

SELECTION OF HOUSEHOLD EQUIPMENT.

By HELEN W. ATWATER,

Assistant in Nutrition, Office of Experiment Stations.

WHEN one considers the variety of things which must be put into a house to furnish it even simply, the question of household equipment appears a complicated one. The variety is necessary because a house serves many different purposes. Considered merely in its material aspect, it is the place where the family eat and sleep and take their ease, and it is also a workshop in which a great many different things are made, and each of these purposes must be recognized in furnishing it.

Considered as a workshop, it is sometimes a bakery, sometimes a clothing factory, sometimes a cleaning establishment, and so on. The list of tasks which are performed in the household is by no means as long as it was in the days when cloth was spun and candles made at home, and almost every decade sees more work removed from the home to the commercial factory. Nevertheless, a great many tasks still remain and are likely to remain in the home, for which provision must be made in furnishing it.

In equipping her home the housekeeper should be guided by the same principles that would be followed in the selection of equipment for any other workshop, and should choose furnishings and tools which will make it possible for her to carry on her various household tasks with the least waste of time, work, and materials. In other words, a house should be equipped for efficiency in carrying on housework just as carefully as a modern shoe factory is equipped for making shoes. In such a factory lighting, heating, ventilation, sanitation, etc., are as carefully considered as the machinery, and these matters of hygiene are even more important in the home, which is not merely a workshop, but also a place in which to rest and recuperate. Since a home is even more than that, and serves also as the material setting for the life of the family, other points must be considered which have

little or nothing to do with efficiency in a factory. It is certainly as important in a home to provide for comfort and wholesome enjoyment as for cooking and cleaning, eating and sleeping.

PLANNING BEFORE BUYING.

Sometimes when a woman takes up the problem of house furnishing she has to buy everything new from the beginning, and sometimes she already has a more or less complete equipment which she hopes to improve gradually, that is (to continue the comparison with the factory), she has to do with a "going concern." In either case she must study the situation carefully and make sure of what she most wants before she begins to buy. It is impossible for her to select to the best advantage unless she has all the principal needs in mind to begin with and goes at the task systematically. Haphazard buying is always extravagant and nowhere more so than in connection with house furnishings. There is such a bewildering variety of things to be used in a house that, unless the housekeeper keeps a clear idea of what she wishes most and plans her buying carefully, she will find herself getting things which, though useful, are not the most useful, or are not the best adapted to her particular needs. Two dining tables may be equally good of their kind, but one may be much better adapted to a particular house and family than the other. If it is a case of furnishing a house entirely with new things, it is wise to go slowly and learn from experience what will best suit the special conditions, even if this prevents putting the whole house completely in order at once. For example, it might be well to see how one's belongings fit into the built-in cupboards before deciding whether to buy a sideboard or a china closet. If only a limited amount of money can be spent at one time, it would probably be better to leave an extra bedroom unfurnished or do without an extra rug than to "skimp" on the quality of the necessary things. When it is merely a question of renewing or increasing old equipment, the thoughtful housekeeper considers the value of each article in connection with what she has or expects to have as well as by itself. If she has no convenient cupboard for her ironing supplies, an ironing table of the settle type with a box under the seat may be more serviceable than the ordinary kind; and if she expects to get a new

set of table dishes soon and can then use some of the old ones in the kitchen, it is poor policy to stock up unnecessarily with kitchen ware.

In order to buy in accordance with a definite plan she must often steel herself against the allurements of bargain counters or of beguiling salesmen, not because the wares they offer are not intrinsically good or cheap, but because in spite of being good or cheap they may not be what she really needs most. It is poor economy for her to buy sheets which will not be used for several years instead of napkins which are needed at once, simply because the sheets happen to be a few cents cheaper than usual, or to be persuaded to take an omelet pan when what she had meant to get next was a new coffee pot.

CHOOSING FOR NECESSITY, CONVENIENCE, AND PLEASURE.

In equipping any workshop, whether it be a factory, a dairy, or a house, the two chief elements which govern choice are necessity and convenience. Very often one article answers both these demands, and if possible those should be chosen which not only fill a need but fill it in a way which is economical of labor and material. For example, a kitchen stove is usually considered a necessity, not a convenience, but in selecting it a model which is convenient to work at and to care for is what a good housekeeper looks for. In choosing labor-saving devices it is a good rule to give the preference to those which save heavy work and which lighten tasks most frequently performed. A machine for washing clothes saves more bodily energy than a patent roasting pan, and a meat chopper is used more often than a device for stoning cherries.

The third element of choice in the case of many articles of household equipment is that of pleasure or beauty. As has already been pointed out, this marks the difference between furnishing the house and furnishing other workshops. Whereas the output of a factory consists of the particular line of goods which it makes, and the output of a dairy, of milk, butter, and cheese, the output of a home includes not only such material things as food and clothing and even general comfort, but also such immaterial things as the mental, moral, and spiritual welfare of its occupants. We some-

times assume that these less material factors of home life are independent of the furniture and equipment of the house and can be trusted to take care of themselves if they are not actually discouraged. But if a family really wishes its home to be more than a place to eat and sleep in, it ought to plan as deliberately for increasing the production of comfortable and profitable leisure, pleasant social intercourse, and an intelligent interest in things outside of its material needs as for mere food, clothing, and shelter. Fortunately, this does not always mean buying more costly furniture and more elaborate equipment, but rather choosing things which not only are necessary and convenient, but which at the same time give pleasure. Since we must have dishes to eat from, we might as well have them in attractive shapes and patterns and color, especially as good-looking ones do not necessarily cost more than others. The more any article that is used in the home includes all three elements of necessity, convenience, and beauty, the more efficiently will it serve its purpose.

FITTING EQUIPMENT TO PARTICULAR CONDITIONS.

It is impossible to lay down hard and fast rules as to exactly what articles or materials are best for use in the household, because conditions vary so greatly. No two homes are exactly alike as regards house and occupants and income, and what is suitable and economical in one may be inconvenient and extravagant in another. In a new house stained and varnished woodwork may be easiest to take care of, but when the woodwork is old and worn paint may make a more satisfactory finish; in fact, if the wood has already been painted, it may be difficult to use any other finish. It would be as poor economy for a family in easy circumstances to hesitate at the price of such household improvements as a screened porch or a good kitchen floor as it would be for people who can hardly pay for keeping their everyday necessary equipment in proper condition to buy a charcoal broiler for steaks and chops or a collection of expensive brushes intended for cleaning special kinds of furniture.

The housekeeper must plan her household equipment with reference to the amount of labor there will be to run it. If she is to do everything herself she must not only arrange

her work and her implements so as to avoid all unnecessary work, but she must also avoid many other things, such as bric-à-brac which is difficult to dust, polished surfaces which have to be frequently rubbed, and elaborate linen which it takes much time and skill to launder. On the other hand, if she does the work herself, she may be justified in buying things of better quality than if they were to be used by a careless helper.

The question of space must also be considered. In a large house with plenty of storage room one can perhaps afford to have special equipment for this, that, or the other kind of work, but where space is strictly limited one must concentrate. For example, one must choose one's pots and pans so that each will serve several purposes, and arrange the closets and cupboards so that all the space in them will be used to the best advantage. It is questionable whether unnecessary utensils and scattered, half-filled closets are ever worth the extra work they occasion, but where space is limited it is certainly poor economy to keep superfluous things about.

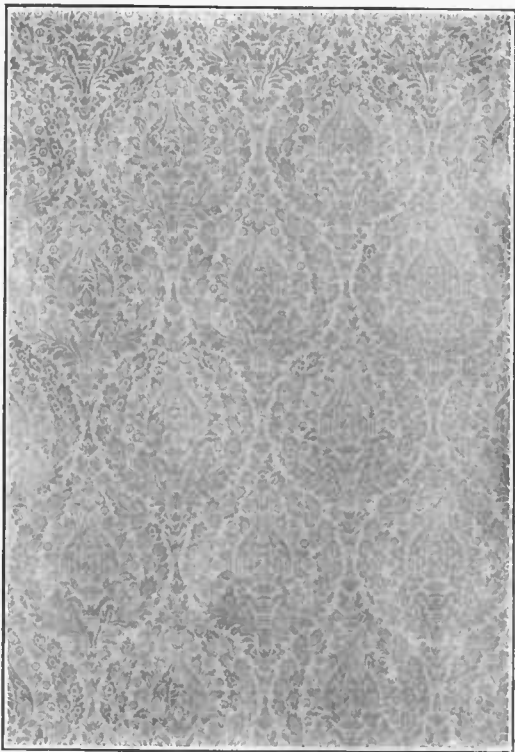
WHAT MAKES A WELL-FURNISHED HOUSE.

The well-furnished house is not one which is cluttered up with things which may be useful or attractive in themselves, but which nobody uses or enjoys, but one which contains those things which are necessary for convenience in working and for comfort and satisfaction in living, and no more. It need not on that account be strictly utilitarian; on the contrary, if it were well planned, perfectly convenient, and perfectly comfortable, it would also be beautiful, because beauty does not lie so much in the ornaments which are put on a thing as in the perfect adaptation of that thing to the use for which it is intended. In a collection of historical furniture the most beautiful pieces of each period are not those which are most elaborately decorated, but those in which material and shape and workmanship best answer the needs they were designed to meet. If there is ornament, it does not interfere with usefulness or comfort, and is so applied that it brings out the inherent beauty of the lines and material. The reason why some of the plain old tables and chairs which we have inherited from earlier times look better than

many of the elaborate and showy ones which have just left the factory is that their makers were more interested to make them strong and comfortable than simply to produce novelties the chief merit of which is to catch the eye. The same principle holds in all household furnishings—in fact, in everything. If a woman tries sincerely to arrange her house according to this idea of adaptation to use, she need not worry about its being “pretty.” She may not be rich enough to have expensive things, but if she uses harmonious colors for her walls, floors, and upholstery, and chooses furniture for its good design and comfort rather than for its ornamentation, her house can hardly fail to be restful and attractive.

It sometimes seems difficult for a person who can not patronize expensive shops to find furniture with strong and yet graceful lines, wall papers and upholstery materials in simple designs and good, soft colors, or china and glass with plain but good shapes and decorations. Nevertheless, they do come in inexpensive grades, and the more people demand them the more dealers will carry them. Undoubtedly it is easier to take what is offered and to be satisfied with the assurance that “it is positively the latest,” even when one’s own better judgment says that it is neither suitable nor beautiful. If women would insist on getting what they want instead of what the dealer may want to sell, their houses would be better furnished, and they would do much toward improving public taste.

It is possible to carry the idea of simplicity too far. For example, a chair is not necessarily beautiful, comfortable, or easy to take care of merely because it is made up of straight lines. On the contrary, such severely plain furniture is often both awkward looking and uncomfortable. Too many useless ornaments in a room undoubtedly give it an overcrowded, restless look, and have a further disadvantage in making unnecessary work in cleaning. On the other hand, no ornaments at all would make it seem bare and unfriendly. The sensible woman steers between the two extremes and uses a few ornaments, chosen because they are useful things in especially beautiful form, or because they represent the artistic interests of the family, or have the intangible but none the less real value of personal association. A usable vase of handsome glass or



4. A GOOD DESIGN OF WALL PAPER IN TWO TONES OF THE SAME COLOR AND WITH THE FIGURE NEARLY COVERING THE BACKGROUND.



5. A STRIKING DESIGN, GOOD OF ITS KIND AND SUITABLE FOR CERTAIN TYPES OF LARGE, SPECIALLY FURNISHED ROOMS, BUT OUT OF PLACE IN AN ORDINARY PRIVATE HOUSE.



A. INEXPENSIVE PLATE WITH GOOD TYPE OF DECORATION IN SIMPLE BAND OF COLOR SET OFF BY GILT LINES.

B. TEAPOT INCONVENIENT TO CLEAN. NOTE SMALL OPENING AT TOP AND IRREGULARITIES ON HANDLE WHICH TEND TO COLLECT AND HOLD DIRT.



C. GLASS PITCHER, PLAIN BUT GOOD IN SHAPE AND EASY TO CLEAN.

D. OLD BLUE AND WHITE PITCHER, GOOD IN SHAPE AND DESIGN AND EASY TO CLEAN.



FIG. 1.—WORK TABLE OF CORRECT HEIGHT, ALLOWING WORKER TO STAND IN EASY, NATURAL POSITION.



FIG. 2.—TABLE TOO LOW, REQUIRING WORKER TO STAND IN BENT, UNCOMFORTABLE POSITION.

pottery, a good-looking box for matches, a graceful lamp with a shade which not only throws a good light but is beautiful in shape, color, and design by day as well as by night, a candlestick which is a family heirloom, and a few good photographs or prints of famous places or pictures in which the family is interested are examples of ornaments which are suitable, because there is some reason for using them.

ECONOMY IN COST AND CARE.

When it comes to the point of deciding between several forms of the same article, price is perhaps the first thing the majority of us must consider. So far as possible, the housekeeper should have a definite idea of how much she ought to pay for each part of her equipment and not let her choice run much above or below that. It is not true economy to pay more than one can afford for a thing, no matter how useful or how desirable it may be. On the other hand, the cheapest is not always the most economical. Other factors besides price enter into consideration, foremost among them being suitability and durability or wearing quality. It is evident that if dish-toweling at 18 cents a yard wears twice as long as that at 12 cents, the more expensive is cheaper in the end. Very often the wearing quality influences not only the price but also the convenience of an article. In the case of wall paper, curtains, furniture coverings, and other things on which considerable labor must be spent before they go into use, it is a satisfaction to have them durable, so that the full value of the work as well as of the materials may be obtained. Moreover, after one has put care and thought into the selection of such furnishings and they prove successful in use, it is discouraging to have them wear out quickly and leave the whole task to be done over again. Some families get tired of their belongings so soon that they prefer them not to be very durable, and argue that two cheap things give more pleasure than one expensive one. This is evidently a question of taste, but it is worth noting in this connection that in household furnishings styles change much less rapidly in articles of good quality than in the cheaper grades, and that among people of cultivated taste whose means allow them to choose what they like, furnishings are kept in use for many years and are

admired not for their novelty or fashion but for their intrinsic beauty. Moreover, in such things as furniture, upholstery materials, linens, etc., durability and beauty frequently go together, because both depend upon good quality in the materials and workmanship, and if one gets good-looking things, they often turn out to be durable. The size and circumstances of a family sometimes change faster than its good furniture wears out, and unless this possibility is borne in mind when the furniture is bought, the family may find itself stocked with things which still have a great deal of wear in them but are not suited to existing circumstances.

Another important element in the choice of furnishings is the amount of labor required to care for them and keep them in good condition. There is a greater range of choice here than many women realize, and it is a question which is worth more consideration than is often given to it. Rough surfaces like those on cheap earthenware, and worn, rough, and unpainted wood catch and hold dirt and are much harder to clean than smooth ones. Carving on furniture, elaborate castings on stoves, elaborate metal fixtures, fancy-shaped handles on dishes, etc., are things which make cleaning unnecessarily difficult. Polished metal usually takes much rubbing to keep it in condition, and for this reason dull finishes are often preferred on door handles, etc. Sharp angles in moldings also collect dirt and are hard to clean. Rounded moldings where the wall and floor meet have been introduced in hospitals and might well be imitated in private houses, as they make it much easier to remove dirt.

GENERAL AND PERMANENT EQUIPMENT.

The articles which go to furnish a house are so many and so various that it is impossible to enumerate them in a brief article or even to mention all of the more important groups. All that can be done is to discuss some of the latter in a general way which will show how to apply the principles of choice which have already been described.

Some of the articles of household equipment are installed permanently, and some of them are changeable. Many of the permanent ones are built in when the house is constructed and come within the province of the builders. Nevertheless, the woman for whom the house is being built, or who is

choosing one already built, has a right to pass judgment on them, since it is she who uses them and keeps them in order.

If the house is provided with a water and drainage system she should try to get fixtures which are convenient to use and easy to care for. Open plumbing is now generally accepted as more sanitary than inclosed and is not harder to take care of, particularly if the pipes are smooth, symmetrically arranged, and so placed that they are easy to get at. Porcelain-lined fixtures are in common use in kitchens and bathrooms now, and if the interior surface is smooth and unbroken, they are easy to clean, but if the enamel has rough spots in it these will hold the dirt most obstinately. If possible, the kitchen sink, washtubs, bathtub, closet, and washbasin should be so placed that it is easy to clean around and behind them.

There is a considerable choice of material for kitchen sinks, each having its disadvantages and advantages. For example, the porcelain sinks show at once whether they are really clean or not and can be kept tidy easily, provided they are smooth, but they are rather expensive; enamel is easy to clean and not expensive but chips easily; soapstone is durable, but difficult to clean; iron is also durable and is not especially hard to clean, but it does not show dirt and so invites carelessness. Whatever material is chosen, the sink should be placed where the light is good and should be set at the height most convenient for working. This question of height applies also to worktables, washtubs, etc., and will be discussed later.

If a house has neither plumbing nor a drainage system, it should at least have a kitchen sink of good size and height and, if possible, made of material which can be kept clean easily. A suitable pipe should be provided for carrying away waste water, either to a bucket from which it may be emptied or to a drain outside. The latter must be constructed so that it will be sanitary and should not be merely an open trench, which is not only disagreeable but which often becomes dangerous to health.

If the house is to be heated by stoves, plain substantial ones should be selected. It is difficult to see why garlands of leaves and flowers in polished metal or bronze dogs should ever be considered appropriate decorations for stoves, yet

such designs have often been chosen in preference to models which owe their good looks to good proportions and construction. Not only can the latter be more easily kept clean, but they are more in accord with the requirements of good taste than those which are awkward in shape or laden with useless ornaments, so-called.

If the house is heated with steam or hot water, radiators should be selected which are of suitable size and shape and which have plain surfaces without raised designs to catch and hold dirt. Since their main purpose is to heat the room, their size and location depend chiefly on this, but as far as possible they should be arranged so that they will not interfere with the placing of furniture in the room and so that it will be easy to clean around and behind them.

Whatever means of lighting is used—oil, gas, or electricity—simple lamps or fixtures are usually preferable, because they are easier to keep clean than fancy ones, and, if they are made of good materials and good designs, are better looking than very elaborate ones. Light is often used more economically if there are several fixtures in different parts of a room, and if these are planned for in the beginning they can be obtained with little extra expense. In the room where the family sit to read and sew a good lamp or a drop-light on the table or fairly low side lights on the wall are better for the eyes than high central lights. A good light should be provided in the kitchen, especially in the places where the work is chiefly done, such as over the sink and the work table.

Screens for windows and doors are sometimes considered part of the permanent and sometimes part of the changeable equipment of a house, but in any case the house should be well supplied with them, not so much because flies and mosquitoes are disagreeable as because they actually carry disease and are very dangerous pests. The screens which are made to fit the individual windows and do not need to be removed each time the latter are opened are undoubtedly the most convenient, but if they are too expensive, cheaper kinds can be used satisfactorily. If the ready-made adjustable ones are chosen care must be taken to have them fit tightly. If there are any cracks, flies and mosquitoes will find their way in but not out. Door screens should be provided with springs so that they will be sure to close tightly.

Bronze wire mesh which will not rust is perhaps the most durable material for screens. Cheaper wire carefully painted lasts fairly well, and cotton netting is equally efficient as long as it is whole. It is better to have a house thoroughly screened with netting than badly screened with wire, but the netting will have to be carefully watched and frequently renewed to keep it fly proof.

In cold climates double windows are often used in winter, and soon pay for themselves by the saving in coal.

Built-in closets or cupboards are other features of permanent equipment which are most important to the housekeeper. If she has anything to do with planning her house, she should try to locate them where it takes the least possible number of steps to get at or put away their contents. A small closet, provided with shelves and drawers especially adapted to the things kept there, is more satisfactory than a larger closet poorly arranged. In planning drawers it is well to remember that a larger number of shallow ones are usually preferable to a few deep ones, because all of the space in them can be used without piling things on top of each other. Similarly, narrow shelves, preferably not more than a foot wide, are usually more convenient than wider ones and are easier to keep clean. Many housekeepers prefer the movable kitchen cabinets to built-in cupboards for kitchen supplies, because they have a convenient place for all the necessary things and no waste space.

WOODWORK AND WALLS.

The finish of the woodwork and walls of the house is part of its permanent equipment which plays an important rôle in its general attractiveness and the ease with which it can be taken care of. Woodwork of the baseboards, doors, window casings, etc., should be easy to dust and wash. This means round corners and no elaborate moldings. Whether or not such surfaces should be painted or stained and varnished depends partly upon how good the wood is and partly upon personal taste. As a general rule, varnished woodwork is easier to keep in order than painted, but paint covers up poor wood better and can be used in lighter colors, a point which is often in its favor in rooms where there is insufficient light or where a "light" treatment in color and furnishings

is desired. Good enamel mixed with the last coat of paint prolongs its life and makes it easier to clean.

For floors, paint is less durable and harder to clean than well-finished waxed varnish, but if the boards are old and rough it would probably be better to paint them. Carpets or mattings tacked down close around the baseboard may be warmer in winter than rugs which do not cover the whole floor, but they are less desirable, because it is so difficult to take them up and clean them. Not only must the tacks be removed from the carpet, but their larger size makes them more difficult to handle than rugs. For months they remain full of dust and dirt which flies into the air when they are walked on, and for this reason they are very insanitary. If a floor is too bad for ordinary rugs, it is better to paint it and then lay down a carpet rug large enough to cover all but the edges than to tack a carpet over the whole floor. For the floors of kitchens, bathrooms, and passageways which must be washed frequently some material less absorbent than wood is desirable. Cement is sometimes used for back entries, pantries, etc., but it is hard and cold underfoot for the kitchen. Good, heavy linoleum is perhaps as satisfactory as anything for kitchen, laundry, and bathroom, as it is comfortable underfoot, easy to clean, and very durable. Oilcloth is cheaper, but not so durable.

Walls may be painted with any of the good water or oil paints or covered with paper. For rooms where the walls need frequent cleaning or where water is likely to be splashed on them, as in kitchens and bathrooms, a paint which will not be injured by moisture or some varnished paper or other waterproof material is preferable. In other parts of the house the ordinary wall papers are most common because they can be obtained at almost any price and in a great variety of styles and colors. Fashions in wall papers vary from time to time, taste inclining sometimes toward darker tints or larger figures, sometimes toward lighter colors or inconspicuous designs. Such changes in style are not important, however, and the selection of paper suitable for the room is always more satisfactory in the long run. In wall papers, as in furniture, many of the best designs now on the market have been adapted from old ones of different periods. Tapestry effects, for example, are suggested by the real

tapestries which covered the rough walls and broke the drafts in medieval houses, and some of the floral designs come from the silks and velvets with which the luxurious palaces of Italy and France were hung. These have stood the test of time because they are in accordance with the fundamental principles of decorative art. One of the reasons why the wall papers seen in so many rooms are unsatisfactory is that designs good in themselves are used in places where they do not belong. Because a bold floral design carried out in rich brocade looked well on the walls of a Venetian palace, it does not follow that a similar design imperfectly reproduced on paper would look well in a small room of a simple frame house in this country. Extreme designs are always rather difficult to adapt successfully, and it is usually safer to choose simple effects which are sure to prove satisfactory.

It is usually better to consider the wall covering of a living room as a background than as a decoration. This is especially true if pictures are to be hung against it. In wall papers, as in dress, inconspicuous designs and neutral colors are more satisfactory for "steady wear" than the reverse, particularly if one is limited as to cost, for "showy" material of poor quality soon reveals its cheapness.

The exposure of a room and the amount of light in it should be considered in choosing the color for the walls. It is well-known that cream, yellow, and yellow-brown shades on the walls of a room with northern exposure "warm them up" and that soft greens and grays temper the light in sunnier rooms. As a rule large, striking designs should not be used in small rooms. Stripes also should be used cautiously, especially where the rooms are high. The most satisfactory designs are often those in which the figure almost covers the background or in which the color contrast between the two is not very striking. Some of the best ones combine different tones of the same colors in the background and the figures. Pl. XXVII, *A*, shows an example of a paper with an inconspicuous design in two tones of soft brown, in contrast to Pl. XXVII, *B*, which though well designed is unsuited to a moderate-sized room in an ordinary house on account of the strong color contrast between figures and background, and the size of the pattern, the largest flower being some 12 inches in

diameter. A plain paper, such as cartridge or the various so-called "textile" or "oatmeal" papers, can be obtained in good colors and at low cost and is always safe to use. There has been a great improvement in the designs of inexpensive papers in recent years, and attractive ones can be found at almost any price.

The color of the walls usually determines the color of the other furnishings of the room, and really good and pleasing effects in house decoration depend more on such color combinations than on any other single factor. If wall and floor coverings, curtains, and upholstery all blend, the effect will be much more pleasing and harmonious to the eye than if each stands out from the others distinct and hard. A single spot of rich color against such a blended background, say, a table cover, or a sofa pillow, will do more to brighten a room than brilliant colors spread indiscriminately over the walls and furniture. Just as the principal objects in one room should harmonize in color, so adjoining rooms should show in harmonious colors. A hall, for instance, should usually be in neutral tones, so that its color will not clash with the rooms opening from it.

TEXTILES FOR HOUSEHOLD USE.

Textiles of one kind or another make an important part of the changeable equipment of a house. Carpets, rugs, curtains, furniture covering, household linen, blankets, etc., all come under this heading. A general knowledge of the different fibers—cotton, wool, silk, linen, etc.—of which these materials are made, the effect and durability of different dyes, the values of the different methods of cleaning, etc., would evidently be a help to the practical housekeeper. Much has been written regarding color, design, and other matters pertaining to household textiles from the standpoint of the fine arts, but many of the other questions, especially regarding durability, strength, etc., have not as yet been systematically studied. Some of those which bear most directly on everyday household processes are being investigated in this department by laboratory methods, and it is hoped that as useful results may be obtained as have been gained from the scientific investigations of food materials. In the meanwhile, general practical experience is a great help in selecting such furnishings.

As has been pointed out, tacked-down carpets and matings mean too much work in cleaning to be recommended, and movable rugs of some kind are much to be preferred. Rugs large enough to cover the whole floor are not as easy to handle, but stay in place better than small ones. In choosing rugs, one should select those which are firmly woven and which lie flat. If they are too thin or loosely woven they will work up into wrinkles or ridges, especially if they are large. Good oriental rugs are very beautiful and wear a long time, but they are too expensive to be generally used in the majority of homes. Carpet rugs are now manufactured in a great variety of shapes, sizes, materials, and designs, and are very satisfactory. Some of the best are those adapted from oriental ones. Good Brussels and some of the firmer of the pile carpetings are excellent, as are also those which resemble the heavy, old-fashioned "three-ply" ingrains. Old-fashioned rag rugs and their modern imitations have an attractive, pleasing style of their own. They are especially appropriate for bedrooms and bathrooms, but are often too thin for places where there is constant passing. Matting rugs, which now come in good tones of the standard colors, often prove useful, though they are not so durable as good wool. They are particularly suitable for warm climates.

What was said of color and design in relation to wall paper applies also to carpets and rugs. Soft colors and inconspicuous figures wear better to the eye and harmonize better with the other furnishings than gaudy figures on a bright background. The rugs should tone in with the coloring of the walls and should ordinarily be darker-in shade than the latter, not only because they show soil less, but also because they seem to bring the room and its furniture into their proper relations.

Window curtains serve the double purpose of regulating the light and of breaking the hard, straight lines of the casings. Window shades of Holland or similar material are more satisfactory than draperies for shutting out strong sunshine by day and securing privacy by night, but they do not soften the general light of the room as do draperies. The latter, if they come next to the glass, should be light in color and texture and should be easy to launder. If a little

color is desired around the windows, the fashion of hanging straight curtains of some thicker colored material inside thin white ones of lace or muslin is an excellent one. Some housekeepers use only the thin ones in summer when coolness and air are wanted, and put up the heavier, darker ones when cold weather makes the effect of warmth desirable.

In choosing bed coverings the principal thing to remember is that one wants as much warmth with as little weight as possible. For this reason wool is preferable to cotton or to wool and cotton mixed for blankets, comforters, etc. Linen sheets and pillowcases have almost disappeared from general use because of their high price. Cotton ones are, for all practical purposes, quite as satisfactory. All bed coverings should be large enough to tuck in firmly all around the mattress, a point especially to be remembered in buying ready-made sheets, which are sometimes too short for ordinary beds.

It is generally agreed that some material which can be easily laundered is the best for tablecloths, napkins, etc. Real linen is preferable to cotton or cotton and linen mixtures, because it lies flatter, does not look "mussy" so soon, does not leave lint on the clothing, and takes a better luster in laundering. As in almost all textiles, a firm weave is more durable than a sleazy one. Provided the threads are smoothly twisted, coarse table linen is as durable as fine, but it is not as handsome. White is usually preferred to colored material, both because it stands more washing and because it shows at once whether it is clean or not. If neatness is desirable anywhere it must be at the table where we eat, and though white tablecloths mean much washing for the busy housekeeper, she should think twice before she substitutes dark-colored cloths which may be dirty before they have to be changed "for appearance's sake."

Linen is usually considered more satisfactory than cotton for toweling, because it absorbs water fully as easily and dries more quickly. Too firm a weave or too heavy a thread is not desirable, in spite of greater durability, for these make it less absorbent. For hand towels many persons prefer a rough weave like huckaback to a smooth one like damask, not only because it is more absorbent, but also because it gives a better friction to the skin.

There is such an infinite variety of materials for furniture covering that it is almost impossible to include all types in a brief discussion. Leather, wool, silk, linen, and cotton are all used. Leather is dignified looking, and the good qualities are durable, but in the cheaper grades the surface tends to wear off and crack, and it is often rather stiff and uncomfortable. Silk materials are appropriate in certain places, but are too expensive for common use, except perhaps for cushion covers, hangings, and possibly for the covering of a choice piece of furniture. Cotton is inexpensive and does not wear through quickly, but often it does not hold its color well and also catches dirt easily. Nevertheless it is frequently used in cretonnes, chintzes, and similar printed goods and in low-priced velours, tapestries, etc. It is worth noting that mercerizing and some of the other new methods of treating cotton during its manufacture have improved its appearance and also its wearing qualities. Linen is occasionally used in materials similar to chintzes, but its most common use in furniture covering and draperies is in velour, a sort of heavy velvet material which is also made in cotton, but which is more durable in linen. Except for the fact that moths and buffalo beetles are so likely to damage it, wool is probably the most satisfactory fiber for upholstery. It is more durable than silk or cotton, does not catch the dirt as easily as the latter, and holds its color excellently. It is made into a great variety of materials—damasks, tapestries, plushes, etc.

The use to which the room is to be put influences the selection of materials in furniture coverings and draperies. Gay, light chintzes or cretonnes are appropriate for a bedroom, which one wishes to have clean and airy looking, whereas for a living-room substantial looking material like velour or tapestry would be more suitable.

FURNITURE.

In furniture itself, good quality depends on well-chosen materials, good design, and good workmanship. Wood is the most common material, but metal is sometimes substituted for bedsteads, and wicker or rattan for chairs, couches, and small tables. Soft wood, especially pine, is used for cheap painted chairs, kitchen tables, etc., but harder varie-

ties are preferable for general use. The important qualities in furniture wood are strength and beauty of grain, though color is also a consideration. Oak is probably the most common kind now used in standard-grade furniture, and mahogany is always in demand for handsome pieces. Bird's-eye maple, cherry, rosewood, etc., are also occasionally seen. Black walnut is another beautiful wood for furniture, but it is seldom seen in new pieces now, partly because the supply has run short and partly because it is chiefly associated in our minds with the heavy, overornamented style of furniture for which it was used some 50 years ago and which has now fallen into disfavor. Some of the more expensive woods are imitated by staining cheaper kinds.

The advantages of wicker furniture should not be overlooked. It is light, comfortable, and durable; some of the simpler designs are very good and combine well with other kinds of furniture, especially when the wicker is stained a harmonious color.

Any piece of furniture should be and should look strong enough for the use to which it is to be put. Chairs and couches should be selected for the comfort of the persons who use them, and a living room should be provided with a sufficient variety to suit all the members of the family. As regards design, those which suggest comfort and strength should be chosen rather than "gimcracky" types, and if there is any ornamentation it should be placed where it brings out the important lines of the piece rather than seem to be put on for its own sake.

The number and size of the pieces of furniture in a room should bear some relation to the size of the room. Though crowded tables, insufficient bookshelves, or too few chairs are inconvenient, having a room so full of furniture that one bumps into it at every turn is even worse.

It should not be forgotten that well-distributed empty spaces add to the beauty of a house. In cities where extra space means extra cost, small, overcrowded rooms are sometimes unavoidable, but women who are so fortunate as to live in roomy country houses ought to make the most of their privileges and give their families the pleasure of ample space, even if this means banishing to the attic a few superfluous pieces of furniture.

TABLE AND KITCHEN UTENSILS.

Table and kitchen utensils make up another important group of furnishings. Very often the same kind of articles in different qualities are found in both sets. Table plates (Pl. XXVIII, *A*), for example, differ from kitchen plates more in their attractiveness than in any other way. Real china or porcelain, which is always translucent and of which the choice tablewares are usually made, is more suitable for occasional than general use because it is rather fragile, but its light weight, fine color, and smooth surface are undeniably beautiful. Earthenware with a good glaze usually ranks next to porcelain and is very satisfactory for general use. The old blue and white Staffordshire wares, which were so highly prized in colonial days in this country, belonged to this type, and similar ware (see Pl. XXIX, *D*) is still to be obtained in many satisfactory designs, one of the common ones being the well-known willow pattern. Large and conspicuous designs usually become tiresome on things which are used as frequently as table dishes and it is safer to select plain white or some all-over pattern or inconspicuous bands of flowers, color, or gilt. It is usually wiser to buy tableware from an open-stock design than to take the regular sets, which often include unnecessary pieces and can not always be replaced when broken. Good, plain shapes are ordinarily to be preferred to more fancy ones, because they are better adapted to their purposes and are easier to clean than those which have irregular surfaces and "nubbles" which catch and hold the dust. Pitchers, teapots, and other dishes with openings so small that the hand can not be inserted to wash and wipe them are to be avoided. Plate XXVIII, *B*, illustrates a teapot which is hard to clean on account of both the elaborate handle and the small opening. Kitchen crockery, like tableware, should have a good, smooth-finished glaze which will clean easily and not chip.

Glassware is to be obtained in almost any grade, from the most expensive cut glass to the coarse kind used in jelly tumblers. The choice depends chiefly on the pocketbook, but it should not be forgotten that plain glass or glass cut in a simple pattern is easier to keep shining and is usually

more beautiful than any except possibly the very expensive types of elaborately ornamented glass. Plate XXIX, C, shows a pitcher of plain inexpensive glass and a shape which is both graceful and easy to care for.

Knives, forks, and spoons are made in several kinds of metal. Silver is the most durable and always has an intrinsic value. Plated silver is made so well and so cheaply nowadays that almost every family can have at least a supply of forks and spoons. Many prefer steel-bladed to silver knives for the main course at a meal because they cut better, but they are harder to care for than silver or plated ones. Tea sets, pitchers, and other serving dishes come in good designs in plated as well as solid silver. If the family happens to own handsome ones, they make appropriate side-board ornaments; but they require frequent rubbing up to keep them bright, and unless they are needed every day on the table it is better to put them away and reserve them for special occasions than to let them stand about tarnished.

There is much discussion as to the best material for cooking utensils. The truth is that no material is best for all, and the work is most easily and satisfactorily done if different kinds are chosen for different needs. Earthenware is excellent for certain purposes, as it holds the heat evenly, and baking dishes or casseroles in which the food can be served as well as cooked save dish washing. Such wares are not adapted to all kinds of cooking, however. The great heat of fat in frying, for example, especially when the hot fat spatters up against the cooler parts of the dish, is likely to crack it. Enameled ware is light in weight, easy to clean, and is little affected by acids; it is excellent for mixing dishes and for keeping food in, but the cheaper grades do not always stand the heat of cooking well and soon chip. The enamel should be free from bubbles and have smooth, evenly finished edges which will not chip readily. Aluminum heats quickly and so economizes fuel, comes in very good shapes, is light to handle, and very durable; it is affected by alkalis, discolors easily, and is rather hard to clean. Nevertheless, since it does not rust, it is especially desirable for teakettles, double boilers, kettle covers, etc. Cast iron is still common ware for kitchen utensils, but it is being replaced in many homes by materials which are lighter in weight and less

expensive. Good iron pans and skillets are excellent for some kinds of cooking, however, because they heat more evenly than those of other materials, and they last for generations. Iron rusts easily and is affected by acids as aluminum is by alkalis. It is because of this action of acids that iron dishes sometimes injure the color and flavor of food, and for this reason food, especially acid food, is usually not allowed to stand in them. Tin and sheet iron plated with tin are in common use in most kitchens because they are rather inexpensive, but they are not entirely satisfactory. Unless they are unusually heavy, they lose their shape quickly. In thinly plated kinds the tin wears off and the iron beneath rusts easily.

The shape of kettles has much to do with the quickness with which their contents heat. The smaller the surface which comes in contact with the heat, the longer it will take the contents to become warm, and vice versa. This means that in a kettle with a broad base the contents heat more quickly than in one with a small base. This point should be especially considered where gas stoves are employed and fuel must be carefully used.

Because a thing is to be used in the kitchen is no reason why it should be ugly to look at, and if the housekeeper can find mixing bowls and kettles which are attractive in shape, color, and finish, as well as convenient and easy to clean, they will give her a sense of pleasure every time they are used.

ARRANGEMENT OF KITCHEN FURNITURE.

Since the kitchen and laundry are the rooms where the hardest part of the household labor is performed, the question of efficiency in their equipment is especially important. This efficiency depends not only on having the most convenient devices for doing the work, but also on having them placed where they can be most conveniently used. If a woman has to go to a distant closet or pantry every time she wants a dish or a little flour, or even if she has to cross a large room as she moves between the stove and the worktable, the sink and the cupboard, she will waste a considerable amount of energy in the course of a day's work. It certainly is worth her while to study her movements as she works and see if by changing the place in which some things

are kept or by moving the worktable or the kitchen cabinet she can not reduce this waste of energy. As has been already suggested, the height of worktables, sinks, and laundry tubs has much to do with the ease of working. Different kinds of work, of course, call for tables of different heights. Ironing, for example, which consists of pressing down hard, is easier on a lower table than would be chosen for general work. The height of the worker also makes a difference. From 32 to 36 inches from the ground is the usual height for general worktables, and the bottom of the

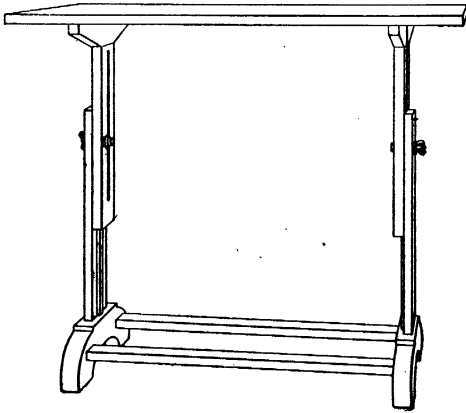


FIG. 20.

sink should usually be 30 or 31 inches from the floor; but it is better for each housekeeper to test out the matter for herself before she buys a new table or has a new sink set up than to trust to general rules. These and other points in kitchen equipment have been discussed in a recent *Farmers'*

*Bulletin.*¹ Plate XXX shows a woman working at a table of correct height and at one which is too low, and makes clear how much discomfort and unnecessary effort comes from bending over the latter. An attempt is being made in the calorimeter laboratory of the Department of Agriculture to measure exactly how much energy is expended at tables of different heights, and it is hoped to extend the work to include the expenditure of energy during various household tasks performed under favorable and unfavorable conditions, so that questions of efficiency in housework can be placed on as accurate a basis in the dairy or the factory. A table (see fig. 20) with an adjustable top which permits the working height to be easily changed has been made for experimental use in the calorimeter laboratory, and the same principle might be applied for use in the home.

¹ *The Farm Kitchen as a Workshop.* U. S. Dept. Agr., *Farmers' Bul.* 607 (1914).

IMPORTANCE OF STUDYING HOUSEHOLD QUESTIONS.

A generation ago such subjects might have been thought beneath the dignity of scientific investigation, but the last few years have seen a great change in this respect. The way in which our homes are run, or, in more technical terms, the science of home economics, is now in much the position that scientific agriculture was in 20 or 30 years ago. The leaders had shown that science can improve crops and some of the more progressive farmers were giving the new ideas a practical test, but many of the rank and file were still doubtful whether it was worth while. Few farmers of to-day, however, would care to go back to the days before experiment stations, fertilizer control, etc. The fact that the problem of making the home as efficient as possible includes so many different kinds of questions will make necessary a great deal of study along many different lines, just as agriculture has included problems as different as those of insect pests and cheese making. In solving these every intelligent farmer who has studied them on his own farm has done his part as well as the special investigators in the laboratories. In the same way, every intelligent housekeeper who studies the household problems of cooking, cleaning, and furnishing and tries to solve them with the help of both practical experience and scientific information hastens the day when household management can be as accurately planned as that of the factory and the farm.

Planning and equipping a home in an accurate and systematic way does not mean that it should not have any individuality. On the contrary, while the principles which govern a wise choice of furnishings are the same for all kinds and conditions of houses and families, the articles actually chosen in accordance with these principles would vary just as much as the house and the families for which they are intended. Whether one's house is large or small, things should be chosen to fill actual needs, and to fill them in the way most economical of money, labor, and materials, and, as far as possible, to give pleasure as well. If the house or the family is large, different things will seem necessary, convenient, economical, and suitable, from those which would answer the requirements if there were less space or fewer persons to be provided for. The size of the income also

influences choice, but the fact that one can not pay high prices does not mean that one must always put up with inconvenient or unattractive things. A table of easy working height probably costs no more than one too high or too low, nor would making wooden blocks to set under the legs of a low one be an impossible expense; yet a difference of a few inches may mean the difference between working easily and getting tired every day. Increasing the convenience of working by such simple means as moving a table or stove or rearranging the kitchen cupboards or kitchen cabinet may make a noticeable difference in the number of movements necessary for the daily work, and this saving of energy not only lessens the labor, but also prevents the irritation which an intelligent person naturally feels at wasting effort.

As far as the element of pleasure or beauty is concerned, it is the necessary things rather than special ornaments which make the greatest difference in the attractiveness of a home. Comfortable furniture of good plain design and harmonious colors on the walls and floors are more necessary to make a house restful and pleasant than many pictures and much bric-a-brac. Fortunately, it need not cost any more to get these necessary things in satisfactory forms than in poor ones, though it may mean choosing more slowly and carefully.

If the best equipped house is the one which in all its features and furnishings are most completely suited to the needs of its occupants, the standard for every family must be adapted to such individual peculiarities as the location of the house, the amount of the family income, the size of the family, and their different occupations and interests. Judged by this standard, a woman who, with limited means, has made a convenient, comfortable, and attractive home out of an unpromising, inconvenient farmhouse has shown greater ability than one who, with the help of an expensive decorator, has obtained a good effect in a house equipped with all modern improvements.