


AN ABSTRACT OF THE THESIS OF

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Title Determining a Standard Set of Utensils for a High School  
Homemaking Laboratory

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The purpose of this study is to secure fundamental material upon which to base the selection of a standard set of utensils for the high school home economics laboratory. The development of a standard set should result in recommendations leading to economy not only in the sum of money invested in utensils but also in the cost of cabinets to house them, and should enable homemaking teachers to have more adequate teaching facilities.

The procedure used in "A Set of Utensils for the Farm Kitchen," by Maud Wilson, was used as a basis for this study. In this study a list of foods was compiled from high school text books, recipe files and state courses of study. This list of foods which might be prepared in a high school laboratory was checked by 35 teachers. Individual conferences were held with 15 teachers to find their practices as to grouping of students and the amount prepared of each food. These practices were recorded on individual tally cards for each food and teacher. These were assembled according to specific foods and all the information with regard to one food was recorded on a single sheet. In general, the study of these sheets reveal that the most common practice was to use each food prepared in a meal and also, for many of those foods, to have two servings prepared by two students.

Each food prepared was taken as a specific problem and for each one the utensils were listed which seemed an adequate selection.

Conclusions with regard to size or capacity and shape were based upon information from standards contained in text books on food preparation and household equipment, and reports of research in household equipment. As a basis for decisions relating to size and shape, the information gained from literature was supplemented by results from laboratory tests from the Wilson study. Additional laboratory tests were made, using actual food materials and using a variety of utensils or tools for each process until a decision concerning the most satisfactory size and shape was reached.

A summary data sheet recorded for each utensil the foods requiring its use. This sheet showed the utensils needed in order to prepare the food according to the size of the working groups indicated by the teachers.

As a basis for limiting the number and kind of specific utensils, there were two classifications: utensils needed in each unit kitchen for four students; utensils stored elsewhere in the foods laboratory outside the unit kitchen. Additional utensils considered desirable for demonstration purposes were classified separately.

The utensils chosen in the list were assembled and then examined by a group of home economics educators. A few changes were made as a consequence of this examination.

DETERMINING A STANDARD SET OF UTENSILS  
FOR A  
HIGH SCHOOL HOMEMAKING LABORATORY

by

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# DETERMINING A STANDARD SET OF UTENSILS FOR A HIGH SCHOOL HOMEMAKING LABORATORY

## CHAPTER I

### INTRODUCTION

Home Economics has been accepted as one of the desirable subjects to be offered in the modern high school. For the country as a whole, homemaking was offered in almost three-fourths of the high schools which replied in a study made by the U. S. Office of Education in 1938-1939. (23: 23) In each of these 10,197 high schools probably some laboratory facilities are provided for the teaching of food preparation, since units in this phase of homemaking are almost universally included. These data are given to indicate the need of some provision for a wise selection of utensils for the high school homemaking foods laboratory.

Many lists have been made by homemaking teachers and administrators at various times and places. Each of these lists differs greatly, since they are based on individual judgment, and consequently there has been great variance in equipment supplied homemaking departments. The development of a standard set of utensils might be expected to result in recommendations leading to more adequate teaching facilities, and to economies not only in the sum of money invested in

utensils, but also in the cost of cabinets to house them. The development of a standard set of utensils should fulfill the needs of high school homemaking teachers under typical situations.

The purpose of this study is to secure basic material upon which to base the selection of a standard set of utensils for a high school homemaking laboratory.

### REVIEW OF LITERATURE

The available literature on the subject of utensils was examined--types, capacities, shapes, materials, in relation to specific uses, ease of cleaning, durability and costs. This was classified as follows: books and reports of experimental cookery; standard food texts; household equipment texts; buyers' specifications, government and others; extension and experiment station bulletins.

Many lists of utensils for a high school home-making department have been constructed by workers in homemaking education. These lists have been formulated by opinions of leaders but give no indication of a scientific background for determination.

With regard to lists of utensils for the home, there has been less work done. The outstanding study

in the field is that of Maud Wilson and Helen E. McCullough in the selection of a set of utensils for the farm kitchen in 1940. (21) This study is based on information gained from 100 cooperators. The Wilson Study was used as a basis for the present study and is described in detail on page seven.

With regard to choice of utensils specifically, there has been a great deal of work. Standards have been formulated in textbooks on food preparation by Halliday and Noble (3), Justin, Rust and Vale (4), Sweetman (8), in books on household equipment by Peet and Sater (7), and in books on experimental cookery by Lowe (5) and Nason (6). Reports of research on household equipment have been published in professional journals by Roberts (16), Ritchie (15), Mitchell (12), McIntosh (11), and others.

Specific reference to each of these sources will be made in the chapter in which the description of utensils occurs. (pp. 21 - 26)

#### RELATED STUDIES

This study is one of a series of studies on equipment which have been undertaken under the direction of the Home Economics Education Department at Oregon State College. Four of the studies, either completed or in



progress, will be described here.

Dimension Standards for a High School Foods Laboratory,  
by Doris Anderson.

This study presents dimension standards based upon the physical measurements and judgments of high school girls.

Cooperators in the measurement study included 187 girls from the ninth and twelfth grades of Corvallis schools. These girls ranged in height from 58-72 inches and represented ages from 13-22 years.

Among the girls included in the measurement study, 60 were selected on the basis of age most representative of their classes, breadth of thighs in the sitting position and wrist height. These were to give their judgments as to optimum working surface heights for activities such as beating eggs, washing dishes in a sink, washing dishes in a pan, rolling with a rolling pin, stirring in a bowl, frying and stirring in a double boiler, and as to optimum height for a table designed for eating purposes. These activities were chosen according to the relationship of the hands to the working surface.

From the results of physical measurements and judgments, certain dimension standards were set up which satisfy the requirements of adolescent girls working in a high school foods laboratory.

The Opinions of Home Economics Leaders Concerning Location, Arranging, and Equipping Homemaking Departments, by Justine O'Reilly.

A questionnaire was sent to state supervisors, teacher trainers, and to a few selected homemaking teachers. Of these, 125 questionnaires were returned in time to be incorporated in the study.

This study gave valuable information as to the opinions of the educators. It would appear that regional and local differences affect decisions as to the best practices quite as much as differences of opinion as to best practices.

Laboratories, Equipment, and Practices Used in Teaching Foods in Oregon High Schools 1940, by Alta Hirst.

In order to make recommendations for equipment for teaching foods in secondary schools, each homemaking teacher in Oregon was asked to fill out a questionnaire which dealt with the equipment and the practices then in use. A total of 198 teachers returned the questionnaire, thus furnishing an adequate picture of existing conditions.

A supplementary study of inventories of utensils in 53 laboratories helped to clarify the picture of existing conditions.

Planning of a Combination Homemaking Room for a Monterey, California, School, by Maurine Vander Griend.

This study is in progress at the present time and will probably be completed during the summer of 1942. Miss Vander Griend plans to use the findings of the first four studies on equipment in planning a combination home-making room for a Monterey, California, school.

The decision as to the type of room is based on Miss Vander Griend's experience in teaching for six years in this school and on local surveys.

SUMMARY

This study is one of five contemporary studies on equipment of homemaking rooms. The purpose of this study is to derive a basis on which to base the selection of kitchen utensils for teaching foods.

Only one other study, that of Wilson, has had similar goals.

SOURCES OF DATA AND METHODS USED

The foundation for this study was the recent research work by Maud Wilson and Helen E. McCullough, published as "A Set of Utensils for the Farm Kitchen," (21) and the unpublished monograph constituting the detailed report of the procedure followed.

The fundamental decisions of the Wilson study were based on practices of 100 representative farm women throughout the state. Data on certain kitchen practices and equipment particularly applicable to Oregon farm women were obtained through checklists. From these checklists a list was made of all dishes prepared in the average Oregon farm home more than five times a year.

The steps or processes in the preparation of each dish were listed, using Child and Niles (2) recipes as reference. The quantities of each dish that were customarily prepared at the same time were determined. Quantities were based on the needs of a farm family of six members. Data were obtained to determine which dishes were prepared in quantities sufficient for two or more meals, and also for determining certain practices in the method of preparing dishes. For each

dish the utensils were listed which in the opinion of the investigators constituted an adequate selection. These conclusions were presented for criticism to an Oregon State College foods teacher and to two farm women. The size, shape and desirable qualities in material and construction were decided for the utensils listed for each dish. A composite list of utensils was then made by combining the items listed for the preparation of specific dishes. Utensils needed for food preservation were listed, using the same procedure as for choosing the cooking utensils. For this study a set of utensils was purchased after an examination of hardware stocks. Each utensil was considered a separate buying problem, and in each case the choice represented what seemed to be the least expensive article available among the stocks examined and most practical to buy, everything considered. They were also tested for one week each by five different farm homemakers. A summary of these tests, the criticisms and suggestions of these cooperators were used in making a few final changes in the set of utensils.



## DESCRIPTION OF METHODS USED

In this section are the methods, adapted from the Wilson study, used in choosing the utensils and deciding other specifications for determining a standard set of utensils for a high school homemaking laboratory.

### Checklist to Teachers

In order to determine what kinds of utensils were needed, it was necessary to know what foods might be prepared in a high school foods laboratory.

The list of foods (pp. I-IV) was compiled from many sources, such as suggestions from state courses of study, high school text books, recipe files and lists of foods reported by homemakers in the Wilson study. (21)

The following are the divisions used:

1. Beverages.
2. Batters and doughs.
3. Cereals.
4. Fruits and vegetables.
5. Salads and salad dressings.
6. Meats, meat extenders and substitutes.
7. Egg cookery (custards).
8. Desserts (including frozen).

9. Candies and frostings.
10. Sauces - sweet and sour.
11. Soups.
12. Food preservation.
13. Sandwiches.

Under each of these headings were listed the individual foods which might be taught. Obviously, certain foods with slight variations were omitted. For example, varieties of cake due to flavoring or seasoning were not listed.

Vegetables were listed individually by variety, not merely to find extent of the use by various teachers but because of the different sizes in vegetables and the difference in method of cookery. For example, the simple boiling of vegetables of somewhat similar size such as onions and carrots differs greatly, since the first is a strong flavored vegetable and requires a greater amount of water.

In addition to the kind of vegetables, it was necessary to provide for checking of the methods of cooking used by the classes. These methods were listed as follows:

1. Boil.
2. Bake.

3. Cream.
4. Scallop.
5. Soup, salad, seasoning.
6. Other methods.

To boil included such methods of flavoring as buttering and pickling. Baking was assumed in an oven. In creaming a vegetable, it was assumed that a white sauce would be prepared separately from the cooking of the vegetable. Soup, salad, or seasoning was included in order that those answering the checklist would not include these with great detail under "other methods." Under other methods it was desired to find out what the teacher actually taught besides those previously mentioned. Under this heading such methods as pan-broiling, steaming, and candying were given. The kinds of meat with regard to cut or kind of animal were not listed. The checklist took into consideration only the method of cookery.

The checklists of foods which might be prepared in a high school homemaking laboratory were checked by 35 experienced homemaking teachers. These teachers were either teaching in Oregon or were doing graduate work at Oregon State College. The investigator talked with the teachers individually or in groups and was available for answering questions.

### Individual Conferences

In addition to the foods prepared and the methods of preparation, it was necessary to find out the teachers' practices as to grouping of students and amount of food prepared.

Individual conferences were held with a picked group of high school homemaking teachers. These 15 teachers (p.VI) were experienced and recognized as being some of the best homemaking teachers in Oregon and some of the nearby states. They were selected by the Home Economics Education Department at Oregon State College.

In the personal interview the investigator recorded the practices of each teacher on a Tally Card (p.V).<sup>1</sup> Each practice was checked and any explanatory comments were written at the bottom of the Tally Card. A separate card was made for each food and grade. If a teacher did not teach a specific food, no card was made. It was assumed that one serving as prepared in a high school foods lesson would not provide for second servings.

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1. The complete set of Tally Cards is on file in the Home Economics Education office.

After completion of the personal interviews with these homemaking teachers the cards were sorted. All those giving information concerning a specific food were assembled, and each was separated as to grade in which taught.

### Telescoping of Tally Cards

After the cards had been assembled into specific food groups, the information on the cards was recorded on a single sheet for each specific food.<sup>1</sup> To illustrate, a copy of the page on baking powder biscuits is shown.

#### Baking Powder Biscuit

(2-2) 8 times*	(2-2) Once	(1-4) Once	(1-4) Once
(1-4)	(1-6)	(2-4)	
(2-2) Twice	(1-1)	(1-2) Once	
	(1-4) Once		

\*Within each of the parentheses is the practice of a teacher. The first number indicates how the students worked (singly or in pairs) and the second number indicates the number served. Therefore "2-2" indicates that two students worked together preparing servings for two persons. Since "1-4" is also included, this indicates that the same teacher used two different practices.

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1. These are bound and on file in the Home Economics Education Office.



The number on the outside of the parentheses indicates how many teachers had this practice in teaching. From this it would show that eight of the 15 teachers prepared "2-2" and "1-4", whereas only one teacher always had baking powder biscuits prepared by one student for four students.

From these sheets the most frequent practice was recorded on the Summary Data Sheets.

In general, a study of these sheets reveal that the most common practice was to use each food prepared in a meal and also for many of these foods to have two servings prepared by two students.<sup>1</sup>

#### Choice of Utensil for Each Food

With information then as to quantity prepared, each food was taken as a specific problem. For each dish the utensils were listed which in the opinion of

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1. That these 15 teachers represented fairly common practice is revealed in the Hirst study (XV). In this study of the equipment in Oregon homemaking rooms, she asked for the number of laboratory lessons in foods and also for the number of meals during the semester. The percentage of total laboratory lessons given over to meals was determined. Here it was found that of the 125 teachers furnishing usable data, 21 devoted more days to meals than to other types of laboratory work. Of the larger group (104), 22 did not serve any meals, 53 served one meal to each four laboratory lessons of other types, whereas 29 teachers served meals more frequently, varying from one meal to four laboratories to one meal to each laboratory.

the investigators constituted an adequate selection. The size or capacity, shape and desirable qualities in material and construction were listed for each food. Conclusions were based upon information from the following sources: literature of experimental cookery, reports of research in household equipment, standards contained in textbooks on food preparation in kitchen equipment. As a basis for decisions relating to the size and shape of utensils, the information gained from literature was supplemented by results from laboratory tests from the Wilson and McCullough study. Additional laboratory tests were made, using actual food materials, and using a variety of utensils or tools for each process until a decision concerning the most satisfactory size and shape were reached.

The utensils used in these tests came from the kitchen of the investigator, from the Oregon State College foods storeroom, from Corvallis and Portland stores, and from those assembled in the study by Wilson and McCullough.

#### Organization of Summary Data Sheet

A Summary Data Sheet was devised to show each utensil and the specific food for which used. It indicated the variety of uses for each utensil. This

sheet also showed the number of utensils to be duplicated in order to prepare the food according to the size of the working groups indicated by the teachers.

### Selection of the Utensils

#### Frequency of use

An analysis of the Summary Data Sheet revealed the number of foods for which each utensil was used. However this does not indicate the total number of times each utensil would be used in a foods laboratory. This frequency of use was the basis for each decision concerning the recommendation of a utensil.

#### Modifications due to menus

In deciding what dishes the students in the unit kitchen<sup>1</sup> might be preparing at one time, it is evident that there must be provision for the period of maximum need. There are no set menus followed by homemaking teachers in high schools. As part of their training, students are taught to make their own menus. Books in

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1. In the O'Reilly study (XIV) the home economics educators expressed preferences for certain practices. These are enumerated here because of their bearing on the selection of utensils. These educators approved of a unit kitchen for each four girls, equipped with stove, sink and working surfaces similar to the homes of the students. (pp. 195-202) They agreed that a small table for serving meals should be provided for each unit. (pp. 90-94) These women regarded 24 as a maximum size for a class (pp. 190-194), which means that six unit kitchens would be required.

food preparation and meal planning were used for reference and typical menus were constructed and many others examined. Adapting the method used in the Wilson study (21), estimations were made concerning the utensils needed at one time for the preparation of these menus. It was assumed that a consideration of utensils on hand should be one of the points in menu planning. The unit kitchen should represent a typical home situation with the exception that making cakes, pies and cookies would be carried on at the same time as the preparation of the rest of the meal.

#### Selection of the List of Utensils

##### Limitations due to economy and storage facilities

For practical reasons of economy and planning of the best use of floor space, the amount of space devoted to a single unit kitchen will have to be limited. This in turn limits the possible storage area in each unit kitchen and necessitates careful selection of each utensil to be stored there.

Since school funds are usually limited, an attempt was made in this study to limit suggestions to those possible of attainment by the schools.

### Division of the utensils

As a basis for limiting the number and kinds of specific utensils, two classifications were made. The first of these was to include the utensils needed in each unit kitchen for four students. Hereafter these will be referred to as "unit kitchen utensils."

The second group consists of those utensils to be stored elsewhere in the foods laboratory outside of the unit kitchen. These would be fewer in number than one for each unit and will be designated hereafter as "general storage utensils." Added to this group will be those utensils considered desirable for demonstration purposes.

### Purchasing and assembling the set of utensils

The utensils chosen in the list were purchased or assembled from those in use in the study after an examination of those available. Each utensil was considered a separate problem and in each case the choice represented what seemed to be the least expensive article available among the stocks examined and seemed the most practical, everything considered.

### Final revision of the list of utensils

The utensils chosen were placed on display and a list of questions concerning specific teaching practices



and specific utensils was compiled. (p. Xl11) A group of home economics educators (p. X11) examined the utensils and made suggestions. They gave their opinions with regard to the questions asked. A few changes were made in the set as a consequence of this examination.

#### SUMMARY

The procedure used in the Wilson Study was modified to meet the peculiar needs of a foods laboratory where four girls work together. In this study, groups of teachers supplied the data as to their practices rather than a group of homemakers.

## DESCRIPTION OF LIST OF UTENSILS

Each utensil was considered an individual problem. The size (or capacity), shape, and desirable qualities in material and construction were decided for each one. Conclusions were based upon information from the following sources: literature of experimental cookery; reports of research in household equipment; standards contained in textbooks on food preparation in kitchen equipment; and laboratory tests using actual food materials, and using a variety of utensils or tools for each process until a decision concerning the most satisfactory size and shape was reached.

Although each utensil was considered separately for each food prepared, it was kept in mind that in choosing a composite list of utensils it is economy to select a few which may have many uses rather than a utensil for every use. For example, a doubleboiler may be converted into two saucepans or a casserole may have a lid which may be used as a pie pan.

In this chapter will be discussed characteristics of materials used for utensils, points in buying and the recommended list.

Aluminum, enamelware, copper, stainless steel, heatproof glass, earthenware, tin, wood, and iron are the materials commonly used for cooking utensils. (See pp. VII--XI for a summary of characteristics of different materials.) No one material can be said to be superior in every respect; each has qualities to recommend it for utensils serving certain purposes. A study was made to determine the effect of the composition of the cooking utensils on the ascorbic acid content of vegetables. McIntosh concluded that there was no consistent effect on the resultant ascorbic acid content. (11)

The cooking quality of each type of material depends upon the ability of that material to utilize heat. In general, lightweight utensils heat rapidly but lose heat quickly and are best suited for quick cooking. Lightweight tin and aluminum heat rapidly but lose heat quickly and are best suited for quick cooking. Lightweight tin and aluminum are very satisfactory for cookie sheets and muffin pans. Heavier utensils heat less rapidly but hold the heat longer. For this reason heavy aluminum or iron Dutch ovens and skillets are ideal for long, slow cooking. One advantage of selecting pieces individually is that each utensil can be selected in the material best suited for its particular purpose. (13)

## POINTS IN BUYING

There are certain considerations in choice of utensils which apply to specific articles, these points are included with the recommended list of utensils.

The considerations that apply to groups of utensils are presented in this section.<sup>1</sup>

Sauce pans and kettles.

Sauce pans and kettles should have straight, smooth sides, rounded corners, flat, unpolished bottoms that are heavy enough not to warp readily, and lids that fit tightly. There should be no tendency for the vessel to tip when empty due to poorly balanced handles. The joining of handles should be firm, smooth, and easy to keep clean. Heat-proof handles are a great convenience as are also lips on both sides. (7:166-169)

A pan for top-stove cooking heats with maximum speed and uses heat most economically when it is at least large enough to cover the burner or heating unit. (14)

In determining the capacity of a kettle, the investigator decided that for foods cooked in water there should

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1. In this section there will be many quotations from Wilson, Maud and McCullough, Helen E., A Set of Utensils for the Farm Kitchen.(21) The extensive use of the bulletin material was made at the suggestion of the senior author of the bulletin.

be allowed a margin of two inches above contents. For other foods, such as milk, which creeps up when cooking, the capacity of the kettle should be twice that of its contents.(21)

That close contact between the rim and cover of a utensil retains the steam, thereby increasing cooking efficiency and shortening total cooking time was reported by Roberts.(16)

#### Mixing bowls.

Mixing bowls should be relatively deep with smooth sloping sides. The bottom should be rounded to facilitate quick and efficient combination of ingredients. The bowl in which a rotary beater is used needs to be deeper in proportion to height than that in which beating or mixing is done with a spoon. For this reason a set of bowls that are alike in shape but differ in size is less satisfactory than a set made of bowls chosen for specific uses.(21)(7:186)

A mixing bowl should be heavy enough to stay in place and not slip or slide while being used. For this reason glass or earthenware are better than metal or enameled ware. Glass and earthenware bowls also have the advantage of not chipping or scratching in beating and not discoloring foods mixed in them. In general, the depth of a mixing bowl should be twice that of the substance to be mixed or beaten in it.(7:164-5) (3:106)

### Frying pans.

Frying pans or skillets may be made from cast iron, sheet iron, aluminum, stainless steel, or chromium-plated copper. Sufficient thickness and weight to prevent warping is important.(12) Cast iron, heavy aluminum and chromium-plated copper are especially recommended. Cast iron is preferred by many because it is inexpensive, very durable, and adapted to long, slow cooking. Chromium finish improves its appearance. Weight is a disadvantage of cast iron, especially for large frying pans.(7:166)

### Cake pans.

Experimental cookery recommends straight sides for cake pans and a depth permitting at least one inch or one and one-fourth inch of batter. Either tin or aluminum is suitable. Tin bakes most rapidly, aluminum next. Enameled ware is not recommended for cake baking.(5:473-474, 434)

### Roasting pans.

Experimental cookery has shown that the material of roasters is not so important as the method of roasting. For oven cookery in general, foods cooked in glass, enameled ware, or china require lower temperature and a shorter cooking period than when cooked in aluminum or tin. A dull finish for oven utensils also is recommended. Aluminum, iron, and steel are satisfactory for roasting. (5:229-230)

### Measuring cups.

A set of accurately calibrated fractional parts of a cup are recommended for measuring dry ingredients. A graduated cup of heat proof glass is the most practical type for measuring liquids since it permits visibility and a margin above the scale can be allowed to prevent spilling.(3:37-39)

### Knives.

Knives made from forged steel with a high carbon content take and keep the best edge. A stainless finish adds to the appearance, but may cover up poor steel or iron. A good quality stainless steel gives a good cutting edge, but is expensive. Handles for knives should be made of water-shedding materials which will not crack, chip, or peel, and which are noninflammable.

Good knife blades taper uniformly from top to cutting edge, and from handle to tip. The blade should extend far into the handle, preferably the entire length. The handle should be attached with two or three large tubular rivets rather than small wire rivets, since the latter may cause the handle to split.(7:188-194)

### Sharpeners.

A steel sharpener is much better than a disk-type sharpener for blades with high carbon content, and since it is also suitable for those of stainless steel, it is

recommended for general use. When use of a steel fails to resharpen a knife, a fine oilstone may be used.(21)  
(7:188)

Can openers.

A can opener should remove the cover from a can of any shape with a minimum of effort, and leave a smooth edge without shaving of metal.(7:187-188)



RECOMMENDED LIST OF UTENSILS  
FOR THE HIGH SCHOOL HOMEMAKING LABORATORY

Utensils for Top of Stove Cookery

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1*	Double Boiler -- upper part $1\frac{1}{2}$ qt. lower part 2 qt. Deep upper section to be used for foods that are beaten with egg beater while cook- ing; enamel and glass are suitable materials since they prevent dis- coloration of food and are not scratched by beater; lower section should be suitable for use as separate sauce pan. Should have straight sides and a lid that fits well.	Used togeth- er for cooking cereals; frost- ings; desserts. Used separately as saucepan for cooking fruits, vegetables, etc.
Unit Kitchen	1	Double Boiler -- upper part 2 qt. lower part 3 qt.	Same as above.
Unit Kitchen	1	Saucepan -- 1 pint Handle should not overbalance.	For melting small amounts of fat, chocolate, etc.

\*This should be interpreted as one utensil for each unit kitchen or as six if there were that many unit kitchens.

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Skillet -- 10 inch with lid Must be heavy enough not to warp.	For frying meat; eggs; without lid oven roasts; all purpose.
General	**	Griddle -- 12 inch Round griddle easier to keep uniform in temperature than ob- long or oval.	For cooking griddle cakes.
General	**	Teakettle -- 4 qt. Wide spout to per- mit filling is a con- venience; well-bal- anced, heatproof handle important; smooth exterior.	For heating water.
General	**	Teapot -- 2 qt. China, glass and pottery recommended for teapots because they hold heat well; top should be large enough to insert tea ball holding an ade- quate quantity of tea; spout should pour well.	Making tea occasionally. Should be use- ful for serv- ing.

\*\* It is recommended that at least one of each of the utensils suggested for the general storage list be purchased. It is recognized that in certain situations additional utensils may be needed.

Place of Storage	No.	Utensil and Points of Selection	Uses
General	**	Coffee maker -- 1 qt. Material that retains heat well; smooth sur- faces; seamless body; easy to clean; well insulated; firmly attached handle; heat- proof glass or china, all aluminum, or aluminum and glass suitable for coffee makers. Dripolater recommended by Con- sumers' Research.	Making coffee.
General	**	Kettle with lid and steamer inset -- 2 qt. top, 3 qt. base. Steamer with solid bottom (results of research show that this type is best for cooking frozen vegetables)	Steamer used for vegetables and steamed breads. Lower part used for cooking vege- tables and fruits.

Utensils for Oven Cookery

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Casserole -- $1\frac{1}{2}$ qt. with lid to use as pie pan. Heat-proof glass suitable for serv- ing as well as bak- ing. Must be lips on lid.	Baking scalloped dishes, puddings, souffles. Pies
Unit Kitchen	1	Muffin pan -- 6 cup Investigators recommend tin, steel and stainless steel for best results; pans should have flat surfaces and few joints.	Baking muffins, cup cakes.
Unit Kitchen	2	Cake pans, layer $9"x9"x1\frac{1}{2}"$	Baking layer cakes, biscuits.
Unit Kitchen	1	Cake pan loaf $9"x9"x2\frac{1}{2}"$	Baking loaf cakes, molding gelatine salads, pan to hold cus- tard cups while baking custards.
Unit Kitchen	1	Bread pan $9"x5"x2\frac{1}{2}"$ for 1 loaf	Baking bread, meat loaf.

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Large pan 13"x16"x1" or as nearly the size of the oven as prac- tical with 2" margin. Aluminum or tin.	To be used as utility tray; baking cookies.
Unit Kitchen	2	Pie pans, diameter 5 in., in depth $1\frac{1}{4}$ in. aluminum or tin satisfactory.	Baking pies in small groups.
Unit Kitchen	2	Cooling racks 11"x11". Close mesh; sufficient space underneath for cir- culation of air.	Cooling breads, cakes.
Unit Kitchen	4	Custard cups $\frac{3}{4}$ c Earthenware, pottery, or glass for long slow cook- ing.	Baking custards
General	**	Cake pan with tube- diameter 10 inch, depth 5-inch. Investigators recom- mend either tin or aluminum; tube or handles should ex- tend above surface of pan to act as rests when pan is inverted for cooling; remov- able tube facilitates taking cake from pan.	Baking angel and sponge cakes.

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Bowl, 3 qt. shape suitable primarily for mixing with a spoon; hence relatively broad in proportion to height.	Mixing full recipes of cakes, cookies, dough-nuts.
Unit Kitchen	2	Bowls, 2 qt. shape suitable primarily for mixing with a spoon; hence relatively broad in proportion to height.	Mixing cakes, pastry, quick breads.
Unit Kitchen	2	Bowls, 1 qt. shape suitable for use of rotary beater; hence relatively deep in proportion to height.	Beating eggs. Mixing portions of ingredients.
Unit Kitchen	1	Sifter, 2 $\frac{1}{4}$ cups. Sifters operated with one hand are more efficient; those that sift more than once not included in list since many recipes call for only one sifting; sifter should be strongly constructed, and easy to clean.	Sifting flour and sugar.
Unit Kitchen	1	Blender Firm, pliable, thin blades.	Making pie crust and biscuit mixtures.

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	2	Rotary egg beater Strong, light weight; simple construction; finish smooth, non- tarnishing; deep, broad cogs that in- terlock smoothly.	Beating eggs, batters, whipping cream.
Unit Kitchen	1	Sieve with wire stand--9" diameter Tin satisfactory for ordinary uses; should be reinforced to prevent sagging; wire screen secure- ly fastened to rim.	Draining foods, use as sifter.
Unit Kitchen	1	Rolling pin Smooth, nonabsorbent surface; long roller decreases strokes necessary; handles should be easy to hold.	Rolling pastry, cookies.
Unit Kitchen	1	Combination cookie and biscuit cutter $1\frac{1}{2}$ in. Aluminum or tin.	Cutting cookies and biscuits.
General	**	Wire whisk, strong, fine firmly soldered wires. For best re- sults, should fit bowl with which used.	For use in mak- ing cakes.
General	**	Masher -- Aluminum fine wires, rounded edges.	Mashing vege- tables.

Place of Storage	No.	Utensil and Points of Selection	Uses
General	**	Doughnut cutter -- tin or aluminum.	Making dough- nuts.
General	**	Pastry brush -- long handle	For glazing pies and biscuits.



Tools for Paring and Cutting

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	2	Paring knife--2 $\frac{1}{2}$ " blade Thin, narrow, flex ible, pointed blade; edge may be rocker- shaped, straight, or concave; the latter is especially adapted to preparing round fruits and vegetables; comfortable handle is important.	Paring; remov- ing eyes and blemishes.
Unit Kitchen	2	Paring and slicing knife--4" blade Thin, pointed blade; longer than ordinary paring knife, to give greater range in use.	Paring and slic- ing fruits and vegetables; dress- ing poultry.
Unit Kitchen	1	Knife -- 8" blade heavy, semi-stiff blade.	Cutting meats, bread, cakes. Nice to use for carving meat at the dining table.
General	**	Can opener -- wall type. Must be sturdy.	Opening tin cans.
General	**	Can and bottle open- er with cork screw, bottle opener and cutting blade. Com- bination opener chosen for opening bottles and punching holes in cans when pouring is to be done.	Perforating cans; removing caps and stoppers.

Tools for Grinding, Grating, Shredding, Mashing, etc.

Place of Storage	No.	Utensil and Points of Selection	Uses
General	**	Grinder--medium size Medium-sized grinder takes care of ordi- nary household needs; good steel cutting edge on blades necessary, and va- riety of blades de- sirable; cup for catching juices an asset; should be easily cleaned.	Grinding meats, vegetables, dry bread.
General	**	Grater Drilled, rather than punched, open- ings give a smooth sharp edge; vari- ations in openings, to permit fine, med- ium, or coarse grat- ings, are needed; should be simple in construction, stiff and easily cleaned and stored; a tin grater of sturdy construction is satisfactory.	Grating lemon peel, slicing vegetables.
General	**	Nutcracker Strong leverage, easy to manipulate, easy to hold nut.	Cracking soft- shelled nuts
General	**	Reamer with saucer-- 6-inch diameter Deep saucer to hold juice; deep blades, not too sharp for extracting juice.	Extracting juice of oranges and grapefruit

Place of Storage	No.	Utensil and Points of Selection	Uses
General	1	Reamer with saucer-- 4-in. diameter. Deep saucer to hold juice.	Extracting juice of lemons.
Unit Kitchen	4	Case forks--4 tines sharp slender steel tines.	Mashing small amounts, testing doneness of foods.

Utensils for Measuring

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	2	Measure, 1-cup--glass Heat-proof glass; graduated in color.	Measuring liquids; useful also as contain- er for softening yeast and gelatin.
Unit Kitchen	2 set	Measuring cups, set of four--metal, 1 cup, $\frac{1}{2}$ cup, $\frac{1}{3}$ cup, $\frac{1}{4}$ cup. Set of four indi- vidual cups permits accurate measuring of either solids or liquids; especially desirable for solids that may be leveled off at top; aluminum recommended since it does not rust.	Measuring dry ingredients, one cup or less; melting fats used in batters.
Unit Kitchen	4	Tablespoons Deep bowls, rounded edges and points; non-rusting; do not bend under ordinary wear.	Measuring; mixing small quantities; while cooking, making drop cookies.
Unit Kitchen	2	Teaspoons Deep bowls, rounded edges and points; non-rusting; do not bend under ordinary wear.	Measuring, tasting.

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	2 set	Measuring spoons, set of four--tablespoon, teaspoon, half tea- spoon, fourth tea- spoon. Set of measuring spoons gives accuracy in measur- ing; "jack-knife" arrangement of this set makes it easy to use any one spoon without interference from others; alum- inum satisfactory; should not bend easily.	Measuring when small quantities of several in- gredients are needed.
Unit Kitchen	4	Case knives	Measuring, cutting in fat in pastry.

Tools for Spreading, Leveling, Loosening, Turning

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Spatula--7-inch blade Flexible, broad blade; handle securely attached, as for knives (see previ- ous section, Points in Buying and Care.)	Folding in egg whites or whipped cream; spreading icing; removing batters from bowls.
Unit Kitchen	1	Spatula--4-inch blade Narrow, flexible blade; handle secure- ly attached, as for knives.	Loosening cakes, muffins, etc.; leveling measures; spreading butter; making sandwiches; making drop cookies.
General	**	Turner--12 inches long Shaped to fit close to skillet or griddle; handle securely attached; perforated, pliable blade, with rounded corners.	Turning and taking up fried foods.

Tools for Testing, Stirring, Serving

Place of Storage	No.	Utensil and Points of Selection	Uses
General	**	Fork--2 tines--10 inches long Sharp, slender, smooth, stiff tines; handle firmly attached.	Testing doneness; stirring; taking up meats and vege- tables.
Unit Kitchen	2	Spoon, wooden--13 inches long. Spoonlike handle- comfortable	Stirring foods cooking in smaller kettles; mixing batters.
General	**	Perforated spoon-- 10 inches long Flat bottom for efficiency in stirring in shal- low utensils.	Mixing batters; taking up certain foods; stirring gravies.
General	**	Large-bowl spoon-- 11 inches long Deep bowl; short handle.	Serving; bast- ing; filling bak- ing pans; filling jars in canning.
General	**	Ladle--2/3 cup capacity Deep bowl.	Taking up soups, stews, and creamed dishes; filling jars while canning.

Utensils for Dishwashing

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	2	Dishpan--17"x12"x4 $\frac{1}{2}$ " Oblong pans permit use of both dishpan and drain pan in sink at the same time, or on table side-by-side without dripping water between. Dishpans should be light weight, resist denting, rust-proof. Stain-proof finish recommended for bottom of aluminum pan to prevent marking sink. Oblong dishpans may be used as roaster and for large quantity cookery.	Washing dishes; washing fruits and vegetables; dressing poultry; canning.
Unit Kitchen	1	Sink strainer Material needed that is rustproof and that will not discolor fruits nor stain sinks; aluminum with hard finish, enameled ware, rubber, or stainless steel recommended; smooth holes.	For straining out liquids from garbage; washing vegetables and fruits.



Canning Equipment

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Kettle--6 qts, to hold 4 pts. in processing. Wire handle over top instead of protruding handle.	For processing while canning; deep fat frying. ***
Unit Kitchen	1	Rack to fit 6 qt. kettle.	Use for pro- cessing
General	1	Basket to fit 6 qt. kettle; strongly constructed with protruding handle for lifting.	For deep fat cookery and for blanching fruits and vegetables.
Unit Kitchen	1	Funnel, large mouth Aluminum better than tin, since tin dis- colors some fruits.	Filling jars.
General	1	Pressure cooker, capacity 18 to 20 qt. will permit processing 10 - 12 pints.	Processing vegetables, meats, fish and poultry under pressure.

\*\*\* These kettles in the unit kitchens could be used  
for large quantity cooking for guest meals.

Other Utensils

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Tray--about 12"x15" raised sides $\frac{1}{2}$ "	For getting supplies for the unit kitchen. Greater use if decorative and used for serving.
Unit Kitchen	1	Shaker $\frac{1}{2}$ cup	For salting
Unit Kitchen	1	Vegetable brush	Washing vegetables
General	1	Knife sharpener	
General	1	Thermometer, candy	For candy making
General	1	Thermometer, roast meat.	For roasting meat
General	1	Freezer, ice cream 1 gallon	Making frozen desserts
General	1	Waffle iron	Making waffles

Needs Not Met by Utensils Listed

The foregoing did not provide for certain kitchen needs. For example, no containers were included in the list.

Following is a list of these needs. They are included here because they are needed to supplement the articles recommended above, in order to form a complete list of utensils needed in the average home-making department.

Place of Storage	No.	Utensil and Points of Selection	Uses
Unit Kitchen	1	Board for cutting at least 9" wide	Assumes built in boards.
Unit Kitchen	2	Boards for rolling pastry, cookies, doughnuts At least 18" wide	Assumes built in boards.
Unit Kitchen		Containers for flour, sugar, and staples.	Assumes built in drawers or bins.
Unit Kitchen		Containers for salad dressings	Assumes use of fruit jars.
General		Containers for canned foods.	

A moderate size oblong roaster should probably be added to the list. It would be used in the cooking of certain cuts of meats in a larger quantity than the unit kitchen skillet would supply.

### Utensils Desirable for Demonstration Purposes

Equipment which has not been listed previously and which might be desired for demonstration and occasional use is suggested as follows:

A coffee maker different from that supplied as necessary. A dripolater is suggested as necessary and one similar to the Silex would be recommended.

It is desirable that students become acquainted with different kinds of material. For example, cast aluminum and copper-clad stainless steel are expensive but an occasional piece is needed for illustrative teaching.

A pressure cooker saucepan might be desirable.

For variety and decorativeness there are many gadgets which are comparatively inexpensive and might be added to the homemaking department. Among these are such items as grapefruit knives, applecorers, melon ball cutters and gelatin molds, etc.

## SUMMARY

Decisions with regard to specific utensils were formulated after study of literature in the field and by means of laboratory tests. The recommended set with the considerations determining the choice was listed. This list indicated for what purposes or foods the utensil would be used.

## CHAPTER IV

SUMMARY AND RECOMMENDATIONS  
FOR ADDITIONAL STUDIES

The purpose of this study was to determine a set of utensils for a high school homemaking laboratory. As far as applicable the methods used in the Wilson study were followed.

A check list for teachers was devised to determine the foods prepared in the homemaking laboratories. This was checked by 35 homemaking teachers. To gain additional information as to practices 15 teachers were interviewed.

As a basis for decisions relating to size and shape of utensils, the information gained from literature was supplemented by laboratory tests, using actual food materials, and using a variety of utensils or tools for each process until a decision concerning the most satisfactory size and shape was reached. These tests included such points as shapes of utensils that are used together (as bowl and beater) and margins above contents desirable in a bowl or saucepan. A composite list of utensils was made by combining the items listed for the preparation of specific dishes with modifications of the maximum need.

This list of utensils was recommended for the laboratory and the place of storage suggested, either in the Unit Kitchen or in General Storage, outside of the Unit Kitchens.

For convenience in using, a list of the utensils without the description of each is included here.

It is suggested that this recommended set of kitchen utensils be a guide to one who is faced with the problem of equipping a high school homemaking laboratory. This purpose could be served whether purchasing an entirely new set or only making additions or replacements. To serve this purpose satisfactorily, the list must be adapted to individual homemaking laboratory needs.



Utensils Recommended For Each Unit Kitchen

No.

1	Tray, 12"x15"
1	Sink strainer, rubber
1	Vegetable brush
1	Large pan, utility tray, 13"x16"x1"
1	Pan, 9"x9"x2 $\frac{1}{2}$ "
1	Pan, loaf, bread, 9"x5 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "
2	Pan, layer cake, 9"x9"x1 $\frac{1}{2}$ "
1	Muffin pan (six muffins)
1	Casserole, 1 $\frac{1}{2}$ qt. (with lid to use as pie plate)
2	pie pans, five inches
2	Racks, 11"x11"
4	Custard cups
2	Egg beaters, rotary
1	Sifter, two and one-half cups, small
1	Sieve, five inch
2	Meas. cups, glass (1p)
2	Meas. cup set, metal (Alum.)
1	Rolling pin ten inch
1	Combination cookie and biscuit cutter
1	Pastry blender
1	Spatula seven inch
1	Spatula four inch
2	Rubber scrapers
2	Wooden spoons, med. - spoonlike handle
2 sets	Meas. spoons (four)
2	Paring knives two and one fourth inch blade
2	Slicing knives four inch blade
4	Case forks
4	Case knives
4	Tablespoons
4	Teaspoons
1	Bowl - three quart
2	Bowls - two quarts
2	Bowls - one quart
1	Butcher, cutting, and serving knife, eight inch blade, one and one-half inch
2	Dishpans
1	Double boiler with lid, top two quart, bottom three quart
1	Double boiler with lid top, one and one-half quart, bottom two quart
1	Salt shaker one-half cup
1	Saucepan one pint

No.

- 1 Skillet ten inch with lid
- 1 Kettle six quarts (hold four pints)
- 1 Rack to fit six quart kettle
- 1 Funnel, wide mouth

Utensils Recommended For The Homemaking Laboratory  
Of Which There Would Be One Or More. (General Storage)

Metal fork, ten inch  
Metal spoon, 11 inch  
Metal spoon, perforated  
Ladle, two-third cup  
Turner, 12 inch, rounded edge  
Lemon reamer  
Orange reamer  
Grinder, No. two  
Ice cream freezer, one gallon  
    (one quart size if several)  
Knife sharpener  
Bottle opener  
Can opener - wall type  
Thermometer, candy  
Thermometer, roast meat  
Cake pan, tube, nine inch diameter  
Grater, set of three  
Wire whisk  
Masher  
Doughnut cutter  
Teakettle, four quart  
Teapot, two quart  
Teaball, one-half cup  
Pastry brush  
Steamer, two quart with three quart base  
Pressure cooker  
Coffee maker, drip, one quart  
Roaster with rack - oblong  
Nut cracker  
Griddle, 12 inch  
Wire basket for six quart kettle for deep fat frying

Utensils Desirable For Demonstration Purposes

Pressure cooker saucepan

Coffee maker (Silex type)

Some utensils made from cast aluminum and  
copper-clad stainless steel

Gelatin molds

Apple corers

Melon ball cutters

Grapefruit knives, etc.

Needs Not Met By Utensils Listed

For each unit kitchen one board for cutting  
nine inches wide, two boards for rolling pastry  
18 inches wide, containers for flour, sugar, staples,  
salad dressings and canned foods. are recommended.

A moderate size oblong roaster might be needed  
for the department since it would be used in preparing  
certain cuts of meat in larger quantities than permiss-  
ible in the ten inch skillets.

The only piece of electrical equipment which  
seems necessary for the high school homemaking depart-  
ment is a family size waffle iron.

## LIMITATIONS OF THE STUDY

In this study there were so many individual differences among the 15 teachers that while the majority opinion was followed, many decisions had to be left to the investigator.

In the Wilson study it was possible to have an accurate check of the frequency of use of each utensil. In this study frequency indicated only the number of different foods prepared using a specified utensil. For example, cake was reported by each of the 15 teachers who were interviewed but there was no method of ascertaining how many times cake was prepared in each laboratory during the year.

## BIBLIOGRAPHY

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## Books

1. Chenoweth, W. W., Food Preservation, John Wiley & Sons, Inc., New York, 1930.
2. Childs, Alice M., and Niles, Kathryn B., Food Preparation Studies, John Wiley & Sons., 2nd edition, 1938.
3. Halliday, Evelyn G., and Noble, Isabel T., Hows and Whys of Cooking, University of Chicago Press, 1937.
4. Justin, Margaret M., Rust, Lucile O., Vail, Gladys E., Foods, Houghton, Mifflin Company, Boston, 2nd edition, 1940.
5. Lowe, Belle, Experimental Cookery, John Wiley and Sons, Inc., New York, 2nd edition, 1937.
6. Nason, Edith H., Introduction to Experimental Cookery, McGraw-Hill Book Company, Inc., New York & London. 1939.
7. Peet, Louise J., and Sater, Lenore E., Household Equipment, John Wiley and Sons, Inc., New York, 2nd edition, 1940.
8. Sweetman, Marion Deyoe, Food Preparation, John Wiley and Sons, Inc., New York, 2nd edition, 1937.
9. West, Susan F., and Soby, Louise, A Handbook of Food Preparation, The MacMillan Company, New York, 1937.
10. Wilmot, Jennie S., and Batjer, Margaret O., Food for the Family, J. B. Lippincott Company, Chicago, 1938.

## Professional Journals

11. McIntosh, Jennie A., Tressles, Donald K., Fenton, Faith, "Ascorbic Acid Content of Five Quick Frozen Vegetables as affected by Composition of Cooking Utensils and Volume of Cooking Water," Journal of Home Economics, 34:314-318 May, 1942.

## Professional Journals

12. Mitchell, Margaret, "Home Economist and the Design of Cooking Utensils", Journal of Home Economics, 29:556 October, 1937.
13. Monroe, Merna M. and Smith, Lolie, "Thermal Efficiencies of Cooking Utensils as Affected by Variations in the Area of their Contact with the Heating Surface", Journal of Home Economics, 26:42 - 45 January, 1934.
14. Phillips, C. J., and Nordberg, Mary L., "Oven Ware and Fuel Economy" Journal of Home Economics, 26:37-41, January 1934.
15. Ritchie, Florence U., "Selecting an Egg Beater", Practical Home Economics, 15:406, November 1937.
16. Roberts, Evelyn H., "Relative Importance of Various Characteristics in Utensils Used on the Electric Range", Journal of Home Economics, 27:174-178, March, 1935.
17. Mellon Institute of Industrial Research, "A Select, Annotated Bibliography on the Hygienic Aspect of Aluminum and Aluminum Utensils." Bibliographic Series Bulletin No. 3, 1933.

## Experiment Station Bulletins

18. Kuschke, Blanche M. and Whittimore, Margaret "The Efficient Pouring Utensil", Rhode Island Agricultural Experiment Station Bulletin 266, 1938.
19. Roberts, Evelyn H., "Utensils for the Electric Range", Experiment Station, State College of Washington, Bulletin 283, 1933.
20. Smith, Lolie, "A Study of Factors of Economy in Electrical Cooking of a Typical Day's Meals in Main", Main Agricultural Experiment Station, Bulletin 371, 1934.
21. Wilson, Maud and McCullough, Helen E., "A Set of Utensils for the Farm Kitchen, Oregon Agricultural Experiment Station, Bulletin 134, 1940.



## Home Economics Extension Publications

22. "Cookware Company of America, Test for", Bureau of Home Economics, U.S.D.A., 1939
23. Haynes, Harriet J., "Kitchen Utensils, " Extension Service, Massachusetts State College, 1938.
24. "Home Economics in Public High Schools, 1938-39", Home Economics Education, Vocational Division Bulletin 213, 1941.

## Magazines, Articles and Leaflets

25. "If You're Buying a Kitchen Knife", Consumer's Digest, November 1938.
26. "Look to Your Pots and Pans", Consumer's Guide, April 25, 1938.
27. "What's Happening to Pots and Pans", Ritley, Helen, Good Housekeeping, November 1938.
28. "Pots and Pans That Earn Their Keep", Women's Home Companion, May 1937.

## Commercial Publications

29. Dodge, Bernice, "Kitchen Utensils", Better Buymanship, Bulletin 7, Household Finance Corporation, 919 N. Michigan Avenue, Chicago, Ill., 1941.
30. Wear-ever Kitchen, "Cooking Utensils", The Aluminum Cooking Utensil Company, New Kensington, Pa. 1938.
31. Sullivan, E. D., "Glass Characteristics", Corning Glass Works, Corning, New York, 1939.
32. "Revere's Guide to Better Cooking", Revere Copper and Brass Incorporated, Rome Manufacturing Company Division, Rome, N. Y., 1941.

## APPENDIX

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# CHECK LIST OF FOODS

## VEGETABLES

After each vegetable check each method of cooking that you usually use in teaching. Please add any other method of cooking which you use.

	Boil	Bake	Cream	Scallop	Soup, Salad, or Seasoning	Other Methods
artichokes						
asparagus						
beans, dried						
beans, green						
beets						
broccoli						
brussels sprouts						
cabbage - green or red						
carrots						
cauliflower						
celery						
chard						
corn						
egg plant						
greens - beet, mustard						
kale						
kohlrabi						
leek						
mushrooms						
okra						
onions						
parsnips						
peas						
green peppers						
salsify						
potatoes						
pumpkin						
rutabagas						
sweet potatoes						
sauerkraut						
spinach						
squash - summer						
- Zucchini						
- acorn						
- winter						
tomatoes						
turnips						

Please check in front of each food if you prepare it. If you teach any variations, please list them after the food.

# FRUITS

- \_\_\_\_\_ applesauce
- \_\_\_\_\_ baked apples
- \_\_\_\_\_ cooked fresh fruits
- \_\_\_\_\_ cooked dried fruits
- \_\_\_\_\_ fruit cocktail

# EGGS

- \_\_\_\_\_ cooked in shell
- \_\_\_\_\_ poached
- \_\_\_\_\_ coddled or baked
- \_\_\_\_\_ scrambled
- \_\_\_\_\_ fried
- \_\_\_\_\_ omelet
- \_\_\_\_\_ soufflé
- \_\_\_\_\_ custard - soft
- \_\_\_\_\_ custard - baked

# PASTRIES AND DOUGHS

- \_\_\_\_\_ sponge cake
- \_\_\_\_\_ conventional method with fat
- \_\_\_\_\_ quick method with fat
- \_\_\_\_\_ variations of cake \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

- \_\_\_\_\_ rolled cookies
- \_\_\_\_\_ drop cookies
- \_\_\_\_\_ popovers
- \_\_\_\_\_ dumplings
- \_\_\_\_\_ cream puffs
- \_\_\_\_\_ cobbler
- \_\_\_\_\_ baking powder biscuits
- \_\_\_\_\_ baking powder breads
- \_\_\_\_\_ muffins
- \_\_\_\_\_ waffles
- \_\_\_\_\_ griddle cakes
- \_\_\_\_\_ cake doughnuts
- \_\_\_\_\_ raised doughnuts
- \_\_\_\_\_ fritters
- \_\_\_\_\_ timbal cases
- \_\_\_\_\_ yeast rolls
- \_\_\_\_\_ yeast bread
- \_\_\_\_\_ pie crust
- \_\_\_\_\_ cinnamon toast
- \_\_\_\_\_ French toast
- \_\_\_\_\_ croutons
- \_\_\_\_\_ steamed pudding
- \_\_\_\_\_ croquettes

## SALADS AND SALAD DRESSINGS

- \_\_\_\_\_ fruit salads
- \_\_\_\_\_ vegetable salads
- \_\_\_\_\_ potato salad
- \_\_\_\_\_ gelatin salads
- \_\_\_\_\_ French dressing
- \_\_\_\_\_ cooked dressing
- \_\_\_\_\_ mayonnaise

## SAUCES

- \_\_\_\_\_ white sauce - double boiler method
- \_\_\_\_\_ white sauce - direct heat method
- \_\_\_\_\_ cream soup
- \_\_\_\_\_ stock soup
- \_\_\_\_\_ gravy
- \_\_\_\_\_ lemon sauce
- \_\_\_\_\_ hard sauce
- \_\_\_\_\_ butterscotch sauce
- \_\_\_\_\_ chocolate sauce
- \_\_\_\_\_ tomato sauce
- \_\_\_\_\_ tartar sauce
- \_\_\_\_\_ modified Hollandaise sauce

## DESSERTS

- \_\_\_\_\_ cornstarch pudding
- \_\_\_\_\_ rice pudding
- \_\_\_\_\_ bread pudding
- \_\_\_\_\_ Brown Betty
- \_\_\_\_\_ tapioca pudding
- \_\_\_\_\_ gelatin desserts
- \_\_\_\_\_ fruit whip (egg white)
- \_\_\_\_\_ frozen mixtures - refrigerator
- \_\_\_\_\_ frozen mixtures - hand freezer

## CANDIES AND FROSTINGS

- \_\_\_\_\_ peanut brittle
- \_\_\_\_\_ fudge
- \_\_\_\_\_ popcorn balls
- \_\_\_\_\_ taffy
- \_\_\_\_\_ fondant
- \_\_\_\_\_ divinity
- \_\_\_\_\_ boiled frosting
- \_\_\_\_\_ seven-minute frosting
- \_\_\_\_\_ uncooked frosting

## BEVERAGES

☐ coffee  
☐ tea  
☐ cocoa  
☐ chocolate  
☐ fruit juices ( ex. lemonade)

## MEAT AND FISH

☐ broiled  
☐ fried  
☐ braised  
☐ baked (roasted)  
☐ stew  
☐ meat loaf  
☐ meat pie

## METHODS OF PRESERVATION

☐ canning - using open kettle  
☐ canning - using water bath  
☐ canning - using pressure cooker  
☐ jelly  
☐ jam  
☐ marmalade  
☐ conserve  
☐ preserve  
☐ pickles  
☐ two-slice sandwiches  
☐ toasted sandwiches  
☐ tea sandwiches (ex. open, ribbon)

## CEREALS

Please check methods you usually teach.

	Double boiler	Open kettle	Baked	Other methods
flaked cereals (ex. rolled oats)				
cracked cereals (ex. cracked wheat)				
whole grain cereals (ex. rice)				
fine grain cereals (ex. cornmeal)				
macaroni				
noodles				

Tally card used in individual conferences with high school teacher.

Food \_\_\_\_\_ Taught in \_\_\_\_\_ Name of Teacher \_\_\_\_\_

How Pupils Work	Number of Servings Prepared				
	Ind.	For 2	For 4	Other (List)	
Individually					
Groups of 2					
Groups of 4					
Other					

List of Teachers With Whom  
Personal Interviews Were Held

Bodner, Esther	Corvallis, Oregon
Chapman, Joanna	Corvallis, Oregon
DuBois, May	Corvallis, Oregon
Eager, A.	Gridley, California
Emily, Barbara	Junction City, Oregon
Farrell, Marion	Lebonan, Oregon
Forest, Ruth	Portland, Oregon
Hirst, Alta	Preston, Idaho
Jenkins, May	Los Angeles, California
Nisbet, Irma	McMinnville, Oregon
Norris, Rita	Eugene, Oregon
O'Reilly, Justine	Oregon City, Oregon
Rees, Ruth	Salt Lake City, Utah
Rose, Carlene	The Dalles, Oregon
Van Deusen, May	Philomath, Oregon



Materials Used in Utensils 1

To obtain the information summarized in this section, recent books on principles of cookery and kitchen equipment as well as reports of experimental work with foods were examined.

Aluminum is suitable for all types of stove and oven cookery and for many gadgets. It does not rust or chip, is light in weight, and is moderate in cost. Since it is a good conductor of heat, foods do not quickly scorch. Aluminum is discolored readily by alkalies in foods, boiling water, and soaps, and for this reason it is difficult to keep attractive. It is easily brightened with weak acids such as dilute vinegar, sour milk, or fruit acids, however, and may be scoured with a fine abrasive. Strong alkalies and soaps should be avoided in cleaning it.

Aluminum utensils are either cast or pressed and each comes in various weights. Except for long, slow cookery there is no value in the extra-heavy grades. The important factor is to have it heavy enough to keep its shape without denting or buckling. It is possible to buy aluminum utensils with a hard, stain-resisting finish which does not mark sinks or other surfaces.

1. Wilson study

Enameled ware is smooth and attractive in appearance and the better grades are not affected by acids or alkalies. It absorbs heat quickly but does not conduct evenly. For this reason foods scorch in it readily, making the utensil difficult to clean.

The quality of enameled ware depends on the metal base as well as the glosslike coating. In good grades the steel base is rigid enough to withstand ordinary knocks without bending, and it is covered with at least four coats of enamel.

The great disadvantage of enameled ware is that the glaze chips, exposing the metal base, which may be affected by water and acids. There is also danger of the chips being swallowed with food. The better grades of enameled ware chip less readily than the poorer grades because base and coating expand and contract at more nearly the same rate.

Enameled ware should be handled with care and should not be subjected to sudden changes of temperature. A wooden spoon should always be used for stirring food cooked in vessels of this material to lessen the danger of chipping. Enameled ware does not discolor food and is especially recommended for utensils used in making cream sauces and fillings.

Tin utensils are inexpensive, light in weight, and easily cleaned. Their durability is determined by the quality of the iron or steel foundation and the thickness of the tin coating. Block tin, the heavier type, wears well. In light-weight wares, the coating may be worn away by food acids and the surface is easily scratched. When this happens rusting follows. Pans made from single sheets of tin with folded corners should be selected. Tarnish should not be removed from the surface since it acts as a protection. Because tin heats quickly and evenly, good qualities are especially recommended for cake, pie, cookie, muffin, and biscuit pans. It is also good for articles that do not have hard usage. Since tin affects some fruit colors, cans used in food preservation should be lacquered. Tin is somewhat porous, and since the foundation metal will rust when exposed, tin utensils should always be thoroughly dried.

Cast iron heats slowly and holds heat well, and is ideal for slow cooking. Foods brown well in iron. Cast iron needs to be tempered and cured when new, and if it is not to be used for a period of time, it should be oiled. If properly cared for, it improves with age and is very durable. Its disadvantages are that it is heavy to handle and not attractive in appearance. Its chief uses are for skillets, dutch ovens, griddles, and kettles for deep-fat frying.

Sheet iron is for light-weight frying pans.

It has much the same properties as cast iron except that foods brown in it more quickly and it has a decided tendency to warp.

Stainless steel utensils containing a high percentage of nickel and chromium are suitable for hard wear, are attractive, rarely dent, and will withstand intensive heat. They require a minimum of care, and will last a lifetime. Expense is the chief disadvantage of utensils made of this metal. Stainless steel is used for both top-of-stove and oven utensils.

Copper, of all the metals used for utensils, is the best heat conductor, but it is hard to keep polished and looking well. When used for cooking purposes it should be heavily coated with tin or chromium, and this process makes it expensive. Copper is used for saucepans, kettles, skillets, and teakettles.

Heat-proof glassware is adapted to long, slow cooking, holds the heat well, is attractive, is easily cleaned and is especially recommended when it may be used for serving as well as for cooking. It is heavy and requires more care than metals to prevent breaking. Sudden changes of temperature should be avoided. Glass is desirable for baking dishes, pie pans, and casseroles. It may also be used for double boilers, saucepans, frying pans, coffeepots, teapots, reamers, and measuring cups.

Earthenware and semiporcelain are similar in character to glass. They hold heat well, cannot be scraped off in mixing, can be used for serving as well as cooking and are easily cleaned. The disadvantage of these materials is that they chip and crack readily. They are suitable for crocks, mixing bowls, casseroles, baking dishes, and teapots.

Wood is light in weight and inexpensive. It is valued for certain uses because it is quiet in operation and does not mar other surfaces.

The kind of wood used in kitchen utensils is important. It should be close-grained, free from cracks, knots, and odor, and should not warp.

Wood is favored for stirring and mixing spoons, chopping bowls, pastry and cutting boards, and grinder base. It is especially recommended for stirring spoons since it does not scratch nor mar metal utensils, nor cause corrosion resulting from electrolytic action when used in aluminum. Wood should not be soaked in water, and should be dried quickly and thoroughly.

List of Home Economic Educators

Bertha Kohlhagan

State Supervisor of Homemaking Education,  
Salem, Oregon.

Gertrude Roskie

Assistant State Supervisor of Homemaking  
Education, Salem, Oregon.

Florence E. Blazier

Head, Home Economics Education Department,  
Oregon State College.

May DuBois

Assistant Professor Home Economics Education,  
Oregon State College.

Evelyn Swaim

Supervising Teacher, Oregon State College.

Maud M. Wilson

Professor in charge of Home Economics Research,  
Oregon State College.

Questions Asked Home Economics EducatorsWhile They Were Examining the Set of Utensils.Questions Regarding Teaching Practices

1. Are high school students taught to make coffee?

If so, by what methods? What coffee makers?

2. To what extent is it recommended that food preservation be taught?

3. Recommendations with regard to some of the utensils desirable for demonstration and illustrative teaching other than those needed for specific cookery, such as:

- a. Various materials - glassware, stainless steel, enamel, etc.

- b. Small pieces of equipment with the specific purpose of decoration and service. For example, melon ball cutter, grapefruit knife, ring mold, ice cream dipper.

- c. Electric mixer and attachments.

Questions Regarding Specific Utensils

1. Are casseroles ( $1\frac{1}{2}$  qt.) used by the unit enough to justify having one for each unit?
2. What utensil is recommended for the melting of a small amount of fat, such as for muffins?

3. What utensil is used for a mold in making steamed pudding (1# baking powder can)?
4. Recommendations in regard to trays; number and use.
5. Examination of utensils on display.



Related Studies <sup>1</sup>

Anderson, Doris

Dimension Standards for a High School  
Foods Laboratory

Hirst, Alta

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

O'Reilly, Justine

The Opinions of Home Economics Leaders Concerning  
Location, Arranging, and Equipping Homemaking  
Departments.

Vander Griend, Maurine

Planning of a Combination Homemaking Room for a  
Monterey, California, School

<sup>1</sup>  
pp. 3-6