

“The Kitchen”

BY

Miss Gertrude Hoffman

Revised by

NORA L. HULBUSH
Home Management Specialist

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The business of home making is the noblest and most important of the professions. The American farm home is an institution peculiar in many of its attributes to our own country. Throughout the rest of the world the agricultural population, for the most part, lives in farm villages. The isolated home on the American farm has some manifest disadvantages, but it also has its elements of strength. In the management of such a home American women have developed an independence and resourcefulness that, transmitted to their sons and daughters, has become our chief national characteristic.

The problems of management incident to this, our greatest institution, require ability and foresight comparable with that devoted to big business. A good business manager must have time to think and plan with the mind clear and the body fresh. Anything that simplifies housekeeping, that saves time and reduces labor incident to it, for the farm woman is both a worker and a manager, is to be commended. Home management is essentially a woman's profession. In this field she has no rival and is at her best. In its successful prosecution she is rendering her largest contribution to our national well-being.

—W. A. LLOYD,

*Field Agent in Charge of
Western States Cooperative
Extension Service.*

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THE HOME-MAKER on the average Montana farm spends about 70 per cent of her working time in the kitchen. From the standpoint of efficient home management, therefore, the kitchen is the most important room in the farm home. Any plan of kitchen work or method of arranging adequate kitchen equipment which will cut down the total number of hours demanded for kitchen duties, or lighten kitchen labor, will mean a saving of time and energy which may be diverted to additional care for the children, or to the social or recreational needs of the home-maker. (See Note 1.)

The home-maker is the manager of the home. What is home management? Miss Ida S. Harrington, formerly home management specialist in New Jersey, says that “home management is the wise spending of ourselves, our strength, time and money.”

In this discussion of the kitchen it must be understood that all suggestions are general in nature. No one plan can meet the

Note 1.—During 1929 the Home Economics Department of the Montana Experiment Station secured actual data from 73 farm home-makers living on the leading types of farms. This data, still unpublished, shows that the approximate average time spent by these women each day (including Sunday in the daily average) on the following tasks: Food—preparing, serving, and clearing away, $3\frac{3}{4}$ hours; housework, $1\frac{1}{2}$ hours; clothing—sewing, laundry, $1\frac{3}{4}$ hours; care of family, $\frac{3}{4}$ hour; farm work, $1\frac{3}{7}$ hours; care of person, $7/12$ hour; leisure time—reading, meetings, social life, etc., $2\frac{3}{4}$ hours. The average working day is $11\frac{1}{4}$ hours.

The data secured in another study involving 79 farm home-makers relative to home equipment shows an increase in percentage of ownership of most pieces of essential equipment over that shown in surveys made in 1923 and 1926. It shows also that 32.2% still do not have any kind of washing machines; 59% do not have refrigerators; 67% do not have pressure cookers; and 68.4% do not have running water. The average percentage ownership of cleaning equipment was the lowest of any of the classes of equipment studies, being 26.6% vacuum cleaners; 20.8% mop wringers; and only 13.8% carpet sweepers.

varying needs of all homes, neither will individual finances and conditions allow the ideal arrangement and equipment in every case. These general plans must be adapted to meet the special needs of the family, should be fitted to meet personal preferences, and should be considered in the light of the amount of money that can be expended. In some instances, perhaps only a few ideas can be worked out in the farm kitchen for the present, while in other cases it is possible that the housewife may be able to use the greater share of information in this bulletin in the planning of a new kitchen or in remodeling the old kitchen.

There are five important and effective means of more efficient home management. They are:

1. Labor saving furnishings and equipment.
2. Step saving arrangement of equipment.
3. Improved methods of work.
4. Efficient planning of the work.
5. Simple living.

This bulletin deals with the first two means toward efficient home management—labor saving furnishings and equipment in the kitchen, and step saving arrangement of equipment.

An efficient kitchen is one that is planned to allow the maximum amount of work with the minimum amount of effort.

The Efficient Kitchen

There are a few fundamental ideas which should be considered carefully in the planning of a kitchen in the new house, or in repairing or remodelling the old kitchen or house. They may be listed as follows:

1. That it allows efficient work.
 - (a) Convenient and comfortable; arranged compactly for the routing of work.
 - (b) Completely and economically equipped with useful labor and time saving tools.
2. That it is easy to keep clean.
 - (a) Sanitary; all surfaces smooth and washable.
3. That it is attractive.
 - (a) An inviting, restful place in which to work, through wise choice of color and orderliness.

4. That it is healthful.

- (a) Adequate light at all working centers.
- (b) Cross ventilation.
- (c) Warm in winter, cool in summer.
- (d) Adequately screened.

A kitchen planned with these ideas in mind will save both time and money and result in better health for the home-maker; it will also lessen the cost of labor, light, heat and cleaning; it will give the home-maker more time and energy for herself, her family and her community; it will result in better happiness and contentment for the entire family.

Not every woman has the opportunity to plan her own kitchen, but every woman has the opportunity to improve her

Note 2.—HOME MANAGEMENT.—What worlds of mental pictures are called to mind when one utters the word "management"! Management of farms, stores, banks, railroad systems, schools, churches—and last but not least—the management of the home. The nation is becoming more conscious of the importance of the home-maker. United States presidents in recent years have all made direct reference to the home and the importance of home making in presidential messages to Congress.

Managing means directing and guiding. It means carrying out by action, effort or skill. Home management relates to the direction and guidance of home activities. It is needless here to list all of the activities of the home that transpire throughout the day, week or year. The home manager, or as we are more apt to call her, the home-maker, is held responsible for seeing that the mechanics of the household run smoothly, that three wholesome meals are served each day, that the house is clean and orderly and that the children are dressed neatly and attractively. The home-maker's real managing ability is shown in how she deals with three of her most precious possessions—the members of her household, time and money. The alert home-maker is learning all she can from books, papers, magazines, schools, clubs and Extension Service workers, so that her "managing" will make her home her ideal—not a future ideal—but an every day ideal home.

The home-maker interested in home management never forgets to learn more skillful ways of doing housework and how to choose wisely the equipment and furnishings of her home. Regardless of all we may say concerning the importance of managing the housekeeping jobs efficiently, yet as Dean Holmes of the Graduate School of Education puts it, "The home-maker's real managing job is to develop a philosophy of the home. It is more important for the home-maker to win and hold the eager and affectionate cooperation of every member of the home group than it is for her to make fine pies and sew the finest seam. * * * * But she should be able to hold the whole complex of home duties and the stuff with which she is to work, from salt to sorrow, from passion to pennies, in one illuminating and inspiring conception."

And that is what home-making is and what as the years come and go we shall all be striving for—to guide and direct the home and its members to make it "a place of generous, mutual, affectionate effort for the growth and happy organization of human lives."

kitchen until it is as efficient as it possibly can be made. This replanning is important, for it may be the beginning of a more happy and satisfactory home life. (See Note 2.)

Use of the Kitchen

The kitchen is intended, primarily, only for food work. This makes possible the most compact arrangement of equipment and tends toward better sanitary conditions. If, however, the kitchen also must be used as a laundry room, wrap closet, storage room or milk room, then each separate activity should be confined to one distinct part of the kitchen. The kitchen often, and wisely, is used part of the time as a dining room, in which case a screen may be used if desired to hide the stove and work table from view.

Location of the Kitchen

The most desirable location for the kitchen is at a corner of the house, or in a wing where there can be at least two exposures. The northeast or northwest corners of the house are desirable because they are cooler during the summer mornings. On the large ranch where much work must be done in the afternoon, an east or northeast exposure often is preferred. This kitchen should be so located that the prevailing winds do not carry odors from the barns. The kitchen, if possible, should be placed so that there is an attractive view from the windows. Some women prefer a view of the road, and others a view of the barns so they can see the men when they come from the fields, or where they may watch the children at play. A hedge or vine may, in some localities, be used to screen undesirable features of the yard. Neat walks of gravel, concrete or wood, and a well seeded lawn about the kitchen door, will do much to prevent the carrying of mud and dust into the house. This view from the kitchen window is important, for the things which people look upon, while at work, may have an unconscious but definite bearing on their lives.

Relation to Other Rooms in the House

The other parts of the house which have an important place in the carrying on of the daily work, should be arranged in careful relation to the kitchen, since so much of the home-mak-

er's time must be spent in the kitchen. A hall, from which open off the other service rooms, makes these service rooms easily accessible and prevents the kitchen from being a passageway to other rooms of the house. (See Figs. 6 and 7.)

All halls, rooms and porches should be on the same level. Steps between them waste time and strength, and may be dangerous. This is one good reason for not placing the refrigerator on the basement or stairs landing.

The Dining Room

The kitchen, of course, must be next to the dining room, but a direct view from the dining room into the kitchen should be avoided where possible. A butler's pantry between the rooms will lessen the noises and odors from the kitchen and provide a place for the storage of dishes and linen. Where the homemaker must do all of her own house work, it is wise, however, to have the kitchen open directly into the dining room in order to save steps.

Basement Stairs, and Dumb Waiter

Since the basement is used for the storage of some supplies, the basement stairs should open directly off the kitchen or from a back entry. A dumb waiter, by which food may be raised or lowered between the kitchen and basement, will save many trips.

Back Entrance

The back door of the house should be near the kitchen door and the basement stairs, and should be placed so the kitchen is not a passageway from the outside to the basement. There may be an outside cellar entrance, as shown in Figure 7. It is advisable to have the back door open into a hall or an enclosed porch on account of the cold in winter and the flies in summer.

Wash and Wrap Room

A small back room should provide a place for wraps as well as a place where the men may wash. A door should lead from this room into the hall, dining room and other parts of the house so that the men will not need to go through the kitchen. (See Figs. 5 and 7.) This small back room may be combined with the laundry room.

Laundry

If there is a good basement the laundry room often is placed there, where it adds little extra cost. However, if there are small children and no help on wash day, a basement laundry room is inconvenient. One Montana woman remarked, "I wouldn't have a basement laundry unless I were twins; so that one of me could stay upstairs to look after the baby and the cooking, while the other of me is down in the laundry." A basement laundry also requires that heavy baskets of clothes be carried up the stairs.

With modern, built-in equipment it is possible to use the kitchen as a laundry, provided there is a convenient closet or store room where the washing machine may be placed when not in use. The combination wash tray and kitchen sink, or the covered tub for a drain board, may be installed, or else a washing machine that does its own rinsing. A good plan is to add a small laundry room on the ground level, as shown in Figure 6.

Bedroom or Bathroom

For sanitary reasons these rooms should not open directly into the kitchen or dining room.

Front Door

The front door should be located so that the busy housewife will not need to walk far or through other rooms in going from the kitchen to the front door. A hall, as shown in Figure 7, makes this better arrangement possible. In some houses built recently the kitchen has been placed at the front of the house, the kitchen thus being nearer the front door.

The Pantry

The old-fashioned pantry is disappearing and there are several good reasons why it should. It usually requires too many steps, as the home-maker has to pass to and from the sink or work table to get utensils and supplies. It also is generally a "catch-all" for dust and for many things which do not belong in the pantry. It often is a poor investment, since the cost of the average pantry would pay for all the needed built-in equipment of the average kitchen. Thus the pantry is giving place

to built-in cupboards and bins, or to storage cabinets with units which are fitted on the walls of the kitchen so that needed supplies are always at hand.

Only where the pantry is used as a storage room has it much further reason for being a part of the house. It may be used to store larger quantities of supplies, such as sacks of flour and sugar, or for larger equipment such as the washing machine, churn, lard press, ice cream freezer and other things not used so frequently. Pantries now are being changed into such store rooms, dairy rooms, dining alcoves or bath rooms. One wall of a pantry often can be removed, built-in features utilized in the kitchen and either the kitchen or dining room enlarged or the space converted into one of the rooms just mentioned.

If there must be a pantry, it should open directly into the kitchen and near the working center of the kitchen.

Size of the Kitchen

A small, compact kitchen is the first step toward the saving of time and energy. Where the kitchen is used only for food work a space of from 120 to 144 square feet of floor space will be found sufficient. Suggested dimensions for the kitchen are: 8x10, 8x12, 9x13½, or 10x14. The oblong kitchen permits a more compact and convenient arrangement and makes more efficient use of floor space than does the square kitchen. The kitchen must be somewhat larger where coal and wood are used for fuel, where it is also used as a laundry or wash room, where milk is cared for in the kitchen, where it must be used for the storage of extra supplies and cleaning equipment, or where it is used part of the time as a dining room. If the family is large enough that two or more kitchen workers are required, this also will require larger space.

Canning, cooking for extra farm help, and other seasonal demands for extra kitchen space may be met by an oil stove in a temporary room on the porch or in another room. This kind of expansion for seasonal work is much better than a large kitchen which permits the handling of heavy seasonal work, but which is so large that it requires extra steps through the remainder of the year.

ARRANGEMENT OF THE KITCHEN

The arrangement of the larger equipment in the kitchen should be considered at the time the house is planned. Unless it be done at this time, the best step-saving arrangement often is prevented by improper placing of doors, windows or the chimney.

How far does the home-maker walk during the day in the performance of her kitchen duties? A pedometer, which measures distance walked, has been used to answer this question and shows that it is not uncommon for the woman to walk as far as seven miles in doing her day's kitchen tasks. It is possible to reduce this distance by a large amount if the kitchen is studied carefully, often as much as one-half. No matter how poorly the kitchen is arranged, it is seldom hopeless, and careful study will show the ways in which step saving may be accomplished.

To make this study, some women draw a plan of their kitchen, then trace the paths that are traveled in preparing and clearing away a meal. If the lines or paths cross and re-cross then the kitchen equipment needs to be rearranged. In making this rearrangement it is more important that the home-maker work continuously from one task to another without extra steps than that the equipment be placed where it looks well or fits into wall space.

(See routings, page 21.)

Equipment should be arranged in groups, according to its use. Such groups are:

1. **Cool Storage Center**—Refrigerator or dumb waiter, and cold closet.
2. **Preparation Center**—Sink with pans close by, and cabinet or table with shelves above and bins below for dry staple supplies and utensils; if there is no running water, have table or shelf space to hold water pails.
3. **Cooking Center**—Stove, with cupboard for skillets, supplies and utensils and serving dishes needed at the stove; a small table, wheel tray or shelf by the stove for serving.
4. **Clearing Away Center**—Table space or wheel tray or right hand drain board to hold stacked dishes at the

right of table or sink, and similar space on the left to hold dish drainer and clean dishes, with dish cupboard above or just at the left.

These groups should be arranged so that in preparing a meal the housewife can start at the cool storage center and work continuously to the preparation center and then to the dining table, without retracing her steps or crossing from one center to the other.

The soiled dishes which are brought from the dining table on a hand tray or a wheel tray are scraped and stacked, then placed at the right side of the sink (unless one is left-handed). After being washed they are drained and dried at the left and placed in the cupboard, which is above or near by. This dish cupboard should be convenient to both the left drain and the dining room if possible (as shown in Figs. 1, 2 and 5), or convenient to one of them. Either the table, or the right drain board for the soiled dishes, or the dish cupboard should be next to the dining room.

LOCATION AND EQUIPMENT

In the location of equipment it is well to keep the following suggestions in mind:

1—Arrange the equipment in one end of a rectangular kitchen, working across the short dimension of the room. The other end may be used for the dining alcove, rest corner, or, if necessary, for a wash and wrap corner.

2—In a square room arrange the equipment in a corner and on the adjacent walls of the corner.

3—Arrange the sink, range and work table with the supply cupboard as close together as possible. If there is running water, the work table serves best between the stove and sink. Where there is no running water the sink should be near the stove so that hot water is convenient for dish washing.

4—The stove often may be placed so that the fuel box next to the fire box comes near the outside door or on the outside wall, for filling from the outside. The chimney should be planned so that the stove may be placed properly in relation to the other large equipment.

5—The dumb waiter or cold closet should be next to the work table. The refrigerator should be placed so that it can be iced easily from the outside, sacrificing arrangement if necessary. The refrigerator should be in the kitchen if possible. Little ice is saved by placing the refrigerator on the porch, in the cellar, or pantry, provided the kitchen is kept ventilated and that the doors of the refrigerator are not opened too frequently.

6—The work table should be placed near the sink or water pails, the supplies and utensils, and not far from the stove.

7—The sink may be placed under a window, between two windows or on an outside wall where there is good light from a window to the left of the worker. It should be as near the dining room as it can be placed consistently. If there is no running water the water pails should be near the work table or stove, as well as near the wash stand.

8—The dish cupboards should be at the immediate left of the sink and, if possible, near the dining table.

An idea of a small kitchen with compact arrangement is given in Figure 1, where the well planned shelves, drawers and bins permit the storing of sufficient supplies and utensils for

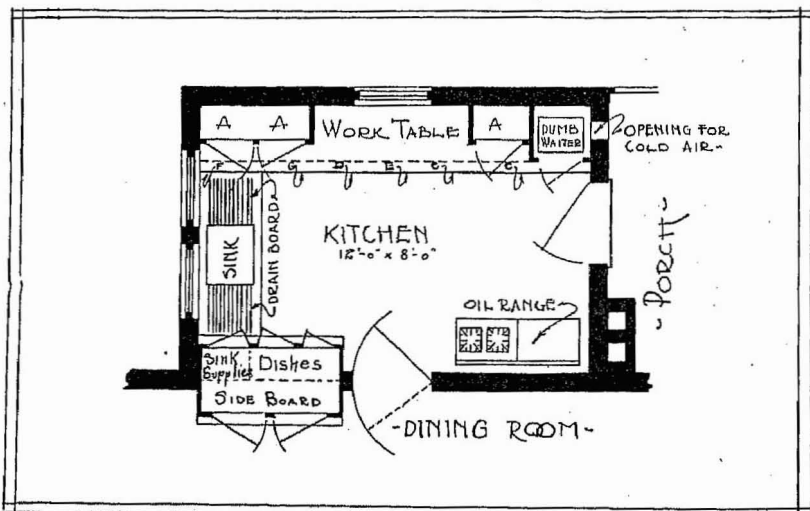


Fig. 1—This small kitchen shows compact arrangement. The letters refer to the built-in units that are illustrated in Figs. 17 and 18.

the average family. The opening in the wall insures good ventilation in the air shaft of the dumb waiter and makes a cold closet of the dumb waiter in the cool months. Dry groceries are kept in the cupboards and bins next to the dumb waiter, utensils being kept in the cupboards to the right. The cupboards opening below the drain boards are used for storing equipment



Fig. 2—A view of the kitchen shown in Fig. 1, showing its general compactness.

that is seldom used. The drawers shown in Units E and G provide space for keeping small pans, utensils, towels, aprons, tools, etc. The cupboard at the left of the sink is used to store cleaning brushes and supplies used at the sink. Dishes are kept in the adjacent shelves, which open into the dining room. The dish cupboards at the left of the left drain board, and the stove, both are handily situated next to the dining room door.

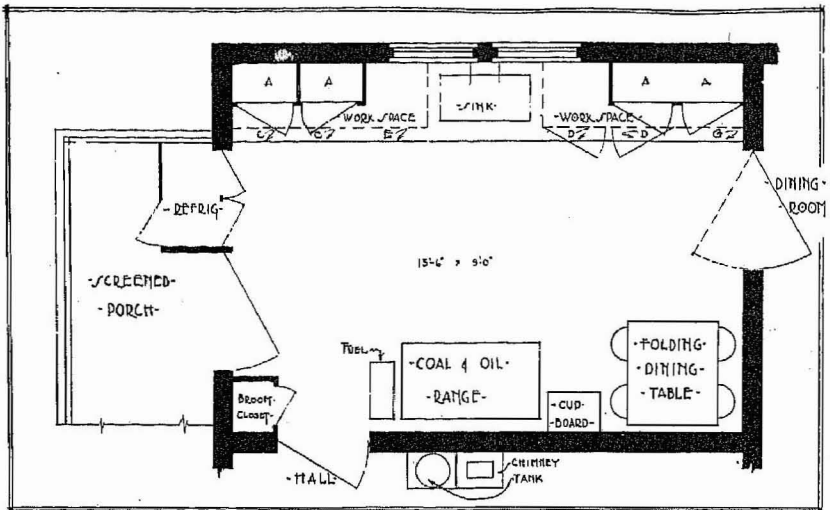


Fig. 3—The location of the dining room makes a different arrangement necessary here. The refrigerator is at the left of the work surface, supplies and bins. The letters refer to the built-in units shown in Figs. 16 and 17.

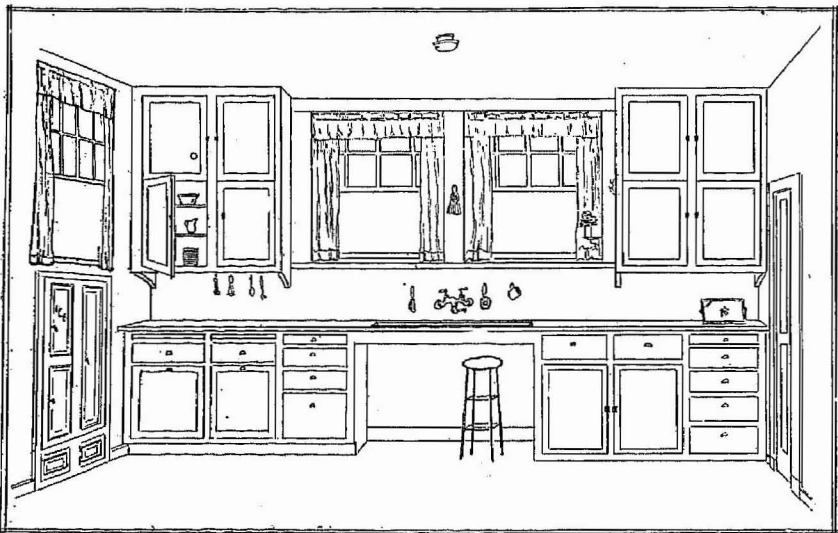


Fig. 4—A view of the built-in equipment shown in Fig. 3.

The location of the dining room makes necessary a different arrangement in the kitchen shown in Figure 3. The refrigerator in this kitchen is built into the wall and is iced from the outside. The surface at the right of the sink is convenient for placing soiled dishes from the dining table. However, after the dishes are dry they must be placed back into the dish cupboard next to the dining room door. The folding table makes it possible for the family to eat in the kitchen when they desire. A one-section cupboard next to the stove holds skillets and necessary supplies, utensils and dishes needed at the stove. The stove might be moved slightly to the right and this cupboard built over the fuel box with the lower section used to hold the coal pails.

Another well arranged small home is illustrated in Figure 5. The work room shown in this plan takes the dairy and laundry work out of the kitchen. A shelf at the window holds milk utensils for sunning. A narrow cupboard (four or five inches wide) above the tubs holds laundry supplies. A broom closet is reached easily from the kitchen.

The men coming through this work room hang their wraps in the hall, wash in the bath room and go directly into the living and dining room. The library-diner table allows the room to be used as a dining room when desired and the bed-davenport makes of it a bedroom when an extra bedroom is needed. The alcove at the end is used for dining and it also provides a rest corner. The built-in ironing board is placed in good light. The drawing on the front cover page of this bulletin shows the cupboard arrangement in this kitchen. The cupboard, with shelves four or five inches wide above the sink cabinet, stores supplies and empty jars. The ideal arrangement shows the sink in the middle of the counter with each drain board below a window and a sink cabinet directly above the sink. Meal preparation begins at the dumb waiter or cooler. Food supplies and utensils are in the adjoining shelves and bins. Stove utensils and supplies and serving dishes are kept in the cupboard at the right of the stove, convenient to both the dining alcove and dining room. This kitchen is narrow enough that the stove is not too far from the work table. Every-day chinaware is kept in the

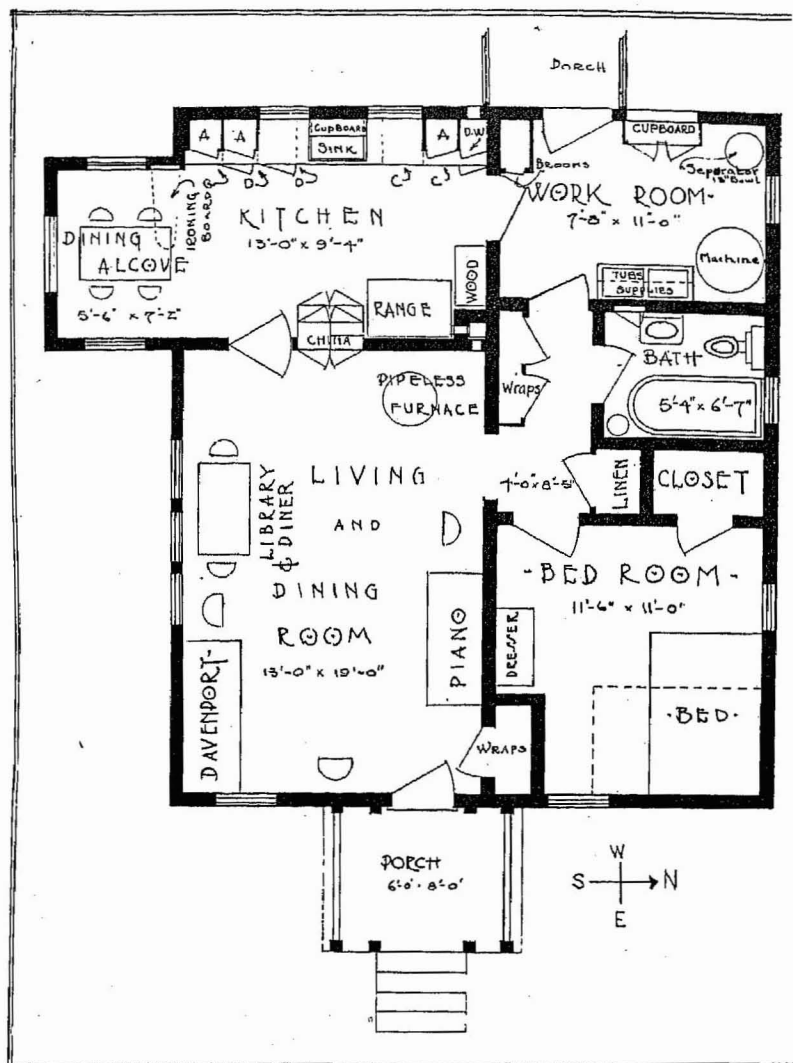


Fig. 5—A well arranged small home. The letters refer to the built units in Figs. 16 and 17, although here the cupboard sections are changed from 18 inches to 14 inches to fit the wall space.

cupboard at the left of the sink and so is next to the dining alcove.

The combination dairy and laundry room may be a one-story addition to the house, as shown in Figure 6. This room, like the wash room or dining room, may be reached without going through the kitchen. An engine in the laundry will also run the separator. The wash room contains a shower,—a great satisfaction. The kitchen in this plan need be no larger than any other kitchen. A wheel tray is used and, if the family is small, a folding table may be used in the kitchen, replacing the desk.

Another plan, showing a kitchen in a two-story house, is shown in Figure 7. A shelf for rubbers is on the porch. The men leave their wraps in the wash room and enter the dining room without going through the kitchen. The front door may be reached easily from the kitchen. Meal preparation is carried

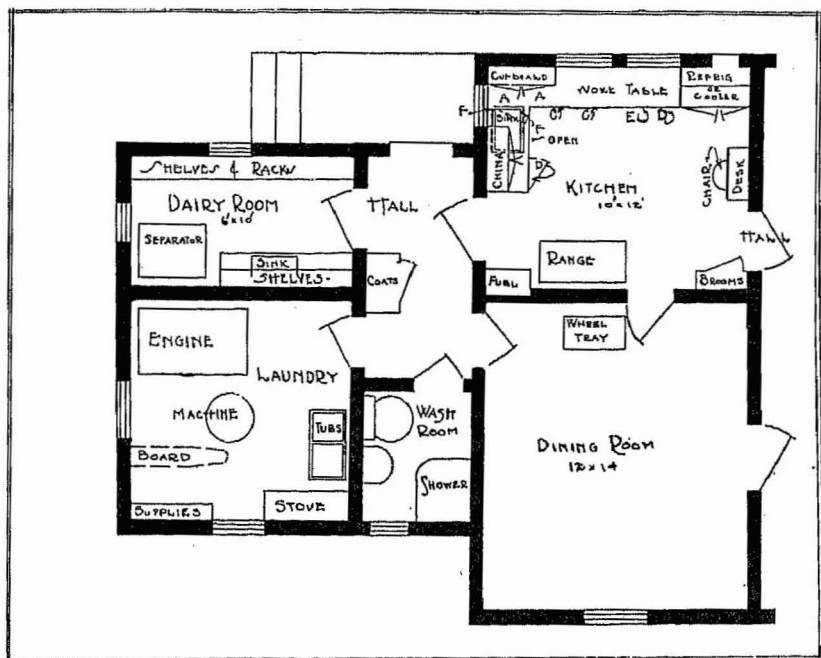


Fig. 6—This shows a farm house service unit good for a large ranch.

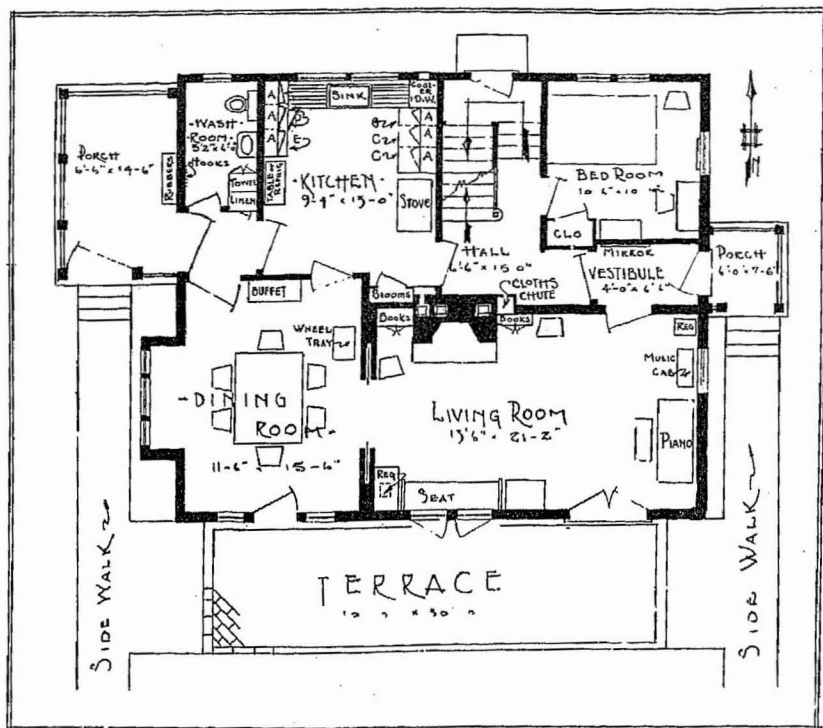


Fig. 7—A floor plan showing a kitchen in a two-story house.

on entirely on the right side of the sink. The bin next to the stove may be used for wood or kindling. The upper cupboard next to the stove holds stove supplies and utensils. The cupboard at the left of the sink holds dishes. The larger drawers in Unit G may hold bread and cake. If there is only a cold closet and no dumb waiter, then the refrigerator may be placed next to the dish cupboards. It may be replaced by a folding table in the winter.

The secret of step-saving arrangement of equipment lies in these three simple rules:

1—Large equipment such as cupboards, work table, stove, etc., should be so placed that work may progress in one direction.

2—Articles which are used together should be grouped together.

3—Articles which most often are used should be kept in the most convenient places.

A convenient kitchen may be transformed into a step-saving kitchen by the following of these three rules. In grouping the larger pieces of equipment shown in the floor plans that have been discussed, these rules have been followed.

It is just as important that the smaller utensils and supplies be arranged carefully. If the housekeeper, as she works, will apply the three rules given above to her tasks, she will discover many chances to save steps and energy. (See Note 3.)

The bread, bread board and bread knife may well be kept together, also the coffee, coffee pot and measuring spoon. The tea towels may be kept in the drawer at the left of the sink, the dish pan and dish drainer hanging below the sink or at the end of the table instead of in the pantry. The small pans and pie tins may be kept on a shallow shelf above the work table rather than in the deep cupboards below. The bread mixer, ice cream freezer, large roaster and the big kettles may be stored in the lower cupboards. Shallow shelves will hold the platters and big plates so they will not need to be placed on edge behind the piles of dishes. The exact place for each piece of equipment can be determined easily by noticing where one uses the articles most often. (See Note 4.)

Note 3—Mrs. Carl T. Rone of Worth County, Iowa, discovered that she was walking from her stove to her cabinet every time she wanted salt at the stove. A Montana woman realized that she was keeping her medicines, instead of flavoring extracts and such supplies, in her kitchen cabinet.

Note 4—Scientific experiments have proven that three-fourths of the steps taken in preparing three simple meals per day can be saved by having supplies and utensils grouped together conveniently. Mrs. J. R. Watson near Billings, Montana, says: "By wearing a pedometer before and after the kitchen contest I learned that I am saving one and one-half miles of walking each day in doing my regular kitchen tasks since the kitchen has been remodelled. What isn't in the head is in the heels." Mrs. Watson adds that she also saves one and one-half hours of time daily in her kitchen now.

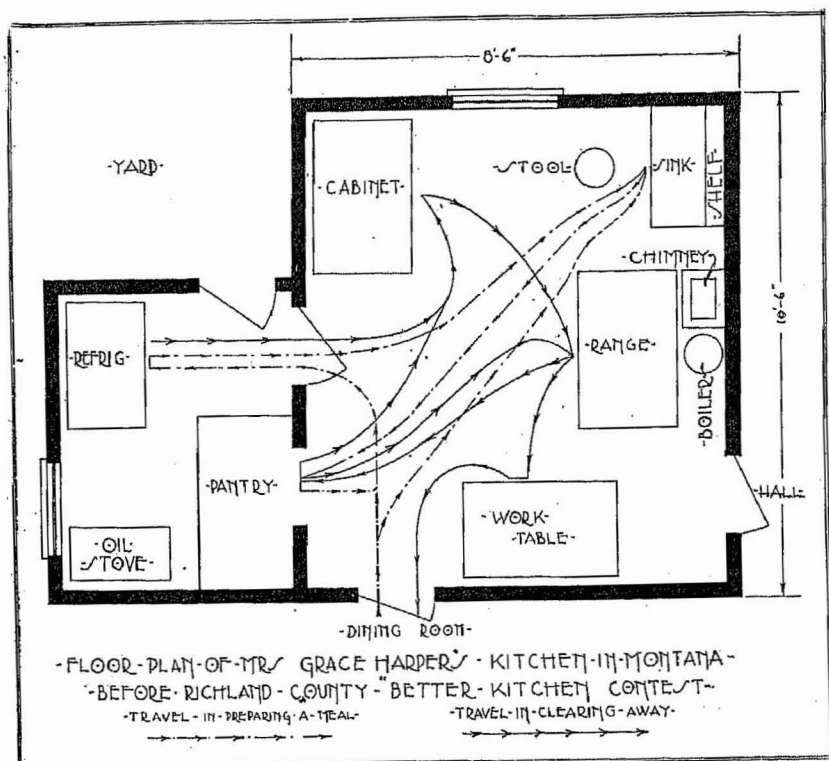


Fig. 8—A small, compact kitchen but not convenient for the clearing away of meals. (See also Fig. 9.)

A kitchen having the best labor-saving equipment and most expensive equipment available will not make an efficient kitchen if the equipment is poorly arranged.

An instance of arrangement that saves time and energy in the kitchen is shown in Figure 9, where, after rearranging the supplies and utensils in her kitchen cabinet and removing the dishes from the pantry, Mrs. Grace Harper, near Sidney, Montana, was able to move the refrigerator into the pantry. A small window was cut above the refrigerator. A portable cleaning closet was made to fit into the corner where the sink had been. A drop leaf shelf below the window gave space for an oil stove

in summer. A portable wrap closet was added on the enclosed porch. The door into the kitchen was hung from the other side and opened onto the porch, giving just room for an easy chair. The lines of travel indicate how many steps these changes are saving for the home-maker in this kitchen.

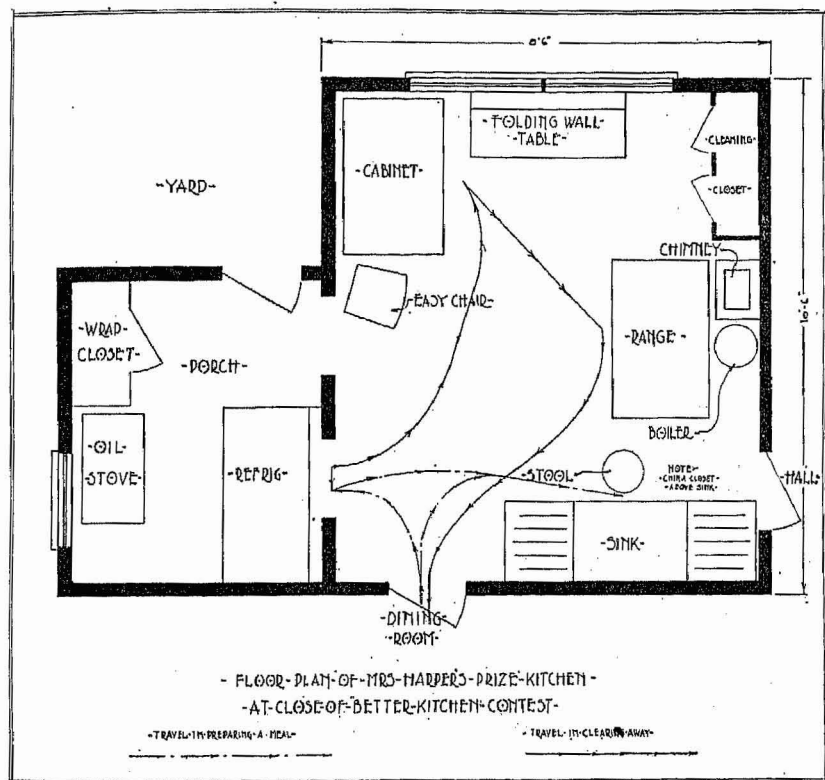


Fig. 9—By moving the sink from the further corner and placing it on the wall next to the dining room, adding two drainboards and adding a dish cupboard above it, clearing away becomes an easy task.

WHAT CAN BE DONE WITH THE LARGE KITCHEN?

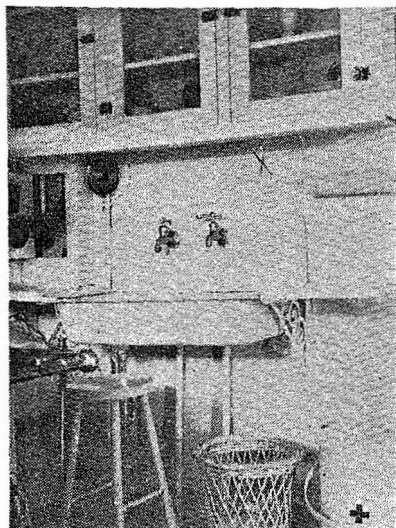


Fig. 10—A view of Mrs. Harper's sink. Since this is not her own home she also had the china cupboard made so it is removable. The small cabinet below holds sink equipment.

"A large, poorly arranged kitchen wastes as many steps as it would take to walk around the world once in six years."

In many kitchens the pieces of equipment are separated widely. The work in such a kitchen requires many more steps than should be necessary. The wide spaces between pieces of equipment may be caused by the location of doors and windows.

In cases where doors or windows are poorly located, it might be well to close them and to cut new doors or windows. Sometimes a door which is unnecessary may be permanently closed and a piece of equipment placed in front of it. In building onto a house, it is some-

times necessary to close up a window. This closed window might be made into a wall cupboard.

If the kitchen is too large, vacant spaces can be eliminated only by making it smaller. The smaller kitchen compels more compact grouping and compact grouping means a step-saving kitchen.

Making the Kitchen Smaller

A kitchen that is too large may be made smaller by one of these three methods:

1. **By grouping the kitchen equipment in one part of the kitchen.** While this method does not actually reduce the size of the kitchen, it accomplishes the same result through reducing the working area. This method is the one that can be used in improving the arrangement of most kitchens. The fact that a

kitchen is large does not mean that equipment must be scattered in all parts of the room. This method is especially adaptable to kitchens in which meals are served. The kitchen equipment can be grouped at one end of the room and the other end may serve as a dining room. (See Figs. 11 and 12.) Where there are two or more workers, it may be advisable to have the sink and work table combination, with rack or shelves for utensils and supplies above and between them, out in the room and away from the walls. It may be between wall cupboards on one side and the stove on the opposite or adjoining side.

2. **Make the kitchen smaller by partitions.** This is a good method to follow in reducing the size of an extremely large kitchen. That part of the original room not used for the new kitchen can be used for some other purpose, such as wash and wrap room, bedroom, laundry, dairy room, office or dining room.

3. **Build a new kitchen.** Sometimes it is cheaper to build a new kitchen than to remodel an old one, especially if there is need of an extra room. Changing the old kitchen into a laundry, wash room, bedroom, or dining room, and building a new kitchen, offers the best opportunity to plan a compact and convenient kitchen. Three exposures usually can be obtained, and windows can be placed so that light is thrown on all work surfaces. Kitchens of this type are shown in Figures 1 and 5.

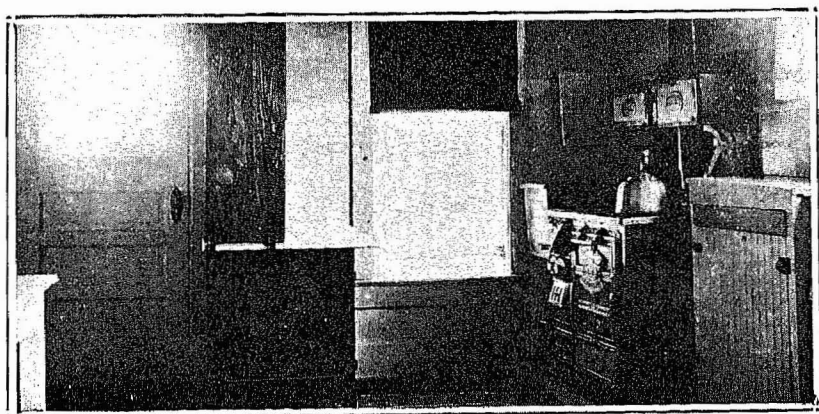


Fig. 11—Mrs. McIntyre of Yellowstone county made a convenient work corner by placing the end of her kitchen cabinet against the wall.

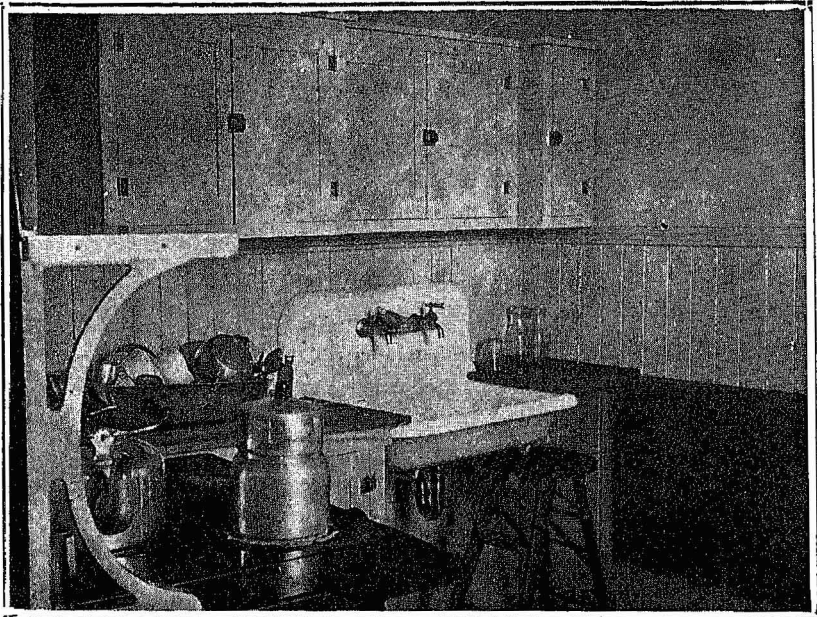


Fig. 12—Mrs. Charles Potter of Bozeman placed her range at right angles to the wall, and next to the sink and its cupboards, so that it is much more convenient than if it were against the wall.

Doors

Reduce the number of doors to two, if possible. One door should lead into the dining room and one into the back hall, from which the doors to the other rooms and basement may open.

There should be not more than four doors opening into the kitchen or there will not be room for continuous wall space for the convenient grouping of equipment. Two or three doors on one wall and one or both adjacent corner walls usually will provide for a compact arrangement of large equipment. Avoid having a door between the sink, stove and work space. The doors should be placed so that the lines of travel will not interfere with the working space. The back hall will prevent the kitchen from becoming a passageway to other parts of the house. (See Figs. 5, 6 and 7.) A swinging door that is equipped with door stops should be used between the kitchen and dining room. If the door leading to the dining room be placed near a corner

and is hung so as to swing toward the center of the room and not against the wall, there will be no direct view from the dining table into the kitchen or pantry. If a door opens into the kitchen it should be built from twelve to eighteen inches from the corner of the room, so as to leave wall space for shelves or a cupboard back of the open door, otherwise this wall space is wasted.

Where space is limited, doors opening into the kitchen may be hung to open out, thus giving more room in the kitchen. This was done in the kitchen of Mrs. Grace Harper of Richland County, Montana. (See Figs. 8 and 9.) Often the changing of the side from which the door is hinged gives an advantage in placing equipment.

WINDOWS AND LIGHTING

Windows—The windows should be placed so that the worker gets good light at the work table, sink and stove. In order to get light at the best angle and to prevent the worker from standing in her own light, the windows should be placed in at least two sides of the room.

A kitchen should have a total glass area in its windows, its outside door and transom, equal to at least one-fifth, or 20 per cent, of its floor area.

A kitchen window with double sash should have both sashes hung with pulleys so that they may be lowered and raised as shown in Figures 2 and 4, pages 13 and 14. The windows often are too low, making it impossible to place a sink or work table below them. They should be from 50 to 52 inches from the floor, but never so high that the worker can not look out of them when sitting. Sometimes one window may be placed low enough to permit the children to look out-of-doors. Windows above the dining table may be placed about 34 inches from the floor. In remodeling a kitchen the long vertical window may be turned to a horizontal position. It should be made to slide back at the sides for ventilation.

Lighting—The importance of an abundance of light and sun, for sanitary reasons, should not be overlooked. Also dark, gloomy kitchens may be transformed into cheerful work rooms by cut-

ting an additional window or putting a glass panel in the outside door. Wire glass may be used to reduce breakage and frosted or other translucent glass may be selected when it is desirable to cut off the view. Mrs. L. J. Crippen, near Lambert, Montana, says she would not take ten dollars for an additional window, which gives her good light at the stove.

If there is a pantry it should, by all means, have a window in it.

Light colored shades, instead of dark green ones, tend to lighten a room as well as to regulate the amount of light. (At least one window on the sunny side should be equipped with an adjustable shade, which can be raised or lowered as desired.)

Artificial Lighting—Artificial lighting should receive special attention, for during the winter months it is needed both morning and evening. Every effort should be made to devise an adequate system so that the worker will not need to strain her eyes and nerves because of insufficient light.

A good home lighting system is one of the desirable features that should be added to the farm home just as soon as finances will permit. Kerosene mantle lamps and gasoline lamps, which give light equal in intensity to a 40-candle power electric bulb, are used in many homes and are satisfactory. Lamps burning denatured alcohol are satisfactory, but are more expensive.

In addition to the general light of the kitchen, usually from the center of the room, there should be side lights at the left near the sink, the stove including the oven, the work table and shelves. Thus the worker does not stand in her own light. If kerosene lamps are used, they should have good burners and large wicks and be placed in brackets or on small shelves and have reflectors behind them to focus the light where needed. At least two usually are necessary. If one part of the kitchen is used as a dining room that, too, should be well lighted.

Ventilation and Heating

The home-maker needs adequate ventilation in the kitchen where she spends several hours each day. Stuffy rooms are fatiguing to work in and are sometimes the cause of headaches and colds. Windows on two sides should provide cross ventila-

tion. This is absolutely necessary to keep the kitchen well aired, free from odors at all times, and cool in summer. This sometimes can be secured by extending the kitchen wall beyond the outline of the rest of the house. Where this is impossible, a transom above the outside door will help greatly. One can not depend on a door for cross ventilation as opening it in the winter cools off the room too quickly and is apt to cause a draft. In cold weather good ventilation may be had by placing a hinged board, as long as the width of the window and any desired width, beneath the lower sash of the window, and shutting the window upon it. This arrangement will admit air between the two sashes and without a draft. A wooden framework covered with cotton cloth, similarly hinged, may be inserted in the same way. This permits good ventilation, without great loss of heat, yet does not produce a draft and keeps out dust or snow. These devices are especially desirable in the pantry window.

The temperature of the moist, still air of a kitchen is sometimes higher than that in the harvest field. Still air is much more unbearable than moving air. Where electricity is available, an electric fan placed in or near the window will keep the air moving and make the kitchen a more comfortable work room. Ventilation in winter is just as essential as in summer. By having doors and windows placed so as to give good cross ventilation, the temperature of the room is lowered by the natural motion of the air through the room.

All windows should open easily. One window opened from the top will let out hot air and another opened from the bottom will let in the cool air. It is not always possible to equip all windows with weights but inexpensive stops or catches can be put on easily. Ventilation is further aided by a hood placed over the range and connecting with an opening into a chimney or ventilating shaft. In this way odors, heat and steam are carried off. However, in the well planned home kitchen one can secure good ventilation without this hood.

Water Supply

"Please come and get a pail of water." Who has not heard it? Housekeepers are agreed that a supply of running hot and cold water is the greatest labor saver in the home. It is a good

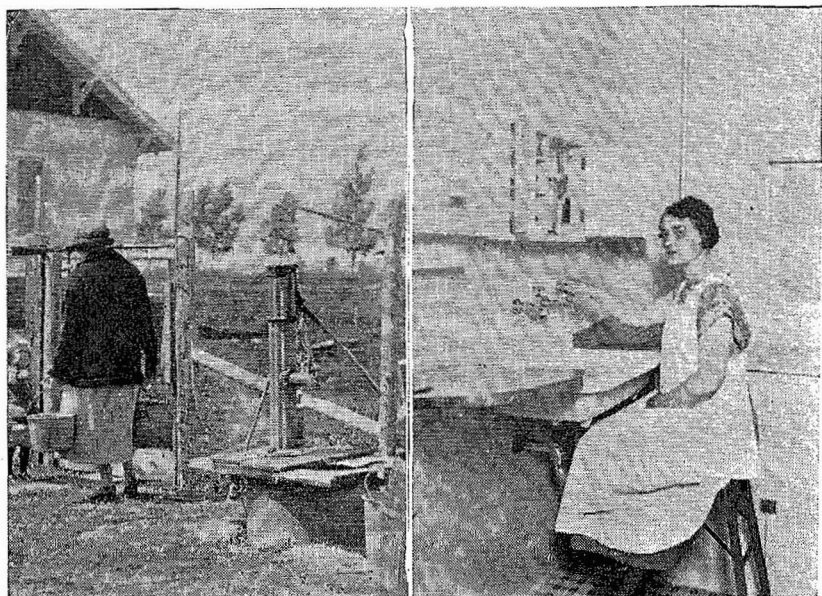


Fig. 13—Which of these two women will live the longer, get the greater joy out of living and do more for her family and her community?

investment. It saves time and energy for more profitable things, saves doctor's bill, the expense of extra help, and adds to the comfort, attractiveness and contentment of the home.

A sufficient amount of water makes work easier and permits more sanitary conditions in the home. If water is carried by hand, about six to eight gallons are used per person daily, but where there is a complete water system, between 20 and 30 gallons are used per person daily. (See Note 5.)

Very simple water systems which can be installed at low expense give good service until something better is possible.

Note 5—Where there is no running water in the kitchen the average housewife yearly carries more than 40 tons of water, travels 57 to 125 miles and spends 30 days (union time) in doing it. Isn't woman's work hard enough without putting this unnecessary burden upon her? It is a waste of time and strength for the housewife or husband to carry water. Should the woman do her work with the inefficient tools of 100 years ago? The man does not.

If the time and energy spent in carrying water could be spent in earning money, enough would soon be earned to pay for a water system.

By making use of idle or second hand barrels, tanks and pipe, a system of the kind shown in Figure 14 can be put in at very small expense. This system, including drains, has been installed in Montana homes for amounts ranging from \$1.79 to \$5.00 and \$5.74.

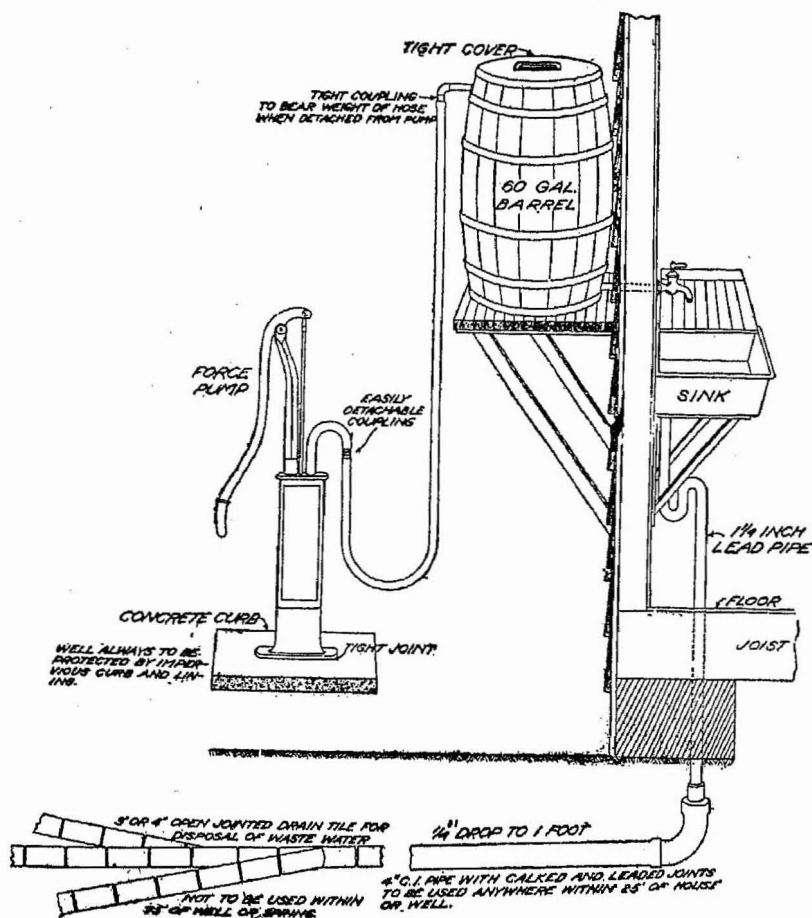


Fig. 14—A simple, inexpensive water system which is possible under most all conditions.

A house-side tank, which catches rain water, might be used instead of the barrel. The barrel may be filled with the hose or pipe attached to a force pump operated by windmill, engine or hand power. Even if it must be filled by hand, and even though it freezes in the winter, it is still very worth while.

A pitcher pump, if the well or cistern is not over 20 feet deep, or a small force pump for deeper wells, may be put in the kitchen. A new pitcher pump and sink, including 40 feet of pipe and fittings, can be installed for approximately \$25.

If one has a spring near by, a hydraulic ram may be used to force water into the house. A hydraulic ram requires but little attention and very little upkeep.

Cisterns are not used as often as they could be. If one does not have to hire labor they can be put down at comparatively little expense.

Even a wooden barrel or second hand hot water tank costing very little (50 cents to \$5.00) may be filled by a force pump and heated by the hot water front in the kitchen range. Mrs. W. Baxter, near Helena, Montana, had a galvanized tank made for hot water, the cost being \$7.50. It had a removable lid to permit filling by hand. Such a tank should have a faucet for drawing water from the tank. Where there is no means of having hot running water, there should be a reservoir attached to the range.

Where electric power from a power line or from an individual power plant is available in the home, the electrically-driven pump is a very desirable unit to add for the pressure water supply system.

Drainage

It is not always possible to have water piped into the house but almost always possible to have it drained out. A drain pipe leading to a gully, creek, or to the garden will carry off kitchen waste water. If the outlet can be on a bank or hillside, it may not even freeze in the winter if it is covered with straw. If available only in the summer, it is well worth having until a more permanent sewerage system can be afforded. A cesspool, which should be located so that it will not seep into the well,

may serve for several years in sandy soil. After they cease to function as cesspools they may be converted into septic tanks.

For houses equipped with a toilet, the concrete septic tank is more satisfactory than the cesspool. These are not so expensive if the labor of construction can be done without hired labor. A large wooden barrel may serve for the tank. In putting in a drain from the kitchen sink a grease trap, to prevent the clogging of the drain pipe, should be placed in the ground 18 inches outside the wall through which the waste water passes. This trap may be made of concrete, a barrel being used as a form. The outlet pipe is placed lower than the inlet pipe. The concrete barrel should have a removable cover to allow cleaning when required. A trap or U-shaped pipe should always be put in the drain pipe just below the sink.

For further information about sewage read, "The Septic Tank," Montana Experiment Station Bulletin No. 137, or Farmers' Bulletin No. 1227, "Sewage and Sewerage of Farm Homes." (See Note 6.)

Mrs. W. H. Wilson of Ballantine, Montana, prevented their home from burning through use of her home made hot and cold water system which, including the sink, cost only \$17.00. Her kitchen conveniences also saved \$120 in hired labor in one busy season.

One of the best results from hot and cold water and the drain for the kitchen, is that they lead to bathroom and toilet fixtures. Some farmers and their wives have been slow to realize how much these modern conveniences mean to themselves and their children in comfort and health and in contentment with farm life.

Walls and Ceilings

Rounded or curved instead of square corners for the kitchen walls make the cleaning much easier and the additional expense is slight. The rounded corners are made by bending latticed

Note 6—Occasional reference is made in this bulletin to the "Farmers' Bulletins." They are published by the United States Department of Agriculture and are sent free from Washington, D. C., on request. Give the number of the bulletin desired when you write. These bulletins also may be obtained from county agents or from the Extension Service at Bozeman.

metal lath to the desired curve and tacking it in the ordinary square corners. Plaster is applied in the usual way.

Finishes for walls and ceilings should be smooth and easily cleaned, as well as light and cheerful.

1. A smooth, fine grain, hard plaster which is given two or more coats of good glass paint or enamel flat paint is a good substitute for the more expensive tile. Do not mark it into brick or tile shape, as the markings collect dust. Avoid a whole room of white glossy finish, as it is too glaring, unless the room is poorly lighted. Painted walls are easier to clean if given a coat of clear waterproof varnish. Rough plastered walls should not be painted as they are too hard to wash. Cold water paints are not desirable as they can not be washed.

2. Oilcloth or cloth-back painted material, as Sanitas, is preferred by some to the painted walls. It is sanitary, easily washed, attractive, and may be had in different colors. If hung well and occasionally varnished it is durable. Twenty-five years of service is not unusual for this material. Select only small all-over designs in the figured material. The plain material is preferable, for unless varnished the design will wear off. Before putting it on new plaster walls or calcimined walls, apply a coat of glue sizing. If the walls are rough apply first a thin batter of glue sizing and plaster of Paris. When dry, sandpaper, then apply a heavy coat of hot glue sizing, put on the oilcloth, using a good paste as for wall paper, and add a little alum as an insecticide. On painted walls either remove the paint, sandpaper and size, or else use a solution of one quart of molasses to one gallon of warm water first. Always butt all seams and allow no edges to overlap.

While the initial cost of oilcloth is more than other finishes, eventually it is more economical because of its durability.

3. Varnished wall paper is less expensive but more temporary. If given a coat of clear varnish it will wear longer. Select small all-over designs of soft colors, or nearly plain. Ordinary wall paper should not be used as it can not be washed.

If oil paint or oilcloth is used up to the splash line (at least four and a half feet from the floor), the cold water paints often are used for the rest, but they require frequent renewing.

To cover water stains before recalcimining, shellac over them with shellac thinned with denatured alcohol, or with varnish thinned with turpentine.

Composition board such as Upson, plaster board and Sheet Rock sometimes are used for new walls or to refinish old ones. They give good service and should be applied in strips that will correspond in width and size on opposite walls. Wood strips may be used over the seams and finished the same color as the walls. Putty, especially prepared, may be used to fill cracks and make a smooth wall for finishing. Nail holes should be filled. Any of the above finishes may be used.

Wood wainscotings or walls are not sanitary as the cracks are difficult to clean.

Woodwork

The woodwork in the kitchen should be smooth and free from grooves and trimmings. Use rounded or curved instead of square corners. A baseboard with smooth and curved upper and lower edges is much easier to clean and to keep clean than is the ordinary baseboard. For the same reason a one-panel door is a great improvement over the doors commonly used. The kitchen woodwork needs more frequent cleaning than that in any other room.

Enameled woodwork as first choice and painted woodwork as second choice are probably the most satisfactory. White pine or birch are best for this finish. Yellow pine should be shellacked first, if white enamel is to be used, to prevent its turning the enamel yellow.

Pine, birch or beech may be finished with waterproof varnish over a light stain. Woodwork should not be dark.

Equipment and cupboards may be finished to match the woodwork. Paint or enamel finish is the most easily cleaned and best looking. Varnish is quite satisfactory if applied over a light stain or light paint.

Floors

The kitchen floor should be smooth, grease proof, easy to clean, resilient (easy to stand and walk on), durable and attractive. A wooden floor does not answer these requirements.

Linoleum is the best all-around kitchen floor covering and will last a lifetime, provided it be laid and cared for properly. But if it is merely "tacked down" it is about the worst, because it accumulates dirt and grease in the seams and the water, getting under it, soon causes it to crack and wear away. In choosing a new floor, good inlaid linoleum over a soft wood such as six-inch flooring, instead of the hardwood floor, is a wise choice.

In choosing linoleum, select a small all-over or plain pattern to fit into your plan for color scheme. In winter, before using, let it stand in the room until it reaches the room temperature. In laying it always obtain and follow the directions furnished by the dealer. Sometimes it is economy to have it laid by the dealer. A charge of \$1.00 per square yard usually is made. This includes the felt, paste and cement. Proper laying may add years to its length of service. Briefly: have the floor smooth and paste deadening felt (weight one and one-half pounds to the square yard) to the floor, using linoleum paste. It will require two gallons for every 100 square feet of linoleum. Drag a smooth-bottomed box full of bricks (as a substitute for the commercial steel roller) over the felt to smooth it out and make it adhere. Butt the edges of the linoleum tightly against each other if patterned. If plain, lap the strips an inch, then cut through both layers with a sharp knife to make a perfectly fitted joint. Then paste the linoleum to the felt, except three or four inches back from the edges and seams. Pull the weight over the linoleum, then lift the unpasted edges of the seams and thickly coat the felt on each side of the seam with waterproof cement. Do the same with the outer edges. It will take one quart of linoleum cement for each 100 square feet. Immediately afterward use the box of bricks, and also weight the seams and edges for two days. It is well worth the effort and expense to cement the linoleum.

If it can not be cemented lay the felt, then lay the linoleum temporarily and use it for two or three weeks before the final laying. Bring the edges closely together at the seams, fasten with brads and cover with strips of metal seam binding. Also cover the edges at doorways with metal edge binding. Leave a space of one-fourth to one-half inch next to the wall for expansion of the linoleum, and do not fasten it down. Replace

the quarter-round wood strips, fastening only to the wall. If fastened to the floor at the edges, the linoleum is not free to expand or contract. It is important to have the floor smooth. Building board may be used over rough floors. The felt not only smooths the floor but cares for some of the expansion and contraction of the wood underneath, thus helping to prevent buckling and cracking of the linoleum when it is not cemented. It also makes a softer floor.

After laying inlaid linoleum, scrub it with steaming hot water, wipe it dry and, while it is still warm, apply paste wax, rubbing it in well at once. Then rub in a second coat of wax.

Home Made Wax—Melt equal parts by weight of beeswax and turpentine over hot water and not near the fire. After the linoleum is wiped up each week with warm water (use no strong soap or cleanser) go over it with liquid wax, using a long handled waxing mop. Never use an oil mop on waxed linoleum.

For used inlaid linoleum which has not been kept waxed, use a mixture of one quart of light boiled linseed oil and one pound of floor-wax heated over warm water. When well mixed, apply with a cloth to the clean, dry linoleum and rub in well. The oil "feeds" the dry linoleum and the wax fills the pores. If too thick, thin with turpentine. After two hours wipe off the excess wax and polish with a dry cloth. Renew as needed with liquid wax.

Old worn off printed linoleum may be painted with good floor paint.

Wood floors soon deteriorate if the surface is not protected. Hardwood floors are expensive, not resilient, and absorb grease if not properly finished. Softwood floors soon splinter and wear away, absorb grease, and are hard to keep finished.

A waxed floor is a good choice, requiring simple but regular care to prevent its being worn noticeably. Have the floor scraped and sanded smooth; apply a paste filler for open grain woods (exception: use shellac for pitch pine) and then wax. Use liquid wax for weekly care. Use a plain dust mop for waxed floors, never an oiled mop.

Varnished finish may be used, but it requires regular upkeep. It should be renewed before it is badly worn. Three coats are required for a good job. Wash only with clear water and

apply furniture polish occasionally. It may be waxed, using but little wax at a time. If waxed, do not use an oily furniture polish or oil mop on it.

For oiled floors the following gives a satisfactory oil finish: Place two cups of raw linseed oil, one cup turpentine, and one-half of a small square of paraffin in a pan and heat well in another pan of hot water. Apply while warm with warm woolen cloths. Do not allow it to cool while applying. A warm day is preferable for this work. For convenience the cloths may be wound tightly on a mop stick. Renew two or three times a year. The wax helps to give a smooth finish. Wipe up with cold water.

Four parts of hot linseed oil and one of gasoline (mixed away from a fire) may be used in the same way. Give two applications. Wipe off the excess oil with a cloth. Excess oil causes dark, unsightly, dirty floors. Liquid wax is good to use on oiled floors.

If the floor is painted use only the best floor or deck paint over a smooth surface and apply three coats. An application of equal parts of linseed oil and turpentine makes the paint wear longer and saves work. Avoid bright yellow and also dingy drab colored paints. Get clean, clear, soft colors.

The upkeep of any finished wood floor is more than that of linoleum. Linoleum floors are labor savers:

Rubberoid roofing, painted, makes a cheap floor covering and is better than a rough wood floor.

Composition floors are too hard for the kitchen.

Mastic flooring can be mixed and laid by any one who can lay cement. Asphalt, which is the base of all mastic flooring, gives this flooring resilience not unlike linoleum. It comes in black, brown, red and buff. It is somewhat higher priced than inlaid linoleum but has the advantage of being used in an unbroken surface to form the baseboard as well as the floor covering.

(Never scrub any finish with strong soaps or powders.)

For further information on floors see Farmers' Bulletin No. 1219, "Floors and Floor Coverings," also "Hardwood Floors" and "Softwood Floors," from the Home Economics Extension Service, Bozeman, Montana.

Height of Work Surfaces

Would you care to save about 40 per cent of your energy when working at the table, sink, stove, ironing board, or wash tub? Then have the heights of this equipment adjusted to suit your height. Many women have tired backs or round shoulders from working while sitting or standing before work surfaces that are too low (usually) or too high.

To determine the proper height for work table top:

1. Stand erect before the table and, without stooping but keeping the arms straight, place the hands so that the palms are parallel with the table top. The table is the proper height when the palms can be laid flat on the table without stooping or without bending the arms. If the palms of the hands are above the table, say two inches, then the table should be raised two inches; or

2. Have the table top eight inches below the elbows when the arm is bent at right angles.

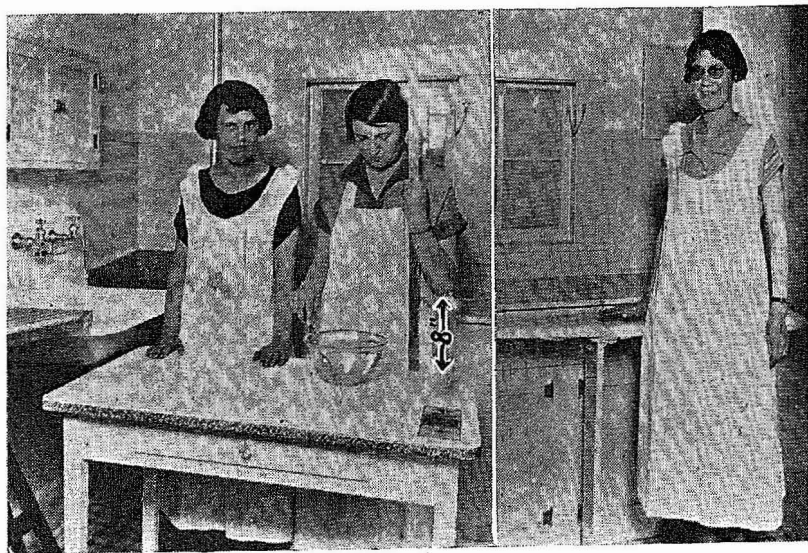


Fig. 15—Proper height for work table, sink and ironing board.

These tests give good heights for working surfaces used for work which calls for forearm strength, as in mixing, kneading, or stirring, and where there must be, in consequence, a leverage from the elbow. This is also true for setting a hand coffee mill.

The other type of work, which may be called shoulder or upper arm work, as the cutting of bread or washing of dishes, may be done well on a higher surface, approximately six to eight inches, or not higher than the elbow. The kitchen cabinet may provide working surface of one height while a table or sink and drainboards (or counter) may furnish the other working height.

To raise table heights, add ball-bearing castors, attach small blocks to the bottom of the table legs, or add new legs. A new top can be attached to the table and the old top used for a shelf, being careful to allow space between for cleaning. (This is shown in Fig. 27.) One kitchen cabinet has sets of detachable legs of different heights so that the height of the cabinet may be adjusted to the height of the worker. The plans of the mixing surface of any built-in cupboard should be altered as needed to suit the height of the worker. (See Note 7.)

To lower table heights, saw off legs and replace castors.

The sink should be placed so that the bottom of it is on the level with the work table top, which is of proper height. Insist that this be done. It will bring the drainboards or counters none too high, as only the shoulder type of work is done there. It has been shown that a distance of 35 inches from the floor to the bottom of the sink will be convenient to workers who are from five feet to five feet six inches in height. Therefore, 34 inches is as low as the bottom of the sink can be placed and still enable the worker to stand straight with no strain on the muscles of the back. The cost of raising it to the proper height may be reckoned as an investment even for a renter. Sinks may be obtained with legs which may be adjusted to different heights. To lengthen sink legs, use plain metal piping, painted and enameled to match the legs. If the sink is too low and can not be changed, a pan or rack may be used under the pans at the sink.

Note 7—It is well worth the effort necessary to make the work table the proper height. Mrs. J. R. Watson, near Billings, Montana, says she has not had a backache since her table was raised to the right height.

If the sink is part of a built-in cabinet, then the top of the sink necessarily will be on the level with the table, making the sink too low when standing at work. If the sink is thus set too low, one should always sit at work in front of the sink. However, if one wishes the sink set in the counter and high enough for standing at work, then the working surface for mixing at the right should be on the level with the bottom of the sink, while that at the right of the sink will be level with the top of the sink. This will give an uneven working surface line but will answer the purpose well.

The height of the ironing board should be about one inch lower than the table height for forearm strength. This allows for pressure when desired.

The height of the top edge of the wash tubs (even for rinsing) should be about five inches higher than the table height for forearm strength. This allows one to bend easily and at the hips only. Many round shoulders and backaches are caused by having the benches for the wash tubs entirely too low. Stationary tubs should be set carefully at right heights. Forty inches from the top edge is a good general height.

The stove should be about the same height as the work table. A new base (closed in) may be added to raise low stoves. It may be made at home by setting legs of the stove up on bricks and then building down to the floor with heavy zinc.

“Raise your kitchen furniture and lower your percentage of aches and pains. Conserve energy and improve your health.”

STORAGE EQUIPMENT

Built-in cupboards planned and placed carefully, as shown in Figures 16 and 17 show different storage and work units which may be combined to give any desired arrangement. Any plan should be adapted to individual needs.

Units A, A-1 and B—Upper Cupboards

They should be made to extend to the ceiling, doing away with a “catch-all” and dust catcher. Unit B has a single, large door which might be used where the ceiling is low. Unit A and A-1 have two smaller doors and should be used where the ceiling

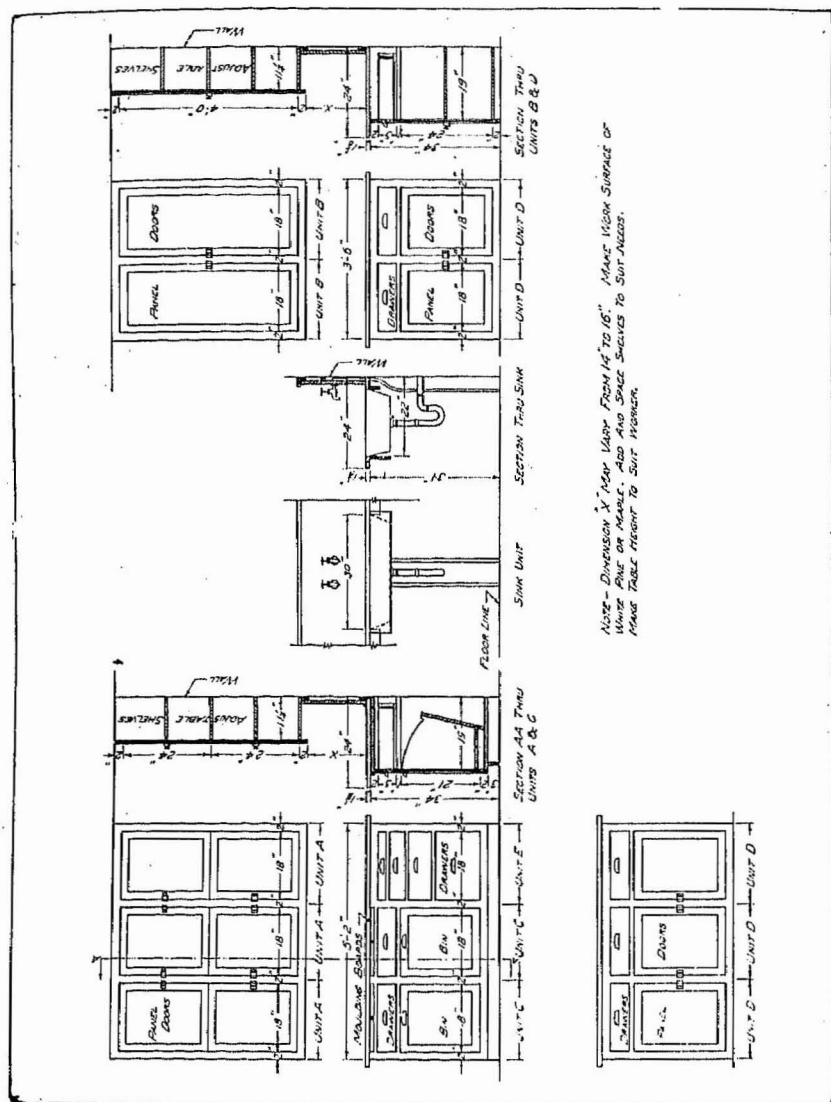


Fig. 16—Working drawings of units AA, B, C, D, E and sink unit of built-in kitchen equipment.

is of normal or unusual height. The upper section, or shelves, should be used for things which are needed only occasionally. Cupboard space used every day should not be more than six feet from the floor.

Shelves shown in Figures 5, 16, and 17, are adjustable. They should be placed just far enough apart to accommodate the articles to be kept on them. The distance between shelves usually varies from four to twelve inches. Often the upper half of the space between shelves is wasted. The shelves should be spaced carefully and in consideration of the articles to be stored.

Make the shelves just wide enough to hold one row of the articles to be stored on them, provided there is adequate cupboard space. This makes them more accessible and makes it unnecessary to reach behind things or to "hunt" for articles. Shelves four inches wide will hold fruit jars. The upper cupboard section never need be more than 10 to 12 inches wide or else it creates an awkward, inconvenient space on the work surface under the cupboard. If shelves which are wide and far apart can not be adjusted, then trays or shallow boxes are useful to hold a number of small articles or bottles. Narrow shelves with rims or racks may be attached to the cupboard doors, or hooks placed for egg beaters, spoons, etc., on the inside of doors that open outward. In either case the shelves should be made narrower than the width of the cupboard so that there will be room for shelves, racks, or articles when the door is closed.

If a wide door, opening out into the room from the side, is in the way, then smaller double doors may be used. Doors sliding to the side are convenient. However, doors for the lower section of these upper cupboards, which are adjusted with rope and pulleys like windows and which slide upward, are very convenient. The lower cupboard section would need to be built out enough to allow room for the lower doors to slide in front of the upper ones. Wood doors are preferable to glass doors for kitchen cupboards. Where any kind of doors are impractical, then light colored washable window shades may be used.

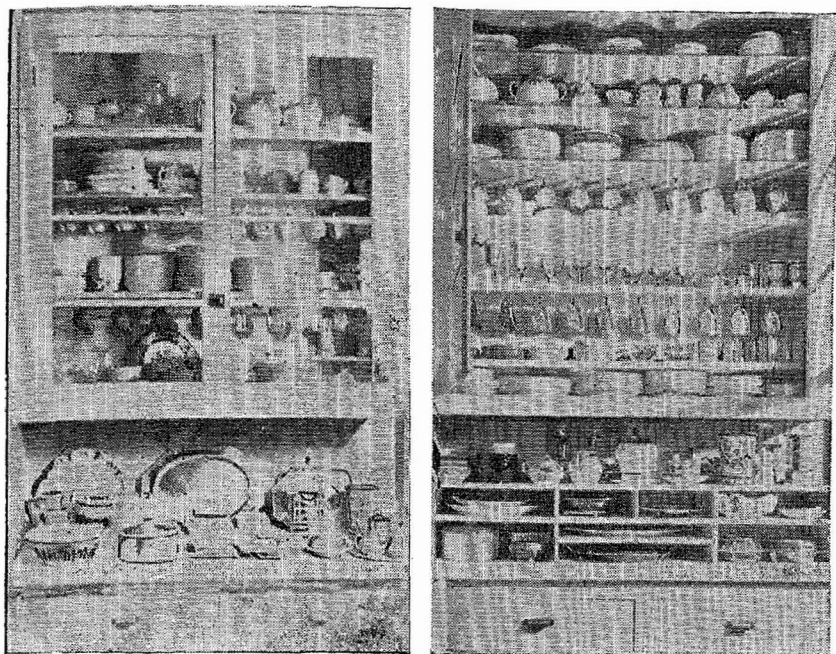


Fig. 18—The cupboard (left) as usually seen, and (right) showing the storage space doubled.

The upper cupboards should be placed from 14 to 16 inches above the work surface (as shown in Fig. 16) in order to reach the farther edge of the work table easily, and prevent a "catch-all." For the same reasons, working surfaces or counters should never be too wide. From 22 to 24 inches is sufficiently wide.

The original cupboard shown in Figure 18 has the usual waste of space, because shelves are placed too far apart. The open show place below is not desirable. Storage space was more than doubled by rearranging and by the addition of shelves. Three new shelves, four inches narrower than the old ones, were added and they were placed four to six inches apart. The dishes most frequently used were placed in the lower part of the cup-

board. Removable compartments for easy cleaning are to hold certain platters and dishes.

Many cupboards need to be rearranged similarly, not only increasing storage space, but making the supplies or utensils more accessible.

Unit C—Bin Units

This unit has a work surface, a molding board, a drawer, and a bin for flour, sugar, or potatoes. Drawers should operate on guides to prevent binding when pushed in or pulled out. It is good construction to have a stop to prevent the drawer from going back farther than flush with the face of the unit. Bins should be made removable for cleaning, and lined with tin or zinc to be vermin proof. Several of these units built together with Unit E provide an excellent work table, especially since they have toe space at the floor. This toe space is two inches wide and three inches high. This space allows room for the toes so that one can stand comfortably in front of the mixing surface. This unit is built on the floor and against the wall, as are also Units D, E, F, and G.

Unit D—Storage Cupboard

This unit is a cupboard for large pots and pans. It has a work surface, a drawer, and a cupboard with a hinged door below. Racks for lids and tins may be made on the inside of the door, narrowing the shelf accordingly. Bins or shelves with rounded corners and rims also may be built on the inside of the door so that when the door is opened the supplies or utensils are brought out into view and are reached easily. All of the lower units should be built so that the lower shelf or drawer is four inches or even more from the floor.

Unit E—Drawer Unit

This is a unit of drawers, with toe space at the floor, to be used in combination with bin Unit C. The small drawer is for kitchen knives, forks, or spoons. Sharp knives should be placed in grooves or in a rack built into the drawer to prevent

edges being blunted. Drawers in the lower half of the cupboards are more accessible than deep shelves since they can be pulled out and the contents seen without stooping. Drawers of different depths should provide for certain utensils or supplies. Removable partitions should be made to separate equipment. They then can be taken out for easy cleaning.

Sink Unit

An excellent arrangement can be made by building this unit between other units. This is a flat rimmed, enameled sink, 20x30 inches in size, with back and drainboards of maple or white pine. The drainboard is usually the top of some other unit. Of course, enameled iron backs and drainboards are to be preferred, but the cost is greater.

Unit F—Lower Cupboard Unit

This unit is a cupboard with a hinged door. It contains no drawer as does Unit D. It is especially good to use in a corner where the sink and drainboards may be built out in front of it, as in Figure 1. If the middle shelf be omitted, the dish drainer and the dishpan may be hung in it; or they may be more conveniently hung on the inside of the door, provided the shelf is made narrow enough so there will be room.

Unit G—Drawer Unit

This is a unit of drawers. It differs from Unit E in that it has no toe space. It should be used in combination with Units D and F. For most kitchen purposes shallow drawers are better than deep ones, because the contents require less handling. The lower drawer may be lined with tin and used for a bread or cake box. The next two smaller ones might be combined into one larger drawer and similarly used if more room is needed.

Dumb-Waiter Unit

This dumb-waiter is constructed as a part of the built-in equipment. The dumb-waiter saves many steps between the kitchen and basement. In the summer time the waiter is sent down to the cellar or, even better, run on down below the cellar floor into a pit with cemented sides, or into a cold well.

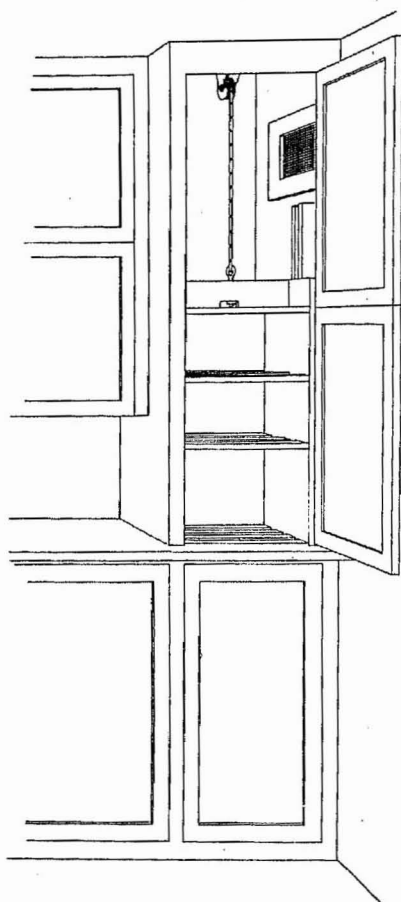


Fig. 19—A kitchen view of the dumb-waiter.

Where there is no cellar the pit alone may be used. In either case, good circulation should be provided. A pipe leading from the bottom of the pit up to the outside, and the opening in the outside wall near the top of the air shaft, will provide good ventilation. In the winter cold air can be admitted into the dumb-waiter compartment through the openings in the wall. An excellent cold closet is thus provided. (See Fig. 19, for drawings of the dumb-waiter.)

Commercial Cabinets and Storage Units

Kitchen cabinets which have many conveniences, such as the tilting flour bin, bread box, sliding bread board, legs of different heights, and extension drawers, may be purchased. Both wood and metal are found in well made models. They usually are not large enough, however, to hold all the supplies and utensils used

in cooking. However, extra storage units for supplies, dishes, etc., can be bought so that one may have at hand a sufficient storage space for all the necessary supplies and tools. Or one may purchase the cabinet and then build the other cupboards, following the general design of the cabinet. Sometimes a cabinet can be bought cheaper than it can be built with hired help.

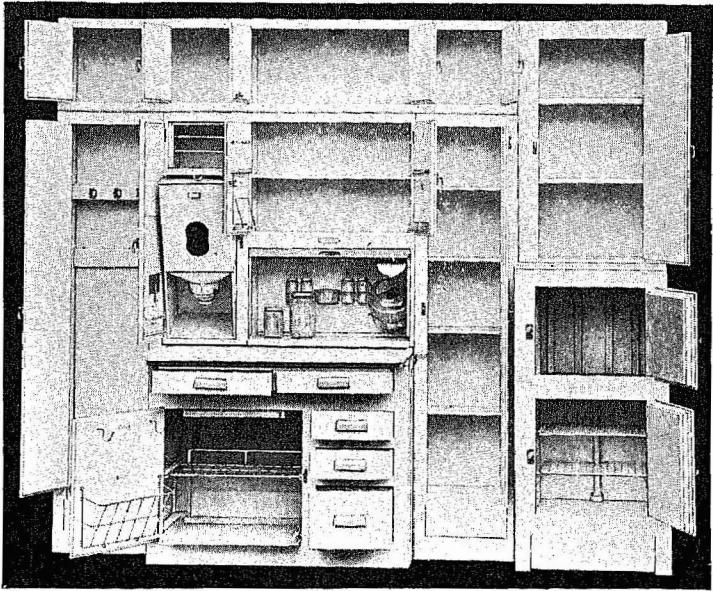


Fig. 20—A commercial cabinet built to the floor.

The advantage of this portable storage system in a rented house is obvious, because the units need not be attached to the wall and may be moved to another home.

Sink Cabinet

A cabinet for holding sink and dish washing supplies and tools should be built above or near the sink. It may be made in size and shape to fit the space available. The one shown in Figure 13 is five inches by 16 inches by 24 inches. Shelves in one side, spaced at four inches and five inches and seven inches apart, hold articles of different sizes. The other side is left open and hooks on which to hang brushes are put in under the top. There are screened ventilating holes on either side. If there is no room for the cabinet, a section of a nearby cupboard may be used for this purpose (as in Fig. 1). A shelf above the sink will serve to keep articles off the drainboards or counters.

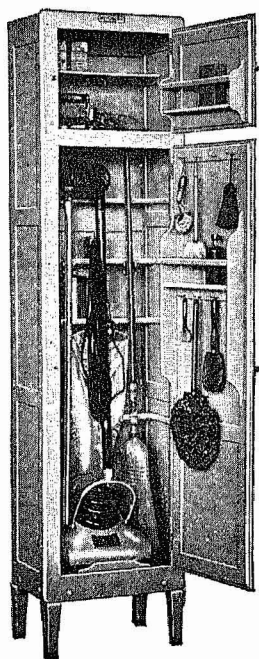


Fig. 21—A broom unit or cleaning closet keeps equipment together and out of sight.

Broom Unit or Cleaning Closet

This may be commercial or home made. It should have a shelf in the top to hold cleaning supplies and hooks, on the under side of the shelf, on which to hang brooms, mops, and brushes. It should be built deep enough to hold a pail 12 inches by 18 inches, and as wide as desired (one and one-half feet to three feet), and at least six and one-half feet high, or to the ceiling. The floor should be four to six inches above the main floor. It is convenient in the hall or on an enclosed porch, although it may be in the kitchen but apart from the food preparation units.

Closet for Wraps and Rubbers

This closet may be built any size desired. A suggested size is at least six and one-half feet high, 18 inches deep, and three and one-fourth feet wide. It should have a shelf in the top, with hooks for hats, or a pole under it for wraps. A shelf, nine by twelve inches from the bottom, is a convenience for rubbers. The floor should be four to six inches above the main floor. It should have lower hooks and hangers where the children may hang their wraps. The hall is the best place for this closet. If there is no hall, then the closet might be built unattached to the wall and on rollers so that it could be kept on the porch in summer and brought inside in the winter.

A shelf made of slats on the porch, or just inside the outside door, keeps rubbers and overshoes off the floor and leaves it free for easy cleaning.

Business Equipment

A shelf or drawer, used for the cook book or recipe file, should be near the work table. A spindle for bills and slips may

be on the inside of the cabinet or its door and a pad of paper with attached pencils is handy on the end of the cabinet. A small table under a shelf, or a small desk, sometimes may be provided in the kitchen.

Tools

A set of tools, including hammer, pliers, screw driver, nails, etc., needed for simple repairs, should be kept in a drawer or may be placed in a fitted case of leather or heavy cloth on the inside of a cupboard door.

Cool Storage Equipment

A Cold Closet

Some form of cool or cold storage is necessary in every kitchen. This is a closed-off section of a cupboard, having one side or its back to the outside wall or porch wall and preferably on the north. (East and then west are next in choice.) Openings through the wall to the outside, at the top and at the bottom, provide ventilation. Shelves should be made of narrow boards or heavy wire netting with spaces between to permit air circulation. These ventilators resemble a box about 4 inches by 5 inches by 9 inches, which is set into the wall opening of the same size.

COLD CLOSET VENTILATOR

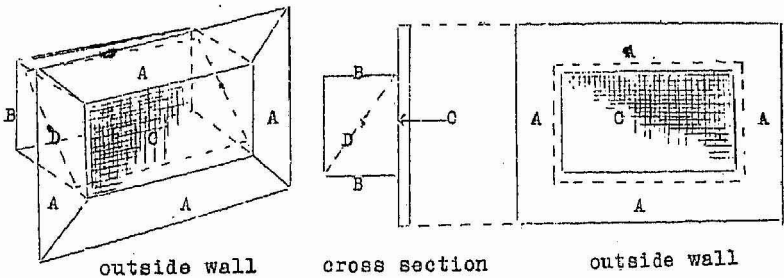


Fig. 22--A ventilator placed in the wall of a cold closet.

In the foregoing diagrams A.A.A.A. represents the outside casing around the ventilator. B is the ventilator box; D is the movable board or shutter to close the ventilator when desired; and C is the screen over the ventilator to keep out flies. Use three-fourths inch lumber to make the box. B.B. should be just deep enough to extend through the wall from the outside, flush with the inside of the wall. Board D is hinged on a nail in the middle, fastened to the ends of the box, so that it can be pushed open or shut. After making box (B.B.) the size desired, nail on screen wire. Then nail casings A.A.A.A. over screen flush with inside of box. Then slip D into box, drive nails so it will rotate, and the box is complete. Two boxes, one at the top and one at the bottom of the closet, provide circulation. Shelves should have open spaces to allow air to circulate from the top to the bottom.

In the summer, muslin may be tacked over the screen on the outside to keep out dust. In the winter, the shutter may be closed to prevent freezing of food.

These cold closets give good service, especially in the spring and fall, and provide a ventilated place for storage of food at all times. They are especially recommended for Montana with its cool nights.

By having the ventilators similarly located for the dumb-waiter it may be used as a cold closet in winter and until it is hot enough to require lowering it into the cellar or pit.

A Cold Window Box

This is made by fastening a box onto the outside lower half of a window. (Pictures and directions for making the box are found in the Farmers' Bulletin, "Farm Home Conveniences," No. 927.) Special precaution should be taken to fit the box tightly in place to keep out dirt. However, they are not used so well in the summer.

Ice

In many sections of the state an ice supply may be stored with little effort. (See Farmers' Bulletin No. 1078, "Harvesting and Storing Ice on the Farm.")

Commercial Refrigerators—Selection

In selecting a refrigerator choose the solid, substantial type with plain sides and doors, neat and well made hardware and self-closing locks. The seamless one-piece porcelain is preferable, though it is the most expensive. Be sure that the insulation is of the best. The space between the metal lining and the wooden walls should measure not less than three inches and should contain some insulating material, such as felt, mineral wool or vegetable fiber. In some refrigerators there are only a few layers of paper and "dead air" space. This type of refrigerator should be avoided. When buying, insist on seeing a section of the wall or a picture of it. Do not buy a box that contains less than three inches of good insulation. Money invested in insulation will be returned many times in the saving of ice. A good refrigerator, with careful use, should maintain a temperature of 45 degrees Fahrenheit. To be efficient it should be not higher than 50 degrees Fahrenheit.

There are many satisfactory movable ice boxes but a built-in refrigerator, arranged for when the kitchen is planned, is best. This should have an opening in the back or in the end for outside icing. The refrigerator may be built into the wall, making the inside doors come flush with the wall (as shown in Figs. 3 and 4) or it may be set in the kitchen and have a corresponding opening in the house wall. In the latter case the refrigerator must fit tightly against the wall or else cold air will come into the house in severe weather. The built-in refrigerator prevents the soiling of the kitchen floor when the ice box is filled. It may also be filled easily if the family is away. It serves as a cold closet in the winter when the outside icing door is left ajar.

The size of the refrigerator will depend upon the size of the family and the amount of food which must be stored. Many refrigerators are entirely too small. Seventy-five pound capacity is good for a family of two or three, and 100 to 125 pound capacity is good for a family of four or five. If quantities of cream and butter are to be kept in it, it should be larger. The top icer is satisfactory for a small box, but the side icer is bet-

ter for the larger box as it provides better circulation, giving a more even temperature and providing a better placement of food.

If possible, have the refrigerator drain connected to the main drain or extending out of doors onto a flower bed or onto the lawn.

It is economy to keep the ice compartment full. Do not wrap the ice in cloths or paper as it interferes with the melting of the ice and with circulation of air, both of which are necessary to keep the refrigerator cold. Do not place food next to the ice. To save ice avoid frequent and lengthy opening of the refrigerator doors.

A well constructed home made ice box will keep ice well. It may be made according to directions for making the fireless cooker. It should be carefully constructed.

Electric and gas refrigerators are the most satisfactory equipment from the standpoint of ease of operation and temperatures maintained. The prices are still prohibitive for many people. There are other satisfactory refrigerators on the market operated by heat, using gasoline or kerosene. Ice machines operated by heat, burning any kind of fuel, are used to cool storage rooms. The cost of this method of cooling is too great for many homes but is well worth planning for in a new home where finances will permit.

The choice of any refrigeration should be made on a basis of efficiency guaranteed by the manufacturers or as shown by reliable testing institutes or research laboratories.

The iceless refrigerator works very well in Montana due to the dry atmosphere. Under favorable conditions a temperature of 50 degrees may be obtained. It should be kept in a shady, breezy place, on a well ventilated porch or on the shady side of the house, with protection built out over the top. Directions for making are found in Farmers' Bulletin No. 927.

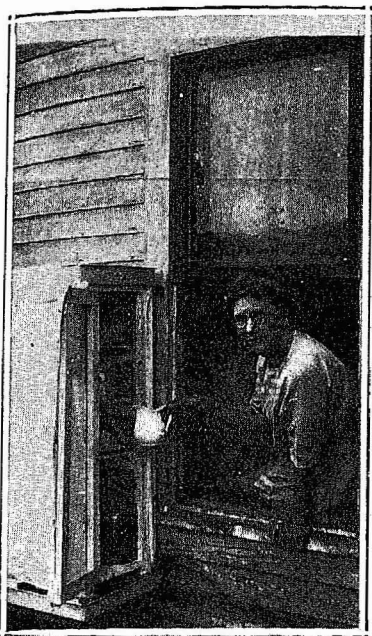


Fig. 23—An iceless refrigerator placed to save steps.

Mrs. Abeline of Richland County believes in conveniences. The proper placing of her iceless refrigerator (shown in Fig. 23) saves a trip around the house. The screening of the upper half of the window assures kitchen ventilation, and is managed easily. It saves trips to the cellar or the cave.

By making use of the dumbwaiter, cold closet, and cold window box, and some kind of refrigerator for storing food which can not be kept in a warm kitchen, one does not need the old-fashioned food pantry which caused so many steps.

OTHER EQUIPMENT

General Pointers About Equipment

Men are interested in having good tools in the home, but the women should not wait for them to make the first move. This is the woman's responsibility as manager of her home and her workshop.

First—Get rid of poor tools. Mend broken ones or discard them; for example, the teakettle or coffee pot without a knob, the broken handle on the flour sifter, the jerky egg beater, the broken stove lifter, the dull knife, or the bend in the bread box lid.

Second—Decide what you need before buying, then in selecting equipment consider:

1. Construction—

Is it well made and of the proper kind of material?

Will it be easy to repair and keep clean?

Every article should do many times more work than is required to keep it clean.

2. Convenience and comfort in use—
Is it comfortable and convenient as to shape, material and number of parts?
How much does its use tire you?
3. Results—
In materials used? Time saved? Labor saved?
Thoroughly test article after learning how to use it correctly.
4. Economy—
The number of times the article can be used, and not its initial cost, should be the basis for purchase. For example, the money spent for a large roaster, used only a few times a year, might be spent better for a good double boiler and sharp knives which could be used several times a day.

The strength and life of the home-maker, and investment in the lives of the children, are all important factors to keep in mind.

Third—Get only what is really needed. Do not be over-persuaded at fairs or by agents. It is better to have a few good utensils and use them for various purposes than to have the cupboards crowded with utensils that are used only occasionally.

Stoves

Select the range best suited to available fuel supply and to the size of the family. Choose one which has an established reputation to assure satisfactory and lengthy service and ability to replace parts when needed. Other points to look for are: plain design (no fancy trimmings which are hard to clean); a ground polished top, which is kept clean with soap and water; a high oven (a convenient back saver); a warming oven; an oven thermometer or heat indicator; water front attachment; height suited to the worker.

The coal and wood range may have an ash chute attached, which carries the ashes directly to the basement. A metal hood opening into a flue over the range carries off steam, odors and

unnecessary heat from cooking, besides keeping smoke from settling on the ceiling and walls.

Modern electric ranges, gas ranges, and electric fireless cookers have heat regulators, automatic clock devices, and other conveniences.

In a small kitchen the combination type of stove is desirable. Coal and gas, coal and electricity, and coal and oil combinations are available. Oil burners which may be placed in any stove can be bought for \$15 to \$30. Both wick and wickless types of kerosene stoves have been approved. Either kind requires regularly a few minutes each day to keep them in good condition. In buying a wickless stove be sure it can be installed on a level floor so that the burners are fed evenly, as the oil is fed to the burners by gravity.

Gasoline and gas stoves also give good service. Some of them may be purchased with the closed-in cupboard space for kettles below the burners. Any stove should be placed far enough from the wall so that the floor behind it may be cleaned easily. In winter when the oil stove is not in use, a wide flat board finished like a table top may be placed over it, and used for additional table surface.

Where space is needed a kerosene or gasoline stove might be placed on a wall shelf or brackets, leaving room below for the fireless cooker or fuel box. This also leaves the floor space free for easy cleaning.

Some stove, other than the coal and wood range, is a necessity for summer use. If the house is furnace heated then an oil or gasoline range may be used. This saves time and labor in cleaning.

The fuel supply should not be far from the kitchen. The wood or coal shed may well be built near the house. Enough pails or bins should be at hand to hold one day's supply of fuel. If the wood box or coal bin can be placed conveniently on an outside wall, then it may be filled from the outside if built as shown in Figure 24. The young son or even the men will take delight in keeping this box filled.

The wood box shown in Figure 25 can be made easily by using 2x2 lumber for the legs and cheap flooring for the sides. It is raised 10 inches or 12 inches from the floor for conven-

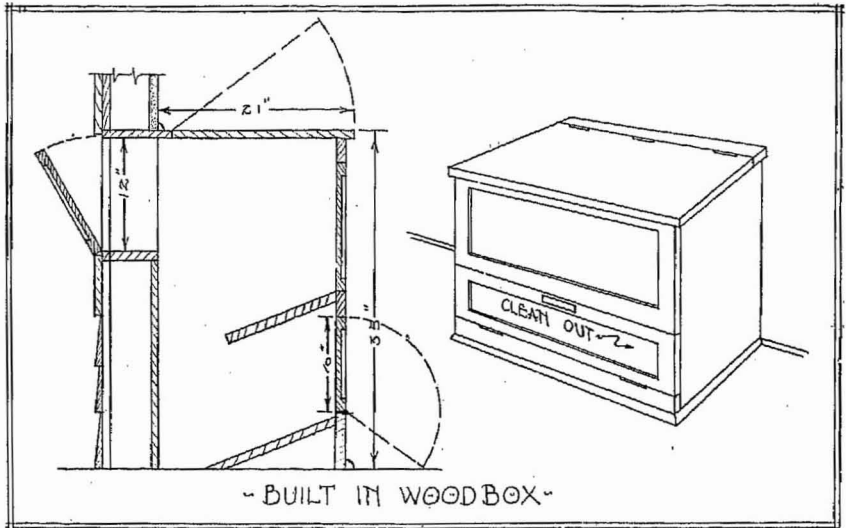


Fig. 24—A built-in wood box.

ience in reaching for the wood. Any size box may be made. Figure 25 shows a box 17x36x24 inches. The lid is desirable. A shelf eight inches wide may be placed on the back, five or six inches under the top, to hold stone brushes or clothes or

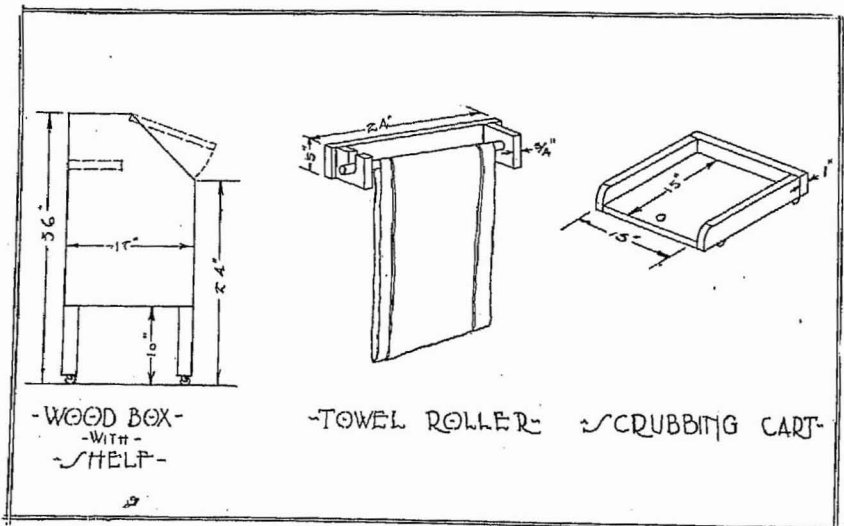


Fig. 25—A portable wood box, towel roller and scrubbing cart.

even the men's mittens. The box should be put on ball-bearing casters so that it may be moved easily for cleaning or rolled to the door for filling. The fuel box should be painted. An end bin in a built-in cupboard, if near the stove, may be used for fuel and kindling, as shown in Figure 7.

Where wood or coal is not available free or at a moderate price, coal oil will be a cheap fuel, cleaner, and more convenient. One woman in northern Montana uses a coal oil burner in her kitchen range the year around.

The Work Table

Working space never should be less than six square feet. This is provided usually where there is built-in equipment.

Old cabinets which have the top with hinged doors setting down on the table space may have the tops raised or fastened to the wall above, leaving the whole working surface free and with no interference from the doors, so they open out above the working surface. Any portable table should have ball-bearing casters, making it doubly useful. (See Fig. 15 for height of working table.) A kitchen table should have a shallow drawer for small utensils. Where storage space is limited the table should have drawers, mixing boards, and bins. Such a table, with drop leaves, may be used as a breakfast table. (See Table 4 in Fig. 26.)

A work table or kitchen cabinet space needs to be supplemented with another small table or a shelf.

A folding wall table (see Fig. 26) may be used as a breakfast table when space is limited in the kitchen. If it is to be used for a work table then it should be built the right height for the worker. When not in use it can be folded down against the wall.

For the top of the table, glue or fasten together enough one-inch boards to make a top 28x48 inches or any other convenient size. Fit on a strip two inches wide around the edge. On the under side and between the side strips fit an inch board, eight inches wide. Take a board six inches wide on one end and three inches wide on the other for the legs. Legs should be 36 inches long. Fasten to the boards, which are eight inches

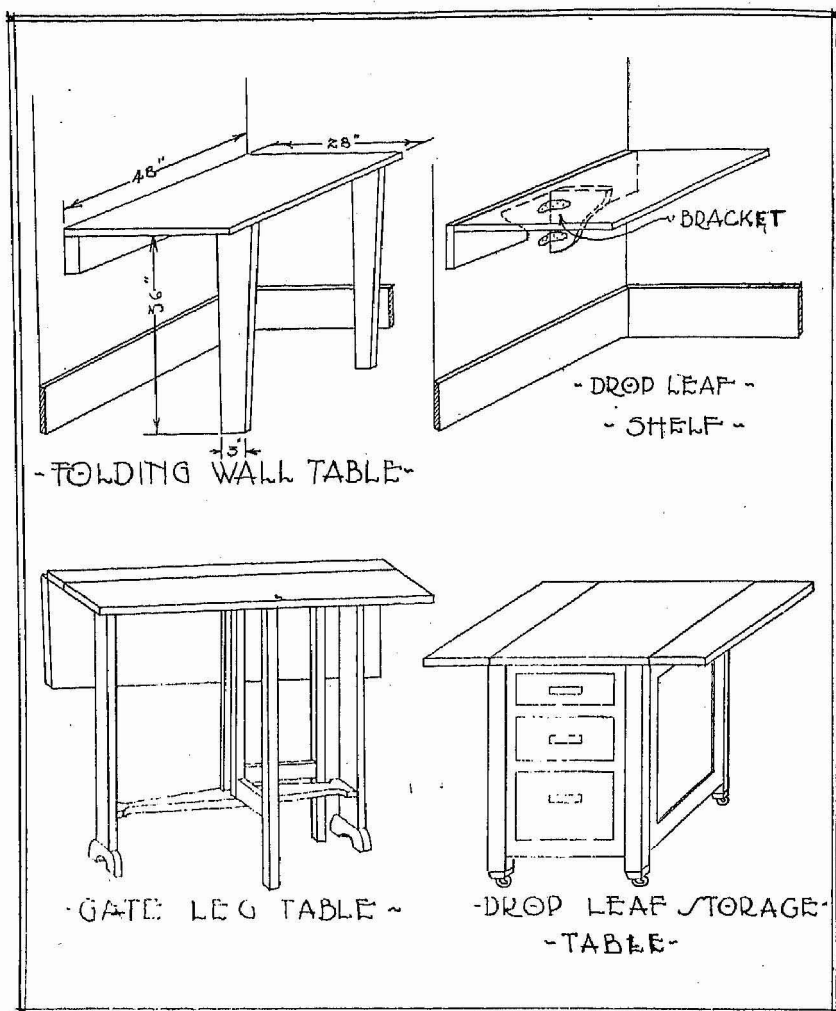


Fig. 26—Tables that are useful in the kitchen.

wide, and between the side strips, by means of a four-inch strap hinge, placing legs so they just clear each other. A board trip one inch by four inches and the length of the table is fastened to the wall by means of screws or nails. (Be sure to put screws or nails into the studs.) The strip should be of such a height that when the table is attached to it by means of hinges, the table sets level on the hinges.

A drop leaf shelf, (see Fig 26) often may provide extra table space near the stove or the sink. It is made with a hinged bracket so that it can be dropped down out of the way if desired. It can be made any size desired.

A gate-leg table, (see Fig. 26) may be used where wall space is limited or when one prefers a portable table. It occupies little space when folded yet furnishes a breakfast table or extra table surface when needed. Directions for making may be obtained from the Montana Home Economics Extension Service, Bozeman, Montana.

Table Top Finishes. The working surface should be non-absorbent, heat-resistant, and easily cleaned.

1. Porcelain enamel is probably the best, even though it is "noisy." Separate table tops in various sizes to fit over wooden tables are on the market for \$6.00 and up.

2. Plate glass and vitrified glass tops are sanitary but rather expensive and can not be put on tables used for hot pans.

3. Linoleum of good quality, preferably inlaid, glued to a smooth wooden top, makes an excellent surface. It is "quiet" and dishes are not easily broken on it. Apply glue to the table top and also to the back of the carefully fitted linoleum. Weight down until dry. Then with a warm iron, press shaved paraffin wax into it. Apply three or four coats of waterproof varnish at the edges or paint them the color of the table, then varnish. A wood, brass, or nickel strip should be used to finish the edge of this linoleum covered table. A special smooth finish white or cream linoleum is made especially for this purpose. If it is not obtainable, then select granite, or small designs in light colors. Since the cost of linoleum is so near that of a porcelain top, one should consider well before making a choice.

4. Metal.

a. Medium weight galvanized iron sheeting is durable and wears off smooth and shiny. It does not dent as easily as does zinc.

b. Good quality tin may be used.

c. The best quality zinc may be used, but it dents and stains easily.

- d. The nickel plated zinc is more attractive but the plate will wear off in time. A table top of this kind will cost from \$1.00 to \$1.50.
- e. Aluminum tops rub off dark.

The wooden tops should be made as smooth as possible before covering. The edges of the metal top should be bent carefully and tacked on the under side. Do not use a shiny top for the table if it is placed where the sun shines on it often, as the glare is hard on the eyes.

5. Wooden tops may be finished so they will be non-absorbent, easily cleaned, and good looking. First, fill all cracks with a commercial or home made crack filler. (Directions for the latter are found in Farmers' Bulletin No. 1219.) Then sandpaper the top very smooth. Stained wooden tops may be bleached before refinishing by applying oxalic acid solution (poison), using one teaspoonful to one cup of water. Let it stand over night.

- (a) A hardwood top may be oiled by rubbing in boiled linseed oil every day for several days until it will absorb no more. Also a mixture of one pint of linseed oil and turpentine and one-sixteenth pound or paraffin is good to use.
- (b) A wooden top may be waxed the same as the linoleum.
- (c) It may be varnished with three coats of waterproof varnish.
- (d) It may have two coats of thin shellac and then be waxed.
- (e) It may be painted and then enameled, finishing with waterproof varnish.
- (f) Oilcloth that is pasted on wears fairly well but it does not resist heat.

6. Composition materials, spread like cement, are available, but are not very practical for the inexperienced worker.

The counters or table tops of built-in cupboards may be covered with linoleum or metal or finished as wooden tops. After the covering is put on, a quarter round should be tacked on the back edge.

The Sink

Sink, Use

The purpose of a sink is for food preparation and dish washing. Therefore, for the sake of sanitation and convenience, it ought not to be used as a lavatory. Keep the wash stand and basin for the men elsewhere. In selecting a sink choose the porcelain sink or the enameled iron sink. A sink having back, drainboards, and sink molded in one piece is easy to care for, but is rather expensive. A splash board of hardwood or smooth finish cement, enameled, should be placed at the back of the sink if it has no back. The swinging mixing faucet, which mixes hot and cold water, is desirable. Select a sink suited to the size of your kitchen and to your needs. A serviceable size is 8x22x30 inches. It should be deep enough to prevent water from splashing over the sides when the dishpan is set into it,—from six to eight inches is deep enough. A short sink with table space or drainboards on both sides is better than a large sink without this surface on both sides. A sink equipped with a stopper is a convenience. It may be used for laundering or for washing large quantities of fruits or vegetables.

Installing

If wall construction permits, choose a sink which has a concealed hanger attachment at the back rather than one with legs, as it leaves the space and floor beneath entirely free, making it easier to care for the plumbing and floor under the sink. When installing a sink be sure it is set at the right height (see Fig. 15) and on a level so that the water drains out well.

If possible, have the drain pipes pass into the wall just below the trap instead of down through the floor. Do not enclose the space under the sink, but leave it open for the easy care of plumbing, and to provide space for the knees when sitting at work at the sink. If storage space is needed, cupboards may be built below the drainboards.

Insist on having drainboards or table space at both the right side and the left side of the sink so that soiled dishes may be stacked at the right and the dish drainer placed at the left. A sink "stuck in the corner" without the drainboards has little use except as a drain. It should be moved where it can be used.

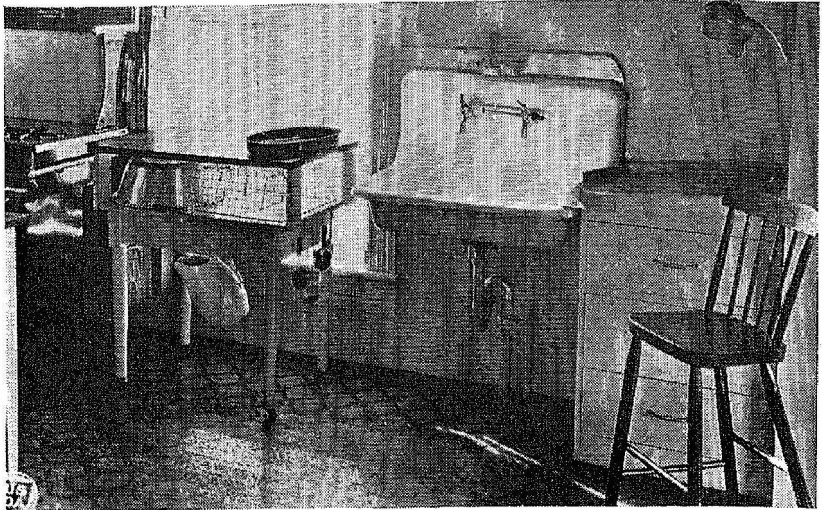


Fig. 27—A home made wheel tray takes the place of the left drainboard.

If for some reason a long, low window can not be turned and placed higher, then a drop leaf shelf fastened to the end of the sink or a wheel tray may take the place of a drainboard, as shown in Figure 27.

Rubber or composition mats may be used on porcelain or enameled iron drainboards to prevent breakage of dishes. Short pieces of rubber hose may be slipped over the ends of the faucets for the same reason. A piece of hose may be screwed to the hose faucet or to the pump to fill the reservoir, the tubs, or the boiler. The hose also may be used for siphonage—filling the hose with water and then detaching it from the faucet, or pump to use as a siphon.

If there are wooden drainboards they may be finished as explained for wooden table tops, if not previously treated to make them greaseproof and waterproof.

Wooden drainboards should be fastened to the sink by clips with brass bolts and thumb nuts, so that they may be removed for thorough cleansing at intervals. They might also be hinged to the wall. Slight curves should be used on drainboards instead of sharp grooves which are hard to clean.

Care of the Sink

A sink must be properly cared for. Never use coarse scouring powders, steel wool, etc. Acids, even vinegar and lemon juice, should never be allowed to remain in the sink. They take off the finish and stains work down into the material and can not be removed; also rust stain will begin to appear. Flush the drain pipe with clear scalding water often and sometimes with washing soda solution, but do not use lye except for pipes. Always give the drain pipe a final flushing with clear water.

New features in sinks are set-in tubs covered for use as drainboards, also a dish washer installed with its top used as the drainboard.

The improvements that are learned through Better Kitchen Contests are illustrated by two Figures, 28 and 29. These show a kitchen before and after the contest and give an idea of the improvements that can be made. The lower half of the window

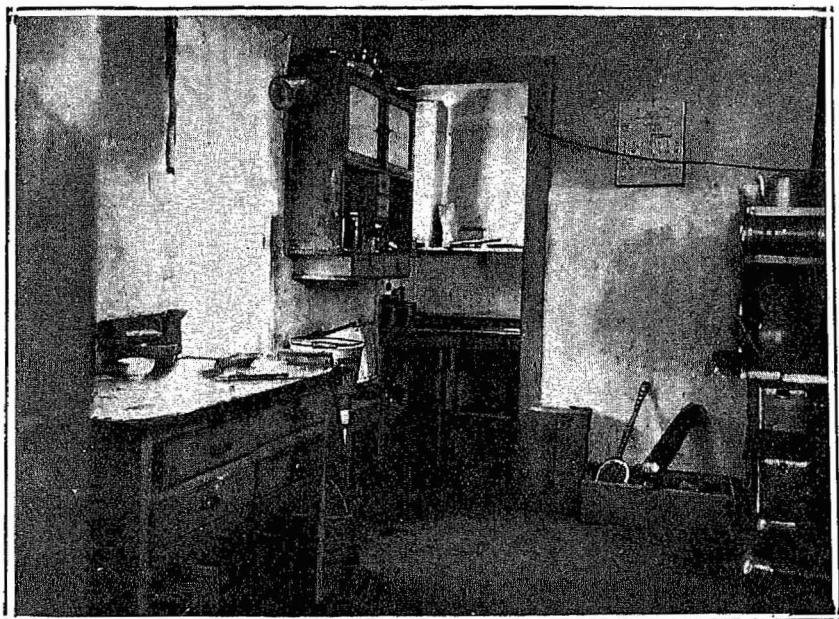


Fig. 28—A Montana kitchen which had been used for longer than one year without having been finished.

was raised to make room for the sink below. The sink and the drainboards were home made, of a cement composition which was dried slowly and rubbed smooth with oil. Built-in cupboards, ironing board, cleaning closet, hot and cold water, re-finished walls, floor and furniture, all were done by the handy man of the house and at a cost of \$28.31. The home-maker here says, "I can now do my kitchen work in two hours less time each day." This saving means 30 additional days each year to use for other things besides work in the kitchen.

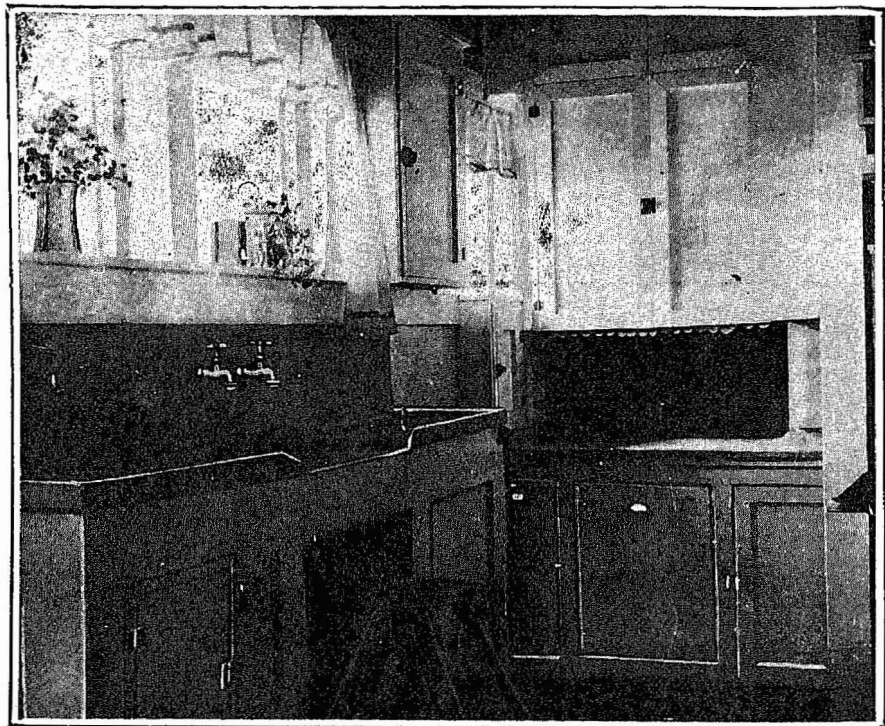


Fig. 29—The same kitchen at the close of the County Better Kitchen Contest.

Kitchen Stools

Kitchen stools and chairs may be bought from \$1.25 to \$3.00. The folding step ladder stool serves two purposes and may be folded easily out of the way.

The **Folding Step Stool** is made of three-fourths-inch boarding on identically the same principle as a stepladder, but is only 24 inches high when finished. If desired, a higher one could be made. (See Fig. 30.) A round seat can be cut with a key-hole or fret saw.

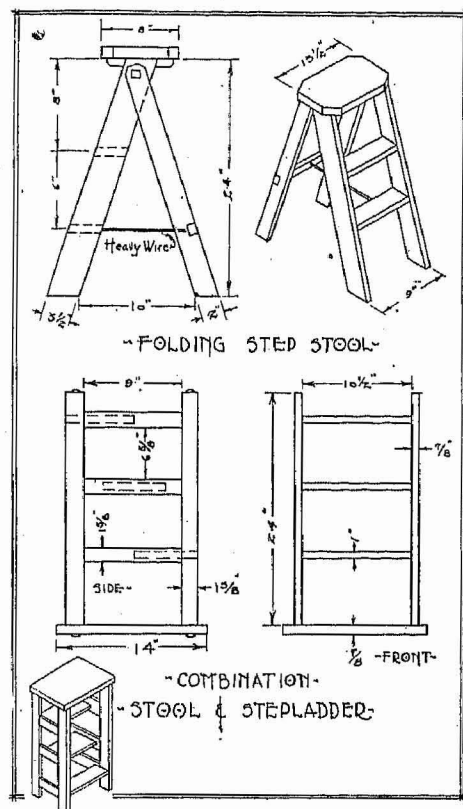


Fig. 30—Kitchen stools which may be made in the home.

The **Combination Stool and Stepladder** is handy about the kitchen. (See Fig. 30.) It may be made of white pine. All joints are mortised and tenon glued and doweled with one-fourth inch wood dowel pins. Make four legs of material seven-eighths by one and three-eighths inches, and two feet long. This will allow a one-half tenon on each end. Then cut six boards one inch thick, one and three-eighths inches wide and 11 inches long. On each end make a one-inch tenon. Mortise legs as shown in above diagram. Make top 14 inches square out of seven-eighths inch lumber. After all mortise and tenons are made, glue entire piece together as shown. Put metal gliders on top and on the bottom of the legs.

Kitchen Stools with Backs may be purchased. A youth's chair makes a good kitchen stool and chair as well, provided it is high enough. An old high chair, having the arms and footrest removed and the legs cut to proper height, makes a good stool.

Commercial Stools twenty-four inches high are not high enough to allow some women to sit comfortably at the sink, table or ironing board. Try out different heights until the right one is found, get or make a stool that height, then use it whenever possible. If the kitchen stool does not have a back, then have a kitchen chair in the kitchen.

Wheel Tray

The wheel tray is a big step saver if given a chance. When the dining room or porch is used, the wheel tray almost takes the place of a maid in serving and clearing away meals. The table should be set in two trips—one for china, etc., the other with food. Placed at the right of the hostess at the table, holding the dessert, etc., and receiving soiled dishes, it will save her many trips back and forth from the kitchen. The table may be cleared in one trip. The wheel tray may serve as a drainboard. It will carry all the dishes to the cupboard in one trip. It gives additional table space when needed. It can be used by the stove when there is not room for a serving table. Freshly ironed clothes may be placed upon it and wheeled to their respective rooms. It will hold the clothes for mending. It can be used for holding a bassinet. The woman who uses hers for a plant stand will never be efficient. A wheel tray for the kitchen should be sturdy, easily cleaned, and used often.

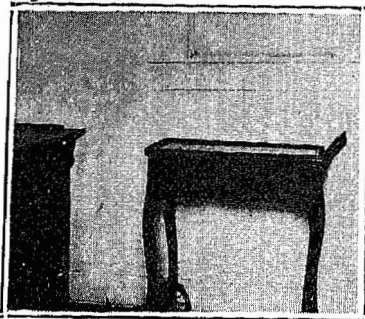
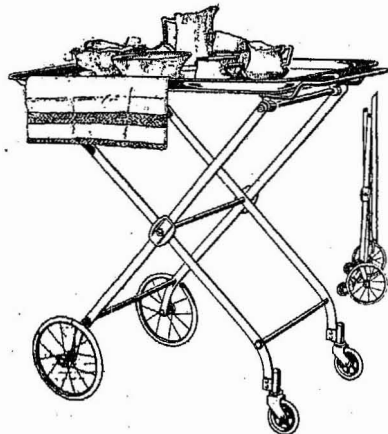


Fig. 31—Efficient step savers.



Directions for making a new wooden folding wheel tray may be had from the Home Economics Extension Service, Bozeman, Montana. Many serviceable and inexpensive ones have been made from wash stands. The rubber-tired wheel (about eight inches in diameter) from a discarded baby buggy, child's wagon or doll buggy, may be used on two front legs. One woman cut rubber bands from an old tire and glued them on wooden wheels. An inverted wooden box may supply the table part. Linoleum glued to the top before adding the molding makes a serviceable top. Wax it as for the table top.

One wheel tray was estimated to have saved 211 miles of steps and one whole week of minutes in one year. Cheap labor!

An Ironing Board

Preferably a built-in ironing board should be planned for in the kitchen or the laundry. It is built right into the wall and finished flush with the inside of the wall, opening like a cupboard. Directions for making the ironing board shown built into the wall, in Figure 32, may be found in Farmers' Bulletin No. 927. A shelf may be put below the board to hold the iron.

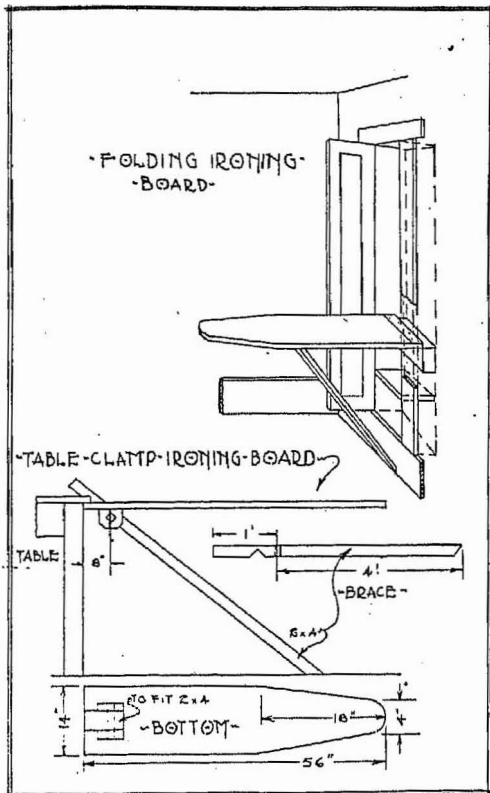


Fig. 32—Home made ironing boards.

Where there is not wall space for the built-in board, one may use the kind which clamps to the edge of a table or counter as shown in Figure 32. This may be stored in the cleaning closet.

Directions: Use a board 14 inches wide and 56 inches long. A 2x4 is cut 5 feet long and used as a brace to hold up the board. The distance from the end of the 2x4 to the pin is approximately one foot. After the blocks that hold the pin have been fastened onto the board, the notch is cut to fit the table top. For the pin, a one-half inch bolt, 7 inches long, will be sufficient. Cut opening in board to allow the 2x4 to pass through flat-wise. When entire board is put together, then cut the 2x4 off to fit floor and hold ironing board level. Blocks for holding pin may be made from a 2x4.



Garbage Pail

Garbage pails are necessary unless one burns the garbage. Commercial ones, having a pedal or handle to raise the lid, are convenient. They may be purchased for \$3.50 to \$6.00. A new one is shown in Figure 33, combining the sink strainer and garbage pail, and is fastened onto the drain pipe below the sink. Thus it may be turned under the sink when not in use. It is of convenient height and leaves the floor space clear. A light removable part set inside the new garbage pail makes cleaning an easier problem.

A granite pail makes a satisfactory, inexpensive garbage pail. It is easy to clean and the only way one can hope to have a clean garbage pail is through frequent cleaning. If washed every morning, it is no more disagreeable to wash than any other pan and will not become ill-smelling. Such a pail will last for years and is well worth buying. A wooden or galvanized

pail is not easy to clean and is likely to be neglected. Newspapers or paper sacks may be used in the bottom of the pail to hold dry garbage.

Mop Wringer

A mop wringer may be a good saver of labor and disposition where there is much mopping to do. The type which works by bringing a lever toward you is much easier to use than one which requires holding in place with the feet and pulling the mop up through rollers. They usually cost about \$3.50. Mops which may be wrung by twisting or turning by hand, cost \$1.00 to \$2.00.



Fig. 34—A mop wringer or dry hand mop saves the hands and back.

Scrubbing Cart

A scrubbing cart, upon which one may place the bucket of water, may be pushed about with the foot. The mop wringer may be attached to the pail. (See Figure 34.) The scrubbing cart is easily made out of a board 15x15x1 with a rim about one and one-half inches high around three sides and four casters attached to the bottom. If a hole is bored through the bottom it can be hung up. It may be used also to hold and move large tin flour cans. If padded it may be used to kneel upon when you are refinishing floors.

Dish Drainer

A dish drainer of good style can now be obtained. A dish drainer should have loops high enough to hold the dishes separate and erect. One which fits into a pan open at the end is

good to use at the sink and where hot water is plentiful. A round one which sets into the dishpan allows the rinsing water to be saved. Rectangular wire ones, with or without the silver basket, and with or without pans, may be had in different sizes.

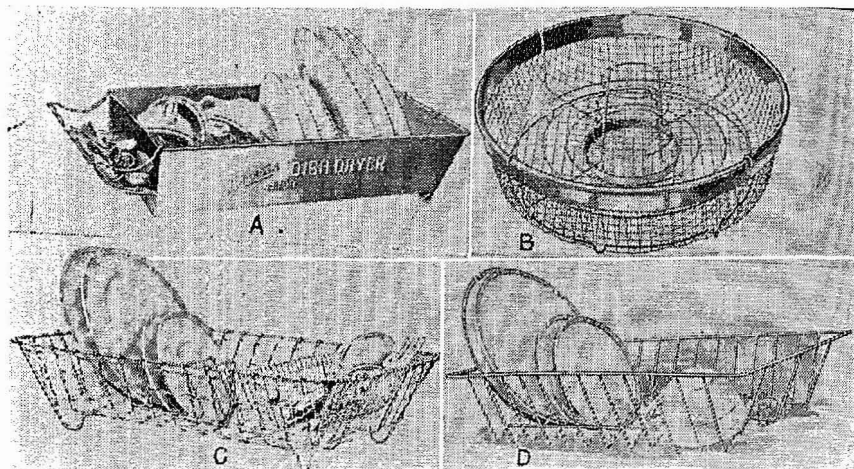


Fig. 35—Dish drainers which hold dishes erect and in place.

By washing the china first, scalding it and letting it dry while the glassware and silver are washed in fresh water and dried, the china then will be ready to be put away.

Mrs. Crum says, "My dish drainer saves me 45 minutes a day." Why take time to wipe the dishes? There are fewer tea towels to buy and wash if you drain dishes.

Fireless Cooker

A fireless cooker may be made at home at little expense. It will save fuel and cut down the time spent in a hot kitchen. A hot dish prepared with the noon cooking will be ready to serve by evening when the home-maker returns from an afternoon's vacation. It also may be used for keeping food cool. It should have casters. (Directions for making may be obtained from the Home Economics Extension, Bozeman, Montana, or from Farmers' Bulletin No. 71.)

Additional Equipment

A knife sharpener is easily operated without a man's help. Some may be fastened to the wall, to the table or to the end of the cabinet. One kind has a handle and may be kept in a drawer.



Fig. 36—Local leaders in Lewis and Clark county testing kitchen equipment.

A can opener is needed which works easily, grips the can and cuts a smooth edge. It also may have a removable blade which may be resharpened or renewed.

An oven thermometer is useful when there is no indicator on the stove.

A vegetable slicer cuts several slices at once and is easy to clean.

A jelly strainer which occupies little room and fits any size pan is desirable. It also may be used for draining cottage cheese.

A pot scraper costing 10 cents has a wooden handle with metal cloth attached to keep the fingers from getting soiled.

A mixing bowl which tapers to the bottom may be used for small as well as large amounts of food.

A paring knife with a tapering point, stainless, and with a good shaped handle, is handy.

A wooden spoon is convenient.

An egg beater which has a wooden handle that suits the palm of the hand also has a double set of whips to save time.

A sink strainer of good shape and preferably of white enamel keeps the crumbs out of the drain.

A measuring cup for liquids holds more than one cup to prevent spilling and has a lip for easy pouring.

A pressure cooker may have only one clamp to fasten, a wooden handle on the lid, a tilting ring, and a fool-proof valve for convenience; also a rubber gasket to insure the seal. All cookers operate on the same principle. They are especially good for cooking meats, cereals, dry vegetables and for canning. Their use is the only method recommended by the United States Department of Agriculture for the safe canning of meats, peas, beans and corn. Much time and fuel can be saved by their use. However, if a cooker saves only the fuel burned in one hour (if the fuel be purchased, costing two cents an hour) and if cheaper cuts of meat and old fowls are cooked to palatability in it, the saving from these two items alone will pay for a cooker in one year for the average family. In addition it is a saving in time and a convenience and comfort in the summer. They sell for from \$12 to \$40, depending upon the size and make. Their cost is small in comparison to the cost of the men's tools. One husband said, "If I were a bachelor I'd surely have one."

A water cooler is needed for sanitation's sake, if there is not running cold water for drinking purposes.

A double boiler is a much needed and much used utensil. It lessens time for stirring and prevents burning of food.

A long handled dustpan may have a strong, even edge, taking up all the dirt. It saves stooping, thus saving the energy of the busy housewife, for every time she bends over she lifts half of her body weight.

If there is only one clock in the house, keep it in the kitchen. How often we have seen women walk the length of a room several times to see how much longer the cake should bake or if it is time to start dinner.

With a **gasoline** or **electric iron** one can do an ironing in less time, with less energy and with greater comfort in the summer. They cost from \$4.50 to \$6.00. Figuring interest on the investment, depreciation, cost of operating and repair of a gasoline iron it will cost five cents to do a five to six-hour ironing once a week. Can one afford not to have one? If given intelligent care they are not dangerous to use.

A **bread mixer** will do in six minutes that which requires 20 minutes by hand. If used with insufficient dough, it will not give satisfactory results. If not clamped down solidly it will not save labor. Directions should be followed.

A **cake mixer** is not used often enough, except in a very large family, to warrant its purchase.

A **serving tray** for serving meals and for clearing the table should be used where a wheel tray is not possible. A large dripping pan may be substituted for it.

A **dairy thermometer** may save hours spent in churning.

A **fire extinguisher** has a definite place in the kitchen.

A **towel rack** for tea towels near the sink or stove encourages orderliness. One for a hand towel may be made for use in the wash room or on the porch. Directions: The brackets are made any desired shape, with a hole one-half inch in diameter bored in the center of each piece. A slit is cut in one bracket, from the hole to the top for the end of the rod to slip in and out. Round the piece ($1\frac{1}{4} \times 1\frac{3}{4} \times 24$ inches) for the rod. At each end cut a tenon one inch in diameter. Nail the end pieces to the board ($\frac{3}{4} \times 5 \times 24$ inches). Insert the rod into the hole in the one end piece and slit at the other end. Finish to match the woodwork.

A **food chopper** will do in 15 minutes the work which would require two hours by hand.

A **flour sifter** which sifts flour eight times in two operations may be bought.

A **fly trap** to catch the flies before they get into the house may be made according to directions in Farmers' Bulletin No. 734.

Other desirable pieces of equipment are: long handled fork; spatula (very pliable); scales; measuring spoon; steamer; baking dish; salt, pepper, and flour shakers for the stove; oval dishpan; funnel; vegetable brush; pair of scissors; apple corer and slicer; Dutch oven; fruit and vegetable sieve; set of shredders; and washing machine (operated by power where possible).

ROBBING DISHWASHING OF ITS TERRORS

"The daily dishes, like our poor relations, are always with us." Possibly no other time spent in housework is more begrudged than that spent in washing and drying dishes. It easily averages one and one-half hours a day. Even when done but once a day it may be made perfect drudgery or really agreeable work, depending entirely upon the equipment available and the methods used. The woman shown in Figure 37 took 45 minutes to do the dishes, two and one-fourth hours a day. She



Fig. 37—"No system, plus weariness."

carried the dishes by hand and set them anywhere, any way and then began washing. She "just happened" to have the draining pan at her right. She hated the sight of dishes. Her feet were tired, and her back ached before she was through.

The woman shown in Figure 38 took 15 minutes to do the dishes, or three-fourths hour a day. She said, "I tried and tried again, until now I can say I save from one to one and one-half hours every day on the dishwashing job for a family of six." How did she do it? The following changes were worked out, one at a time:

1. Scraped them with a pliable rubber-tipped plate scraper, and then stacked them at the left before starting to wash, saving 10 minutes.

2. Carried them out on a hand tray, scraped and stacked them at the right, and used a dish mop until the water cooled a bit, saving eight minutes.

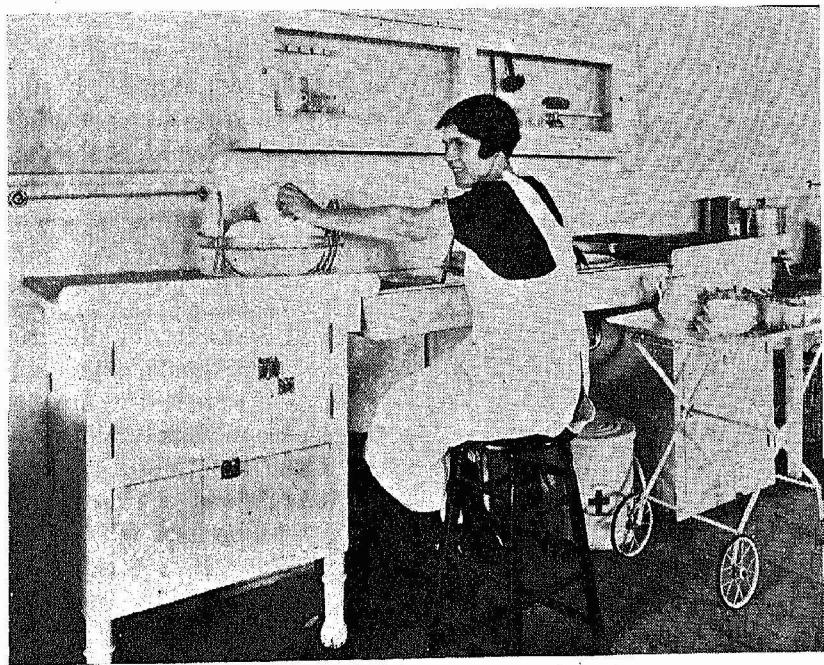


Fig. 38—System, plus comfort; one and one-half hours per day saved.

3. Placed them, scraped and stacked, in the order of washing, on a wheel tray; took them to the kitchen in one load and placed the tray at the right, saving seven minutes.

4. Used a dish drainer at the left. By the time the kettles (previously soaked) were washed, all the dishes were dry and ready to be put away, because boiling water was used to scald them; saving, five minutes.

This was a total saving of 30 minutes. Most of the work was done while comfortably sitting on a stool of the right height.

She said, "I concluded that there is no task so humble that we can not find in it a fine satisfaction if we are willing to study it carefully and try to do it intelligently, always looking for a better way. It makes the work much more interesting." There is little hope for the woman who would "rather do as I'd ruther."

The dishwashing machine is practical for a family of four or more. When electricity and hot and cold running water are available, the dishwashing machines are possible as conveniences for the larger family. The faucet dishwasher, costing about \$10, may be used where there is hot and cold running water. It consists of a hose attached to the faucet, a soap container and a spraying nozzle. The dishes are sprayed and scalded in a draining basket. They will work successfully with six or more pounds of pressure.

COLOR

Color plays an increasingly important part in making the kitchen attractive. In the first place, the selection of the color, as well as the amount of window space, will affect the amount of light in the room. Light colors make a room lighter, because they reflect more light. White reflects the most light, so will lighten a dark kitchen a great deal. Although it is sanitary in appearance, if used in quantity in a light kitchen it will be too glaringly bright and will cause eye strain, which increases fatigue. Except for a very dark kitchen where white should be used, ivory color will give the cleanliness of white with the restfulness and cheerfulness of yellow. Cream, very light tan, very light green, light blue-gray, and light gray, reflect from 67 to

76 per cent of the light back into the room, so usually are good in the average kitchen. Dark brown reflects 22 per cent and olive green only 14 per cent of the light, and would darken even a light room, and ought never to be used. The less daylight a room receives, the lighter the colors should be. Dark colors may be lightened by mixing them with white.

Choose soft, light, clean looking colors for the kitchen. Avoid muddy, dull, drab colors which are sometimes wrongly chosen "because they don't show the dirt." Also avoid bright and intense colors in large areas. Just a soft tint of the color desired should be used.

For the best effect the floor should be darkest, the walls lighter, and the ceiling lightest of all. The floor should harmonize with the color and the finish of the rest of the room. The woodwork may be the same color or slightly lighter or darker than the walls. Light, clear colors as French gray, cream or ivory, are good. Of course, a light woodwork shows up dirt more quickly than does dark woodwork but just for that reason it is easier to keep clean.

Any amount of dark woodwork or cupboards darkens and makes the kitchen gloomy. A single dark cupboard is conspicuous and does not give a pleasing effect. Cupboards and equipment may be finished to match the woodwork. Sometimes chairs are finished to match the floor in color. If a scheme having different shades and tints of the same color with a touch of contrasting color is carried out in the finish of floors, walls and ceiling, an attractive room results.

It doesn't cost any more to select attractive, suitable colors than it does to buy and use a poor combination of unattractive, unsuitable colors. Most commercial colors are too "colorful." The light tints of colors can best be obtained by adding a very little of the chosen color to white. A small tube of oil paint may be used to tint oil paints. Carefulness, thoughtfulness, and patience in obtaining the desired colors are rewarded by a pleasing room which will be a genuine comfort to the worker who spends so much time in her kitchen.

The color schemes suggested in the following table may serve as guides in making color plans for definite kitchens.

Exposure	Floor	Walls	Woodwork	Furniture	Curtains, etc.
Cool North	Tan, tile pattern linoleum	Light warm tan Ceiling cream	Very deep ivory	Cabinets, deep ivory Chairs, citron green with cream	Citron green muslin Lemon yellow bowls and pitchers
Northwest	Cream and golden brown linoleum small design	Soft, light yellow Ceiling cream	Ivory	Deep ivory lined with green	Yellow gingham or dimity Black pitchers, jug, or flower pot
Northeast	Gray Jaspé linoleum	Light warm mauve Ceiling, pale rasp- berry	Grayed orchid	Mauve cabinets Raspberry chairs with rose oilcloth cush- ions	Plain rose draperies of oilcloth or other material Pewter pitchers and bowls
Warm South	Green Jaspé linoleum	Sage green Ceiling, tint of sage green	Foliage green	Foliage green with cream panels and black bands Orange chair pads	Plain green gingham Orange bowls and pitchers
Southwest	Blue and white, or blue and tan tile pattern linoleum	Deep ivory Ceiling, light ivory	Deep ivory	Cabinets and cup- boards cream with blue stencil motifs Chairs delft blue with accents of black	Plain blue draperies of oilcloth or other blue material Holland blue jars for ivy
Southeast	Black and cream tile pattern	Cream enamel and flat	Black or plain cream	Cabinets, cream with Chinese Vermillion lines Chinese red lacquer chairs with cream mats	Cotton print with cream background and red, black, etc., figure Red lacquer in can- nister or flower pot

Avoid having a room all of one color. Use a little of a contrasting color in the curtains, a single piece of furniture, picture, or a plant.

The floor, woodwork, cupboards, refrigerator, table, stool, wheel tray, wood box, shelves, drawers, and drainboards all require finishing. All wood surfaces should be given a finish to protect the wood, to make them easier to clean, and to add to the attractiveness of the room. Do not stint on labor. Use good tools and materials with care, so that the result will express good workmanship.

Always get the material suited to its purpose, for example: get waterproof varnish or washable paint or enamel for all equipment. Get floor varnish or floor or deck paint for the floor, and floor varnish for linoleum.

Purchase only good, standard material from reliable firms. Always follow directions. Do not hurry the work. Make certain each coat is dry and lightly sandpapered smooth before applying the next coat.

WOOD FINISHING

Materials Needed for New Finishes

Sandpaper, 0, 00, and 0000	Turpentine
Steel Wool, 0 and 1	Paint—flat and gloss
Block of Wood	Enamel
Stain	Varnish—best
Shellac—orange and white	Benzine
Wood Filler	Brushes—best
Wax	

The right brush is half the battle. In varnishing and in enamel work a fine brush will enable one practically to avoid hair marks. A new brush should be washed thoroughly with soap and water and soaked in turpentine over night before using. This will set the bristles more firmly. Do not attempt to use one which continually drops hairs. A Russian ox-hair or a fitch brush is ideal. Use two-inch to four-inch brushes for flat work and a one-inch brush for small surfaces. Clean paint or varnish brushes with turpentine, benzine or kerosene, and clean shellac

brushes with denatured alcohol. It is better not to use a varnishing or shellacking brush for any other purpose. A neglected stiff brush may be restored by boiling the bristles in vinegar. Brushes and utensils must be perfectly clean to secure good results.

New Wood Finishing

Preparing the Surface—Plane smooth if needed. Sandpaper the wood smooth. Then take finer sandpaper and sandpaper it again. Always sandpaper with the grain. For rough sanding use No. 1/2 sandpaper, for finishing the wood use No. 00. (Some one has said that the principal cause for difference in the finish of the piano and the average woodwork is sandpapering.) Wipe off all dust. Before varnishing or enameling go over the surface with a cloth dampened with benzine.

Pre-finishing—Apply a stain if varnish, oil and wax finish is to be used. Put on a priming coat if paint or enamel finish is to be used. Fill cracks with putty (the oil in the priming coat prevents the putty from drying out), a commercial crack filler or a home made one. (See Farmers' Bulletin No. 1219.) Apply a paste filler to open-grain woods, following directions. Benzine is the best to use to thin the paste filler. Do not use a liquid stain filler as it is brittle and chips easily under service.

Most stains require sealing with shellac before varnishing or waxing, to prevent the stain "bleeding" into the finishing coats. Use a thin coat of shellac, reducing it with denatured alcohol. With open-grain woods this coat of shellac may precede or follow the paste filler. On all woodwork trim, this filler should be followed by a thin coat of shellac. Always shellac over pine if it is to be enameled. When dry, sandpaper it lightly with No. 0000 sandpaper.

Finishing—Apply the finishing coats according to the directions on the can. The undercoats for enameling and painting are usually thinned. New finishes of varnish or paint require three coats for a good job. The enamel finish requires two undercoats and then one coat of enamel. Two coats are preferable. Waterproof varnish (colorless) applied over paint or dull enamel coats makes them easier to clean.

Let each one of the coats dry very thoroughly, then sandpaper lightly with No. 0000 sandpaper to remove hairs and any roughness. Wipe off the dust before applying the next coat. The glossy or semi-glossy finishes are easier to clean than the dull ones.

For more detailed information get the publications, "Interior Woodwork for the Home" and "Refinishing Furniture," from the Home Economics Extension Service, Bozeman, Montana.

Wood Refinishing

Preparation—Clean soiled surfaces. Wash with sal-soda solution or wipe with benzine. It is useless to try to paint or varnish over dirty, greasy surfaces. Stains can be removed with repeated applications of oxalic acid solution. Use one teaspoon to one tablespoon oxalic acid crystals to one cup of warm water. (Caution: Oxalic acid is poison.) Put it on the stains and let it stand over night. Then wipe it up with a cloth dampened in household ammonia. If oxalic acid does not bleach, use half oxalic acid and half tartaric acid.

If the old coats are not worn off or chipped in spots, then the thorough cleaning followed by sandpapering with No. 00 sandpaper will suffice. If, however, the old coats are worn in spots or chipped badly, then all the old coats should be removed before refinishing. This can be done:

(a) Mechanically, by scraping with a sharp blade or by sandpapering, or

(b) Chemically, by applying a commercial paint and varnish remover, following directions. It is more economical to use a home made remover, made by adding three tablespoonfuls of lye to one quart of warm starch solution, as for starching clothes. Apply with a vegetable brush or an old dish mop and let stand a few minutes until the old coats are softened. Then scrape or rub off. Rinse well. Then bathe with a vinegar solution (three parts vinegar to one part water) to prevent any of the lye remaining to damage the new coats of finish. Dry thoroughly, sandpaper smooth and wipe off the dust before applying new coats.

Pre-finishing—If the old coats have been sandpapered only, then the finishing coats may be put on at once. But if the old coats have been removed, then the pre-finishing is done as given under "Wood Finishing."

Finishing—If the old coats have been sandpapered only, then the under coats may be omitted. But if all the old coats were removed, then the finishing coats are put on as given under "Wood Finishing."

How to Clean Wood Finishes

To Clean Varnish—Use any good furniture polish, but use very sparingly. Home made polishes are:

1. Equal parts of wax, linseed oil and turpentine. Use sparingly.

2. To one quart of hot water add one tablespoon of turpentine and three tablespoons of raw linseed oil. Wipe the surface with a cloth wrung very dry out of this solution, then polish with a dry cloth. The turpentine cleans and the oil gives a polish. When the varnish is very soiled, wash it like paint, wipe dry and then polish. Gasoline or benzine may be used to remove dirt. Liquid wax also may be used.

To Clean Paint—Use a cloth well wrung out of light suds made with luke warm water and mild white soap. (Do not apply soap directly as it softens and dulls the surface of the paint.) Wipe dry at once to prevent streaks. A little soda or kerosene may be used in warm water. If spots remain, scour lightly with fine friction soap, using an up and down (never a circular) motion. Wipe completely dry immediately. Clean only a small section at a time. Home made polish No. 2 may be used.

To Clean Enamel—Use hot water to dissolve grease and free dirt. It does not harm the gloss. A little kerosene may be added if needed. Soap dulls enamel. Home made polish No. 2 may be used.

Clean any finish with care. Do not use strong soaps, alkalis or coarse scouring powders as they are too severe. Do not scour the finish off.

It is economy to refinish the wood before it is badly worn.

THE REST CORNER

When space permits the rest corner should be an important feature of every kitchen. It should have a comfortable small chair or rocker, and a small table or a shelf to hold magazines, sewing, etc. This corner may be the dining alcove. The homemaker then can relax or use to good advantage those few spare moments while food is cooking, or while waiting for the family to come to dinner.

GENERAL ATTRACTIVENESS

A cheerful kitchen makes a cheerful cook. Certain touches may increase the attractiveness of the kitchen.

Curtains and Shades

Certain kinds of curtains have a place in the kitchen. They diffuse the sunlight or secure privacy and give a pleasing color contrast and homey touch. They should be simple, durable, and easily laundered. Lace or net curtains with scallops or ruffles are not desirable. Curtains of dotted Swiss, dimity, gingham, and sun-fast cotton prints, are suitable for kitchens. Drapery oilcloth in many colors is practical for kitchens with plenty of glass area. Attractive curtains have been made out of flour sacks. Bands or tie-backs of contrasting material, plain, check or figures, may be used to give a desired bit of color.

Curtains in pairs usually are preferable to the one-piece curtain, as they may be parted in the center when more light is desirable. If the rods are fastened to the window casing, the curtains may be raised with the window. If all the light possible is needed, then the curtains may be a narrower strip at the side to cover only the framework of the window and not keeping out any light. Dutch curtains for the full length window are satisfactory. These consist of a pair for each sash, those of the upper sash being finished at one end with a heading and at the other end with a hem. Finish the pair for the lower sash with a heading at each end and run them on two rods, one at the top and the other at the bottom, both of which are fastened to the window frame. When the lower window is opened the lower sash curtain slides up under the upper pair. Light can be let in, or shut out, from either sash as desired.

Plan for the next new shades to be in one of the soft colors in the new shade materials that are washable and impervious to stains of any kind. Worn out shades may be replaced by heavy unbleached muslin, sun-fast prints (chintz) tacked on to the old roller.

Shades will give double service if, when the lower end is worn, they are removed from the roller and the worn end tacked back on the roller, the former top being hemmed for a new lower end.

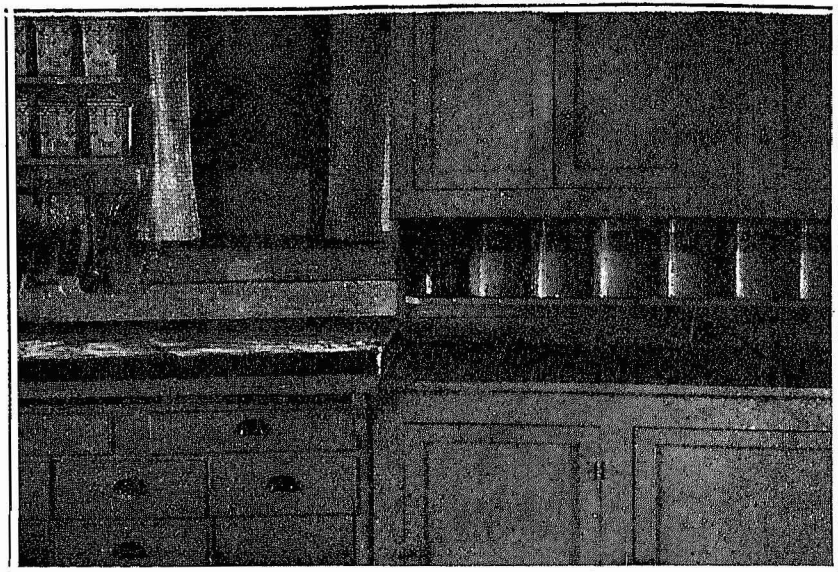


Fig. 39—A view of an attractive and orderly kitchen in the home of Mrs. Purcell of Yellowstone county.

Many women enjoy a pot of parsley or some other plant at the window. The pot should be enameled a soft grey-green or other harmonizing color. It should be placed in a bracket at the side of the window or on the window sill. Avoid a window filled with an assortment of plants.

Certain kinds of pictures, — a bit of scenery, flowers or happy children—in a plain, washable frame, can be enjoyed in the kitchen. A calendar pad should be posted in a handy place. Avoid an excess of calendars and dust catchers.

Shelves should be painted or enameled, thus eliminating the need of changing papers.

Sufficient storage space should be provided so that tops of cabinets may be kept cleared. A shallow shelf in the cupboard will take care of newspapers.

Other finishing touches may be the new coat of enamel for the stove pipe, the aluminum paint for the water tank, and paint (the color of the walls) for pipes and towel rack.

All of these things help to give a "spic and span," clean feeling.

When one has added all the finishing touches the result is an orderly, attractive, cheery, comfortable work shop, enjoyed not only by the housewife but by all of the family as well.

A good motto for the kitchen is: "A place for everything and everything in its place."

KITCHEN SCORE CARD

While talking and thinking "kitchens," every housewife has her own kitchen in mind. The task of making it more convenient must begin with a careful study of the present kitchen conditions and methods of work. The home-maker can best locate its needs by scoring it with the aid of the following Score Card.

	Perfect Score	First Score	Second Score
I. General	16		
1. Pleasant outlook	1		
2. Outside protection over kitchen entrance	1		
3. Outside door direct to covered porch.....	1		
4. Door giving easy access to cellar.....	1		
5. Convenient to dining room and pantry.....	1		
6. Same level as other rooms and porch.....	1		
7. Not more than four doors opening from kitchen	1		
8. No two doors interfering with each other	1		
9. Location of doors not interfering with kitchen if used as a passageway to other room	1		
10. Windows placed low enough to permit outdoor view when seated at work but high enough to permit sink or table underneath if desired	1		
11. Size suited to needs, not too large or too small	6		

	Perfect Score	First Score	Second Score
II. Light		20	
1. Glass area not less than 20% of floor space	4		
2. Good daylight at sink, stove, table, cupboard	8		
3. Window in pantry	4		
4. Adequate artificial light from the left at sink, stove, table and cupboards	4		
III. Ventilation		20	
1. Windows on at least two exposures.....	8		
2. (one exposure and transom in hall or porch door—6)			
3. (one exposure and door—4)			
3. Windows open easily at top and bottom	4		
4. Ventilating flue and hood, or windows at least one foot of ceiling and on two sides	2		
5. Doors and windows screened.....	6		
IV. Arrangement		40	
Convenient placing of equipment and supplies, stove, table, water and storage should be within a 6-foot radius of each other. Thus not two pieces are farther apart than 12 feet.....			
1. Preparation of meals		24	
Getting supplies	8		
Working	4		
Cooking	6		
Serving	6		
2. Clearing away process		16	
Putting away food	4		
Stacking and washing	6		
Replacing dishes and utensils.....	6		
V. Water Supply		40	
1. Running soft water, hot and cold, under pressure		40	
2. Running hard water, hot and cold, under pressure	34		
3. Soft water pumped, where pressure supply is hard	3		
4. Soft water under pressure, where pressure supply is hard.....	6		
5. Piped cold water, under pressure	24		
6. Barrel system	20		
7. Pump in kitchen—hard water.....	12		
soft water.....	16		
8. Hot water reservoir	4		
VI. Water Disposal		20	
1. Drain sewer, septic tank, cesspool.....	16		
Open drain	8		
2. Garbage pail—enameled and covered.....	4		
VII. Storage Equipment		32	
1. Food and supplies		14	
Adequate space—pantry, store room, cellar, cupboards, refrigerator, etc.	5		
Light and outside air.....	3		
Refrigerator and cool storage (cold closet or dumb waiter cellar)	6		
(Drain pipe from refrigerator connected with outside drain—1 of 6 above points)			
2. Utensils and dishes		10	
Adequate shelving near dining room, work table and stove.....	5		
Some with closed doors.....	4		
3. Cabinet for cleaning equipment.....		4	
Adequate and has a shelf	2		
Conveniently located	2		

		Perfect Score	First Score	Second Score
	4. Closet for wraps and footwear.....	3		
	Adequate	1		
	Shelves for hats and footwear.....	1		
	Not in kitchen	1		
	5. Business equipment	1		
	Shelf or drawer for cook book, etc., near work center; hook or spindle for bills; memorandum and pencil.			
VIII.	Other Equipment	120		
	1. General	8		
	Good repair, knobs and handles on, knives sharp, no sticking drawers, doors, etc.	2		
	Clean	3		
	Orderly	3		
	2. Stove	20		
	Adequate size	3		
	Clean	3		
	Warming oven	3		
	Heat indicator or oven ther- mometer	3		
	No broken parts	2		
	Easy to keep clean, simple de- sign	2		
	Oven at least 12 inches from floor	2		
	Height to suit worker	2		
	3. Fuel	16		
	Gasoline, kerosene, etc., when coal or wood is used.....	10		
	Daily fuel supply within easy access	3		
	Good fuel box—adequate on cas- ters	3		
	4. Work table or working space.....	12		
	Adequate—at least 6 square feet.	4		
	Top—non-absorbent, heat-resist- ant, easily cleaned, attractive.....	4		
	Height adjusted to suit worker....	3		
	On casters, if table.....	1		
	5. Sink	20		
	Easily cleaned; non-absorbent....	4		
	Two drain boards or equivalent..	4		
	Drain boards non-absorbent and easily cleaned	3		
	Height adjusted to suit worker..	3		
	Cabinet or shelf for sink clean- ing equipment	2		
	Not used as lavatory.....	4		
	6. Lavatory outside kitchen for men.....	4		
	7. Chairs	4		
	Comfortable work chair	2		
	Kitchen stool, height suited to worker	2		
	8. Laundry tubs	2		
	In room other than kitchen, un- less combination sink or table....	1		
	Height to suit worker.....	1		
	9. Washing machines	4		
	10. Desirable equipment—choice of fol- lowing	28		
	Built-in ironing board	2		
	Wheel tray	2		
	Gasoline or electric iron.....	2		
	Dumb waiter	4		
	Fireless cooker	2		
	Pressure cooker	3		
	Folding or gate-leg table.....	2		
	Mounted ironing board	1		
	Table clamp ironing board.....	1		
	Wall ironing board	1		
	Mop wringer	1		

		Perfect Score	First Score	Second Score
	Long handled dust pan.....	1		
	Food chopper.....	1		
	Knife sharpener.....	1		
	Clock.....	1		
	Fire extinguisher.....	1		
	Fly trap.....	1		
	Sugar thermometer.....	1		
	Scales.....	1		
	Dairy thermometer.....	1		
	Scrub cart.....	1		
	Dish drainer.....	1		
	Bread mixer.....	1		
	Drop leaf shelf.....	1		
	Cake mixer.....	1		
	Ventilating screen.....	1		
	Towel rack.....	1		
	Serving tray.....	1		
	Double boiler.....	1		
	Water cooler.....	1		
	Smaller pieces of equipment.....	2		
IX.	Floor.....		32	
	1. Smooth and free from cracks.....	4		
	2. Grease proof.....	4		
	3. Easy to clean.....	8		
	4. Resilient.....	4		
	5. Attractive.....	4		
	6. Durable.....	4		
	7. Good workmanship.....	4		
X.	Walls and Ceiling.....		17	
	1. Sanitary, smooth, easy to clean.....	8		
	2. Attractive — light — cheerful.....	6		
	3. Free from "dust catchers".....	3		
XI.	Woodwork.....		8	
	1. Easy to clean.....	3		
	2. Attractive — light — cheerful.....	3		
	3. Good workmanship.....	2		
XII.	Equipment (chairs, tables, cupboards, etc.).....		8	
	1. Easy to clean.....	3		
	2. Attractive.....	2		
	3. Good workmanship.....	3		
XIII.	Rest Corner.....		7	
	1. Easy chair.....	1		
	2. Good light for reading and sewing.....	2		
	3. Shelf or stand for papers, etc.....	1		
	4. Business equipment.....	3		
XIV.	General Attractiveness.....		20	
	1. Pleasing in color and design.....	4		
	2. Cleanliness and orderliness.....	10		
	3. Shades—light color, good condition, washable.....	2		
	4. Curtains—sheer, easily laundered.....	2		
	5. A plant on shelf or in a bracket or a suitable picture.....	2		
	TOTAL.....		400	

THEN WHAT?

Make a list of the changes which would be desirable and which would save steps, time, and labor. It is not always possible to make all of the desired changes at once. Some women, despairing of getting all they want, make no attempt to get anything. To such a woman I would say:

- (1) Make a list of the changes which would be desirable;
- (2) Classify the changes under the following headings:
 - (a) Changes that can be made without expense or help,
 - (b) Changes which will help most with the hardest tasks,
 - (c) All other changes in order of importance;
- (3) Work persistently toward securing changes;
- (4) Concentrate on one or two improvements at a time;
- (5) Avoid vague wishing for a model kitchen.

ACKNOWLEDGMENT

"Convenient Kitchens" — Extension Bulletin, Wisconsin State College.

"Just Kitchens"—Extension Bulletin, Ohio State College.

"Kitchens Planned for Convenience"—Good Housekeeping Institute.

"The Kitchen Sink"—Extension Bulletin, Michigan State College.

"The Step-Saving Kitchen"—Extension Bulletin, Iowa State College.

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"Fly Traps and Their Operation"—F. B. No. 734.

"Home Made Fireless Cookers"—F. B. No. 771.

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