a constant draft below the floors. This tends both to cool the house and to carry off any offensive exhalations from the ground underneath.

An indispensable requisite of every good dwelling is protection against external heat and cold. The walls, floors, and roof, must be so tight as to exclude the winds and cut off all unwelcome drafts of chilly air. They must, also, be so constructed as to retain the heat within in winter, and to exclude it in summer. The chimneys and fireplaces are to be constructed so as to burn economically such kinds of fuel as the circumstances of the locality render most expedient. Their position and number should be such as to accommodate all the rooms where fires are wanted.

Too little light is admitted to our dwellings. Even in those which are brightest, the doctors say there is not enough of direct sunshine. To prevent the fading of carpets, or for other reasons, low and small windows, green blinds, and one or more thicknesses of curtain, are all made use of to render our rooms as dim and dismal as possible.

We pity the palid and sickly children of poverty in cities, crowded into overflowing tenement houses, which tower high beside narrow alleys, where sunshine never penetrates, or sympathize with the prisoners sighing in dark dungeons. Why is the darkness worse to them than to those delicate young ladies who are always thickly veiled when they go out of doors by day, and from whose rooms the bright sunlight is at all times studiously excluded? Their chalky countenances and imperfect eyesight attest the results of the practice. It is said by good authority that the superior healthfulness of the English women, and the retention of their beauty to a period of life much later than that at which nearly all American ladies fade, is owing not less to their exposure to sunlight than to their enjoyment of the open air. Light was the first day's work of creation. It is a sin—a sin against light—to shun it and exclude it. Let us have large windows, and enough of them.

But, though we want light and sunshine, it is not necessary that we should endure the latter, with its accompanying heat, at all times of the day or year, and on every side of our dwellings. In those directions exposed to the sun's rays in the hottest part of the day there should be some protection. A verandah shading the walls will do much toward moderating the heat within the house. It also shelters the windows from storms, permitting them to remain open through summer showers, and affords a cool and pleasant place for sitting in the evening, unexposed to the unwholesome influences of the falling dew. Verandas have always been characteristic features of southern houses. In more northern regions they are to be used more sparingly; but in the right place, and to a proper extent, they are there none the less useful or desirable.

It is always desirable to have the interior division and arrangement such that each apartment shall be well fitted for its appropriate uses, and that all shall be so connected and placed as to bring together those between which passage is most frequent. It ought to be practicable to pass from any one room to any other without going through a third, and without waste of room in passageways. What halls are needed, if made spacious, contribute much, in warm weather, to the coolness and pleasantness of a dwelling, by affording through currents of air.

They should, however, be made so that these currents may be cut off when desired. If too large, they add to the labor of a family, and increase the trouble of warming the house.

Contrary to a too common practice, the kitchen is to be considered the most important apartment of a farm house, as on the perfection of its arrangements depends much of the comfort of a family. It ought to be large enough for the easy performance of all the work that is to be done there, without unnecessary magnitude. All its accessories should be arranged around it in the most convenient manner, and the whole must be adapted to the pursuits, the habits, and the peculiar notions of the housewife. If she personally superintends her own work, or does a large share of it with her own hands, as most farmers and mechanics' wives do, there should be a ready communication with the ordinary sitting-room, or the one where her time is mostly spent, that neither time nor steps may be wasted when she is suddenly called from one room to another by her multifarious labors. The place where crockery is washed should be near the closet where it is kept, and not far from the entrance to the eating-room where it is used. The pantry where provisions are stored ought to be close to the table where they are prepared for cooking, but so far as possible cut off from the kitchen steams, and provided with its own means of ventilation. The secret of the ease with which some women accomplish so much more than their neighbors may, in part, be found in such little plans for economizing labor as these.

If servants are depended upon for the work, it becomes necessary to provide a storeroom, where provisions may be kept under lock. It is better to have an entrance other than from the kitchen, with, perhaps, a small window for the serving out of stores. It should be lighted and ventilated, and capacious enough for convenient arrangement of provisions, and, generally, is best located in the coolest corner of the house. In such a household, too, it is better to separate the kitchen from any other apartment by at least two doors.

The supply and kind of fuel will control the form of the kitchen fire-place. Appliances for baking and boiling, with a constant supply of hot water, are, of course, essential in any event. Whether to these are to be added conveniences for roasting meats, and other operations by an open fire, for boiling clothes, heating irons, &c., is a matter to be determined before building. If the family washing is to be done in the kitchen, as is often the case, not only the fire-place, but the whole kitchen should be contrived with reference to it, so that the tubs, the ironing-table, and the drying-horse, shall interfere as little as possible with the every-day operations there carried on. But it is always better, if practicable, even in the smallest dwellings, and frequently is more economical in the first instance, to have a distinct room for washing, having its own fire-place, with boiler set in brick-work, and its own drain. This will be found very convenient for many other than laundry affairs, which otherwise would interfere sadly with the

daily routine of the kitchen.* Such a room need be neither large nor expensively furnished.

On a dairy farm, unless so extensive as to justify an entirely distinct establishment, there will be much additional work to be done in the kitchen, affecting the dimensions proper to be adopted, and the arrangement of its appendages. The store-room will need to be larger, or there must be another room specially devoted to the dairy, in a cool position, and capable of being at the same time darkened and ventilated.

A cellar is needed for the storage of many articles which must have a cool or moist air for their preservation. Though the construction of the cellar is seldom the subject of much care, and its qualities are looked upon as matters of luck, there are some things worth attending to, which will materially affect its value. Its ventilation and drainage have been already mentioned. In the cellar is oftenest felt the need of a protection, which should extend throughout the building, against the inroads of rats and mice. The division and fitting up of this part of a house should be, with reference to convenience of getting in provisions, without needless or dangerous obstruction to those who shall have occasion to explore its dark recesses. The inside stairs should be from the kitchen, or contiguous to it; and, for facility of frequent cleansing, there must also be an entrance on the outside, or from a wood-room.

There are men who, year after year, leave their fuel scattered around the house, to be wet with every rain, and only to be cut up as wanted for daily use. As such persons will not be likely to read suggestions for improving their mode of life, there is no occasion here to urge the importance of wood-houses; but the hint may be in place that the wood-house should have a covered connection with the kitchen, and that under its roof may be located the tool closet, outer cellar, stair-way, and other conveniences, to the increase of both the comfort and health of the family.

The eating-room may be considered a place where the necessary amount of food may be swallowed with the least loss of time; and, in

* Figure 3 is the plan of a kitchen-wing of moderate accommodations. The kitchen itself is perfectly symmetrical, and connects on one side with a closet, hall, cellarway, and one of the front rooms. On the other side are a dish pantry, with sink, a store pantry beyond, and a wash-room behind the side entry and back staircase, with oven and clothes-boiler. In this case the kitchen is relieved of much of its most troublesome work, and would be a very pleasant room.

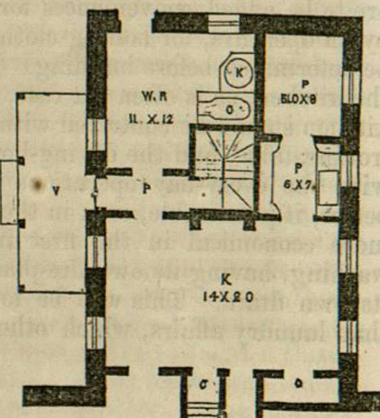

Fig. 3.

this case, the table is very likely to be set, not in a distinct room, but as near where the food is cooked as possible; or, it may be recognized as the gathering place of the family where, at regular seasons, all the members come together to enjoy, not alone the pleasures of appetite, but the higher and more lasting ones of social intercourse. From the custom of the family in this respect may be judged much of their character. If the anticipations of mealtime are connected with any other enjoyment than such as the cattle may have, in common with their keepers, it is desirable to make the room as pleasant as practicable, to escape the effluvia of the kitchen, as well as to avoid the necessity of hurrying the repast to make room for kitchen-work.

The dwelling is to furnish proper apartments for lodging all the members of the household, and such provision for the accommodation of occasional guests as may be expedient. The amount of space devoted to sleeping-rooms must be regulated much by the means of the builder. There is a wide range, in this respect, from the house where each individual occupies a separate apartment to the one in which there are beds in all the rooms. It needs no argument to show the undesirableness of using, at night, rooms devoted to the common household purposes during the day. All bed rooms, whether occupied by one or more persons, should be easily and safely accessible, airy, well lighted, and so finished as to be protected from external heat and cold.

To none more than to those engaged in agricultural occupations is the frequent use of the bath essential, on the score both of health and comfort. The room required is so small, and the expense may be so light, that a bath room in a farm-house seems hardly to be a matter of choice. Of course, the extravagant conveniences of city mansions, with the luxury of cedar and marble, carpets, and hot air, with hot and cold water running at the touch, from silvered pipes, are not to be had without proportionate cost, as well as great trouble in the arrangement of the house, and some danger from leaks. But a plain bath-tub, to be filled, and perhaps emptied, by hand, in a small room on the ground floor of the house, or one of its appendages, is within the means of a house builder. If once put in, and fairly tried, it will not be removed by advice of the family physician.

The first demand which ladies make, when they begin to talk about a new residence, is for closets. They want pantries for their kitchen implements and stores, of course. There must be large clothes-presses, in connection with the sleeping rooms, especially those of the feminine part of the household, for their wardrobe is expansive in these times. Then, there are the blankets and quilts to be stowed in the summer, besides a thousand things which have to be kept, but are seldom, or never used, altogether making a great deal of room for such purposes that must be found somewhere. This looks like a little matter, but, as usual, the ladies are right. There are few things that add more to the comfort of a residence than proper conveniences of this kind, and the skill of the designer is exhibited in the economical provision for this want as often as in the magnificence of the parlor, or the symmetry of the exterior.

So far, we have considered only such things as pertain to physical comfort. All these features would be desired though the house were not to be occupied by a single individual who had an idea or an aspiration beyond

his mere bodily enjoyment, or knew that life had any duties or pleasures higher than eating, sleeping, and avoiding pain, and overmuch labor. But there are duties as well as enjoyments of a higher nature than these clustering around a family home. Here is the center of all the best associations of life. Here the education of the rising family is to be mainly conducted, and the foundation laid of the character which, for good or ill, is to continue through life. It is important that obstacles to its best development should be removed, and whatever of assistance in this work may be derived from the objects of daily familiarity should be secured.

In this respect, the dwelling has a double function to perform—contributing to the enjoyment, and aiding in the education of its inmates.

In all things it should be made as attractive and cheerful as possible. Whatever promotes convenience, also tends in this direction, but much may be secured by attention to the apparently minor details of arrangement.

Every point and portion of the structure should be consistent with truthfulness. The art which obscures unpleasant features, or makes prominent those more agreeable, which copies a natural form for its beauty, or paints a surface a hue pleasing to the eye, which would otherwise be harsh and objectionable, is never out of place. But the deceitful artifice which represents any object to be that which it is not, or which in any way violates the most downright sincerity, ought to be offensive to the adult, and is always dangerous to the young. It is consistent neither with good taste nor good morals—never in opposition to each other.

The various labors and occupations carried on by the members of the household should have apartments and accommodations suitable to each, and so contrived that they may not interfere with one another. The sewing of the family can be done in the kitchen, but it certainly is not the best arrangement, if a light and pleasant room can be used elsewhere without the necessity of entirely removing work every time it is laid down for a moment. Such a room, if used as a family sitting room, should have whatever advantages of pleasant prospect the site may afford. It should be a quiet place, undisturbed by any of the more active avocations of the family. In many families there is but one such room, and in it those who read and those who work, and the younger ones who try to study, as well as those who play, all are grouped together, some disturbed and confused by the noise around them, or the rest silent, solemn, and stupid. There is no cheerfulness in this.

There was a low, brown house, on a bleak and rocky hill, just at the outer edge of a Massachusetts school district. Its front entrance was perpetually closed, but at one end the door opened directly into the large, low, dingy kitchen, dimly lighted by a single small window, opposite to which, stretching its huge dimensions along the side, was the yawning fireplace, roughly built of stone, with a blazing fire of green wood in one end. Between the two stood the tea table, spread with all imaginable and unimaginable farm dainties, awaiting the arrival of the schoolmaster at his temporary home, in his routine of "boarding round."

When the table had been removed, a stand was brought for his special service, from the best room, to hold the sputtering, dripping,

dipped tallow candle, by whose feeble light he painfully perused his book. The two lads, his pupils, not allowed to profit by the unusual extravagance of two candles, were left to seek their illumination from the blaze of the hickory on the hearth or the candle on the high shelf above. By the same light the father whittled out rake-teeth, and the mother patiently worked at the week's mending, only occasionally stopping to try to still the cries of some of the younger children, who rolled and tumbled promiscuously over the hearth, and in and out of the capacious fireplace.

Is it any wonder that those boys dreaded the approach of evening; that they preferred the sunny side of the barn to the house, and the companionship of their favorite cattle and colts to that found around the family hearth; or that they ranked at school among the dull scholars; or that they learned no lessons at home?

They did learn lessons at home, however, which a long lifetime would not efface nor wholly counteract, but they were not such as were read in their books by those who taught them.

It would not be so easy to draw the companion picture from the life. May we not hope that fit subjects will be more frequently found in the future than in the past?

A mature and disciplined mind can be fixed upon a study, regardless of the confusion around; but it is not so with children. If they are to learn lessons at home, they should have facilities for doing so without confusion. Generally, too, there ought to be a place where reading or study may be pursued by the older members of a family, without being disturbed or imposing a restraint upon the conversation or even the hilarity of those not so engaged. The room need not be large. It might serve, generally, as the office, where the farmer should keep his account books, his maps or plans, his agricultural books and newspapers, and transact business with his neighbors. Would not such a room be remembered pleasantly in later years?

A most important object is the durability of the structure—a permanence, if possible, that may allow children's children to visit their ancestral home—at any rate, a construction so substantial that the expense and inconvenience of great or frequent repairs may be unnecessary, and the evils of early dilapidation avoided. Security from fire is also to be thought of, and effected to the greatest practicable extent.

Thought should also be given to future enlargement, that, as habits change or condition improves, there may be room to grow, without bursting and discarding the shell which is found too contracted.

It is not well to build without thought for the times when sickness will claim a room for its accommodation, nor to overlook the possible demands of social parties, occasional meetings, or even more solemn occasions, which may gather a concourse within the walls.

The house may contribute much to that satisfaction which results from the love of order. The value of closets, in affording "a place for everything," has been alluded to. As this is different from "tucking away" things, to put them out of sight, it is important that the closets should be lighted and well fitted with shelves and hooks, even if not large.

But this is not all. The appreciation and enjoyment of regularity, in form or arrangement, is one of the first of the faculties of taste

which exhibits itself. It is developed in different degrees, some persons seeming never to possess it all, and a still greater number never getting beyond it, or realizing that it is not the rule or measure of nature or art. A person of the former class, reared in a house in whose planning regularity was not thought of, its rooms all askew, and its exterior one inextricable jumble, may not be disturbed by its disorder; but one with a sensitive disposition, though he may not understand the cause, will suffer irritation every time his eye falls upon an object of which the portions on either side of its center are unlike. This feeling should be respected, both in consideration of the comfort of those whose habits are fixed, and the unconscious education of the young. It has its modifications and limitations, as we shall perhaps see, by and by. There is a symmetry higher than mere regularity, such as is seen in a magnificent elm, true in outline, but with no apparent correspondence or similarity of form in its branches.

It is the most perfect symmetry, combined also with variety, and this, too, it is desirable to accomplish in the house. There are houses with rooms all alike, in size, form, and relative position, and on a paper plan they appear very regular and pretty; but as no two of the rooms are to be seen at once, the advantage of their uniformity is imaginary rather than real. The same hint applies to the exterior. In all these things variety is to be welcomed, when introduced by convenience, and is to be sought for its own sake. Even birds' nests are not all alike, but vary with materials and situation.

Another feeling, which all experience, to some extent, but some more keenly than others, is an appreciation of gracefulness; the easy manner by which some persons can do what they please, in the first trial, in just the right way, without a superfluous motion or a hesitating one. In buildings, this feeling is gratified by those means by which the eye is pleasantly led along from one part to another, unoffended by harsh contrasts, abrupt changes of form, or obtrusive features. This feeling, too, is to be gratified, so far as practicable, but not at the expense of decision—the expression of purpose, which may be played with, but must not be obstructed.

And this is, after all, the chief thing to be kept in view, that, throughout the house, in all its proportions, arrangements, and minutest detail, everything shall be done for a well-considered, appropriate, and consistent purpose. Whatever is more than this is superfluous and injurious. The house being made for the purposes which have been named, and others of like nature, the whole external appearance should express them, unmistakably.

It may be difficult to make grown men comprehend what is meant by the *expression* of a house, but children understand it. How common is it to hear them, when traveling, characterize the residences they pass as "staring," "lonely," "wide-faced," &c., or to compare them to some person peculiar in feature or costume. It is certain, that some of the greatest faults of modern houses arise from attempts to make them express what is not true, by false representation of their component material, or fictitious indications of the habits and avocations of the inhabitants. The perfection of house-building may be considered a dwelling that meets the necessities of your disposition and mode of life, and proclaims to all persons what that disposition and mode of

life are; that, being a cherished and cherishing home, it shall appear so to all who see it.

But, says some lady: "In *our* house we wish to consult beauty, and your rules would restrict us to simple utility."

Perhaps it is best not to talk about beauty, until we understand what we each mean by the word. But if everything about the house is satisfactory to your own settled and well-defined feelings, is not that beauty enough? If it is not satisfactory, and you can point out a good reason why, then you have shown a *purpose* that it is proper to serve and to express.

Says another: "You have made no provision for any ornament or decoration. You would make our houses bleaker than our barns." Look again: If ornament contributes to gracefulness, or decision, or the expression of any other purpose or feeling consistent with your disposition and the real uses of the house, it is not only allowable but desirable. If, without any design, it is to be put on, it had better be left off. It is worse than savage finery. If in any design there is anything that can be taken away without being missed, either for its own effect of its influence on some other member, it does not belong there, is in the way, and should be removed.

"But what if I am one of that kind that cannot walk between hedges, but must make occasional leaps, just to show my vivacity and impatience of restraint?" Certainly, vivacity and exuberance of fancy are things very proper to show in their proper places, and nothing *serves its purpose* better than the expression of such things in the decoration of a dwelling. But your caprices must appear as such, and not be monotonously strung around a whole house. A really witty man does not copy jokes laboriously out of old almanacs.

"If we adopt this principle of using no feature of utility or decoration but for the execution or expression of a recognized and well defined purpose, what becomes of all that has been taught about congruity of styles? Shall we let all the past experience of the world go unused?" By no means. In house building as in making your farm machinery, it is your business to determine what you want. The mode of supplying the wants is a matter of skill. If you attempt it yourself, you must study and practice long and patiently, or your work will be very improperly done. When it is done, it will be found that others have already had to give (in part) the same expression, and to produce the same effects. The details invented by them are suitable for you, so far as the purpose for which they were invented coincides with yours. As the original purposes of each recognized style of building are commonly consistent throughout, and at variance with the purposes of other styles, so these details are generally harmonious when used together, and incongruous when mixed. It does not follow that if we adopt one feature of a style, we must copy it entire. To select and adapt judiciously to our own ends the work of those who have gone before us, is to use it nobly; to follow it servilely, without adaptation, degrades it and disgraces us.

We need not understand why these consistencies and incongruities exist between various forms, or how they operate on the mind; but before we attempt to separate or combine details, we ought to know

that they do exist, and what they are, and most carefully to regard them in all our designs.

But here comes one who complains that he does not like the idea that his house must show how he lives, and what his business is, and asks, "Why cannot I properly live in just such a house as my neighbor, the lawyer?" You can, if you live in the same way; but if, while you are plowing in the field he is dining with his guests, and while he is studying his cases you are asleep, what propriety is there in your building a great dining-room, or a library never to be used? If your kitchen is to be used for butter-making, and cheese-making, and feeding a half score of farm hands, is it not better to make it large enough for those purposes than a little thing like his, where only the cooking is to be done? If, however, you are unwilling the world should see these differences; if you are ashamed of your occupation, or, in other words, ashamed of yourself, may not I, too, be ashamed of you?

There is one more quality to be mentioned, which is, in most cases, the first and most constantly thought of, and that is, economy. But the economy of construction too often obscures the economy of occupation, really the more important of the two, though neither need cause the sacrifice of the other. Indeed, some men seem to build, not so much to make a house, as to avoid the expenditure of money.

It is sometimes thought that nothing can be consistent with economy that does not, in some way, tend to the increase of wealth. This is not true, if the judicious use and expenditure of money is as important as its accumulation. The cooking of meat does not increase a man's income, but no one would, therefore, consider its cost wasted. Neither is the money spent in what is sometimes called the ornament of a house wasted, if it promotes the objects for which a man lives, and for which his money is valuable to him. The question is, what, in each man's case, are the purposes of life?

Men often hesitate to expend money for any feature of a dwelling which will not add to its market value, if it should be sold. It is very proper to consider the contingencies which may render the sale of a homestead necessary, in the next generation, if not in this; but, at the same time, it is to be recollected, that the things which make it most desirable for the original possessor, those which fit it to him like a garment, are the very ones which will not suit a different person, and may not, willingly, be paid for. They ought to be provided with no expectation that they will ever return their cost, except by the greater value of the whole house to the builder himself.

After considering the purposes of building, we come to the investigation of the materials and methods of construction, by which these desired objects are to be secured.

To prevent heat from passing in or out of a house, the most effectual non-conductor is confined air. Of solid substances, the most valuable for this purpose are generally the most porous, or those having the greatest proportion of air confined in their interstices, and the worst are the heaviest and most compact. For this reason, sawdust, charcoal, tan-bark, &c., are used for filling in the walls of ice-houses, though often rendered inefficient by becoming saturated with water, which is comparatively a good conductor. A simple, hollow space in which air is confined between the inner and outer surfaces of a wall, is the most effectual and readiest mode of rendering it impervious to heat, and it makes little difference how wide or how narrow the space is, if the air within is entirely cut off from escape or change. Whether the material is wood or masonry, every good wall, where the retention or exclusion of heat is an object, should be built in this way. It is as essential for summer as for winter; at the south as at the north. Care, however, must be taken that the inner portion of the wall is not massive enough to absorb so much heat as sensibly to affect the temperature of contiguous rooms.

A warm wall will almost always be a dry one. It is frequently, perhaps generally, thought that the moisture which stands on basement, and sometimes other exterior walls, is caused by water passing through them from the outside. A glance at a water pitcher, in a summer day, ought to correct such an opinion. If a wall is poorly built, it may become saturated with water, which shall escape by evaporation from the inside, and affect the air; or, in a severe rainstorm, it might, in rare instances, be driven through, so as to trickle down the inner surface; but in neither case would it show in the manner spoken of. If, as is sometimes said, the dampness is absorbed from the ground, the very capillary attraction which drew it into the masonry would hold it there. Moisture collected in this way is vapor from the air of the room, condensed by contact with a cold surface, and indicates both a bad atmosphere and a conducting wall.

Thick and solid masonry, of course, only aggravates the evil. The most damp and unwholesome rooms are found in buildings of the heaviest construction, where the substance of the structure acts as a great reservoir of caloric, receiving or giving out its supplies as the contiguous air, at different points or hours, may be warmer or colder than its own average temperature. This average does not differ greatly from the mean temperature, day and night, of the different seasons, and is considerably lower than that by day in the summer months.

In building cellar walls, stone will generally be used, where stones are found. They should, if practicable, be laid with a flat surface down, and made so solid as to keep out water and rats. Where it can be obtained readily, it will always pay to lay cellar walls with hydraulic cement, on account of solidity and durability. As coolness is desirable in a cellar, there is no occasion to make cellar walls otherwise than solid at the bottom. They will then always be just as warm as the earth around them. So far down, however, as they are exposed to the air, or in contact with earth liable to freeze, they may be so cold as to endanger the contents of the cellar, and should be protected by a coat of lathing and coarse plastering, formed on wooden strips, a little way from the stone work.

Brick walls for cellar purposes ought, whenever practicable, to be laid in hydraulic mortar, and, in most soils, covered with a perfect coating of cement on the outside, as they are otherwise liable to absorb so much water as to affect the atmosphere inside and to impair their durability. The foundation should be level, and care must be taken that the surface of the trench on which it stands shall not have been broken or disturbed.