive research studies of which this is but one phase. The fact that so many related studies were undertaken at one time limits the extent of additional studies pertaining to Oregon foods laboratories needed at the present time.

However, the writer feels that surveys similar to the present one would be helpful if repeated at intervals of five years. From such continuous studies improvements and trends in laboratory arrangements and equipment could readily be noted.

It occurs to the writer that a second study limited to practices used in the teaching of foods would disclose much valuable information if it were made yearly following the teaching of foods units and continued for a period of three to five years.



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TO HOMEMAKING TEACHERS OF OREGON:

Since you recognize the importance of planning and selecting equipment used in teaching home economics, you will be interested in our research study on equipment of which this questionnaire is a part. These questions deal with the foods laboratory or kitchen in which foods classes are conducted and with your own practice in teaching foods. The data requested will furnish valuable information on which to base certain conclusions.

Will you fill this questionnaire out as completely as possible and return it at the earliest possible date? If you wish to explain certain items more fully please do so on a separate sheet. Thank you for your cooperation.

FLORENCE E. BLAZIER  
Head, Home Economics Education  
Oregon State College  
Corvallis, Oregon

STUDY OF EQUIPMENT FOR TEACHING FOODS IN SECONDARY SCHOOLS

TEACHER'S NAME .....

NAME OF SCHOOL AND TOWN .....

GENERAL INFORMATION

1. Where was equipment obtained? (check)

(Draw lines through articles you do not have)	Made to order by			Purchased ready-made from commercial firm	List other sources	Source unknown
	local carpenter	school shop	cabinet works			

Built-ins—

Book or magazine shelves .....	.....	.....	.....	.....	.....	.....
Exhibit cases .....	.....	.....	.....	.....	.....	.....
Lockers .....	.....	.....	.....	.....	.....	.....
Storage cabinets for dishes, utensils and supplies .....	.....	.....	.....	.....	.....	.....
Work tables or unit desks .....	.....	.....	.....	.....	.....	.....

Movable—

Book or magazine shelves .....	.....	.....	.....	.....	.....	.....
Exhibit cases .....	.....	.....	.....	.....	.....	.....
Lockers .....	.....	.....	.....	.....	.....	.....
Storage cabinets for dishes, utensils and supplies .....	.....	.....	.....	.....	.....	.....
Work tables or unit desks .....	.....	.....	.....	.....	.....	.....

2. Please give the amount spent during 1939-1940 for each of the following purchases:

	Amount	Check source of information Record	Estimate
Large equipment (stoves, sinks, etc.) .....	.....	.....	.....
Utensils (pans, spoons, etc.) .....	.....	.....	.....
Food .....	.....	.....	.....
Illustrative material .....	.....	.....	.....
Other items used in food instruction (list) .....	.....	.....	.....

- How many years has the present arrangement of your foods laboratory or kitchen been in use?..... How old are the sinks?..... Stoves?..... Cabinet or built-ins?..... Unit desk or work table?..... Refrigerator?.....
- For how many girls is your kitchen equipped .....
- What are the types of fuel used for cooking? Wood..... Electricity..... Piped gas..... Others (list).....
- How is water heated? Central heating system..... Coils in stove..... Hot water heater..... Others (list).....
- How many of each of the following types of seating equipment does your kitchen contain?  
Chairs with tablet arms.....  
Chairs without tablet arms.....  
Stools attached to desks.....  
Movable stools.....  
Others (list).....

- In a semester, estimate the number of times girls in a class work:  
Individually ..... Other arrangements (list)  
In groups of two .....  
In groups of four .....

- In a semester, how many times do girls eat the food prepared in each of the following ways:  
Standing .....  
Sitting at desk.....  
Sitting at desk with cover laid .....  
Sitting at table for two.....  
Sitting at table for four.....  
Sitting at table in dining room.....  
Other arrangements (list).....

BASES FOR DETERMINING FLOOR AREA

- What activities are carried on in the foods laboratory or kitchen:  
Discussion ..... Meal planning .....  
Demonstration ..... Meal service .....  
Food preparation ..... Others (list) .....  
Study .....
- Do any of the foods classes assist in cafeteria work during class time? Yes..... No.....
- Is there a separate cafeteria kitchen? Yes..... No.....
- Estimate the number of times per year the kitchen is used for purposes other than regular class activities:

	For School groups	For Community groups
Preparation and serving of light refreshments .....	.....	.....
Preparation and serving of banquets or dinners .....	.....	.....
Other uses (list) .....	.....	.....

BASES FOR DETERMINING STORAGE AREA

- What provision is made for the storage of aprons or smocks?  
Locker..... Drawer..... Closet..... Others (list).....
- What other things are stored in the same compartment with the apron? .....
- Do the students bring their own dish towels? Yes..... No.....  
Pot holders? Yes..... No.....  
Dish cloths? Yes..... No.....  
Others (list).....
- How many books are available for use in foods classes?.....
- How many current magazines are available for use in foods classes?.....
- How much shelf space is used for the storage of old magazines? .....ft. x .....ft.
- How many containers (filled or empty) are stored? .....  
Quarts..... Pints..... Jelly glasses..... Bottles.....

21. Give the following information in regard to food storage. Do not include cafeteria supplies.

	Amount usually purchased at one time	Maximum amount stored over one day		Amount usually purchased at one time	Maximum amount stored over one day
Baking powder .....			Butter .....		
Cereals .....			Cheese .....		
Cocoa .....			Cooking fat .....		
Coffee .....			Cream .....		
Chocolate .....			Fresh meat .....		
Dried fruit .....			Eggs .....		
Flour, white .....			Milk .....		
cake .....			Peanut butter .....		
Salt .....			Salad dressing .....		
Sugar .....			Salad oil .....		
Spices .....			Shelled nuts .....		
Tea .....			Soft cheese .....		
Bread .....			Cured meat .....		
Flavorings .....			Sirup .....		
Gelatin .....			Vinegar .....		
Canned foods .....			Jelly and jams .....		
.....			.....		
.....			.....		
.....			.....		
Fruits (list) .....			Vegetables (list) .....		
.....			.....		
.....			.....		
.....			.....		

22. What foods would you prefer to have stored in the unit desk or work table? Flour ..... Sugar .....  
Salt ..... Baking powder ..... Others (list) .....

### 23. SCHEDULE OF YOUR SCHOOL DAY (\*See illustration)

Give the schedule of your school day. If schedule for week differs, give that for day in which food is usually prepared.

Period	Clock hours	Class	Grade or grades	Number in class	Length of foods unit in No. of foods weeks laboratories	Estimate the total number of each of the following in the foods unit classes: Number of meals served**
1 .....						a b c d e f g
2 .....						
3 .....						
4 .....						
5 .....						
6 .....						
7 .....						
8 .....						

\*Illustration:

1 8:50-9:56 Homemaking II 9 22  
List activities not listed on your schedule for which you are responsible:

Give data requested for present semester for those classes listed in your schedule in which any instructions in foods is given.

10	25	2	4	1
----	----	---	---	---

\*\*a. Entire class, which is divided into groups of ..... eat at the same time.  
b. Part of class, divided into groups of ..... eat at one time.  
c. Class, either part or whole, prepare meal for guests.  
If you use other arrangements for meals, describe these and label by d, e, f, g, etc.

### 24. GENERAL PLAN OF LABORATORY:

It will aid us in interpreting the information furnished if you will draw a rough floor plan of your kitchen, dining room or other rooms used in connection with food classes, giving approximate dimensions. Sketch in large pieces of equipment, designating each by a number as indicated in the key below:

- |                   |                          |  |
|-------------------|--------------------------|--|
| 1. Sink           | 7. Food storage          | 13. Tables (indicate use—<br>supply, eating, etc.) |
| 2. Stove          | 8. Utensils              | 14. Dish towel rack or drying closet               |
| 3. Refrigerator   | 9. Illustrative material | 15. Blackboard                                     |
| 4. Cooler         | 10. Books                | 16. Bulletin board                                 |
| 5. Teacher's desk | 11. Towels, linens       | 17. ....   |
| 6. Work table     | 12. Student aprons       | 18. ....   |

STATE OF OREGON  
State Board for Vocational Education  
Salem

January 3, 1941

Dear Homemaking Teacher:

Because of the very limited research that has been carried on in connection with equipment used in the teaching of foods classes to high school students, we are interested in the equipment studies that are being planned and conducted by graduate students under the supervision of Dr. Florence Blazier at Oregon State College.

In order that conclusions and recommendations can be made, it is necessary to obtain accurate information concerning the existing homemaking programs throughout the state. Therefore, we are asking all Oregon homemaking teachers to cooperate in furnishing information for these studies. We believe that the final compilation and interpretation of the data will be helpful to teachers in the future when equipment for teaching food preparation and meal service is to be selected.

Interest in these equipment studies has already been indicated by other states. It is hoped that the research studies on equipment for school kitchens will be of distinct value in the field of home economics education.

We will sincerely appreciate your cooperation in this state project even though it will mean one more responsibility in your already busy school day.

I am wishing for you happiness and success throughout 1941.

Sincerely yours,

Bertha Kohlhaugen  
State Supervisor of  
Home Economics Education

BK:CMC



STATE DEPARTMENT OF EDUCATION  
Salem, Oregon

### DAILY CLASS SCHEDULE OF TEACHERS AND SUPERVISORS

To the Principal: Please fill in your daily class schedule for the first semester of the school year, giving the abbreviation of the exact title for each subject taught and the number of pupils registered in each class, and return to your county school superintendent together with the directory information blank.

[illegible]

STATE PRINTING DEPT.

Number of pupils enrolled in this school as of September 20 of this year: .....

Table I  
Arrangement of Foods Laboratories

	Total number of schools		Plan within laboratory				
	N	%	Unit kitchens	Unit desk	Combination of unit kitchen with Unit desk    Unclass.		Unclassified arrangement
Total No.	160		26	22	5	2	105
Per cent		100	16.2	13.8	3.1	1.3	65.6
Group I	36	22.5	7	12	3	1	13
Group II	46	28.8	7	8	-	-	31
Group III	36	22.5	6	2	2	-	26
Group IV	42	26.2	6	0	-	1	35
"Full-time"	60	37.5	10	18	3	1	28
"More than two classes"							
	33	20.6	4	2	2		25
"One or two classes"							
	67	41.9	12	2	-	1	52

Table II  
Number of Pupils Using One Sink

Number of pupils using one sink	Total number of schools		Groups							
	N	%	I		II		III		IV	
			N	%	N	%	N	%	N	%
Total number	155		36		45		36		38	
Per cent		100.0		23.2		29.1		23.2		24.5
Two or three	12	7.7	4		3		2		3	
Four	39	25.2	12		11		7		9	
Five or six	26	16.8	6		6		6		8	
Seven to twelve	58	37.4	11		18		14		15	
More than twelve	20	12.9	3		7		7		3	



Table III  
Number of Pupils Using One Stove

Number of pupils using one stove	Total number of schools		Groups							
	N	%	I		II		III		IV	
			N	%	N	%	N	%	N	%
Total number	149		34		44		34		37	
Per cent		100.0		22.8		29.5		22.8		24.9
Two or three	18	12.1	6		3		5		4	
Four	39	26.2	15		11		7		6	
Five or six	42	28.2	8		10		11		13	
Seven to twelve	41	27.5	4		17		8		12	
More than twelve	9	6.0	1		3		3		2	

Table IV

## Source of Built-in and Movable Furniture in 163 Schools

Source of equipment	Total number of schools		Types of furniture									
			Work tables		Storage cabinets		Book or magazine shelves		Lockers		Exhibit cases	
	N	%	N	%	N	%	N	%	N	%	N	%
Total number	732		237		208		162		98		27	
Per cent		100.0		32.4		28.4		22.1		13.4		3.7
Local carpenter	358	48.9	106		121		70		53		8	
Built-in	259		63		92		50		47		7	
Movable	99		43		29		20		6		1	
School shop	144	19.7	35		30		51		21		7	
Built-in	76		17		18		23		15		3	
Movable	68		18		12		28		6		4	
Cabinet works	97	13.3	36		28		19		9		5	
Built-in	76		22		25		16		9		4	
Movable	21		14		3		3		-		1	
Ready-made	92	12.5	49		18		12		10		3	
Built-in	53		23		10		8		9		3	
Movable	39		26		8		4		1		-	
Building contractor	41	5.6	11		11		10		5		4	
Built-in	35		6		10		10		5		4	
Movable	6		5		1		-		-		-	

Table V

## Number of Types of Fuel Used for Cooking

	Total number of schools		Number of types of fuel used					
	N	%	N	One %	N	Two %	N	Three %
Total number	165		93		66		6	
Per cent		100.0		56.4		40.0		3.6
Group I	38	23.0	12		26		0	
Group II	46	27.9	27		16		3	
Group III	37	22.4	18		17		2	
Group IV	44	26.7	36		7		1	



Table VI

## Size of Home Economics Classes

Number of pupils	Total number of classes		Groups							
			I		II		III		IV	
	N	%	N	%	N	%	N	%	N	%
Total number	418		130		153		74		61	
Per cent		100.0		31.1		36.3		17.7		14.6
Homemaking										
One	204	48.8	53		74		37		40	
Under 10	29		1		1		8		19	
10-15	71		7		24		21		19	
16-20	59		23		30		4		2	
21-24	30		14		12		4		-	
Over 24	15		8		7		-		-	
Homemaking										
Two	143	34.2	40		53		31		19	
Under 10	33		3		4		11		15	
10-15	57		12		26		15		4	
16-20	30		11		15		4		-	
21-24	12		10		1		1		-	
Over 20	11		4		7		-		-	
Homemaking										
Three	63	15.1	30		25		6		2	
Under 10	9		2		3		2		2	
10-15	26		12		11		3		-	
16-20	15		7		7		1		-	
21-24	4		3		1		-		-	
Over 24	9		6		3		-		-	
Homemaking										
Four	8	1.9	7		1		-		-	
Under 10	2		1		1		-		-	
10-15	3		3		-		-		-	
16-20	2		2		-		-		-	
21-24	1		1		-		-		-	
Over 24	-		-		-		-		-	

Table VII  
Amount of Money Spent for Foods, Equipment, and Supplies 1939-1940

Amount of Money in Dollars																
			Total		Equipment						Supplies					
					Total		Large		Small		Total		Food		Other*	
			N	%	Range	Median	Range	Median	Range	Median	Range	Median	Range	Median	Range	Median
Total No.	137		1.17-	95.00	.18-	25.00	3.00-	170.00	.18-	10.34	.99-	54.56	.99-	55.00	.50-	5.00
Per cent	100		1867.50		1792.50		1645.00		300.00		352.00		350.00		69.32	
Group I	26	19.0	15.00-	205.00	2.55-	50.00	60.00-	245.00	2.55-	19.60	120.00-	130.00	50.00-	120.00	2.00-	15.00
			1673.14		1373.14		1140.00		300.00		352.00		350.00		69.32	
Group II	42	30.7	26.50-	77.50	2.00-	25.00	40.00-	197.00	2.00-	10.00	10.00-	67.89	10.00-	68.79	2.00-	5.00
			1867.50		1792.50		1645.00		147.50		180.00		180.00		31.00	
Group III	35	25.5	14.77-	100.00	2.85-	30.00	5.00-	125.00	2.00-	8.00	11.33-	60.00	10.00-	45.00	.50-	3.00
			1045.00		1000.00		800.00		200.00		200.00		200.00		12.00	
Group IV	34	24.8	1.17-	50.00	.18-	15.00	3.00-	149.00	.18-	10.00	.99-	30.00	.99-	30.00	1.00-	3.00
			1680.56		1639.02		1510.95		128.07		90.00		90.00		10.00	
"Full time"																
Total	48	35.0	15.00-	130.00	2.55-	30.00	70.00-	315.00	2.55-	16.88	10.00-	98.93	25.00-	95.00	2.00-	8.40
			1867.50		1792.50		1645.00		300.00		352.00		350.00		69.32	
I	24	17.5	15.00-	200.00	2.55-	30.00	10.00-	315.00	2.55-	17.66	50.00-	130.00	50.00-	120.00	2.00-	10.00
			1673.14		1373.14		1140.00		300.00		352.00		350.00		69.32	
II	24	17.5	35.00-	77.50	2.75-	20.04	83.90-	200.00	2.75-	10.00	10.00-	72.01	25.00-	72.35	2.00-	6.00
			1867.50		1792.50		1645.00		147.50		172.17		150.00		31.00	
"More than two classes"																
Total	32	23.4	17.50-	95.00	2.00-	20.00	20.00-	125.00	2.00-	10.00	12.50-	65.00	12.50-	60.00	.50-	3.25
			1374.00		1234.00		1100.00		134.00		195.00		180.00		35.00	
I	2	1.5	205.00-	339.50	85.00-	182.00	60.00-	152.50	25.00-	29.50	120.00-	157.50	120.00-	150.00	15.00	—
			474.00		279.00		245.00		34.00		195.00		180.00			
II	14	10.2	26.50-	95.00	2.00-	25.00	60.00-	197.00	2.00-	10.00	26.50-	65.00	25.00-	60.00	1.00-	3.25
			1374.00		1234.00		1100.00		134.00		180.00		180.00		35.00	
III	13	9.5	38.00-	100.00	2.85-	20.00	20.00-	120.00	2.85-	10.00	20.00-	62.00	20.00-	60.00	.50-	2.00
			257.50		200.00		175.00		25.00		158.00		150.00		12.00	
IV	3	3.2	17.50-	28.20	5.00-	5.00	—	—	5.00-	5.00	12.50-	18.00	12.50-	18.00	—	—
			80.00		10.20				10.20		75.00		75.00			
"One or two classes"																
Total	57	41.6	1.17-	60.00	.18-	25.00	3.00-	150.00	.18-	10.00	.99-	37.50	.99-	30.00	1.00-	4.00
			1680.56		1639.00		1510.95		200.00		200.00		200.00		10.00	
II	4	2.9	40.00-	55.37	10.00-	21.86	40.00	—	10.00-	14.38	15.00-	31.00	10.00-	31.00	5.00-	5.00
			85.00		50.00				25.00		55.00		50.00		5.00	
III	22	16.0	14.77-	100.00	3.44-	102.00	5.00-	150.00	2.00-	6.50	11.33-	45.75	10.00-	45.00	1.00-	3.00
			1045.00		1000.00		800.00		200.00		200.00		200.00		10.00	
IV	31	22.7	1.17-	50.00	.18-	15.00	3.00-	149.00	.18-	15.00	.99-	30.00	.99-	30.00	1.00-	3.00
			1680.56		1639.02		1510.95		128.07		90.00		90.00		10.00	

\* Other includes books, illustrative material, laundry, and incidentals

Table VIII

**Number of Times Foods Laboratories are Used for  
Extra-curricular and Community Activities**

Number of times	Total number of schools		Groups							
			I		II		III		IV	
	N	%	N	%	N	%	N	%	N	%
Total number	148		34		46		33		35	
Per cent		100.0		23.0		31.1		22.3		23.6
1-9	25	16.9	5		10		4		6	
10-19	49	33.1	13		12		14		10	
20-29	33	22.3	7		10		6		10	
30-39	15	10.1	2		4		4		5	
40-49	8	5.5	1		5		2		-	
50-59	11	7.4	5		2		2		2	
60 and over	7	4.7	1		3		1		2	