

inent members of every family, should have a separate room, exclusively to himself or herself. Where two or three children occupy the same room, neither feel their personal responsibility to keep it in order, and hence grow up habituated to slatternly disorder, whereas, if each had a room "all alone to themselves," they would be emulous to keep it in perfect order, would feel personally responsible for its appearance, would feel ashamed of its disarrangement, would often find themselves alone for writing or meditation, but especially will feel a perfect satisfaction of the *home* element;⁸ whereas, otherwise, this powerful faculty is of necessity left in a craving, home-sick state, and this throws the entire mind also into this same home-sick, dissatisfied, cross-grained state, which irritates temper and ruffles amiableness. Probably few readers, never having experienced the luxury, while young, of this "own room" feeling, are at all prepared to duly estimate this point; nor would the writer, but for some observations which would probably have escaped those not habituated to the analysis of character—such as tracing discontent to its real cause. Think a moment. Suppose you, an adult, to occupy a house in common with another, with no part of it *exclusively* your own. How infinitely rather occupy inferior rooms *all your own*. Now this "own" feeling appertains as much to children and their home as to adults, though less in *degree*. This indispensable human need this plan supplies.

Again, children, especially from twelve to twenty, lose much time for study, writing, musing, and self-improvement, because obliged to be with others, or, at least, liable to interruptions, and hence yield their entire time to mental dissipation. And how much better every body can study, think, do business, any thing, in their *own place*, than in a place *not* theirs. Reader, please measure the value of this principle. Especially, try it by giving a child his own room, and then taking it away.

Satisfying this home-feeling will also contribute immeasurably to their love of the old homestead. Without it, it is only their *father's* home, not theirs. Then how can they become *personally* interested in, or attached to, it? But, by giving them their own apartment, they themselves become personally identified with it, and hence love to adorn and perfect all parts.

To daughters this is doubly important, as teaching them how to keep house. Besides being taught practically to have a place for their own things, and to keep things in their place, having their own bureau and closets arranged after their own fashion, which no one dares to molest, they are taught practically how to receive and entertain company. Visitors in the parlor are not *their* company, so that to treat them becomingly is not their special duty. Otherwise, when their visitors cross their threshold, they then put on the lady and take the lead, and become clothed with the dignities of mistress of ceremonies. And how much more gracefully, lady-like, and queenly do they conduct them at home than in mother's parlor!

Perhaps this company will stay to tea. Here is now a most inspiring incentive to her to cultivate the housekeeping arts and accomplishments. Perhaps father and mother will be invited out to tea up into her room to taste her cakes and dainties, and this stimulates housekeeping ambition to its highest pitch. In ways innumerable like these will this "own room" plan promote the development of children.

Sleeping by themselves is also a first-rate plan, both for health, and to prevent their imbibing any thing wrong from other children ; nor are their slumbers disturbed by a restless bed-fellow. Nor do they keep each other awake nights, or in bed mornings, by talking. In fact, many most desirable ends does this plan subserve—at least enough to require its adoption by every parent who can afford it.

A greater number of spare rooms for company than is generally found, is desirable. Hospitality is a heavenly virtue. It promotes interchange of thoughts, a pleasurable flow of feeling, and thousands of like ends; and though often made, by false approbation, somewhat more costly than necessary, yet it in reality need cost little. To make a great parade and show does indeed cost, yet this is not hospitality, is not even polite, for this show makes the visitor feel that he is putting his host to extra trouble, and this mars the visit; whereas mere ordinary fare, only one extra plate, makes all parties free to enjoy the visit, without rendering it so soon tiresome. I never want to stay where they make a fuss for me. Make me "our folks," or I'm off.

Another end secured by a goodly number of rooms, is order. With few places to put things, one thing must be displaced to make room for another, and this for still another, which renders order absolutely impossible. But all, even the poor, have more things than places to put them, which necessarily produces disorder.

Merchants find the classification of their goods indispensable, or separate rooms for different classes of things. And why not this principle equally requisite in a complete house? Different collars for specific articles, specific rooms for fruits, and so through out each important end its owner may seek to obtain. But with this statement of the thought, we leave each reader to apply the details as required by his own individual tastes and wants. My own house has sixty rooms, but not one too many.

To large houses women often object that it takes such a world of toil to keep a large house well. I say the reverse. It takes twice the work to keep a small house well as is required for a large one. A small house and few rooms must be all clutter, confusion, and helter-skelter; but in a large house things once located can remain. A room not used requires no cleaning, except an occasional cobweb brushed down; nor much of that, for flies, and of course spiders, are scarce in dark, untenanted rooms. And often the use of a room for a single week in a year will well repay the annual interest on its cost.

Most desirable, in every really good house, is a play-room for children, a gymnastic room for females, and a dancing-room. Physiology urges the importance of private dancing parties, especially for sedentary fashionables and confined operatives. How many a debilitated constitution would they resuscitate! How many hopeless invalids, now dying by inches, would such rooms in our buildings restore to life, health, and happiness! How many a child save from a premature grave! Mankind are dying off like diseased sheep, in consequence of pure *ennui*. They want ACTION. How extravagantly fond of play are all children! Why? Because their growth demands, with resistless imperious ness, muscular exercise and free inspiration. But no; if in a village or city, they must not go abroad for fear of accidents and bad associates, nor make any noise within doors, because it dia-

turbs ma's, or aunt's, or granny's tea4ntoxicated nerves, lashed up almost to the point of derangement by the want of just such an exercise-room. No one thing would confer as great a blessing on sedentary men, women, and children, physically, intellectually, or morally, by developing their physical, and thereby their mental faculties, as an exercise and amusement room. Here they might use their lungs and race about without restraint.

30. LARGE AND SMALL BARNS AND OUT-HOUSES.

A single application of this law to barns and out-buildings. One farmer builds a large 60 feet barn, putting corn-crib, wagon-house, grainery, and all out-buildings under one roof. Another builds a barn 20 by 30, a wagon-house 10 by 15, a corn-crib 5 by 15, a grainery and store-rooms 10 by 15, etc. The former builds 240 feet of wall, and gets 3,600 feet of room, or 15 for 1; while the latter builds 240 feet of wall, yet has only 975 feet of room, or only 4 to 1. That is, the *wall* money of the former goes almost FOUR TIMES further than that of the latter. The relative amount of roofing is the same; yet in making the two there is this vast difference: the former has one set of plates, rafters, etc., while the latter has a set for each building. The latter uses short stuff, and thus cuts lumber to great disadvantage, and has to *get ready* to build four times to the former one, and this getting ready is half the battle. About the same amount of flooring is required for both, but observe, the large barn has longer timbers, yet not half as many. And then how much more handy to do his work. For instance, the former drives his carriage to that part of his barn appropriated to the carriage, unharnesses, and leads his horses directly into the stall, while the latter has to take his *out of doors*, opening and shutting doors, perhaps getting wet or muddy, etc. How vastly more handy to have all this work done together under one roof, than to have to go from one to another, and from that to a third, and then back to the first, and so on from day to day and year to year! If objected that one fire will bum out the former completely, the latter only in part, then be careful. Yet if near together, the difference is trifling.

A like advantage is gained by building one house large enough

to contain wood-house, wash-room, and other like offices, now usually carried on in separate out-buildings. But by this time the reader must perceive the great *principle* involved, and can apply it for himself; and in determining how large you will build, remember that you are building *for life*, and can therefore afford to make other things bend to this.

31. LONG AND NARROW HOUSES,

Besides being out of all proportion, are very inconvenient, obliging you to perform quite a journey in going from one extreme to another. COMPACTNESS of room is most desirable, because it facilitates the grouping of rooms around or contiguous to one another, thereby rendering the passage from room to room both short and easy, which, in a long and narrow house, is absolutely impossible.

It also takes more WALL to inclose the same number of square feet in a long and narrow than square or round shape.⁹⁸ To illustrate by diagrams.

Suppose Fig. 2 is four inches long by a quarter of an inch wide, it will contain one square inch.

Fig. 8.

THE LONG AND NARROW FORM.

Fig. 3 is two inches long by half an inch wide, and contains one square inch.

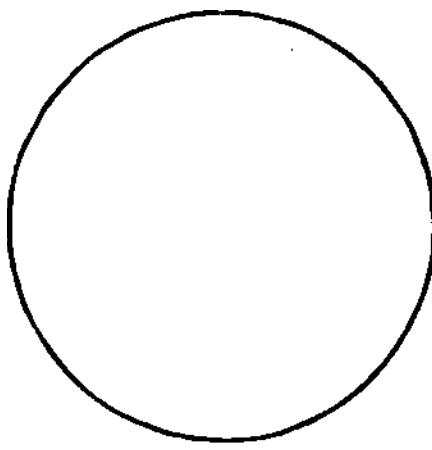
Fig. 8.

CHS LONG AND NARROW FORM.

Fig. 4 is one inch square, and contains one square inch.

THE SWABB FORM.

Fig. 5.



THE CIRCULAR FORM.

Now let Fig. 2 represent a box four feet long and a quarter of a foot wide: it contains only one square foot; yet its *outside wall* is *eight* and a half feet. Let Fig. 3 represent one two feet long and half a foot wide; it also contains one square foot, yet it is only *five* feet in circumference; while a box one foot square contains just as much room, yet is only *four* feet round—less by one half than Fig. 2, yet of the same capacity.

Surprised at this result, you, perhaps, inquire how is this possible? Observe: A house 100 feet long and 1 foot wide contains only 100 square feet, but takes 202 feet of outside wall, or just 2 feet of outside wall to 1 foot of inside room. If two feet wide, it would be only two feet farther round, yet contain *double* the room, or about one foot of room to each foot of wall. If 5 feet wide, it is 210 feet round, yet contains 500 square feet, or

some two and a half feet of room to one of wall, whereas the first was less than half a foot—an *increme offive hundred* per cent. Carry up the supposition to 100 feet wide—it gives 10,000 square feet to 400 feet of wall, or over 22 feet of room to one of wall, instead of half a foot, as in the one foot wide house, which is FORTY-FIVE TIMES more room in proportion to wall. Please ponder over and re-read this point till you have mastered it, and till you both see that it is so, and *why?*

This same law, which governs all measurements, renders the circumference of the circle, in proportion to its capacity, less than that of any other figure; and, of course, the nearer any figure approaches to the spherical, the greater will be its capacity, compared with its surface.^{ss}

Since, then, the circle gains even on the square, of course a square house holds more, for its wall, than a long and narrow one, and a round one than a square one. Consequently, long and narrow houses cost more for wall, foundations, etc., than square ones, compared with their room.

To inclose a house 100 by 10, you have to build 220 feet of wall, yet have only 1,000 square feet. One 30 by 80 takes the same 220 feet of wall, yet gives 2,400 square feet, or almost *twice and a half* as much room for the same wall. Put this wall into a square form, we have a house 55 feet square and 3,328 square feet, yet only the same 220 feet of wall. That is, the latter contains as much room as *both the former*, lacking only 72 square feet, yet has not one inch more wall.

This result, stated in a former edition, was stoutly denied by a neighboring mechanic, because he could not see how it should be. I inquired, “Erect a building 50 by 10, how many feet of wall does it take?” He replied, “120.” “Now, how many square

feet does it contain?” “Ten into fifty, or 500,” he answered. “And how many feet of wall does it require to inclose one 30 feet square?” “Four times 30 are 120, the same as the other,” he rejoined. “And how many square feet does it contain?” “Thirty times thirty of course, or 900.” “Lacking only 100 square feet of being double,” I replied. “Then build both walls *close together*—you have 100 feet of wall, and *no* space inclosed.” “I see it *is* so, but can’t see *whvfi* said he.

The reader is requested to master fully, and to remember, the PRINCIPLE here demonstrated,²⁸ as we shall have frequent occasion to refer to it hereafter. Indeed, the knowledge of this law led to those architectural studies and improvements which this work was written to expound.

32. THE WINGED STYLE IS DOUBLY OBJECTIONABLE,

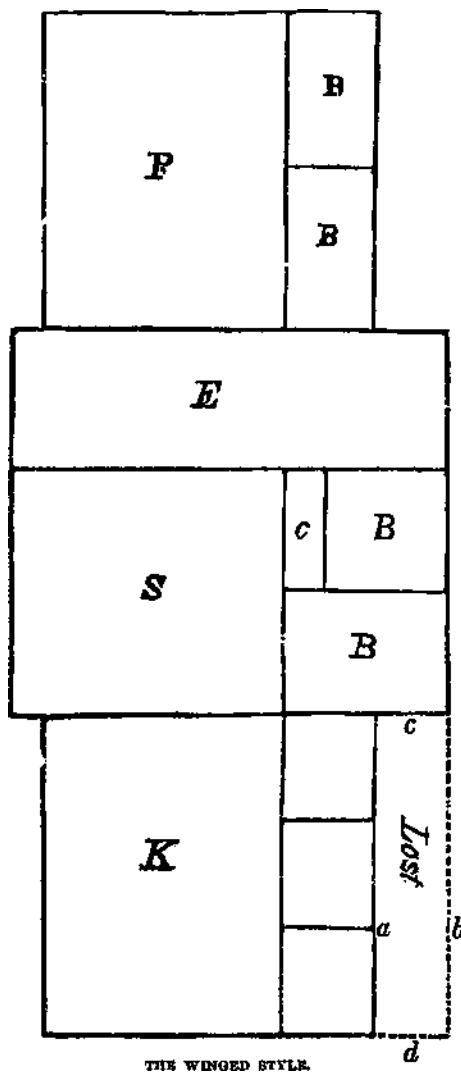
Because it involves the loss just shown to appertain to long and narrow houses,³¹ in *addition* to that of four long strips in each corner. Suppose the walls, a, had been made at 6, and c at d, Fig. 6, they would not have been an inch longer, but would have inclosed all the space marked "Lost" in Fig. 6, and thus of each of the other three corners.

This is a ground plan of a winged house, drawn on a scale of sixteen feet to the inch, and represents the upright, 32 by 28, and the wings, 24 by 24 each. The arrangement of the ground rooms are usually much as here represented: P for parlor, 24 by 16; E, entry, 10 by 32; S, sitting-room; B, B, bed-rooms; K, kitchen; c, closets, etc. It is, therefore, $24 + 24 + 28 = 76$ feet long,* its circumference, $28 \times 2 + 32 \times 2 = 120$ feet for the upright and gable ends of the wings, and 24×4 for the rest = $96 + 120 = 216$, the total circumference of the outside wall. Yet it contains only 2,048 square feet on the first floor; whereas, a square house of the same circumference = $216 \div 4 = 54 \times 54 = 2,916$, or a clear GAIN of ONE-THIRD just by the mere FORM of the square house over the winged one. That is, if the square one costs \$4,000, the winged one, though not a foot larger on the ground, would cost \$6,000—• an item worth saving—besides the additional expensiveness of building three small houses, as in the winged style, instead of one, as in the square.

Another loss accrues in the HEIGHT of these wings, which are generally only one story high, while the upright is usually two

* For the sake of simplifying and abbreviating, mathematical signs, as generally used, will be employed in our calculations, namely: + as a sign for addition, — the sign for subtraction, — that for division, and X that for multiplication, while = signifies equal to. Our sum, then, reads thus: 24 added to 24 and 28 equals 76 feet.

Fig 6.



stories. Not to reckon the attics in either house, because they are comparatively unused, observe that all this expense of foundations and roofs of these wings is incurred for a SINGLE STORY.⁸¹ Now, the additional expense of carrying them up another story would scarcely exceed, if it equaled, the extra cost of making

three frames, three sets of rafters, plates, eave-troughs, etc., for the winged house, in place of one in the square; and yet you have one story on each wing MORE ROOM. Or thus: the winged house contains $24 \times 24 \times 2 + 32 \times 28 \times 2 = 2,944$ square feet; while the square house contains $54 \times 54 \times 2 = 5,832$ square feet. Reduce these by fractions, thus:

$$\begin{array}{r} 5,832 \\ 2,944 \end{array} \quad \begin{array}{r} 729. \\ 368 \end{array} \quad \begin{array}{r} 91. \\ 8 \sim 46 \end{array} \quad \begin{array}{r} 18 \\ 9 \sim 1 \end{array} \quad \begin{array}{r} -2 \\ \hline \end{array}$$

That is, the square house contains just TWICE as much as the winged one—another loss by the winged structure, of no small moment, in ADDITION to all the others.

If you should carry this square house up three stories, it would contain 8,748 square feet to the winged one's 2,944; or,

$$\begin{array}{r} 8,748. \\ 2,944 \end{array} \quad \begin{array}{r} 1,0934 \\ 368 \end{array} \quad \begin{array}{r} -136j \\ 9' \text{ } 8q \end{array} \quad \begin{array}{r} 27. \\ 3. \end{array}$$

OR OVER THREE TIMES as much room in the square house of three stories, as in the winged one two stories in the upright and one story wings. Yet the square one would COST THE LEAST. Just the FRAME of the winged one would cost considerable more than that of the three-story square one.

Another great loss consists in making so many extra ANGLES. Instead of four, as in the square house, you have twelve, and every board, lath, and timber employed in making it, not only has to be cut, to the shameful waste of stuff, but also of mechanics' time to unite every angle, and fit every joint. Corners are very expensive, yet the room they inclose is almost useless—a third loss by the winged style. See Fig. 11, and explanation.

Another proportionate loss is sustained by the ENTRIES, which, in houses of this kind, should be at least ten feet wide. Thus the room lost in the winged house is $10 \times 32 = 320$, and double this, or 640, in the two stories; whereas that in the double house is $54 \times 10 = 540 \times 2 = 1,080$. Subtract the 640 square feet entry of the winged house from its 2,944 square feet, leaves only 2,304 square feet within the rooms; whereas subtract the 1,080 square feet entry of the square house from its 5,832 square feet, we have 4,752 square feet within the rooms, which reduce:

$$\frac{4,752}{2,304'' \div 12} = \frac{396}{192} \div 12 = \frac{33}{16} \div 16 = \frac{2}{1};$$

which is MORE THAN DOUBLE the number of square feet within the rooms of the square house than within those of the winged one !* To present these gains and losses in a tabular form, the circumference of each being 216 feet:

	Winged house. Square house.
No. square feet in first floor	. 2,048 2,916
No. square feet in second floor, . . .	896. 2,916
Total in both floors	2,944 6,882

Subtract the 2,944 square feet in the winged house from the 5,832 square feet in the square house, and there is lacking only 88 square feet of being DOUBLE in the square house over and above the winged one. Or, if the square house be three stories, it will contain THREE TIMES as much as the winged one, lacking only 64 square feet. Better sink TWO-THIRDS of your building money in the sea, and build a three-story square house with the balance, than to build a winged house with the whole. So much for this fancy style.

And then, how it looks! Wings on houses are not in quite as good taste as on birds. How would a little apple or peach look stuck on each side of a large one ? Yet winged houses are just as disjointed and out of taste. Such a house—three times as long as wide; so low and yet so long; great outside and little inside; the parlor less than a mile from the kitchen, and separated from all the rest of the house by a wide, cold, cheerless entry; the heat radiating from every room OUT OF DOORS, instead of into adjoining rooms, as in a square house; every room in the house, except the second story of the upright, absorbing dampness from the three foundations, and all but the lower story of the upright heated in summer to suffocation by the scorching sun on the roofs; the freezing winds of winter pouring in direct from without through so much outside surface, instead of the different rooms sheltering each other's sides the light shining from several points of com

* In this, as in many like reductions of fractions and other calculations, the remaining fractions are dropped, because too insignificant to effect the general result.

pass, whereas it should shine into each room from but one direction, because a cross light is so bad for the eyes; one-third of both stories of the whole upright, or 600 of the 2,900 feet, or one-fifth of the whole house, consumed by an entry which is a perfect nuisance in winter, and almost useless in summer; and every thing about it so perfectly extravagant and inconvenient—let purse-proud, empty-headed nabobs throw away themselves, their comfort, and their money on winged houses, but give me some other form. Surely none will build winged houses but those who, from sheer thoughtlessness or inability, fail to perceive their disadvantages.

“This difference can not be possible,” many will exclaim; but, if such doubt my figuring, they will find their own to agree substantially with these results, for arithmetic can not lie.

The principle here involved is also still further demonstrated by a calculation of the number of cubic feet contained in the two houses. Suppose each story of each house to be 10 feet high. The square house contains $54 \times 54 \times 10$ cubic feet in each story, equaling $29,160 \times 2 = 58,320$ in both, or, deducting 10,800 for the entries, 47,520 within the rooms; while the winged house has only 29,440 cubic feet in both stories, less 6,400 in the entries = 23,040. Now the difference in a lifetime between living in a house which contains 47,000 cubic feet of breathing-timber, compared with one which contains only 23,000, or less than one-half as much, is no trifle. Give me air, and since we all spend one half of our lives within doors, a roomy house is a very great desideratum.

But the square house can be carried up three stories cheaper than the winged one can be built only two in the center, and the wings one, and will then contain 87,480 minus 16,200—a difference of 71,000 5 ,
ence of $23,000 \sim 2^3$ or TWICB AND ONE HALF more cu^oic *eefc m t*¹⁰
three-storied square house than in the winged, which rarely is, and can not well be, carried up higher than just estimated, whereas the square of that size LOOKS better three stories than less. All this, besides the greater heat in summer in the winged house, while the square one has a middle story neither damp nor hot, but admirable for sleeping-rooms. And in this winged house you

have no wood-house, nor any place for any, without its darkening some of your rooms and enhancing its unsightliness. Not so with a square one.

Some will censure me for dwelling thus. I do so partly to show what foolish antics moneyed simpletons will play, for no other earthly reason than to be fashionable, but mainly to demonstrate some mathematical laws—as enduring as Nature—to be applied hereafter, as well as that the reader may fully comprehend the basis of these calculations, which will render him CERTAIN that they are correct.

33. THE COTTAGE OR DORIC STYLE.

“ Ah, this is the plan for a most beautiful and most perfect house. How cunning, how pretty, it does look!” is the general talk. Being all the rage, it must indeed be “ a good many touches above common.” Let us see.

Every room joins foundation or roof. This is a decided objection, as already seen.²¹ And why this extra steepness of roof? Its admirers must certainly love to lay and swelter in an attic room August nights better than I do, or else they would not take so much pains to make so much more roof than is necessary, and this so steep as to catch the full power of the sun. And then, see how much more expensive such roofs are for the room sheltered, consequent on their steepness, which greatly increases their cost, at the same time that it actually injures the house.

And then, why so many roofs, and corners in these roofs, which are doubly expensive and far poorer, in every respect, than if in two whole sheets? The raftering, boarding, shingling, uniting the eight sheets of roof at their catcornered junctions, so as to prevent their leaking, the room thrown away in the peaks, and the finified fixings around the roofs, put on for ornament, yet violating every principle of correct taste, all condemn this style.

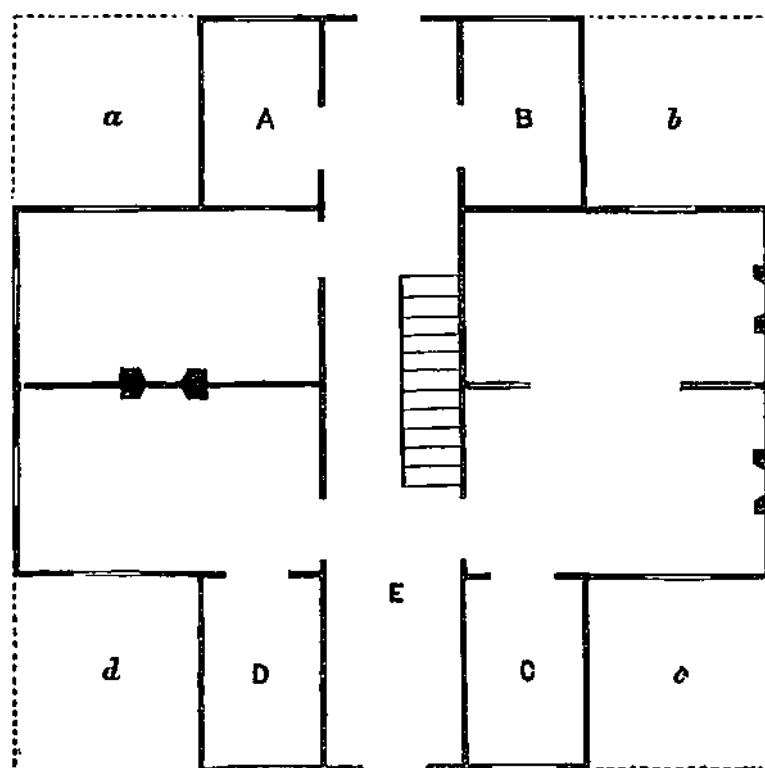
And here let me develop the law which governs this whole subject of taste and beauty. Nature furnishes our only patterns of true ornament. All she makes is beautiful, but, mark, she never puts on any thing *exclusively* for ornament AS SUCH. She appends only what is useful, and even absolutely NECESSARY, yet so appends it

as that all necessary appendages add to beauty. Take mouth, nose, ears, hands, feet, etc., as examples, or the various parts of flowers, etc. Every thing in Nature is the perfection of beauty, yet is any single USELESS ornament found throughout all her works? Suppose the body lumbered up with a parcel of useless appendages, however beautiful they might be where they were useful, yet should we be any more handsome? Should not we be deformed thereby? How would a gold ring, however exquisitely carved, look in the nose or lips? How ugly would those dangling ear-rings look, if custom did not reconcile us to their use. Other fashionable toilet appendages might be cited as still more ridiculous, simply because put on for ornament, where they are worse than useless. But the law of things, that whatever appendage, however beautiful where it is useful, THEREFORE deforms, instead of adorns, where it is useless, is too plain to require additional illustration, and its application to these finified carvings and cornicings of the cottage style, too palpable to excite any thing but disgust in those of correct tastes. For a child whose tastes are yet immature to be tickled by them, would not be surprising, but for the ELITE to be enamored with them only shows how GREEN they are, at least in architecture.

For the same reason that the form of a winged house is objectionable, is the cottage shape proportionally so; for it consists in reality of an upright and two wings, excepting that there are four sets of rafters, etc., with roofs bunglingly joined, instead of three, as in the winged, and one in the square house. The accompanying diagram will best illustrate this point. (See Fig. 7, p. 77.)

The entry, E, must of course be in the middle of the upright part, and this leaves four little rooms scarcely better than none—A, B, C, and D—and the balance of the rooms miserably partitioned. Suppose the house were built out square with the uprights, namely, with those dotted lines in the figure, besides the net gain of the four figures, a, b, c, d, the other four, A, B, C, D, joined with them, would make so much larger rooms of A a, B b, C c, D d, without building an inch more of outside wall, and with a saving of all those CORNERS, so wasteful of stuff, and so hinder some to the carpenter.

Fig. 7.



THE COTTAGE STYLED.

The same calculations which showed the loss consequent on the winged structure, will apply both to the cottage and the cross structure. Both are combinations of folly and extravagance, and destructive alike of beauty and utility.

Another phase of this principle will still more forcibly illustrate the superiority of the square form over the winged and cottage styles. An enterprising neighbor consulted me about building an addition to his barn. The old one was some 15 by 30, marked A, in the accompanying figure (Fig. 8), and he proposed to build two more of the same size on each corner, marked E and F, and asked what I thought of this plan. I replied: "Suppose the wall *a* had been built at *b*, *c* at *d*, *e* at *f*, *g* at *h*, and *i* at *y*, you would have had all these spaces, B, C, and D, added to your inclosed

DEFECTS IN SHAPES OF HOUSES.

Fig. 8.

$r d b^8$	a A e	\overline{r}	\overline{c}
c	i	g	
E	ID k	F	
	i V		

AN AWKWARD BARN.

room, without adding one inch to your foundations or walls, and *with* an actual *saving* of the walls *I* and *k*. By your proposed plan you have only 1,350 feet of room, but by mine 2,700, or exactly TWICE as much room, yet 60 feet, or almost ONE-FOURTH *less* of wall and foundation, which will almost make up the extra cost of roof. Double the room and one-fourth less wall makes a difference of some *sixty-two per cent.* more of room in proportion to wall by my plan than yours." "I declare," he exclaimed, "I do wish I had seen you before." "Besides," I added, "you can not get from one barn to another without going *out of doors*.

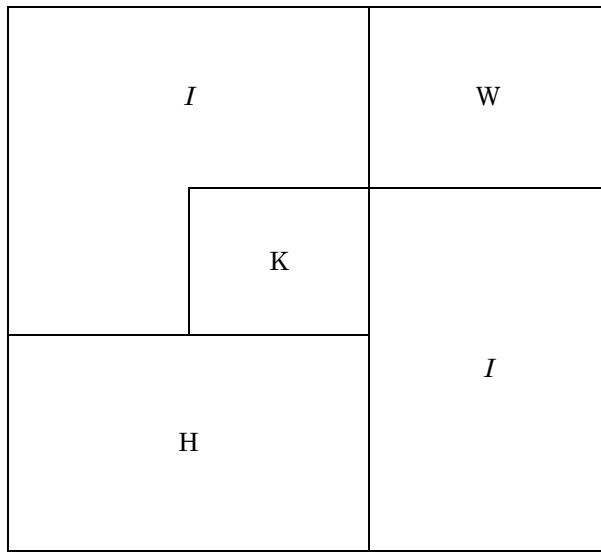
34. ADDITIONS STUCK ON.

Invited to deliver the address before the literary societies of Pultney Academic Institute, Vt., I observed a house in that village, with some pretensions to style, built as in Fig. 9. H, house proper; K, kitchen; W, wood-house. Now, pray, how much more wall foundation would it have taken to have built his walls where the dotted lines are¹? Not an inch, and yet he would have inclosed those two large spaces, *II*, now lost. This same length of wall could have been made to inclose *more than double* the

UNSIGHTLY ADDITIONS.

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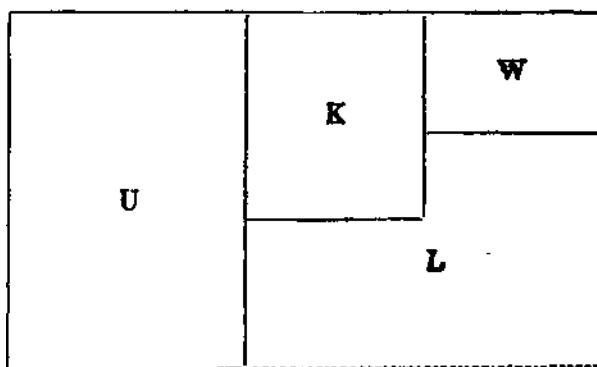
Fig. 9.



AN EXTRAVAGANT BOUSE.

room it now does, without costing one cent more, except for floor and roof. And yet, observe in traveling, almost every house commits a like error, or, rather, extravagance; for it is a thought-

Fig. 10.



UNSIGHTLY ADDITIONS.

U,upright; K,kitchen; W, wash-room and wood-house; L> lost

less but wicked *waste* of building money. Nearly all have an upright, a kitchen part, in the form of a T or L,²⁵ and then some

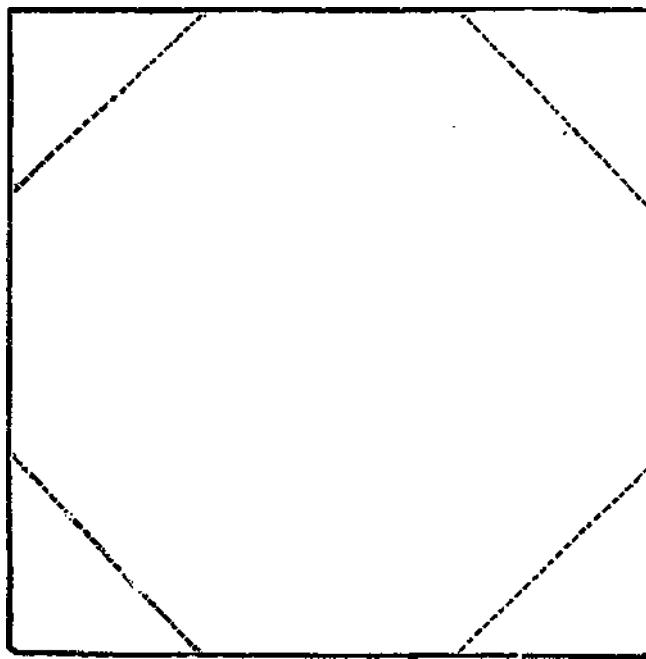
outbuildings, as wash or wood-house, built upon the back of all these. Look at such houses with a critic's eye. Do they not strike you as out of all proportion, *besides* the loss of all the room embraced in the dotted lines. Observe the double loss, first these buildings being long and narrow, whereas a square one would have inclosed much more,³⁶ and secondly, that marked by dotted lines.

Another loss, not yet estimated, but consequent on the winged, cottage, and cross structure, is in their CORNERS. Reference is now had, not to the loss of time and materials consequent on constructing a wall of a given length all full of corners, compared with making a strait one of the same length—that is, the saving occasioned by building a square house with only four right-angles, compared with the loss of materials and labor consequent on making TWELVE corners, as in the cottage, cross, and winged styles—itself a very great loss—and all without gaining any thing but a loss; but I refer to the loss INSIDE the rooms—not to the loss of time and material of making twelve INSIDE as well as outside corners, but to the ROOM lost in the corners themselves. The corners of rooms are of little use any way, because dark, far from the lire, disparaging to furniture, and rarely occupied. This is true of all corners, and of course the loss is THREE TIMES as great in the cottage, cross, and winged styles as in the square one, because they contain four times as many corners, and these nearer together. And this loss appertains to both stories. Let the following diagram (Fig. 11) illustrate the principle here involved.

A house with these corners left out, as in those dotted lines, would contain just about as much AVAILABLE or useful room as with them. Now suppose, instead of losing four corners in each story, you lose TWELVE, this loss amounts to considerable, in ADDITION to all those other losses already pointed out. Away, then, with all three of these fancy styles. Those who fancy or adopt them must be either weak or thoughtless—weak if they can not perceive their inferiority in every respect, and thoughtless if they can, but do not.

To sum up these results. Low houses are far more expensive, less comfortable, and every way inferior to high ones. Laige

Fig. 11.



LOSS OCCASIONED BY CORNERS.

houses are much cheaper, relatively, than small ones. The winged, cottage, and all irregular forms of houses cost far more than the square, yet are far inferior to it, besides making far less show in proportion to cost.

SECTION IY.

SUPERIORITY OF THE OCTAGON FORM.

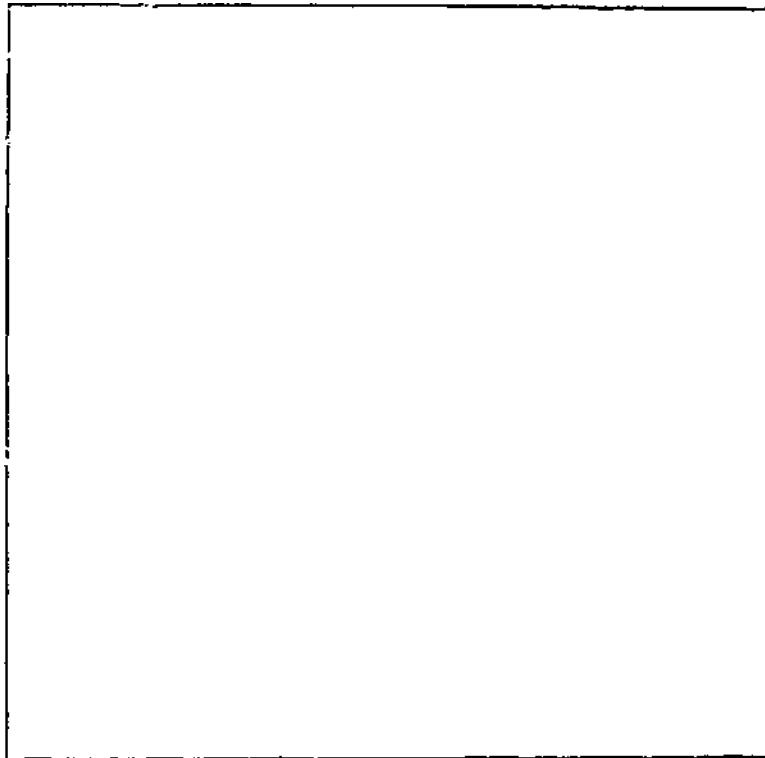
35 IT CONTAINS ONE-FIFTH MORE ROOM FOR ITS WALL,

BUT is the square form the best of all ? Is the right-angle the best angle ? Can not some *radical* improvement be made, both in the outside form and the internal arrangement of our houses ? Nature's forms are mostly spherical. She makes ten thousand curvilinear to one square figure. Then why not apply her forms to houses? Fruits, eggs, tubers, nuts, grains, seeds, trees, etc., are made spherical, in order to inclose the most material in the least compass. Since, as already shown, a circle incloses more space for its surface, than any other form,²⁵ of course the nearer spherical our houses, the more inside room for the outside wall, besides being more comfortable. See figures 2, 3, 4, 5. Of course the octagon, by approximating to the circle, incloses more space for its wall than the square, besides being more compact and available. Why not employ some other mathematical figures as well as the square ? These reasonings developed the architectural *principle* claimed as a real improvement, and to expound which this work was written. Hitherto men have employed the right-angle, because it costs so much to frame other angles; yet our gravel-wall plan obviates this difficulty, it being as easy to corner at an octagon as rectangle. And since the principle here involved is the grand basis of that architectural superstructure attempted to be reared in this volume, the author may do well to elucidate it fully, and the reader to comprehend it perfectly. To compare the square with the octagon, see Figs. 12, 13.

Fig. 12 is four inches square. Let it represent a house thirty-

two feet square, one inch representing eight feet. It is 128 feet in circumference, and incloses 1,024 square feet.

Fig.

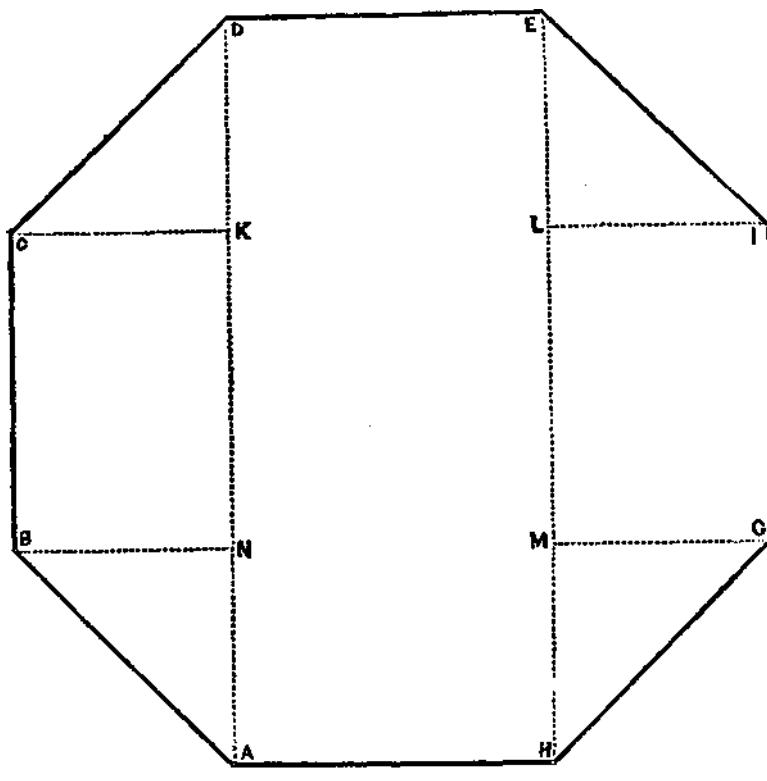


THE SQUARE FORM.

Fig. 13 is an octagon, with sixteen-feet sides, on the same scale, and having of course the same circumference, namely, 128 feet. But it contains 1,218 square feet, as seen by the following demonstration:

	Square feet.
A,.....	D,
E, H, is 16 by 39, and contains	624
B,.....	C,
K, N, is 11 by 16, and contains	176
I, G, M, L, is also 11 by 16, and contains.....	176
The four half-squares, A N B, C D K, E I L, and G H M, make two squares, each 11 feet	<u>242</u>

Fig. 13.



THE OCTAGON FORM.

But the square of the same circumference contains only 1,034 square feet. So that the octagon exceeds the square by 194 square feet—a gain of ONE-FIFTH.

To show this difference by reducing their respective numbers of square feet to fractions. Dropping eighteen square feet from the octagon, and twenty-four from the square, the sum stands:

$$\begin{array}{r} 12 \ 6 \\ -f \cdot 3 = g \\ \hline \end{array} = \text{ONE-FIFTH gain}$$

in favor of the octagon. That is, an octagon of a given circumference contains more than a square of the same circumference by 100 square feet in every 500 square feet. Now, since a given length of octagon wall will inclose one-fifth more space than the same length of wall in a square shape, of course you can have the

same sized wall for one-fifth less money, or the wall of a house one-fifth larger for the same sum ; for this gain is just as great in the foundation, siding, plastering, painting, whitewashing, etc., as in the wall proper. It appertains alike to materials, labor, and EVERY THING ABOUT THE WALL. The doors and windows might be considered an exception, yet they are not. Given sized windows will light a room more than those a fifth larger in the octagon than in the square—first, because the latter has deep, dark CORNERS, which will be dark in a cloudy day however large your windows, which is not the case with the octagon; and also because the octagon form makes the same gain in the DEPTH of the rooms that it does in the length of the walls, that is, the room is more

COMPACT.

To put together two important results at which we have thus arrived. We have seen that a square house of a given circumference contains more than an oblong one of the same circumference, and an octagon more than a square. Let us compare them. Take a house 24 feet front by 40 deep. Its circumference is, of course, 128 feet, the same as a 16 feet octagon, and a 32 feet square. But it contains only 960 square feet. The difference between it and the octagon is ONE-THIRD, as reducing the square feet of both to fractions will show. Thus:

1M ^	4	U	1
960	120	15	3

equal to ONE-THIRD more room in the octagon than in the 24-by- 40 feet house, though the circumferences of both are exactly the same.

The FORM of our houses, then, is not so trifling a matter after all. The practical difference between building the outside of a house for \$3,000, or just as large and good a one for \$2,000, or in that proportion, is considerable, especially to those laborers who earn their money by bone and muscle.

But the difference between the octagon and the winged is still greater. Suppose the upright of a winged house to be 20 by 15 feet, and the wings 10 by 15 feet each. Its circumference will then be one hundred and thirty—two feet more than the circumference of the sixteen-feet octagon. The winged house will con

tain only $20 \times 15 + 15 \times 10 + 15 \times 10 = 600$, which compare with the octagon as follows:

$$\begin{array}{cccccc} & \bullet^{1218},_8. »^{+6} «^{+9} «^{+6} * \\ 600 & 75 & 12 & 6 & & I^1 \end{array}$$

or not ONE HALF, though having more outside wall.

But suppose the upright to be two stories, while the wings are only one, which is usually the case, while the octagon is two stories, which it should be to look well, the winged will contain only 900 square feet, while the octagon will contain 2,436. Thus:

$$\begin{array}{cccccc} 2436 & 203 & 29 & 24 \\ 900 & 75 & 11 & & & I^* \end{array}$$

TWO AND A HALF times more room in the octagon than in the winged shape, though the latter is two feet more in circumference. Now the difference between building a winged house wall for \$2,500, or just as large an octagonal one for \$1,000, is something worth considering. Yet even all this saving, great as it is, is but a small part of the advantages of the style of building which this book was written to propound over others now in use, which we shall see as we proceed.

One other advantage of the octagonal style over the square, and especially over the cottage and winged styles, deserves to be reckoned in this comparison, namely, their CORNERS. We have already seen, in Fig. 11, that the corners of a square room are of little account, because dark, useless for furniture, and rarely occupied for any purpose. In fact, an octagon, drawn WITHIN the square, furnishes about as much AVAILABLE room as the square, yet contains only eighty feet to the square's ninety-eight:

$$\begin{array}{cccccc} ?^{8^{\wedge}}_{=48^{\wedge}} 10 = 5+4 = I^1 \\ 80 & 40 & 4 & 1' \end{array}$$

a loss of TWENTY-FIVE PER CENT, in the amount of wall in the square over and above the same amount of AVAILABLE room in the octagon. But suppose, as in the winged and cottage styles, there are twelve right angles, instead of four, the loss is in the same proportion:

$$\begin{array}{c} 98 . , 16 \\ o = \sim = \text{almost 40 per cent.} \end{array}$$

Fig. 11 also enables us to show—what has doubtless puzzled some readers—WHY this gain by the octagon over the square. It consists in the fact that it requires more wall to inclose the corners, in proportion to the number of square feet which they contain, than the house as a whole. Thus, those eight lines which form the four right angles of the four half squares in the comers of the square, which are omitted by the dotted lines of the octagon, are seven feet per side, making together fifty-six feet. Yet they inclose only two seven-feet squares, or ninety-eight square feet, or four feet wall to seven square feet inclosed. That is, a foot of corner wall incloses less than two square feet, whereas the octagon has only 80 feet wall to its 478 square feet, which is:

80 8 1'

or six square feet for every foot of wall; whereas the four corners omitted by the dotted lines contain only two square feet for every foot of wall. That is, the octagon incloses six square feet to every foot of wall, while the triangles, or corners of square rooms, inclose only two square feet to every foot of wall—a difference of three to one, which is lost in the comers of the square over the octagon as a whole.

The gain in twelve, sixteen, and twenty-sided figures over even the octagon, is greater, and still greater in proportion as the figure approaches the circle. Yet so many corners cost more extra than they save.

36. THE COMPARATIVE BEAUTY OF THE DORIC, SQUARE, AND OCTAGON FORMS.

The BEAUTY of a house is scarcely less important than its room. True, a homely but CONVENIENT house is better than a beautiful but incommodious one, yet beauty and utility, so far from being incompatible with each other, are as closely united in art as in nature; that is, are INSEPARABLE. It is hardly possible to have a truly handsome house without its being capable of being made as handy inside as it is beautiful outside; nor can a homely-looking house well be made convenient. I repeat, beauty and utility are as closely united in architecture as they are through

out all Nature. If, therefore, the square or winged form of house is the best, it will look best, and if it is the most beautiful, it can be made the most comfortable.

FORM embodies an important element of beauty. Yet some forms are constitutionally more beautiful than others. Of these the spherical is more beautiful than the angular, and the smooth and undulating than the rough and projecting. WHY is it that a poor animal, or a lean person, is more homely than the same animal or person when fleshy? Because the latter are less angular and more spherical than the former. Why do we behold flat, smooth stones with more pleasure than those which are rough and irregular, but because there are less ANGLES in the former than the latter? Why is the shape of apples, peaches, etc., more beautiful than of chestnut burs? This principle answers, excepting what beauty is imparted by color. And the more acute the angle, the less beautiful; but the more the angle approaches the circle, the more beautiful. Hence a square house is more beautiful than a triangular one, and an octagon or duodecagon than either. Of course, then, the far greater number of right angles in the winged and cross styles than in the octagonal, and the high peaks of the roofs of the doric, prove them to be less handsome than a square house, and doubly less than the octagon. For one, I can not consider cottages or wings handsome. They always strike me as unsightly, and well-nigh deformed. And the basis of this sentence is an immutable law of Nature. Look at a dome, and then at a cottage roof, full of sharp peaks, sticking out in various directions, and say if the undulating regularity of the former does not strike the eye far more agreeably than the sharp projections of the latter. This is not one of those fancy matters which allow of diversity of opinion, but is a fixed ordinance of Nature, and passes no enviable sentence on the tastes of those who claim to possess as great a preponderance of good taste as of property, besides their other prerogatives. And facts sustain this theory, as all will say who compare figures 2, 3, 4, 5, 6, 7, 9, 10, and 13 with each other.

Since, then, the octagon form is more beautiful as well as capacious, and more consonant with the predominant or governing form of Nature—the spherical—it deserves consideration.

S. Homer, Cortland County, New York
Built *circa* 1870 by Dr. A. L. Head,
this house has stone walls covered
with stucco. The porch was added
later.





9. Irvington, Westchester County, New York The dome, cupola and porch in this picture were added by Joseph Stiner in 1870, ten years after the house was built. Philip Armour was the original architect. The sides are 20 feet 3 inches long, constructed of wood.

"But," some will ask, "how happens it that our author is so very much smarter than all the world besides?" Why has not this plan, if really so superior, been seen and put in practice long ago, especially since then are racking their inventions in search of building improvements?" Because of the greater ease of ~~FRAMING~~ the right angle than any other; and unless this difficulty can be overcome, it will be cheaper, after all, to build on the square than on the octagonal plan. This difficulty is wholly obviated by our gravel-wall plan, which enables us with little extra expense, and a great increase of strength, to secure our octagon form.

But can this octagonal form be PARTITIONED OFF INTO ROOMS as advantageously as the square? FAR MORE SO. Let us see.

37. PLAN OF AN OCTAGON.

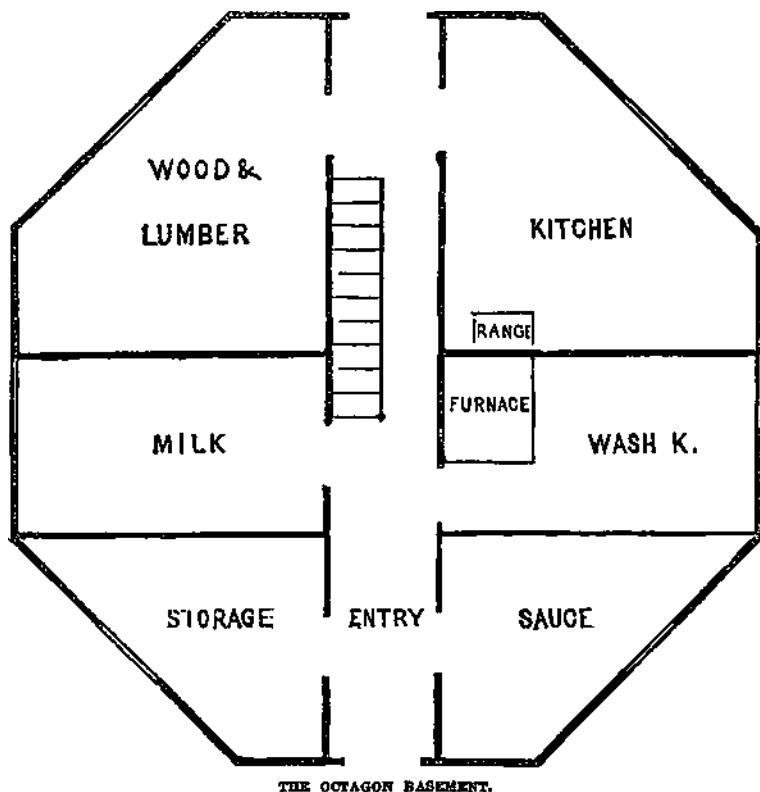
This plan enables us to dispense with an upper ENTRV almost altogether, and thus to save one-fifth of our room, and thereby escape this great thoroughfare for winter air, as well as this separator of the main rooms of a house. Entries above are of very little use, waste about a sixth of the entire house, are right in the way, and, in many respects, perfect nuisances.

"But must we enter directly into our best rooms? How can we do without them?" I will show you. Your house requires a thoroughfare, that is, an entry, so that you can pass through it. But WHERE shall this thoroughfare be? Not through your main story, for this will bring in the most dirt where it is most troublesome, namely, near your nicest rooms, but through that light, airy basement already described. You require this entry quite as much for going to and from your cellar story with barrels, garden sauce, wood, etc., as for the special accommodation of your parlors. At all events this great thoroughfare should be through the cellar story, a plan for which is seen in Fig. 14.

One great advantage of this plan is, that it allows us to have the basement story mostly above ground, which enables us to convert the WHOLE of the room inclosed by the foundation to some good use, instead of, as by the old plan, wasting all but a-twenty-feet square hole, which is less than a third of the 1,218 square feet, inclosed by a sixteen-feet octagon. See to what an excel-

lent use the accompanying ground-plan converts the entire octagon basement! A wash-kitchen for the rough work of the family

Fig. 14



is much needed in every house. This great convenience our plan furnishes. It is also even with the ground, and, of course, handy for wood and water, and away from your nice rooms; it is, in short, just where it should be.

A MILE ROOM

is another great desideratum. This should be below stairs, yet be light and airy; and our plan gives just the one wanted, and just WHERE it is most convenient, namely, near your basement kitchen. The milk can also be taken in and out through the cellar entry, and thus save steps, and be wholly by itself.

A FURNACE

is by far a better plan for warming a house than separate fire-places, or grates, or stoves, for each room. It is much more effectual, and every way more convenient, less expensive, and easily tended. Then, the making of one fire per day serves for the whole house, and saves time, kindlings, and much expense and trouble, besides the great saving of fuel. For this convenience our plan provides, and its location is central, so that it can easily heat any or all the upper rooms.

A WOOD-HOUSE

is an appendage indispensable to a comfortable house. Nor should it be away off at the extreme end of a long row of outbuildings, but CENTRAL. Now one quarter of this cellar story is just the place for it, and saves the ENTIRE expense of wood-house foundation, roof, timber, siding, and all, yet provides an admirable one, and in a CENTRAL location, close to the furnace, and to that central staircase which connects it with the whole house. When you want wood, therefore, you are not obliged to go through hall and kitchen, away out of doors, perhaps through snow and rain, but go from any part of the house directly to it, as if you were going from one room in the house to another. This room is also large enough to hold even more than a full storage of wood, and will furnish an admirable place for tools, etc. The wood can be cut outside, and thrown in through the window, W. Mark, you have this superb wood-house WITHOUT ANY EXPENSE, for you build it WHILE LAYING THE FOUNDATION of your house; whereas the mere expense of foundation and roof for one is considerable.

A LARGE LUMBER-ROOM

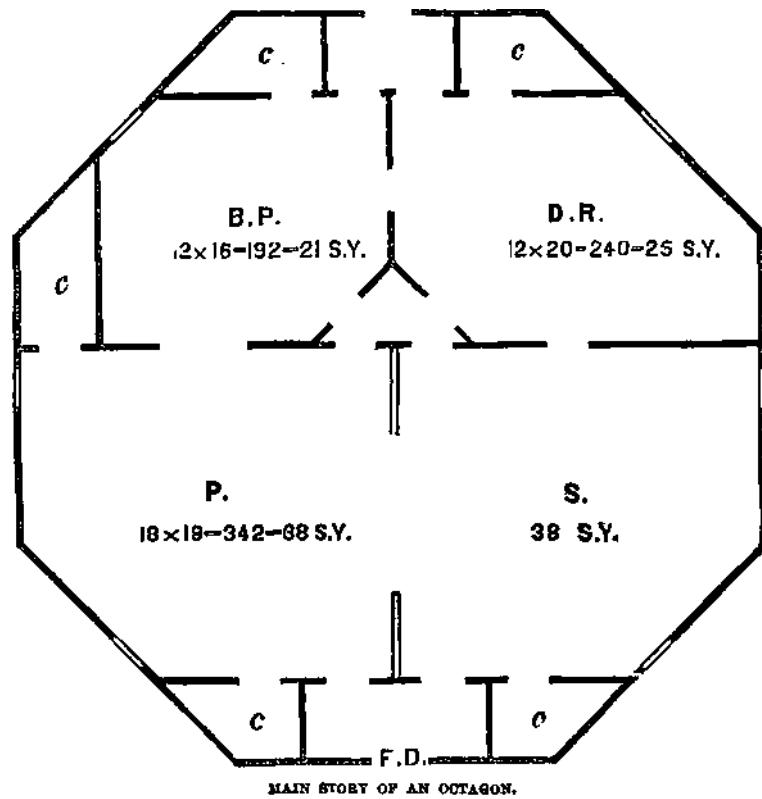
is also provided for by this plan. Every house should have such a room, to take the place of garrets, only more accessible and convenient, for waste lumber and seasoned timber—for, perhaps, a Work-bench—a very handy affair about a house. Our plan provides just the place required.

Two large, lighted, and easily ventilated sauce-cellars, in addition to all these other conveniences, are provided for by this plan, which are, of course, indispensable, and one of which is connected

with the basement kitchen. But see how easy of access all these rooms are, and how light and pleasant, instead of damp and dark! And the arrangement of the stairs is such as to render every room in this basement perfectly accessible. You do not have to go through several to get to one, but go from the center to any one of them, and from this center up to any required room above.

The aggregate number of square feet already shown to be contained in a sixteen-feet octagon, is 1,218, or 136 square yards. Of this, the entry, 6 or 8 by 39, occupies 234 to 312;* the subkitchen contains about 184 square feet, or 20 square yards, equal

Fig. 15.



* In these and subsequent as well as preceding estimates, no allowance is made for the room occupied by wall, which being trifling, we come near enough for all practical purposes.

to a room 12 by 15, but can easily be made larger, and can have two windows, by having the partition on the other side of the window—though this would render one sauce-cellars dark and small, yet, perhaps, all the better—while the milk-room can be made of any size you like. Or, the milk and wood rooms can be made to change places. There is space enough to render these rooms sufficiently large for all practical purposes, and you can vary their relative size and location at pleasure—no small recommendation of this plan. How incomparably superior, in every respect, this basement to our present pit-hole cellars, with all the rest of the foundation-room thrown away, besides the expense of wood-house, which is no trifle !

But let us ascend by these stairs—the foot of which should be toward the sub-kitchen—to the principal story of the house, and see how we can arrange its rooms. We enter into that triangle in its center, which should have been drawn larger, large enough to receive the cellar stairs, and also to admit of stairs by which to ascend to the story above; the details of which you and your carpenter can plan to your liking.

This diagram, drawn on the same scale, gives four fine large rooms, of the following dimensions:

A parlor, P, 18 x 19 =	342 sq.	= 38 sq. yds.
Sitting-room, 18 x 19 =	342 "	= 38 "
Back parlor, 12 x 16 =	192 "	= 21 "
Dining-room, 12x20 =	240 "	= 26 "
Closets included in rooms.		
Total net room on first floor,	1,116# =	= 123 "
" " second floor, .	1,146 "	
" " third "	1,146 "	
Basement, 1,218 — 420 for entry fire-place, =	798 "	
Attic, 1,218 — 24 stairway, = .	1,194 "	
Total net room,	5,406 "	

To compare this sixteen-feet octagon with a large house having a kitchen in the rear, and a wood-house still farther back, which is the usual style of large double houses. We sometimes see

* Add 112 for the entry and stairs = 1,228, which shows our estimates to be correct, excepting ten square feet

slight deviations from this partitioning off of rooms, but this is the generic type of nearly all such houses. Their sizes vary, yet this will not materially affect our general results.

Let this large and splendid mansion be three stories, 40 by 42, with a rear kitchen, 18 by 26, as represented in Fig. 16.

Its total circumference is 216, exactly the same with the winged house drawn in Fig. 6 (see p. 71). Its entire contents is $42 \times 40 + 26 \times 18 = 2,148$ on the first floor, kitchen included. From this deduct its entries, $10 \times 42 + R, e, 10 \times 4 = 460$, and 120 for five stacks of chimneys, $3 \times 8 = 23 \times 5 = 120$, and you have only 1,568 square feet within the rooms.

On the first floor, of net room	1,668
" second " "	1,668
" third " " 1,680 — entry, 400, and	
chimney, 120, =.....	1,160
Cellar, 20x20=.....	400
	4,696
Garret story,.....	1,568
	6,264

This magnificent mansion, then, exceeds the small sixteen-feet octagon, in net available room, only 858 square feet, or ONE-NINTH. Or, to show this result by reducing the fractions—

$$\frac{6264}{9} \cdot \frac{10 - 52^2}{10 - 52} \cdot \frac{10}{10} = \frac{5406}{450} = \frac{45}{9}$$

equal to one-ninth difference. That is, the large mansion and the small octagon are to each other as ten to nine. Yet the mansion will cost more than four octagons; nor will the former bear any comparison with the latter in point of convenience; of which anon.

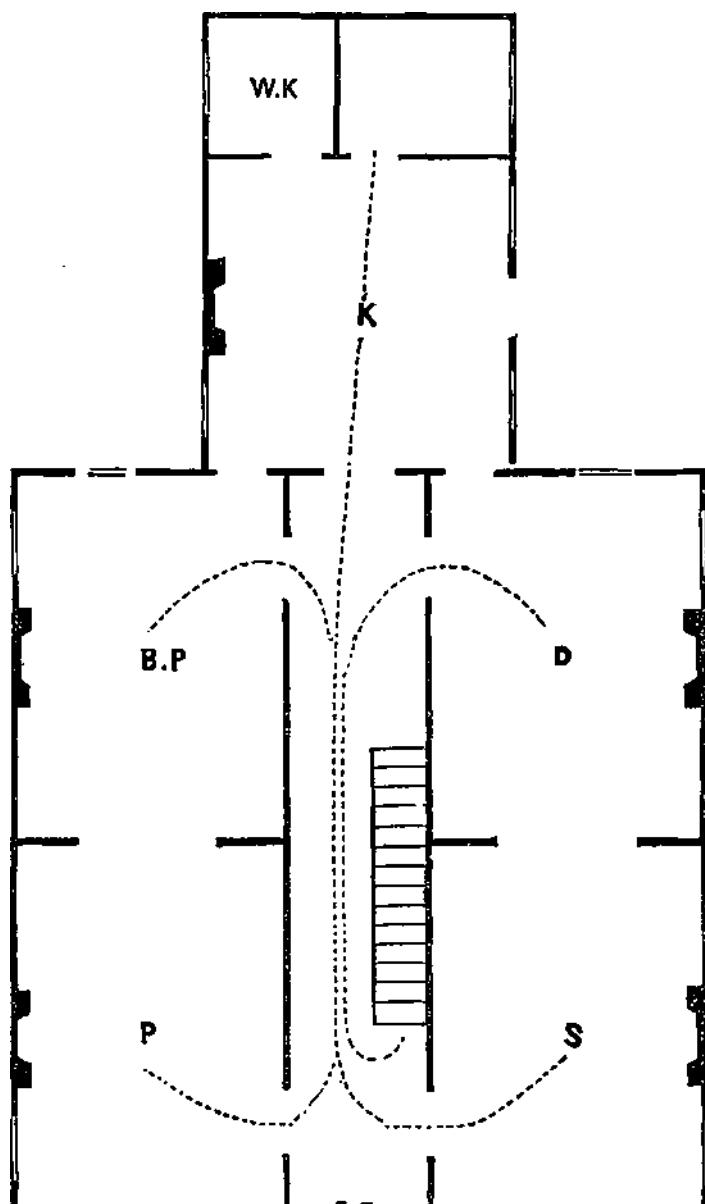
38 COMPARISON OF A DOUBLE MANSION HOUSE WITH A TWENTY-SEVEN-FEET OCTAGON.

Let us next compare the net room in this massive double house with that in an octagon of the same circumference, namely $216 - 8 = 27$ feet; the dimensions of which are given in the diagram on page 95, drawn on a scale of 16 feet to the inch.

This octagon is 64 feet through. Square this, $64 \times 64 = 4,096$;

COMPARISON OF HOUSES.

Fig. 16.



LARGE DOUBLE MANSION.

from which take the four half squares at the four corners (one of which is illustrated by dotted lines), which equal two squares 20 feet each = $20 \times 20 \times 2 = 800$; and you have $4,096 - 800 = 3,296$ square feet within the octagon. From this deduct 200 square feet for entries and stairway, and you have 3,096 net room.

Net room on the first floor,.....	3,096
" " second "	3,096
" " third "	3,096
" in the garret, $8,296 - 4 \times 8 = 32 =$	.
3,264	.
" basement, deducting entry and furnace,	.
2,600	.

Total net room in the three stories, garret, and basement, = 15,162

Keducing the net room in both houses by fractions, they stand thus:

$$\begin{array}{cccccc} 1263^{\wedge} \text{ ft} & = & 158^{\wedge} 9.79^{\wedge} \text{ QO} = ^{\wedge} \\ 6264' & & 522 & 65 & 32 & 1 \\ * & & & & & \end{array}$$

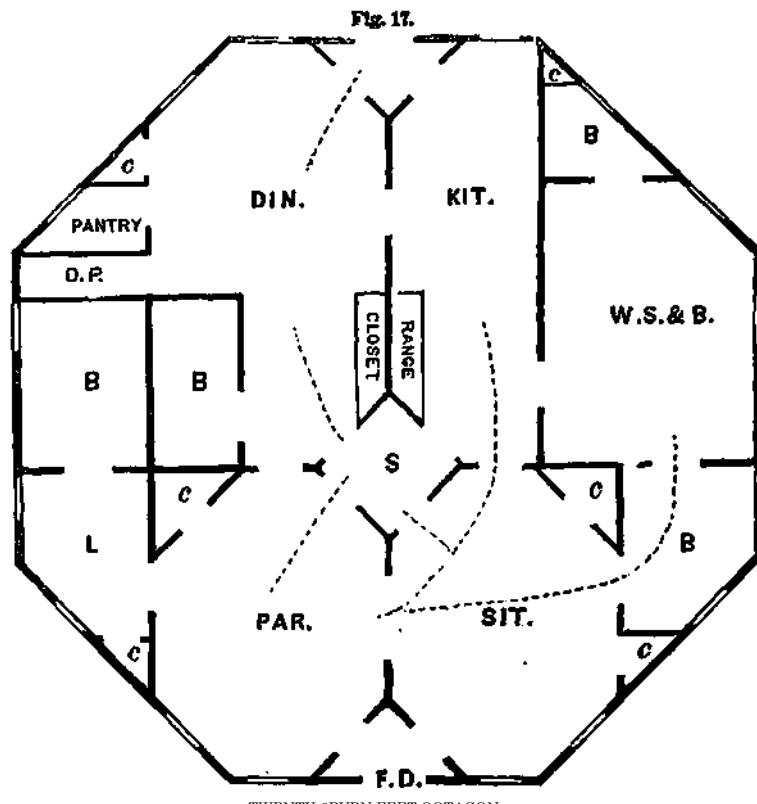
That is, the octagon contains TWICE AND ALMOST A HALF as much net room as the splendid mansion of the same outside wall, saving that the kitchen is only two stories. True, we reckon more of the basement of the octagon, relatively, than of the mansion, because the whole of the former will be turned to an excellent practical account; yet we have reckoned as much of the cellar story of our first houses as is generally used. Nor have we deducted any thing on account of those useless corners between the chimneys and walls.

Besides, see what a magnificent upper story we have in our octagon compared with the garrets of the mansion. But the oc-

39. THE SUPERB ARRANGEMENT OF ITS ROOMS.

But the size and CONVENIENCE OF ITS ROOMS are a still greater advantage.

F, front; D, door; W, window; c, closet; B, bedroom; Par., parlor; Pan., pantry; D P, dark pantry; Sit., sitting-room, etc. I do not say that this inside arrangement of rooms is the best that can be devised, but I do say that it incomparably exceeds any arrangement of rooms of which the square house admits. Besides the charm of novelty—of differing from all kinds of rooms now



in use—it will combine an amount of advantages found in no house extant. To examine them more particularly:

The parlor is 19 x 27 —100 sq. ft. = 518 sq. ft. = 67 sq. yds.

Library, L,	12X18 = 156'	= 21*
Bedroom, B, off library,	13X13 = 169'	= 19
Sitting-room, same as parlor,	513'	= 57
Bedroom,	12X15 = 186 *	= 21
Winter sitting-room,	18 x 24 = 432'	= 48
Triangular bath-room,	72'	= 8
Kitchen, K, and closets,	13X86=468'	= 62
Dining-room and closets, 19 x 36—100 = 584'		= 65
Pantry and dark pantry,	188'	= 12
	8.231	860

* Fractions of yards, and of fractions, are sometimes omitted; and some* times, if over half a yard, the whole yard is reckoned.

Now it is submitted to any practical housekeeper whether the arrangement of the rooms in this house is not two and a half times BETTER, as well as larger, than that of the splendid mansion, 40 by 42, as regards every story, from basement to attic. Instead of being separated, all the rooms are UNITED, so that you can go from one to another without being obliged to pass through a cold and cheerless entry. And you go to and from the same point to go up as down; and that point is the CENTER, which makes the distance much shorter. Nor, from whatever part of whichever room you may start, have you to make any angle in going to and from this stairway; whereas, in the square house, you must go a long and circuitous route, as seen in those dotted lines. Now the difference, especially to a weakly woman, between going from room to room by a few direct steps, and by those long and crooked roads, as illustrated by those tracks or dotted lines in the two houses, is very great—MORE THAN DOUBLE—in the square, compared with the octagon house. I submit this point to the special consideration of every housekeeper, and leave them to say whether they could not do TWICE THE WORK with the same ease in the octagon. To draw a specific illustration from getting an armful of wood for your square house parlor. You must first go several steps out of your way—west when your wood is east, to get to your entry, and then traverse its whole length, then go through your kitchen, and finally out of doors to get it, and retrace your steps by the same long-winded and door-hedged route, and through three doors; whereas, in the octagon, you go direct from every room, by a few steps, to your stairway, at the bottom of which is your wood-house, completely inclosed. The same difference in favor of the octagon is equally great in going from any part of either house to any part of the other. What a vast number of steps will the octagon save a large and stirring family annually over the square! This single feature of this plan renders it invaluable, even though three times more costly, whereas it is much LESS expensive, as we shall soon see. It will at least enlist all HOUSEWIVES—I do not mean parlor toys—in its favor; and whatever saves THEIR steps and vexations is truly invaluable.

The accommodation of a large party of friends furnishes another illustration of the decided superiority of this plan over the square

'W' \
^A
^OII
V A /
Nv<C : X , '-

10. WATERTOWN, WISCONSIN

When this house was built in 1854 by John Richards, it was said to be the largest singlefamily residence in Wisconsin. The walls are brick and there is a cantilevered spiral staircase in the center of the house. The unusual floor plan is shown in the insert. Photographs are from the Watertown Wisconsin Historical Society.





11. Greene, Chenango County, New York The bay appears to be a later addition to this house, originally built *circa* 1870. The plank walls are 2 inches thick.

and doubly so over the winged or doric style. Here your sitting-room, parlor, and a large bedroom are thrown open into one room, and they all join the dining-room, so that your entertainment is handy, and that your guests may go from room to room without going through a cold, wide entry. You can accommodate a much larger company in the same sized house, and this juxtaposition of rooms greatly promotes sociability, whereas the dividing entry partially breaks the spell.

See, too, how much farther the same heat will go in the octagon than in the square. Its escape is by radiation through walls and crevices, and by open doors. In the octagon, it radiates from the sitting-room into the parlor, and the reverse, or INTO ADJOINING ROOMS, and is therefore saved ; whereas in the square house, it radiates from both sitting-room and parlor into the ENTRY, and so escapes. And if an inside door is opened in cold weather, the wind does not rush in like a hurricane, as if an outside door was opened, but only the confined air of an adjoining room gently enters. All five of the inside or entry doors of the square house are virtual outside doors, unless you have a fire in the hall, at a great cost of fuel and trouble, and without even then doing much good.

The KITCHEN of the octagon deserves especial remark. The kitchen is the stomach of the house. Shall it then be thrust away back out of doors, into another building % This would be like putting the human stomach away down in the feet. In the octagon kitchen, the wife, when she leaves the sitting-room to attend to kitchen duties—pleasures—instead of feeling that she is going away off alone out of doors, feels that she is only a step removed from the rest of the family. What say you, wives, to this %

The sight of a tidy kitchen is not so very disgusting, even to men of refined tastes. None who are not too extra nice, fastidious, and fashionable to eat, but like the sight of the kitchen— excepting those double-exquisite LADIES who are as cordially disgusted with household duties as with good sense. Sensible men love to see the kitchen, and they even take pleasure in going into it. In fact, the kitchen is as much the home of the house as the house is of the farm—is the “ holy of holies ” of fire-side comforts. Then put it, as in this plan, alongside of the sitting-room and

dining-room, and in the very heart of the house, instead of out doors, as in the square form.

It is, then, very important that it be tight and COMFORTABLE. Yet the square-house kitchen has an outside door, an entry door, a woodhouse door, and a back-kitchen door, which are tantamount to four outside doors, besides two other doors and all its windows ; so that the wind draws through and rapidly dissipates its heat, besides being in a separate building, having its kitchen stairway—virtually five outside and three inside doors. Now I like my one outside and two inside doored kitchen the best. I say two inside doors—the stairway and sitting-room—because that marked in our plan between the kitchen and bedroom can be omitted, and probably should be. And then no cold could come in from my sitting-room door, for, by supposition, that room is warm, nor much from the stair door, because there should be a door at the head of the basement stairs, so as to open or shut the draft from the basement at pleasure. This may be my conceit; but, really, I had rather have one of my kitchens than ten of your old-style, wind-riven, out-of-doors, stomach-in-the-foot shanties.

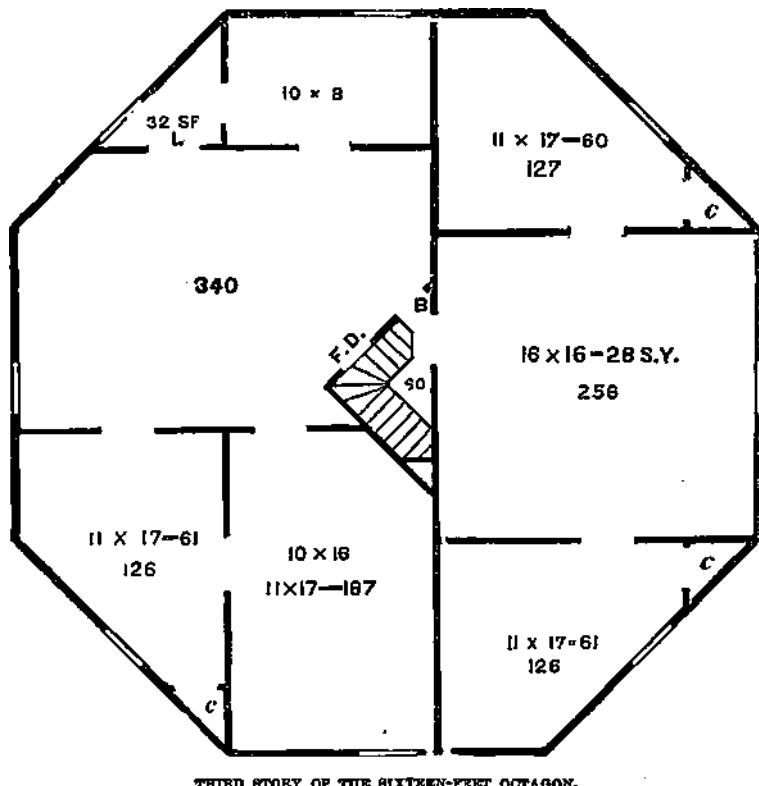
Moreover, see what a handy little BASEMENT kitchen—close by well and cooking-range—this plan furnishes, which the old virtually denies, all but a little back room, unless you add another L on beyond your kitchen. And my wash-room is just where it should be—down stairs, yet light and dry—out of parlor sight and smell, where all the heavy and unpleasant work of the family can be done. Or, if preferred, this basement kitchen can be made larger, and have two windows, and a dumb waiter to carry food and dishes up and down, and serve as the kitchen proper—one of the other basement rooms being appropriated to a sub-kitchen—and this up-stairs kitchen be made a dining-room and the *omnium gatherum*, or common rendezvous of the whole family, and connected with the bedroom—probably the best arrangement, and incomparably superior, in every possible respect, to the general arrangement of our kitchen and adjoining rooms. I may overrate this plan, yet will it not render a family much more comfortable than any yet devised, besides enabling women to do their work with double dispatch and comfort % It also joins the sauce cellar and well with the work kitchen—a very handy arrangement.

But see WHAT WE HAVE SAVED by the octagon plan. We build our kitchen as well as woodhouse WHILE LAYING OUR HOUSE FOUNDATION, and thus SAVE ALL OUR KITCHEN AND WOODHOUSE MATERIALS, LABOR, FOUNDATION, AND ROOF ! or somewhere near ONE-FOURTH the net total cost of the whole house; not, be it observed, by our gravel-wall plan, but by our OCTAGON SHAPE. All this in ADDITION to all the items already shown to be saved by the length and superiority of wall, cheapness, permanence, etc.

40. THE THIRD STORY OF THE OCTAGON.

To return to our sixteen-feet octagon, Fig. 13. Stepping on to our stairs, which start close by the door which connects the sit

Fig. 18.



ting-room with the stairway, we will go up two or three stairs,

toward the acute angle B, in Fig. 14, and after rising two or three steps, as our space will allow, we will turn on a broad stair, and go up that central partition, rising high enough to clear the cellar door, and, perhaps, turning again before reaching the top, let us see how this suite of rooms can be divided.

We will start our stairs so as to land at B on a broad stair, and turn to the right into a delightful room rendered octagonal by making a closet in each corner, thus corresponding with the shape of the house, sixteen feet square, with one window and two light bedrooms with closets. Now this square parlor, opening into two bedrooms, is a very rare convenience, such as our best houses rarely furnish, and for which, at our boarding and public houses, whoever has them must pay dear. This is a real and rare luxury.

A friend, wife, and children, or a small family of boarders, wish to have a common parlor with an adjoining bedroom for themselves, and another for their children, or some near friend: this plan gives just the thing required. In your square house they can find no such accommodation, but only two connecting rooms—nor are these plenty, and hence they must either have a bed in their sitting-room, or their children must lodge across a cold entry and out of hearing. Or the heads of the family may wish this for their private room, they sleeping in one room, and their children in another.

Yet for them, probably, the other side of the partition would be best, as it is largest; and, besides having one large and two small bedrooms—enough room to lodge a good many—in addition to a spacious parlor, see what a snug library, L, or cabinet of shells, opens into it, lighted and triangular, so that, for its size, it furnishes much more shelf-room than if square. Or some other use can be made of it, as utility or fancy may dictate. At all events, it is a “cunning little room,” admirably suited and situated to a variety of appropriations. It would also make a fine bathing-room. Now is not this a delightful and most superb suite of rooms, unequalled in any of our best houses?

Mark, here, the appropriation of the WHOLE of the 1,218 square feet, except the fifty square feet occupied by your ten-feet half square; and in place of wasting $8 \times 36 = 288$ square feet in a room-

separating entry, observe, also, that the access from each room to and from the stairway, both above and below, characterizes this plan, the great utility of which was shown in the lower story.¹⁹ The same principle of saving the heat, by its radiating into adjoining rooms, instead of being carried off by a bellows entry, also characterizes this suite of rooms. Nor can the wind get in, except at the windows. From the entry it is excluded by the door at the top of the cellar stairs; and the escaping heat from the story below, furnace, etc., will render the entry quite warm enough, in the coldest of weather, so that *HEAT*, instead of cold, will come in at the entry doors.

The fire will be at F, opposite the window, so that, as you sit with your feet to the fire, your back will be to the window, which is just the thing for reading. And one large window lights a room far better than two or three cross lights, which confuse and injure the eye,* shine through a newspaper and blur it from one window, as you hold it up to read by another, and are every way objectionable, as all opticians assert, and the laws of optics prove.

This beautiful feature of this plan is so vitally important as to deserve illustration. We generally wish to sit with our feet to the fire, and comfort, in a cold day, requires that the wind come upon our *BACKS*, instead of sides, else we are in danger of freezing one side while we scorch the other. Wind at our backs is warded off. Not so when it strikes at our sides. Now sit down with your feet to the fire of either of those square rooms of the old-fashioned house. You have an entry door at your back, two windows on one side, and one in front, pouring a stream of cold air on all sides. You may ward it off by turning half around, but then you are half *FROM THE FIRE*, which is a position as unnatural as uncomfortable.

Sitting before the fire, you wish to read a paper. You have no light at your back, and must either twist yourself into a double bow knot, or else forego a front posture to the fire. You turn some and raise your paper, when the light from the window between the chimney and the corner shines through and blurs your paper, so that you can not distinguish a single word. This compels you to turn *FROM* the fire, and try again, and again you are disconcerted by three cross lights—one at one side, one at the

other, and the third behind; and these causes of discomfort are PERPETUAL, because incorporated into the very structure of your house. Both these evils this plan obviates. It receives light and wind at your back, just where you require them, relatively to your fire, prevents all cross lights, and is just the very thing for a comfortable read or chat. Your smoke ascends through brick or earthen pipes in those TRIANGLES formed by the stairway partitions, of which hereafter. This plan also enables you to have fewer windows; yet these can be large enough to light all your rooms effectually—which is the cheaper for the same surface of glass—as well as write at a desk without cross lights, or .he sun shining in from several places, and is exactly what should be.

The dimensions of the rooms in the sixteen-feet octagon, on this story, are as follows:

A square room,	16X16 = 266	sq. ft. = 28 sq. yds.
Two adjacent bedrooms, each	11x11= 242	" = 13 " et
A large parlor,	13 x 22 = 286	" = 31 "
A connecting spare room,	10X16=160	" = 19
" bedroom,	12x10=120	" = 144 c<
<C <<	10§ X 8 = 85	" = 9 <c
L, a half square,	4x8= 32	" = 34 "
Stairway, half of a square,	10x10= 60	" = 64 c<
Total,	1,231	

This is 13 square feet more than our 1,218 square feet, but the excess is made up by fractions of feet not counted, and comes so near as to prove the general correctness of both estimates.

To ascend by those winding stairs drawn in the staircase so as to land, as before, on a broad stair opening into the attic suite of rooms, partitioned in the same manner, or in any other desired.

But instead of going only four feet before we put on the roof, let us go six or seven, since it will not cost many dollars extra to do so, and will give us as fine a suite of rooms on the fourth story as need be desired.

Than such a house, what earthly habitation could be more beautiful, more imposing, more convenient, or more comfortable ?*

* Those who preach that we should hate this life and its blessings in order to prepare for another, would, of course, object to so enchanting a mansion, it making us love the world so well as to be loth to leave it.

Let us next estimate the room in this sixteen-feet-sided octagon, both absolute, and as compared with that of a thirty-two feet square house (Fig. 16, 40 x 42), with a rear kitchen and woodhouse to boot.

SIXTEEN-FEET OCTAGON BASEMENT.

Sub-kitchen . . . . .	. 2 7 0
Store-room and cistern	250 ((
Cellar	:
Milkroom	100 <<
Woodhouse	<(
	. 120
Entry	350 <%
Total in basement	1,210

UNDER THE PORTICO.

Icehouse . . . . .	. 128 sq. ft.
Wood rank	128 <<
Lumber.....	. 128 it
Green-house	256 it
Tubs, tools, etc., .....	. 160 O
	. 118
Total of basement and portico . . . . .	. 1,660

MAIN OR SECOND STORY

Parlor . . . . .	. 300 sq. ft.
Sitting-room	300
Kitchen and pantry . . . . .	. 294 it
Back parlor and closets . . . . .	. 1 tt
	9
Add entry and stairway . . . . .	. 121 c <
	1,090
	1,211

THIRD STORY.

Square room.....	. 256 tt
Triangular bedroom and closets << tc " . . .	. 127 ct
	. 127 ((
Long " . . .	187 tt
Triangular bedroom.....	. 126 it
Large parlor, L, etc. . . . .	. 3 it
	4
Add stairway.....	. 60 tt
	1,163

1,000

Total brought forward..... 3,918

FOURTH STORY.

The same .	1,163
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ATTIC STORY.

Outside ben3	552	"
Play room.....	650	"
	1,202	

Stairway 5x3	15 "
	1,217

Grand total	6,278
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Let us next estimate the room in a thirty-two feet square house.

Total room	32 X	82
	=	1,024

Deduct entry	7 x 20 —and two chimneys 176
------------------------	------------------------------

Net room left	848
---------------	-----

Its three stories and attic=848 x 4, and a 20 x 20 feet cellar=grand total net room 3,392.

The octagon and square, then, compare thus:

6878 . 1?_523	52	26 lf
3392 '	282	28 14 1
	,	

which equals six-sevenths, or ALMOST DOUBLE THE ROOM in the octagon over the square—a part by its shape, a part by its entries, and the balance by the use of the whole basement, instead of a part, as is usual. Yet we reckon the whole of the garret room in the square house, whereas only a small part of it is usually converted to any valuable use. We reckon both garret and cellar in our octagon, to show how unwise to throw away room which can be converted to ends thus valuable.

Estimate of the net room in a house 36 by 44, and kitchen. Each room $18 \times 18 = 324$, less 24 square feet for chimney, and fourteen lost between the chimney and corners, as already expiated, =286.

The four rooms on each story, and four stories,

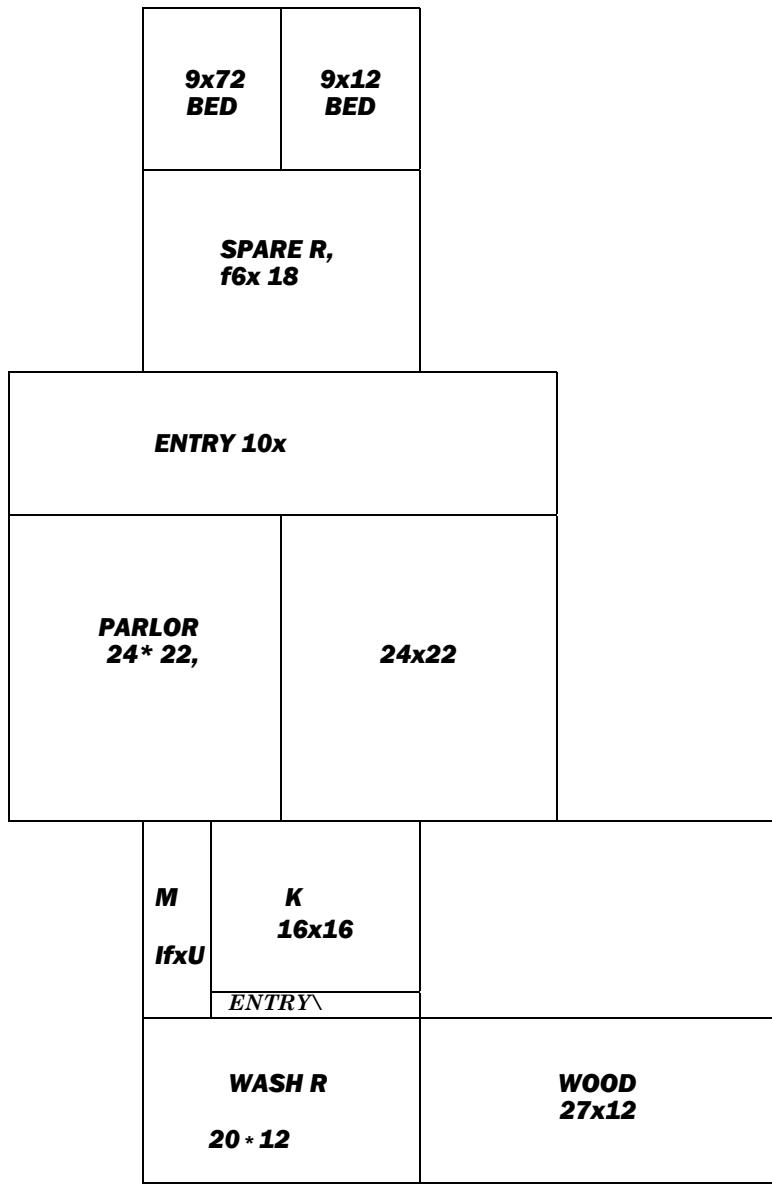
$16 \times 286 = 4,476$

Kitchen, 20x16,.....	320
----------------------	-----

Cellar, 20 X 20, , , , ,	400
--------------------------	-----

Woodhouse, 16x8,	128
------------------	-----

Fig. 19.



WINGED HOTOR, 82 BY 42.

Less, by 054 square feet, than our sixteen-feet octagon con-

tains. Yet there remains a ten by twelve garret room over the kitchen, but this will require a deduction for stairs off of the kitchen.

But suppose the builder to be a man of means, and to want a large and superb double house, with a great abundance of room, and every convenience. He builds an upright with wings.

Upright, 32 x 2	42 x 2 = 148 cir., and three stories,	148 x 3 = 444
Wings, each 27 feet long, x 2	= 54 x 2 = 108 x 2 stories,	= . 216
Woodhouse, 27 x 2	= 54 x 2 stories,	=..... 108

768

41. HOWLAND'S PLAN OF AN OCTAGON COTTAGE.

The following drawings and specimens rendered by our engraver, Mr. Howland, both furnish an additional arrangement of rooms, and may suggest others still to the readers.

The accompanying engravings represent the plan of an octagon cottage, designed by Messrs. Morgan and Brothers, architects, Williamsburg, New York, for Mr. William Howland (our engraver), and which has been much admired by builders for its neatness, simplicity, convenient arrangement, and cheapness. Gentlemen in the vicinity of this city are about building after the plan here specified, and, for the information of such others as may wish it, we give below the SPECIFICATIONS of the materials—the wood-work and the masonry, together with the estimated cost of completing the same. The thing most likely to stumble the reader, in inspecting this beautiful design, is, that so neat and well-finished a cottage can, out of good materials, be constructed so cheap. But by attending particularly to the economical method of *inclosing*, as well as the *form* of the building, he will readily see how it may be done.*

* The octagon house of this size gives 137 more square feet on each floor than a square house of the same outside measurement; or, in other words, a square house to give as much room on a floor must measure 110⁴ feet more around than the octagon.

Octagon, 12 feet 6 inches each side, measures around 100 feet, and gives on each floor square feet 762

Square, 25 X 25, measures 100 feet, and gives " 625

Gain in favor of octagon of 1 3 7

CARPENTER'S SPECIFICATION

Of the materials and workmanship required to erect and finish a two-story dwelling for Mr. John J. Brown, at East Williamsburg, Long Island.

DIMENSIONS.—Thirty feet from the outside line of the building to the opposite outside line of each side.

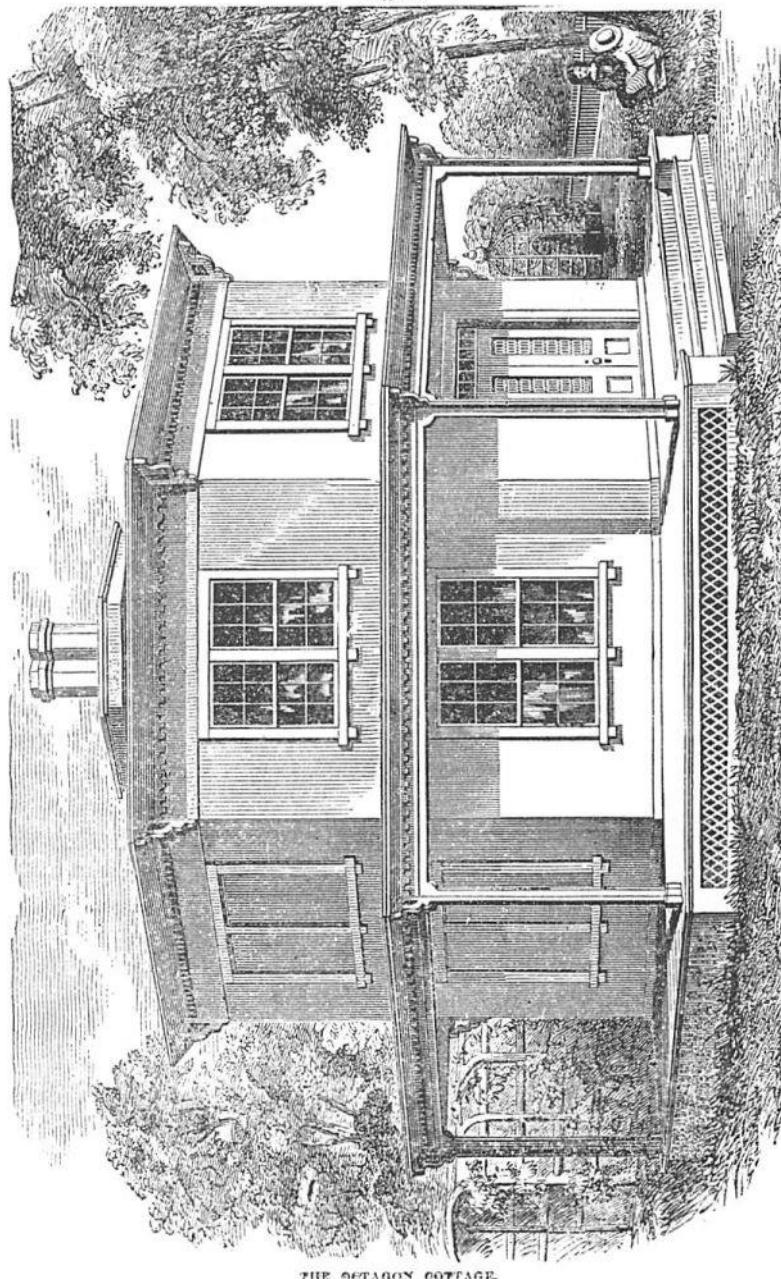
Cellar		7 ft.
0 in.		
First story	9 "	6"
Second story.....	8	"0"
Breast.....	2	" 0
		"

All in the clear when finished.

Size of timber-sills, 4 by 6 inches; four inter-ties, 4 by 6 inches, 30 feet long; those to first story to have three locust posts each under them. First tier of beams 3 by 9 inches ; second tier, 3 by 8 inches; all placed two feet from centers, with one row of herring bone bridging to each tier. Hip-rafters, 4 by 7 inches; jack-rafters, 3 by 7 inches, two feet from centers; purlin-plates, 4 by 10 inches; studs, for the two partition-walls running through the building, 3 by 4 inches; joist, 16 inches from centers; the other studding of wall-strip 16 inches from centers; the doors double studded. Do all necessary furring for mason's work, and dove-tail every fifth beam, on each floor into the outside wall, and anchor them together in the center. All the timber to be of white pine or spruce. The ceiling of second story to be furred level.

INCLOSING.—All the outside walls or inclosing to be of pickets or strips of common or refuse stuff, about four inches wide, to be constructed as follows : After the sills are placed in their proper places and leveled, a course of pickets to be nailed on to the sills, about half an inch back from the outside line of the sill, then another course on top of that; breaking joints with the first course and on a line with the outside face of the sill (that is, projecting

Fig. 20.



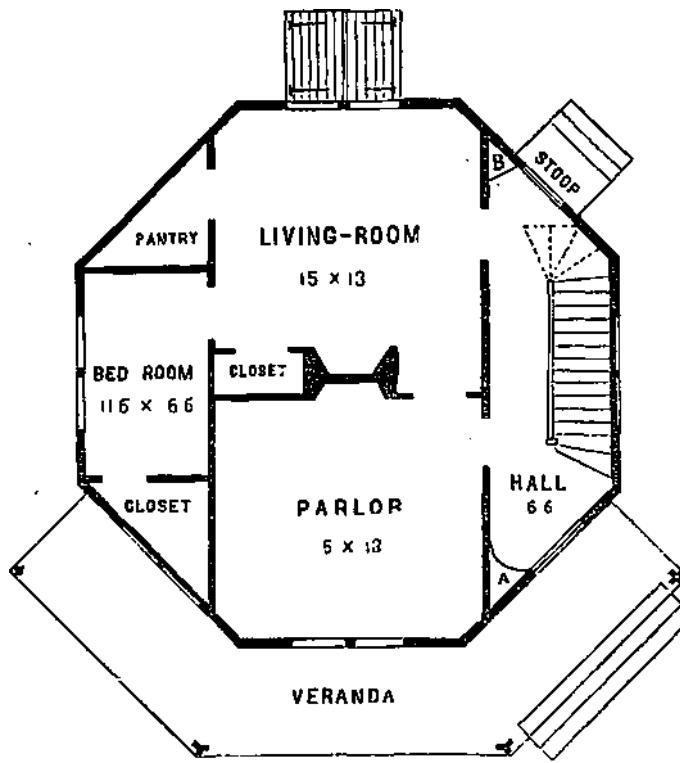
RESIDENCE OF JOHN J. BROWN, WILLIAMSBURGH, N. Y.

THE OCTAGON COTTAGE.

half an inch over the first course); the third course the same as the first, and so on to the top, each course projecting over or receding from the one next below.

ROOF to project, and supported by brackets, as shown on elevation, covered with box boards laid close, joints broken; covered with single-cross tin, soldered and painted, two coats. A small

Fig. 21.



PLAN OF FIRST STORY.

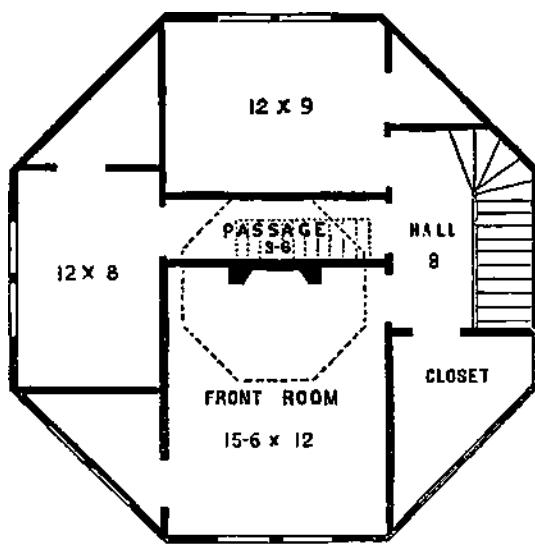
strip of plank is to be fixed near the outer edge of the roof, to form a hollow, lined with tin for a gutter, with all necessary three-inch tin leaders to convey the water to the cisterns.

SCUTTLE.—Fit and hang scuttle two and a half by four feet, secured with chain and hook.

WINDOW FRAMES, SASHES, ETC.—For number of frames see plan; and size of glass left optional with the owner. All box

frames, sashes, one and a half inches thick, double-hung with weights, cords, and pulleys. The first story to have patent brass fastenings; windows glazed with a good quality of American glass. Four windows in the cellar, three lights in each, 10 by 14 inch glass; sashes hung with butts and secured with buttons. Outside hall door glazed the same as windows.

Fig. 22.



PLAN OF SECOND STORY.

Fig. 28.

SCALE OF FEET.

PIAZZA in front as per elevation. Back stoop as per plan.

Cornice all around the house, with brackets as per elevation, with an *observatory* on top. That portion of the roof required for the floor of the observatory made nearly level.

FLOORS of first and second stories laid with merchantable mill worked white pine plank, free from large or loose knots, sap, or splits, tongued and grooved; laid in courses, well nailed, and heading joints neatly smoothed off*.

TRIMMING.—All the doors and windows trimmed with single faced architrave, with back mould, in all five and a half inches wide

The windows trimmed on neat sills; and on the outside with four-inch plane architrave; with block under the sills as per elevation.

SINK in living-room of suitable size, made perfectly tight, and doors and shelves underneath, and waste to cesspool. The pantries shelved with four tiers of shelves each. Four dozen clothes-hooks put up in the bedrooms and closets, as the owner may direct. Put hard wood saddles to all doors, and base block or turned pins where necessary behind the doors.

DOORS.—Outside doors two inches thick, four panels each; double faced, with glass in the upper panels; the lower panels with mouldings. All the other doors, except those of the pantries, one and a quarter inches thick, double-faced, four-paneled with mouldings. The pantry doors single-faced, to correspond with the room doors, the other side bead and butt. The front door hung with three three-and-a-half-inch butts, and secured with two barrel-bolts and a suitable sized front-door lock, with night-latch and two keys; the back door hung with three-and-a-half-inch butts, and secured by a seven-inch rim-lock and two barrel-bolts. The first story inside doors hung with three-and-a-half-inch butts, and secured with five-inch mortice-locks, except the pantry and closet doors, which are to have reversed beveled-locks. Second story doors hung with three-inch butts, and secured by suitable sized rim-locks. White mineral-knobs on first story, and dark colored on second story. Outside and inside cellar doors made in the usual manner, hung with large-sized strap-hinges, and secured with bar-hooks, etc., complete.

MANTLES.—Neat marble-pattern mantles to all the fireplaces, painted such color as directed.

BASE in all of first story nine inches high, with ovolo moulding on top. Beveled base in second story seven inches high, all scribed down and well fitted to the floor.

STAIRS leading from first story to second, as per plan, put up on strong carriages, moulded and returned nosings; three-inch moulded rail; one-and-three-quarter-inch fancy turned balusters; six-inch newel-level rail and balusters at the top; the newel-rail and balusters of St. Domingo mahogany, rubbed smooth and varnished three coats. Geometrical panel under stairs; strong stairs

to cellar and scuttle in the usual way. Cellar stairs ceiled up tight with paneled doors underneath.

PRIVY, 4 by 6 feet of mill-worked white pine, tongued and grooved boards; the inside prepared for plastering; four-paneled door made, hung, and secured in the usual way, one window, 6 by 10 inch glass, six lights, hung with butts and secured with button.

PAINTING.—Paint all the wood-work, both inside and outside, with two coats of linseed oil and pure white-lead paint of such color as the owner may direct.

MASON'S SPECIFICATIONS.

EXCAVATING.—Excavate and cart away all the earth for areas, cesspool, sink, cistern, etc., and level around the house as directed. Cart away all the rubbish that may be made during the progress and at the completion of the job.

STONE-WALL.—Start cellar wall two feet below the bottom of cellar, and carry the same to the under side of the first tier of beams, with blue building-stone eighteen inches thick, laid in courses in good lime-and-sand mortar. The inside faced the whole height, and faced outside above the ground, and neatly pointed. Blue stone steps to cellar in the usual way.

BRICK-WORK.—Build chimneys as per plan, with fire-places; marble facing and hearths, complete. Large crane in kitchen fireplace. Chimneys topped out five feet six inches above the roof with hard brick and brown stone cap, as per elevation.

PLASTERING.—Lath the partitions, and plaster the whole of the first and second stories with scratch-coat and brown-coat down to the floor; the first story hard finished; the second skimmed for whitewashing. The outside walls will not need lathing. Privy lathed and plastered same as second story.

CISTERN.—Build cistern in yard six feet in diameter and eight feet deep, of hard brick, eight inches thick, laid in cement and cemented tight; arched on top with blue stone neck, and covered with waste to cesspool.

CESSPOOL in yard, eight feet deep, three feet diameter at the bottom, and one foot six inches at top, stoned up with broken stone, and covered with perforated flagging.

SINK.—Build sink four feet diameter, stoned up with broken stone, and squared up with three courses of brick at the top.

The outside of building to be stuccoed in the best manner—blocked into courses and colored in imitation of stone work.

Now the whole cost of such a house, as is here specified, will not exceed *eleven hundred dollars*. Much more than this sum *may* be expended, it is true, if the owner is so disposed, and some builders have estimated that it might be done for less.

[Another plan of constructing walls of wood, and which we think cheaper and better, is to get three-inch hemlock plank, and set them edge-wise one upon another, and putting the edges together by dowel-pins, made of white ash or oak, an inch in diameter and about eight inches long. The corners are framed together and pinned with draw-bore. Tear in pieces a tea-chest and you have the plan of this mode of building. These planks may be of any width from six to eighteen or twenty-four inches. It certainly takes good logs to saw picket or narrow stuff from, and have it hold together to get it to market. The use of *refuse* stuff is poor economy. If this were sawed into plank, three-fourths of the sawing would be saved, and one-fifth of the stuff would also be saved, which is cut into sawdust by the process of cutting the planks into inch boards. Besides three inches of solid timber, in the form of a plank, is stiffer than a wall of slats four inches wide nailed together.

Again, what is the use of sawing solid planks into strips, and then using nails and labor to fasten them together again, with a loss of one-fifth of the timber in sawdust? A plank house can be lathed, and plastered, and finished for less than it costs to finish the slat-work wall, as it takes a greater quantity of mortar to level up and fill the crevices in the slat-work. The writer has tried both methods of building, and knows that the plank-wall takes less lumber, can be put up faster, and does not cost a *single nail*, except to lath. The outside can be covered with clapboards or stucco on lath, to suit the taste.]

42. DESCRIPTION OF THE AUTHOR'S RESIDENCE.

Allusion has already been made to the residence of the author. For two reasons it seems proper to give its description a place in these pages—first, because those studies which have eventuated in this work were instituted primarily to erect this very house; and, secondly, because an account of it will call up many points about building, uses of rooms, etc., which can be presented in this form better than in any other. It is, moreover, intrinsically worthy such a place.

To begin with the lower, or cellar story. My house is located on an oval knoll, digging off the top of which furnished me with nearly all the stones, large and small, used in putting up its walls. All my cellar, therefore, is *above ground*, except two holes, C L and M, alongside of my ice-house.

My ice-house consists of two stories—the upper one for ice, the lower, a room kept cool by the ice and its drippings, a preservatory for keeping fruit, butter, eggs, fresh meat, fish, bacon, pies, etc. I took a perfectly sound and hard apple from it in August, stored the fall before, and kept it till December in a warm, bad place, yet it retained its flavor perfectly. They have been kept two years, and grapes one. The melting ice keeps this room at a temperature just above the freezing point, and surrounded by stifled and cold, air, so that its preserving powers are remarkable. Its structure is simple, and as follows:

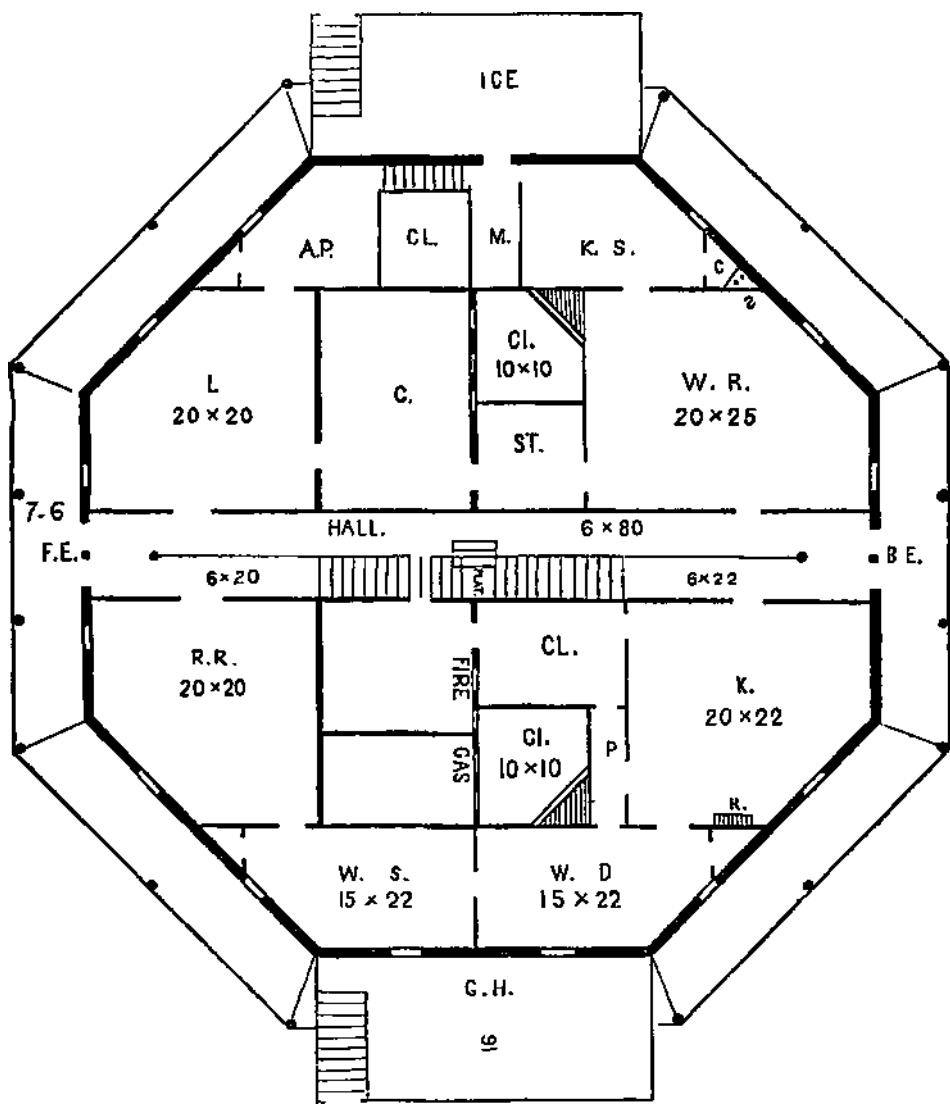
Erect studs as for a wall. Lath and plaster *both sides*, and finish the outside as you do your house. This furnishes a place for *dead air*—the best non-conductor in the world—superior, says Professor Silliman, to tan-bark, or even charcoal. In the plastering use a little cement. Then erect another set of studs, first having nailed on your lath before they are raised; then raise and fasten them, and plaster from the *inside*, or *between* the studs; this gives two confined air-chambers. Then lath on the *inside* of these studs, and plaster, and you have three air-chambers all around your ice-house and preservatory for both stories. Next lay your floor for the *bottom* of your ice-house and top of your preservatory, and make it *water-tight*, by caulking, or plastering with cement, or in some other way; and having this floor descend a few

DESCRIPTION OF THE AUTHOR'S RESIDENCE.

nr

inches from, the middle each way, so as to carry off the water, and

Fig. 24.



resting this floor on rows of studs below, which serve both to support the ice and fasten shelves to, and to the *outside* row of

studs lath and plaster with cement, so that the ice drippings may run off *behind* this inner wall of the preservatory, or between it and the two rows of studs above described. Your preservatory is now perfectly dry, and of one temperature the year round. Its bottom should also be double, so as to be dry, yet let water pass under it. In mine the ice water is gathered at the door, under which it runs through a lead pipe, bent upward like a new moon, which allows water to pass *out*, but prevents air from passing in. It passes into this cellar C L, and my milk closet M, which also has two stories, the lower for preserves and what else we want to keep, yet do not think worth the trouble of going into the preservatory, and the top for milk, having two floors, which admits the cold air up into the milk-room, yet prevents dirt from descending, by the lower one catching it.

All required to make this floor is, having laid your floor timbers, nail a floor to their *under* side, leaving a space an inch or two wide at one side, and a shelf over this crack will prevent much dirt from getting down, and then nailing another floor to the *top* of these timbers, having another opening on the *other* side of the floor.

M for milk; the cold air passing up from the bottom story, into which the water runs from under the preservatory, both having shelves. A like arrangement at C L gives two large cellars, one above the other, on a like principle.

The entrance to my preservatory is with two stairways leading to it, one from the side toward the kitchen, for the cook, and the other larger, for the gardener to take down barrels of beef, fruits, and the larger articles. Thus *all* the cold of my ice is saved, and coolsyfoe rooms, the preservatory and the other two double-storied rooms contiguous. Even the cold which escapes in opening the preservatory door passes into these rooms, besides cooling the room marked A P, for apples, potatoes, etc., and that marked K S, for kitchen stores, both of which are fitted up with shelves. Now I submit whether here is not a plan worthy of imitation (unless it can be improved on) in any house whose owner can afford an extra \$100, the utmost it need cost. And how soon will it quit cost by buying butter, eggs, fruit, etc., when abundant and cheap, and keeping them as good as new till scarce and high,

and then selling, to say nothing of the luxury of having fruit, grapes, and perfectly sweet May butter the year round, for they experience no sensible deterioration in flavor. I also keep in it the juice of my fruits, which does not ferment, or at least scarcely perceptibly, and is therefore *new wine*, all but the intoxicating part, caused by fermentation. My dietetic doctrine is that man should live mainly on unbolted wheat bread and fruit, or its juice, eaten as we eat bread and milk, and that this fruit juice should take the place of water. At all events, it is the daintiest of luxuries. Thus, the newly-compressed juice of the black raspberry is most delicious, and in this preservatory retains its delicious flavor, which fermentation would destroy. It is kept here for months, as is also that of other fruits—the strawberry, cherry, peach, etc. On no account would I do without the luxury of this preservatory.

In the closet C one angle S carries up a stove-pipe hole, made out of that very material described for making the wall, and drawing up, as you filled up, a round stick the size of the flue desired—a cheap way of making chimneys, and as good as the very best. A wash-boiler is stationed in the adjoining room, W R, having a cistern, Cl, 10 by 10—it can easily be made larger or smaller—which receives the surplus water from the cisterns above, and the roof having at one corner three straight walls, one of which extends from bottom to top of the cistern, made of this same wall material, or of brick, and cemented *both sides*, having holes at the *bottom*. The other two are a foot or eighteen inches high, and say a foot on each side of the other, also cemented, and the spaces between them and the high wall filled in with charcoal and coarse gravel, so that the water rising to this low wall runs down through this filtering charcoal through those holes at the bottom of the high wall, then up through charcoal and coarse gravel on the other side, and thus doubly filtered, makes the very best drinking water in the world. Observe, too, that it joins on the cool milk closet M, and hence imbibes considerable coolness from the ice-water. If I had ever so good well or spring of water, I should want these cisterns, because double-filtered rain-water is preferable to *all* other water for drinking and culinary purposes. Observe, also, that this water gets a double filtration in the cisterns *above*, before

entering this, or four filters in all. And how much more handy to turn a faucet and draw water direct into a pail, than to raise it from the well, or from a cistern *under-ground*, or below where you require it for use. These remarks apply doubly to the cistern at the other side of the house, near the kitchen, K.

At the left of this cistern is a dark cellar, C, for sauce, or whatever you wish to keep from freezing; cool in summer, because excluded on all sides from the sun, and on the side joining the two-story cellar, C L, and the cistern on another, and free from frost in winter, besides being easily aired by its two doors. And this airing of cellars is all important, for, otherwise, decaying vegetables infect and poison the rooms above, by finding its way up through the floor. Still the main body of the farmer's vegetables should be stored *under his barn* floor, so that he can drive his cart to the hatchway and dump right into his potato, cabbage, carrot, rutabaga, beet, parsnip, and other cellars or bins.

By the side of this is another room, L, which may be used for storing bedsteads, lumber, barrels, and such rubbish as garrets usually contain, tools included, with this advantage, that it is handy, and just where you want it, whereas the garret is very bad to get *to and from*. Or any other use can be made of it the proprietor chooses. Perhaps the one who locks up, answers the night-bell, etc., might sleep in it.

Between it and the wash-room, and at the end of the cistern, is a store-room, S T, some 7 by 10, just the place to put family stores, sugar, molasses, flour, pork, etc., also furnished with shelves and some drawers. A small closet off the apple-room, from which also starts another stack of chimneys, completes this, the north half of my house. How it would suit the reader I care little, since it suits its *planner and owner* to a charm.

Next comes the ENTRY. It is in this very cellar story, where every entry ought to be, and, hence, does not separate the main rooms above, yet gives every end any entry secures; of which more hereafter.

It consists of two parts. That line running nearly through it, and terminating in two octagonal pillars, is the central wall of the house, running from bottom to top, while the two walls on each side of it are for this story only, and are eight inches thick, while

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the middle one is a foot, and built like the outside walls. Tremendous pressure comes on parts of it, yet it stands. F E is the front entrance, where strangers will naturally apply for ingress to the house; and the room R R is for a common receiving-room, hat-stand, reading-room, etc., and that pillar in the entry has an elk's head and horns, and some deer-horns masoned into it, on which to hang hats and cloaks. From this entry callers are then conducted up into the center of the story above, and taken into dining-room, drawing-room, the bedrooms still above, or wherever it is desirable for them to go, in accordance with their station and business.

From the other end of this half of the entry another flight of stairs conducts from the kitchen and back entry up to the same landing-place in the stairway above; of which when we come to that story. Under these two flights of stairs, and accessible by a door in this center wall, is just the place for coal—and coal is the only proper material for heating houses—of which, however, in its place. Adjoining is a place for the furnace, marked F, and manufacturing gas out of cheap oil, soap-fat, etc., which is far cheaper than common gas, easily made, even by a boy, and probably the cheapest and best way to light a house.* Or the place marked G, as designed for gas fixtures, can be used for bathing, it being next the cistern.

The other side of the center wall is a through entry; serves every purpose of one, and is just where you want it.

Passing through this entry we enter the kitchen, K, the great stomach of the house; having a well, from which water is drawn outside, and also into the kitchen itself, and the other side of this kitchen is watered from the cistern by turning a faucet, and a lead pipe from this cistern connects with the range, R. Two pantries, C L and P, connect with this kitchen and one another, and one with the adjoining room, W D, a workman's dining-room. At the back end of the closet, C L, which is 5 by 14, wide enough for two rows of shelves, and of barrel under them if desired, and a passage-way besides, is a dumb-waiter, which goes from the hot-

* Recent papers state the fact that wood furnishes lighting gas several times cheaper than coal, and easily made.

tom to the top of the house, serving every story in its passage—a contrivance worth \$100 to any \$1,000 house, proportionally to a more costly one. The general objection to them is that they carry up all the bad odors from the kitchen, which in this instance is prevented by the intervening closet. How many steps must this save in going up and down stairs in the course of a year. Through a speaking-tube near the dumb-waiter a communication is opened from the kitchen to the upper rooms, so that what is wanted from the kitchen may be called for and sent up, and what is wanted from above may be sent down, and thus nearly all the running up and down stairs saved by the dumb-waiter. Nor is it at all in the way, from bottom to top of the house.

The kitchen connects with the workmen's dining-room, 15 by 22, and this, with their sitting-room, W S—no unenviable place to spend evenings, and where they can amuse themselves without straying to the grogshop or other objectionable places.

On the south side of the house, under the portico, and corresponding with the ice-house, is the *green-house*, the advantages of which I will not now discuss. Suffice it to say, that \$100 to \$200 is a fair allowance for it, and no \$1,000 house should be without it. That sum can scarcely be spent upon a house elsewhere to as great an increase of comfort. Here the mistress can have her flowers and the master his grape-vines, and the waste water can be conducted from the rooms immediately above, as well as from the kitchen, to the grape border. Without a glass-house, larger or smaller, I consider any house very imperfect. Its advantages have only to be known to be generally adopted.

A back stairway in the angle between the kitchen and men's dining-room, having an oven under it, leads up into a like stairway above, and up into stories still above. This completes the lower, or ground, or cellar story, which is eight and a half feet high in the clear. Those angular stairways, erected on the angles of the ice and green houses, lead from the ground to the top of the ice and green houses, and an offset, both for receiving in—there being an outside entrance to the ice-house here—and for landing from and entering the carriage, completes the main features of this story; which is submitted not to builders and men merely, but especially to *women* and PRACTICAL HOUSEKEEPERS, for such

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approval or criticism as they may award it. That it can not be bettered is not asserted, but that it is far superior to any basement arrangement before invented is maintained. And mark to what extent the *octagon* form contributes to this end. Building reader, is not this plan worthy general adoption %

43. THE MAIN OR PARLOR STORY.

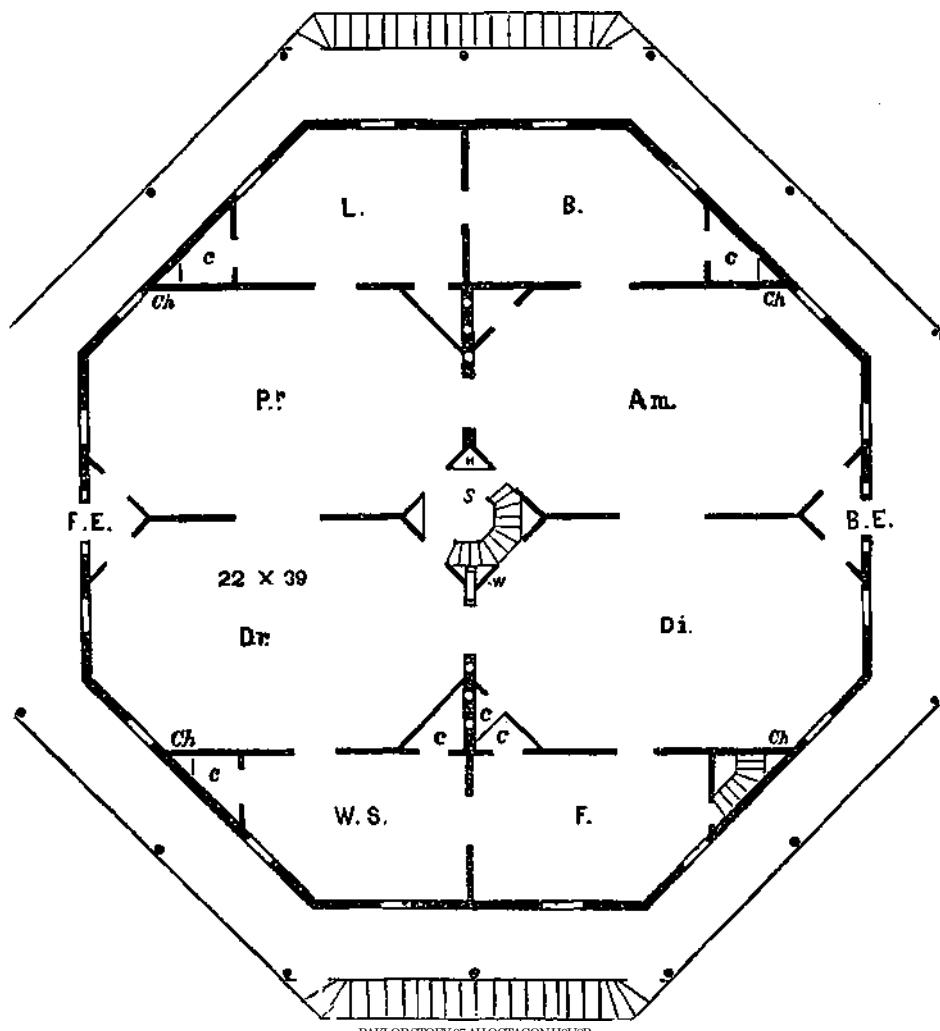
Having now described the structure and divisions of the lower or *work* story, we proceed to examine the *parlor*, or main living story, and will ascend either by those outside stairs by the ice or green house, by the inside back stairs over the oven, or through the entry from the lower front or back doors into that great central stairway, marked S, which is 12 feet square, and yet is rendered octagonal by cutting off its corners, which are used, one for a dumb waiter, marked W, the other two for ventilation, the foul air passing between the floor timbers to the walls, which cross them in the story above, up to the upper story, and out just under the eaves. Several like angles of closets about the house are also used for ventilation, so that every room in the house is ventilated perfectly.

While the ground story is exactly adapted by its position for work, storage, etc., this story is peculiarly fitted to become the main pleasure story of the house, first, because just far enough from the ground to prevent all dampness, and high enough to catch any summer breeze afloat, and yet not too high to render ascent to it laborious—the lower story being eight and a half feet high. Being *surrounded* by a portico, promenaders, at any hour of the day, can walk in either the shade or sun as suits them, or walk round a covered circle of some 300 feet—the house itself being 256.

Members of the family, and familiar acquaintances, will pass up those stairs figured in cut No. 24, alongside of the green or ice houses, and, passing along the portico, enter into that triangular entry, in the angle of which is a place just large enough for a hat-stand, and lighted from around and over the door, and pass thence into the sitting, or more properly, drawing-room, marked D r, or into the parlor, as occasion requires; while strangers will ring the bell at the story below, and pass up the stairs into the great

central stairway, S, and thence into parlor, drawing, dining, or amusement rooms. This arrangement gives us every valuable end attained by an entry, without either taking up much room, or

Fig. 25.



PAKLOBSTOEY 07 AH OCTAGON HOUSE.

separating those four large rooms, each 22 by 39, less those corners, C, taken off for entry, stairway, and closets. Each of these rooms is larger than one story of an entire house 25 by 28, and

contains over 700 square feet, or some 75 yards of carpet. Now unfold two such magnificent rooms into one—and they join each other *lengthwise*, so that, thus thrown together, they are almost square, or 39 by 44—and what a place for a large assembly, a minister's donation party, or any social gathering on a large scale
 1 Now it is submitted whether such free and cosy meetings of neighbors and congenial spirits can not be turned to great practical purposes of mental *profit* as well as pleasure. Should they not be universally adopted in this country % And what a place for such gatherings!

If two rooms are not large enough, throw open the dining and amusement rooms, and you have *four* spacious, magnificent rooms, embracing an area of over 300 square yards, and—please observe this beautiful feature—*having four side rooms adjoining* for dressing or retiring rooms.

Beader, even though you have made the tour of Europe, attended levees in the mansions of the lords of the Old World, did you ever see the equal of this suite of rooms for entertaining large parties %

Large suppers, having, however, much less reference to physical than *mental* repasts—to good eating than *speaking*—at which many toasts, sparkling suggestions, witty effusions, short, pithy, racy, eloquent, convivial speeches will constitute the chief attraction, and at which woman shall contribute as much as man, or improved editions of our public suppers, will yet be abundant; and how infinitely pleasurable and profitable such *mental, and moral, and social feasts* might be rendered! And what rooms these for such purposes! Three rows of tables, nearly forty feet long, or four rows thirty-five feet, would seat one hundred guests, in the dining and amusement rooms, and as many more in the parlor and drawing rooms, with abundance of side room for wardrobes, conversation, and a thousand uses requisite on such occasions.

The late Gardner Howland, of the firm of Howland and Aspinwall, large shipping merchants, and owning the California Isthmus route, came with his daughters to see this house, and on entering these rooms, a daughter exclaimed, "Oh, pa, what splendid rooms! I wish *we* had some as good!" And well she might,

though he was worth many millions, and had just expended, in additions, alterations, and repairs, upon an already costly mansion, about as much as this entire house cost.

Please observe that doors at the inner ends of these rooms connect these four rooms—all by *folding doors*, if desired. Access is also rendered easy from each to each and all, through the stairway. Observe, also, that here are *eight* large rooms, all *adjoining* each other, and all perfectly accessible, and securing all the advantages of an entry, without any of its disadvantages, which are great. If an entry divided them, only half as large a company could be entertained as now, for an intervening entry always breaks the spell of a party ; yet different rooms, opening directly into each other, *preserve* this spell, or the *unity* of the assembly, whereas an intervening entry would make *two* companies. Those who have not thought or observed on this point, will not duly appreciate it, or realize the evils of entries. Yet these rooms *need* no entries—first, because the entry in the story below serves every requisition of a through entry or hall; and, second, because the location of the stairs renders the entry only an *up-and-down* entry, whereas, in most large houses, the hall runs through the house, both from *side to side*, and from bottom to top.

The appearance of this stairway is really magnificent—lighted from a glass dome, 70 feet straight up, cupola included, octagonal in form—a far more beautiful figure than a square or hexagon.

Look again at how completely it ventilates every large room in every story. However hot, however little air may be stirring of a hot, sultry day, open a window and the door in any room of any story into this central ventilator, and up rises a strong current of air—a current rendered *necessary* and *certain* by the greater density of the air below than at the height of the cupola. Besides this glass dome at the top of the cupola, each of its eight sides has a window, out of which this air passes.

To practical housekeepers we submit one other point—the greater ease with which work can be done in rooms thus arranged, than in rooms usually arranged. For example: if you wish to go from either of these eight rooms to either story, above or below, a few steps takes you to this central stair

way, by which you ascend or descend; whereas, if its entries and stories were as is usual, if you wish to go from the dining or amusement room up stairs, you must first go, say from the center of the room toward the back-entry door to a door into the entry, then turn a sharp angle to the left, and go clear to the foot of the stairway near the front door, and then turn square and come back again, while ascending the stairs, only, perhaps, to turn square round to the left to go right back toward the front of the house to one of the front upper rooms. But by this arrangement, three or four steps bring you from either of these rooms to the foot of the stairs, ascending which, a few more steps take you to whatever door above you may wish to enter. So, also, if you wish to go from either of these rooms on this story to any other you pass straight from where you start, through this stairway,' o your place of destination.

It is now submitted whether you can not go from room to room, and story to story, about this house, with less than half the steps requisite to get from room to room, and story to story, in other houses as usually arranged. Observe, here are a great many rooms, and all *handy to each other*. In short, is not this *centrality* of the stairway incomparably superior to ordinary entries ?

But, when these four side rooms are not wanted for entertaining very large parties—yet quite large parties can be entertained comfortably in the amusement-room, appropriated expressly to ordinary free and cosy social gatherings, with or without amusements, thus entertaining company well without throwing open the parlor, or exposing its carpet in muddy weather—they can be occupied profitably thus: L for a library and room for minerals, shells, etc., including some portraits; B for “a prophet’s chamber,” or spare bedroom, which, adjoining the library and also amusement-room, is well located for this purpose, and in summer is on the cool side of the house.

On the south, or lower side, are two other rooms, W S and F, the former beautifully located and perfectly adapted to a winter sitting-room, and F to a winter sleeping-room. Observe, it *has no outside door*, so that cold can enter only through the *windows*, there being two doors between it and the outside doors. This will render its temperature much more uniform than if it had an

outside door, and situated almost over the fireroom, it can be rendered as warm as you please. Is not this a luxurious arrangement for cold days in winter, when an outside, or even an entry door, will admit so much chilling blast?

Both these rooms are also over two like rooms below, so that heat ascending through the floor will help to keep the feet warm. I never like to occupy the first floor, either in summer, for it is more or less damp, or in winter, for cold will creep in, and pass up to the floor timbers and along them to crevices in the floor, whereas, by this mode of building, no cold air can come to these floor timbers, and the heat ascends from the workmen's sitting and dining rooms below, so as to keep the feet comfortable. Please, reader, reflect on the importance, as a means of health and luxury, especially to cold-blooded persons, of *warm floors and feet* in winter, and the great discomfort and *injury* to health consequent on *cold floors and feet*.

Observe, again, that often, in fall and spring, when the weather changes rapidly from warm to cold, an outside door, often opened, soon renders a room uncomfortable, so that you have to start a fire, whereas, in this case, no outside door admits cold or emits heat, so that it *retains a uniform temperature*. For a like reason it does not become so hot on a hot day in summer, especially as only about one-third of its wall is at one time exposed to the sun's rays, and this only half the day.

This *uniformity* in the temperature *X* of a room is a most important point. None who have not experienced it can realize how important, or how comfortable. It is again submitted whether here is not an admirable winter luxury, to which every family might treat themselves.

The above allusion to "treating ourselves to luxuries," requires a little further elucidation. I once hired a shrewd Irishman, who had no change of linen, and that all rags and dirt, and without coat or vest. Set to work with other Irishmen, they soon began to tease him about his clothes, to which he replied, "If I were able, I would treat myself to clean linen every day In the year, for *nothing I can give myself is too good for myself*."

Apply this to houses. Should they not be furnished with just as many means of comfort, and even luxury, as their builder is

well able to pay for % Yet how often are thousands spent on outside appearances and inside ornaments, which afford no solid comfort, only foster pride! whereas, a moiety of this extra expense would add to the real enjoyments and luxuries of its occupants every day, as long as it stands. And it is further submitted whether this octagonal form, these porticoes, these sumptuous center-rooms, and these convenient side rooms, together with this array of contrivances, do not throw far into the shade even the best and most costly styles of modern domestic architecture*?

This general plan was set forth in the author's "Home for All," in 1847, and is here carried out with some modifications.

It remains to add that the chimneys are carried up both in the middle wall—made fourteen inches wide at one end for this express purpose, as represented in the drawing, and also in an angle in each of the four closets, cut off from each of the four side rooms—made as described in a former article, by drawing a stick the size of the flue along up while building the wall, thus leaving a hole after it.

As eight feet was too narrow for an ice-house, it was made sixteen feet; and as the portico is seven and a half feet, the other eight and a half feet *outside* the portico, and over the ice and green houses, are occupied by stairs, for passage up and down *outside* of the house. In case of fire, it is desirable that occupants can reach the ground by an outside descent, in case the inside stories should be enveloped in flame. Visitors, and others, too, will often pass up and down, to the roof even, without going inside. These stairways, then, serve to cover this irregularity, and to give a stairway *outside* of, and without any way interfering with, the portico itself.

As to my own house, I am quite sure it will never bum; because many of its inside walls are made of lime and stones.

44. UPPER STORIES.

To this story there are four ascents from the story below, namely, one, the principal, in that central opening figured in the previous drawing, and marked S in Figure 26, the landing-place being at R; the second, by that back stairway, also figured in the

preceding drawing, and right under the back stairway figured in this engraving, having an entry two and a half feet wide connecting it with the central, and a door-window for passing out upon the portico, and two outside stairways over the ice and green houses, though, except for looks, there is need of only one; yet they help to give proportion to those projections caused by the ice and green houses.

The ascent to the story still above is also figured in the accompanying engraving, at S, yet only one of the two starting places is really needed. The open space S transmits abundance of light from the cupola above, the top of which is glass, to both the stairway and those dark bedrooms, 0, O, 0, 0, which have a good-sized window over the door, and also a skylight, made by inserting Crystal Palace glass, which is half an inch thick, and will bear to be walked on as well as boards—into the roof, at K, L, M, N, and a board across the corner of the upper story, and a pane of common glass between the two stories allows light to pass down behind this board into the middle story, or that above the parlor. Of these eight interior rooms I think the world; first as dormitories, cool in summer and warm in winter, inaccessible to mosquitoes, yet easily ventilated by an opening into the ceiling above, the air passing along between floor timbers, and so out into the stairway.

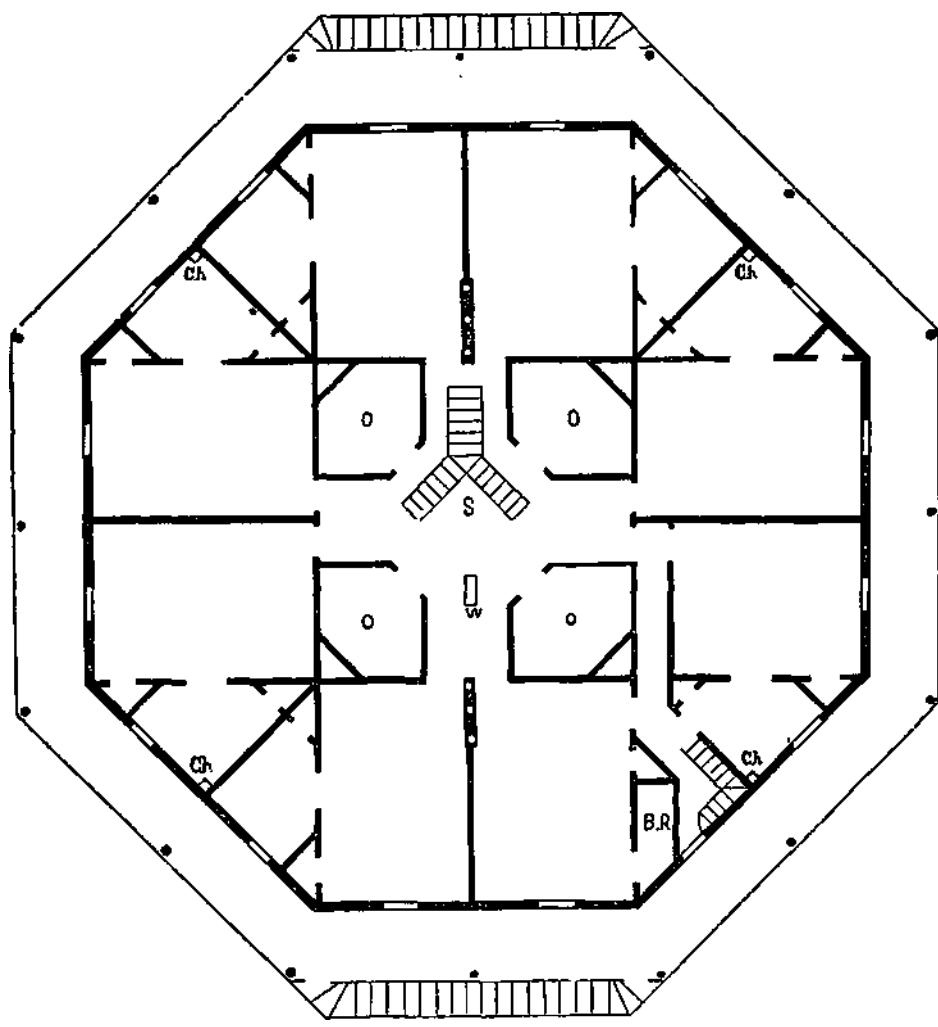
As a place for a quiet, retired study, being lighted from above, they will be far more pleasant than any side light can be, and several times more powerful. They will also serve the very best of purposes for flowers in winter, or for apples or what stores may be required to be kept from freezing, yet in a cool temperature.

But it is for these two uses I think the most of them—or for sleeping, because of so *uniform* a temperature—not hot on going to bed from the day's sun, for it can not reach them, and cool toward morning from dew or rain, but the same, morning, noon, and night, and in winter as in summer.

The other special use is for an *author's studio*. Writers will bear witness that in that *all-powerful* exercise of the whole mind requisite for writing what is fit to be read, the blood forsakes the extremities and skin, and mounts rushing to the head, leaving all the outer walls a prey to cold, which, in *addition* to severe men-

tel exertion, is too much for any constitution sufficiently susceptible to write well. Most awful havoc have my own night writings made on my constitution—having almost destroyed it.

Fig. 26.



Most horribly, almost as if actually dying, have I felt by the hundred times, on rising in the morning, after having written most of the night, and retired cold in feet and skin, but hot at

the head, having lain for hours before the equalizing circulation rendered me warm enough to sleep.

Then why not write by a fire % it may be asked. I will not stop to show why, only to say that my own experience lias most imperiously required just such a place for writing.

"But why write *nights*?" I believe there is some cause in nature why from sunset to midnight facilitates good writing. At all events, lecturing has rendered my mind specially active at that part of the twenty-four hours; and I am most glad of exactly such a place as this in which to write and read; for the principles just stated apply measurably to reading.

The size of these rooms is between eleven and twelve feet square, saving the corners cut off by the stairway, and used for a door-window.

Observe, also, that five rooms corner at K, and the same at L, M, and N. Hence, by placing the wash-stands in the inner corners of those small bedroom closets, *one* lead pipe will carry off all the wash-water from these *Jive rooms* in both stories, one pipe serving ten rooms, and one pipe also bringing fresh water to this same ten—a point of economy I respectfully submit to criticism.

"Bring it *from* where you ask. From cisterns built in the upper part of those small closets, and filled from the roof, having that filtering apparatus already described. Cisterns in the tops of houses are most desirable; first, because they save *carrying* wash-water up to chambers, which renders it scarce, and thus retards cleanliness. Abundance of water in the sleeping-rooms is most desirable; and this plan furnishes it.

One of these cisterns also connects with the copper boiler attached to the kitchen range, and this descending cold water forces up the *hot* water to the stories above, so as to give *hot and cold water to each story*. And the *large size* of the roof will give, probably, all the water ever wanted, especially as the cisterns are so connected that when either is filled its surplus runs over into the next, and so on till all are filled above, and these run over into those large lower ones below, already described.

Observe, again, that these cisterns are *over* closets, or built in the *upper part* of closets—room not needed, nor likely to be used for any purpose whatever. Most masons, indeed, lath over clos

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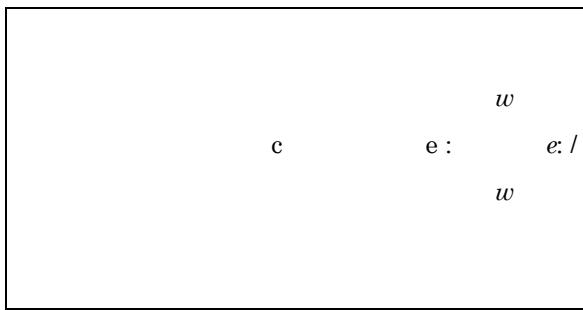
ets about seven feet high, and thus that vacant space is shut up entirely, rather than finish it. But in this upper story, I make the closets only six feet high, which leaves the cisterns four and a half feet deep; and about equal in size to half of an eight- feet square, or about equal to six feet square, or holding about one hundred and fifty cubic feet of water. Yet it is easy to make them larger or smaller, at pleasure. I prefer smaller ones scattered in the four quarters to a single large one, and those more shallow than deep, because the pressure is less.

The two upper stories are alike, excepting the cisterns in the upper, and the bath-room, B R, by the back stairs in the one below it; so that one description and drawing serves for both.

45. FILTRATION.

Filtered rain water is the very best drinking water in the world. Lime or hard water is by no means as healthy as soft. It accelerates the action of the alimentary canal, and is prolific of summer complaints in children, diarrhea, cholera morbus, and cholera. It was correctly observed in the cholera times, that only *hard water* districts suffered with this dreadful malady. In the hard- water portions of Fishkill this disease made awful havoc, whereas *not one* case occurred in the soft-water portion, in which I reside, nor in any other soft-water district, as far as I know. I consider soft water a *sure* preventive of most forms of bowel complaint, and filtered rain water gives it.

These filters are easily constructed within these cisterns, thus:



Let *c* represent the cistern, and the little square marked in it stand for the filter, to make which, lay up a box of brick, made

tight at the sides and on top, and cemented inside and out; but the two ends, *ee*, must be laid up open, so that the water can pass through the filter into that smallest place marked *l*, which is a deposit for the water after it is filtered. This should be but small, so that it may pass through the filter *while being drawn*; for if this place holds a gallon or two, it will have to stand in this depit from the previous drawing, and therefore not be fresh. The walls, *ww*, of the filter should be made water-tight by brick laid in cement, and plastered outside and in with cement, and the top also made water-tight by a large stone, the size of the filter, or brick laid in cement, so that all the water must pass through this filter in order to reach the faucet.

The filtering apparatus itself should be constructed thus : Set charcoal on fire till fairly burning, then pound fine, and lay alternate layers of fine, white, clean sand, and charcoal, laid not horizontally, but diagonally, beginning at the lower corner, under the faucet, and laying them at an angle of 45 degrees, more or less, so that the water must cross these layers as much as possible.

Charcoal pounded fine will answer without the burning, but is better burned in an iron kettle.

Those who have no such filter in their cistern, yet would like to obtain this filtered rain water, or to filter other water, can obtain of John Kedzie, of Eochester, N. Y., the very best filters there are. He invented the method above described, and furnishes filters ready for use at \$5, \$7 50, \$10. They will last an age, if repacked about every five years. The above sums, sent him by mail, will procure by return express one of these health-promoting luxuries, worth in every family a hundred times its cost, and saving it, in most families, many times over, in doctors' bills alone.

Having thus, as it were, gone around with the *details* of these stories, let us look at them more in the aggregate.

Each story gives eight large, square-cornered rooms, each 15 by 21, lighted by one large window—far better than two smaller ones, for then there are no confusing cross lights—always bad for eyes, and preventing clear sight, besides adding greatly to the cost of the room, and to uncontrolled air-holes. One large window costs one-third less than two of half its size, gives just as

DESCRIPTION OF THE AUTHOR'S RESIDENCE. 135

much light, and that all in a *body*, and is every way better and cheaper. We have already given a few common-sense principles about building, some of which will apply to large and small windows.

To these two points in these stories special attention is invited. First, every square room, itself large, has an *adjoining* room for a bed, or for retiring to change dresses, or what you please; and I have been in hotels enough to know that these ante-rooms are very great conveniences, and useful beyond what any one could imagine, who had not *experienced* their value. Each is also lighted ; and the small rooms have good places for beds, windows, and corners, and all clearing the closet doors. The size of these rooms comes well for carpets, namely, five yards wide and seven long, so that no waste would occur to yard-wide carpets, where the figures also occupy one yard in length, which is common. The bedrooms are ten feet square—not quite so good, but drugget two yards wide will cut and *stretch* so as to waste little, if any.

The other point is *closets*. On their value I will not enlarge, but only say, live even in a poor house *with* them, and then in a good one *without* them, if a good one without them were possible, and you will want to move back again. Let practical housekeepers attest their value. No room is really tenantable without one, because you must have very few things at hand, or else they must be under foot, or tossed from chair to chair, and mantelpiece to chair, in one Babel of confusion. “ But can they not be put into a bureau it is asked. And what is a bureau but a closet in the room, instead of adjoining it. Yet how insignificant is a bureau compared with a closet! In the latter, fine dresses can hang unruffled, and several times more of them. Yet both closet and bureau are desirable, if they can be afforded. And one closet, while several times larger than a bureau, costs less by half, besides being every way better. Now please observe how beautifully our plan provides for these closets. Every room, except those dark bedrooms, have one, and every suit of rooms has two.

Observe, again, the advantages of this *triangular* form of closet. What is wanted in a closet but *wall* room for shelves and pins. Now suppose you take six feet square out of your house for a

closet. Besides spoiling some room, your closet room is far less available, for the room it occupies, than my triangular closets. Your six-feet square closet occupies thirty-six square feet of your house-room, yet gives you only twenty-four feet of shelf-room, or one-and-a-half square feet of house-room to one foot of shelf room; whereas my triangular closets, about four-feet sides, give twelve feet of shelfroom for only eight square feet of house-room, or only two-thirds of a foot of house-room to every foot of shelf-room—a difference of FIFTY PER CENT, more shelf room by my plan than by yours, as compared with the real room occupied by the two closets.

And then how much more accessible is a triangular than a square closet! By your plan, the door must be on one *end*, so that you have to go clear into it, thereby darkening it, to get to the back shelves; whereas, by my plan, standing in the door, you reach any part of any shelf, without going inside.

The upper part of most closets is shut up, by making the ceiling two or three feet lower than that of the adjoining room. My mason, as usual, thus cut off the upper part of the first closet he finished, on seeing which, I said, "Finish the rest close up." "Why," he exclaimed, "it is fourteen feet high. Pray how can you ever reach or climb up to its upper part." Thinking a minute, I said, "Carpenter, make me a box the shape of that closet, but one foot smaller each way, put in plenty of those iron hooks, on which to hang things, and nail it, bottom side up, on to the top of the closet, right *over-head* and taking a thin, long strip of wood, like a lath, only longer and stronger, I put my clothes on it, and hang them up, not only on all around the upper part of the closet, but all around this box over-head, inside and outside of it, so that every square foot of this closet is occupied. And it is about as easy to hang up and take down a coat from right over-head, and all around the upper part of the closet, as on the lower hooks.

One other requisition about a good house I take the liberty of alluding to, because so "necessary" to a real human want. Allusion is made to an *in-door* "water-closet." You have an infirm guest, whom you would treat with all possible hospitality. Obliged, during a cold, rainy night, to respond to one of nature's im*

perious calls, to go out to the usual place exposes him to take cold, besides being so disagreeable. To employ any vessel in his room, besides being repulsive to many, obliges him to breathe noxious and offensive air the balance of the night. Then is not an *inside* "water-closet" a real necessity in a prime house ? And *under the stairs* is just the place for one, its contents passing down one of those chimney-places, marked in the preceding engraving, into a receiving box in the cellar, made tight and easily cleaned, so as to confine all its odor within itself, and both this receptacle and the closet itself ventilated into an adjoining chimney. A recent invention in Boston renders these closets perfectly odorless, by ventilating it from the seat *downward* into the chimney. This prevents odor from passing up into the closet or house, for, in ascending, it is swept by this air current, passing from the seat, downward, and then off into the chimney, and is cleansed by water from that cistern near by, so that every story can have one, without in the least scenting either closet or house. To squeamish maidens and fastidious beaux this point is not submitted, but matrons, the aged and feeble, are asked, is not such a closet a real household necessity and luxury? Yet it need be used only in cases of *special* need, the one generally used being outside, as usual.

On one other point suffer this passing remark. Since God has made human excrement promotive of vegetable growth, to waste it, as is now usually done, is as wicked as to waste food itself, for it is nature's means of creating food; and to economize it, and apply it to producing and enhancing vegetation, is a moral duty. Then, if possible, so place this out-building that the wash-water from the kitchen shall rinse it down into a covered vat, to be baled out and applied in a liquid form to grape-vines, garden vegetables, etc. The Chinese have abundance of such closets and vats, which their economical farmers are perpetually exhausting to enrich their lands. That law of progress, and ultimate need of food, developed in the great law of Progression, argues that all of earth's enriching materials should be husbanded and applied to increasing human food—this of course included. Since I adopted the practice of having all my chamber and kitchen slops emptied daily around my trees, their growth is indeed surprising, and

becomes more and still more astonishing daily, from week to week. Let every family plant out some choice vines and trees, and serve them in like manner, and the amount of gustatory luxury secured by this course will be most surprising. To waste Heaven's best enriching materials is wicked ; to save them, wise and self-serving. This species of manure, saved from all our cities, villages, and families, would wonderfully enhance the abundance and cheapness of food, and some day it will all be saved.

46. PIAZZAS.

In completing the description of the author's residence, it remains to add, the piazzas are erected all around at each story. In the two upper ones, the floor timbers of these piazzas are halved into the floor inside timbers, so that the flooring binds the whole together, and greatly promotes the stability of the whole house.

These verandas are delightful places on which to spend twilight and moonlight summer evenings, in either promenading or conversation. And the advantages of having them *all around* the house is considerable, allowing you to choose sun or shade, breeze or shelter from it, as comfort dictates.

The scenery from my own, especially at sunset, is most delightful. Commanding a full prospect of both the far-famed "Highlands," and also of the Cattskill Mountains, mountain-house included, together with the opposite banks of the noble Hudson, the sails on which are often in sight, besides "College-hill," and looking down on a vast stretch of level land up the Hudson valley, it is one of the most magnificent inland prospects I have ever seen. The prospect is vast, like a great panorama, having every variety of scenery, except water, which can rarely be connected with so fine a mountain and plain landscape.

On the evening of July 4th, rockets from nineteen towns and villages were counted from my roof, and doubtless more might have been seen if looked for.

From the top of the cupola, which is 20 feet high, and 21 in diameter—an octagon of eight-and-a-half feet sides—the view is truly splendid. Of course the house can be seen "from all the country round about."

12. HAMMONDSPORT,
STEUBEN COUNTY,
NEW YORK

Timothy Younglove built this house
in 1859; the porch was added later.
The walls, constructed of stone
coated with stucco, are 18 inches
thick and 20 feet long.



13. Geneva, Ontario County, New York This house was built in 1853 by Nehemiah Denton for a Mr. Moore. Built upon a stone foundation with brick walls 171/2 feet long, it has a central stairhall and a spiral staircase.



47. A GREEN-HOUSE AND FLOWER-PIT.

Every house should have its green-house. Even only a \$200 to \$400 house should have its hot-bed, or small green-house; while every \$2,000 to \$5,000 house should have a good one. If the proprietor has not the means to make both as good as he would, let him curtail his *house* to spend upon a green-house. One of the first quality, say 100 feet long, will cost from \$600 to \$1,000, yet a good one, with cistern and other conveniences, can be made for from \$100 to \$300. The most expensive part is the glass and sash ; but glass costs, say \$5 per 100 feet, and sash about \$2 or \$2 50 each, say 3 by 12, while the wall part can be built of the material described for building the house. If it has but one roof, it requires one wall, about 12 feet high, but if it has two sides glass, it requires but little wall.

Its advantages are, the luxury of grapes finer than can be had in out-of-door culture, a place to start early cabbages, tomatoes, potatoes, etc., and especially flowers in early spring, before nature puts on her out-of-door floral colors. Indeed, it can be made to subserve several very useful ends.

Another handy appendage to-any house is a pit, in which to bury winter flowers, made thus: Dig a pit, say ten feet square, more or less, and four, five, or six feet deep; then make a box inside, say 6, 8, or 10 inches from the dirt, and fill in with tan bark; cover over all but a door, nailing boards on the lower side of the floor timbers, which should be set slanting to shed rain; fill in with tan bark or saw dust; then nail on your roof boards, which should be matched, and have a double sash and lights at the place you enter, one swinging up, the other down, and your plants will keep without freezing all winter, and require only wetting say once a month—for this is the season of rest, so that they require little water till March will enable you to transfer them to green-house or sitting-room.

48. SHADE TREES, SHRUBBERY, FRUIT TREES, ETC.

The prevailing fashion is to plant forest trees near the house. Is this best ? Shade draws mosquitoes; and this alone is very objectionable. They do not gather in the shades of small single

trees, but only where foliage is dense. Hence fruit trees can surround the house without inviting them. And do not fruit trees *look* as well as forest “? Their foliage is as green and beautiful. They lack only the size and massive majesty of large trees, but excel them in the beauty of their blossoms and fruit. Cherry trees often grow large, and, to my taste, far eclipse forest trees in beauty of looks, especially while blossoming, and loaded with ripening fruit; for what looks better, more luscious, more inviting, than a tree full of fruit, and in all its stages from blossom till its fruit is picked ? At least the difference in beauty is not great, whereas the profitableness, and the real gustatory luxury derived from fruit trees, renders them very far superior to forest trees. And fruit trees, especially cherry, by the roadside, how beautiful, how luxurious, how refreshing the fruit! I have lined the road where it passes through my own lands on both sides with them.

Forest trees are also absolutely incompatible with a fine prospect. Be your landscape ever so fine, they hide, or at least spoil it. A grove somewhere below, or on a side of the house where the prospect is poor, may do, but why not a grove of fruit instead of forest trees % Still, “every one to his liking,” while we consider the *kinds* of fruits most desirable, and their cultivation.

STRAWBERRIES.

Of the value of this fruit it is not our purpose to speak—their deliciousness attests that—but of their cultivation. Almost every house has a little land or lot attached, at least a tithe of which should be appropriated to this luxurious fruit. Probably the best single variety is Hovey’s seedling ; yet it is less prolific than some others, and needs to be intermixed with some other variety, in order to fructify it, all its blossoms being female. The Virginia seedling is an early variety, and good to intermingle with the Hovey. The Boston Pine is another excellent kind—large, rich, and prolific. The Pine-apple comes on later than either, and on this account is valuable; and Newland’s Pine still later, besides hulling itself while picking, and ripening gradually. Frequent watering will greatly promote their fruitfulness and prolong their season of ripening When not in bearing, slops

from the kitchen and chambers will wonderfully increase their fertility.

BLACK RASPBERRIES

Begin to ripen before strawberries disappear, and are quite as delicious—by most considered even more so. To my own taste no flavor exceeds that of their juice expressed and sweetened. On puddings, or eaten with bread, it is unsurpassed. And in our ice house it can be kept for months, without the least fermentation. Working spoils this flavor; for what is the fermenting but the souring and decaying process; besides engendering alcohol, which is inimical to life and virtue. This berry, as also leaf, is astringent, and thus good to counteract bowel and summer complaints, nor quite as bad to take as pikery. Select from the fields bushes which bear large, luscious berries, transplant to some corner of your garden, there to remain undisturbed, but wet often with soap suds and chamber wash, and they will bear most astonishingly.

RED RASPBERRIES

Ripen at the same time, and for preserves stand unrivaled, if not unequaled. Of these there are various kinds, of which the Falstaff is perhaps the best for general culture, because the red and white Antwerp require to be covered in winter; yet are well worth even this trouble. They bear most abundantly if kept well manured. The ground can not be too rich.

Their standing price in the New York market is 25 to 35 cents per quart, and their culture furnishes women who have to earn their own living, or even spending money, a much more easy way than the needle, and quite as genteel. Why is not berry culture an appropriate female occupation? Certainly for wife and daughters to have their berry beds, and often adorn and luxuriate the supper table, after husband or father return from daily toil, is both appropriate and endearing. How he must relish them when provided by those he loves, and that love him, and provided as a token of the love they bear him! Does not this provision of small fruits furnish our women with a most excellent means of awakening and perpetuating affection?

“ Her

son's mandrakes" were Leah's means of wooing Jacob's company and love over his other wives.

BLACKBERRIES

Follow in the wake of raspberries—first, the running, then the standing. I have appropriated a portion of my own ground to both kinds, and transplanted three choice kinds found growing wild. I also imported choice bushes from Maine, New Hampshire, Vermont, Connecticut, and central New York, some of which prove to be very large and luscious, and many times repay both expense and trouble. Once planted in rich ground, they require little attention, except to pick the fruit. They, too, like the black raspberry are astringent, and excellent for children. The same remarks made of the juice of the raspberry, applies equally to that of the blackberry. Diluted, sweetened, and eaten with bread, and in place of milk, it is far more palatable, nourishing, and healthy. Would that men would substitute berries and their juice in place of milk and butter !

BLUE AND WHORTLE BERRIES

Are cotemporaneous with and follow blackberries, and are about equal to them, and should be cultivated. These and black berries fill an important gap between strawberries and cherries, on the one hand, and peaches and apples on the other, and which reincreases their value.

CHERRIES.

Another excellent and delicious fruit. The best kinds for a small garden are Coe's Transparent, Mayduke, Black Tartarian, Yellow Spanish, and Coronation. Coe's Transparent is yet little known; was produced by Mr. Coe, a nurseryman, of Middletown, Conn., and is the very earliest really good cherry known to the writer. The Mayduke and Tartarian all know too well to require description. The common Morello is good for preserves and pics, yet too acid for the table, and a poor bearer. Ramsey's Morello—a seedling raised in Fishkill, and to be had of Brinkerhoff, nurseryman, Five Corners, Fishkill, Dutchess Co., N. Y.—is very early, is excellent for both cooking and table, very

rich and prolific, and one of four of the very best. Where garden room will allow, the Waterloo and Knight's Early Black should be added. They resemble each other closely, and also the Black Tartarian, yet are a week earlier than Knight's Early Black even precedes the Mayduke in ripening, besides fully equaling the Black Tartarian in size and flavor. A single tree of the common Black Mazzard may be well, because being late to ripen, and good to eat and cook.

APRICOTS

Appear as cherries vanish. A tree or two are advisable, yet should be budded on plum stock, and be on the south or east side of some wall or house, or else on the north side. The Golden and Moorpark are the two best varieties—the former, later in blossoming, oftener escapes spring frosts than the latter, yet is not as fine a variety.

PLUMS.

Of this fruit the very earliest really good kind is Rivers' Early, a tree of which should enrich every garden. The Egg Plum, popular because large, is worthless. Few kinds equal the Green Gage in quality, yet the French Prune suits my taste as well as any. Plant Coe's Golden Drop and Late Red, the Frost Gage, Damson, Blue Gage, a common native variety, and other kinds.

But the curculio, a small bug like the pea-bug, large behind and small before, and having a hard shell, is most destructive to apricots and plums, and can be destroyed by hanging several large-mouthed vials partly filled with sweetened water on the limbs, in which they will drown themselves by attempting to drink; by spreading sheets under the trees, and shaking hard, which will cause them to fall; by scattering a double handful of salt around under each tree, which will annoy and destroy the worm before it hatches; by collecting what plums fall off, and steeping, thereby destroying the worm—and shaking off the stung fruit—and by putting two or more wrings of cotton batting around the tree to prevent their crawling up the tree, while yet too weak to fly. Sprinkling or throwing dry lime on the tops

of the trees while wet with dew or rain, helps to keep both this and other insects, especially ants, from the tree, besides benefiting it. It is equally good on all kinds of fruit trees.

PEACHES.

This fruit is too well known and too delicious to need description. Every house, in every locality where one will grow, should have its peach trees.

The *kinds* most desirable for a small garden are, Early York, Early Rareriipe, George the Fourth, Washington, Morris White, Crawford's Early, Crawford's Late, the Tartary, Scott's Nonpareil, Nonesuch, Stump of the World, etc. But the kinds are so numerous, and the qualities of many so nearly alike, that we can not detail them.

The two enemies of the peach are a worm at the root, and winter. The former are easily forestalled by annually examining the crown of the roots, and if gum filled with some sawdust appears, the worm is eating away, and must be dug out. Boiling water poured about the roots will also kill them, and benefit the tree, and any bad-smelling substance will also keep the parent wasp-like insect from depositing its egg.

Against the winter they are easily protected by tying straw around the body and main limbs—only a few minutes' work.

PEARS AND APPLES.

For deliciousness of flavor, melting texture, and juicy pulp, pears stand unsurpassed, even by peaches.

The flavor of no peach surpasses that of a first quality of pear. They are also in eating from July till April, while peaches are obtainable only some three months. They likewise contain iron in larger proportion than other kinds of food, and by furnishing this indispensable life-instrumentality to the blood are especially healthy for pale, consumptive, and blue-veined persons. Poor pears are very unhealthy, but good ones as beneficial as any other fruit. Their variety is also very great, sweet, acid, melting, breaking, early and late, which adapts them to all palates and persons. They are also extra good for stewing and preserving—no fruit better.

The *kinds* most desirable for family use are, taking them in the order of ripening, first the Early Sugar, or Sweet Harvest, which is first to ripen, yet rather insipid; next the Madeline, three or four days later, yet far better, and a truly excellent pear both for eating and cooking, a tree of which every family shoul have; the Bloodgood, a rich, russety pear, following the Made line; the Passans du Portugal, or Portuguese Passion, a small apple-shaped, melting, and most delicious variety, a wonderful bearer every year; the Rostiezer, very sweet and rich, yet small; the Bartlet, a fine, noble, buttery, prolific fruit, among the best; the Vergalue, or St. Michael, most melting and delicious, but generally known; the Seckle, a small, but the most highly flavored of all; the Louisa Bonne de Jersey, a large, beautiful, and most delicious variety; the Buere de Amaulis, good to eat or cook; the Duchess de Angoul&me, first-rate on quince stock, yet not so good on pear; the Buffum, very prolific, and almost equal to Vergalue; the Buere Diel, an extra large and fine kind when well cultivated; Queen of the Low Countries, extra good for preserves; Catalac, and Rushmore's Bon Chretin, both first best for cooking; the Winter Neillis, Vicar of Wakefield, and Lawrence, for winter use; and Buere Spence, Esther Buere, and Buere Rans, the latest keeping of all.

Stevens' Genesee, Chaumontel, Count de Lamy, Henry IV., St. Ghislain, Tyson, one of the sweetest and richest of pears, and many other kinds are we'll worthy of cultivation, yet those who have our first list will have at least a good, though possibly not the very best, selection.

Their successful cultivation requires a rich soil, well supplied with lime and bones. In many localities the winter kills them, yet I think this occasioned by too deep setting. Thus the deep roots continue warm, and therefore to send up sap after the weather has changed from warm to cold, whereas shallow set roots, becoming cold as soon as the top, do not force up sap when cold enough to freeze it. Most trees are set too deep. The crown of the roots should be above the ea:^{*}th. If your trees are deep set, dig off all the earth down to where the roots branch out, and you will lose few, if any, and none after fairly established.

Most pears require to be picked before fully ripe, and are better if ripened off in the house.

Of apples we have little to say, because so common; yet, much as they are prized, how many neglect to set them, because so long before they bear! But time passes faster than we think for. Once well set, and this is a most important point, they grow while we sleep, and in a few years become large, fine trees, annually loaded with the means of health and gustatory luxury. Peaches bear earliest, and pears are longest in becoming productive, yet live longest, and when one limb dies, send up others, and live on in spite of decay and every thing else. As I was bringing home a load of pear trees, a neighbor said: "A very good thing for the neighborhood, this bringing into it these fine fruits, for somebody will be benefited; but, Mr. Fowler, you and I will never live to see them bear, for it takes *fifteen years* for that. This was in 1849; and I this year picked half a bushel of delicious pears from some of the trees in that very load; and in four years more shall expect to pick four bushels a-piece off from several of them. All who see my trees are astonished that they fruit so early and abundantly. I attribute it to two causes—throwing several horns, obtained of tanners and comb-factors, or animals* skulls, obtained from butchers, or other bones, into the holes, under the trees, before setting, and carting the lees or residuum left after making soap, from a chandler's factory. I cart it eight miles, and pay ten dollars a year for it, and think it pays abundantly. Of all the trees I ever saw grow out the ground, mine, served in this way, take the lead. These lees contain alkali and salt, and are like soap suds, only far better. Ashes are first best, especially for young trees, containing the very elements required for the formation of wood.

But to recommend that assortment which will furnish a *suc-
cession* of apples from July to Mny is all we will now attempt,
namely, the sweet and the sour Bough, ripe in July, the Jersey
Sweet, Maiden's Blush, Fall Pippin, Seek-no-farther, Tallrnan
Sweeting, Greening, Baldwin, Northern Spy, and Roxbury Russet.
Others may be added according to your ground, but so much is
already known of this fruit as to require little explanation.

14. Stillwater, Saratoga County, New York A central octagonal stair-hall with the stair built around a central post is an interesting feature of this house. Built *circa* 1860 by Theodore Baker, its sides are 18 feet long.





15. Barneveld, Oneida County,
New York This frame house has
sides 13 feet 5 inches long. It was
built by Jacob Wicks in 1852.

49. ROOF AND ROOFING.

A roof nearly flat, so as merely to turn water, is, on several accounts, greatly preferable to a steep one; especially as a promenade, for drying clothes, etc. It is also more easily framed and supported; because a directly downward pressure is more easily sustained than a slanting one. The water from every house should be carried into cisterns, constructed in its top, to be used in chambers, thus saving carrying it up. If the builder is not able to do better, let him furnish a barrel, or hogshead, or a large trough, lined with tin, to retain at least enough for washing purposes. And to have plenty of hot and cold water all through the house is a luxury too great to be wanting in any complete house. This is easily effected by constructing a cistern in the top of the house, having a lead pipe connecting with a copper boiler attached to furnace or stove, so that the water will be forced down through this copper boiler, heated, and driven up another pipe into the chambers, or a bath-room, and also drawn out of the boiler direct. Probably the best way to construct these cisterns is to make a strong box of joists and boards, and line with tin or zinc. These joists can be made to inclose and hold the boards, and they the zinc—probably better than tin, for it never rusts. A box can not easily be made water-tight, and hence the need of some inside lining.

Filters can be made inside these cisterns, according to directions already given. The water from the roof can be made to run off at eaves, as is usual, and taken inside by leaders, or the roof so constructed as to have it run down in the center. In this case some sort of a balustrade will be required, which, while it will increase the expense, will greatly improve the looks of the house. My own has this balustrade, serving the same purpose as the banister of a portico. Mine is built partly of brick, and in part of the same material used in the house. It is three feet high, and panelled; and the middle of the panel-work is laid up with open spaces in it, thus : a row of brick, laid one above the other, then an open space alongside, then another row of brick, and another open space. Above this is another tier laid solid, and another smaller tier of open-work still above, and a layer of brick

still above that. On four sides, the first foot of my balustrade was laid up with brick, owing to the supposed difficulty of casting the piers and panel-work out of our gravel material. But after seeing just what was wanted, I cast the other four sides out of this gravel-wall material, just as well as to have used brick, and at a great saving of time and material. And there it stands, unprotected, and some even unplastered, but endures all exposures to the weather, besides being full of corners, as solid as those made of brick—proving that our concrete will stand the weather, wholly unprotected, even by a coat of mortar.

At first, this balustrade* was constructed solid, but looked so heavy for the top of a house, that I suggested to the mason whether brick could not be laid up *open*, so as to look lighter, when he devised its present form. Still, it cost me considerable time and money. Yet a wooden one on a stone house is hardly appropriate.

My roof proper is built just as you would build a floor, of Hoortimbers and boards, using matched flooring, every way as for a floor, except pitching the water into six centers, one under each of the four cisterns already mentioned, and two connected by pipes with those two cisterns below, before described. Thus much of roof; next of

ROOFING MATERIAL.

Above a year ago, I supposed I had discovered a material exactly and admirably adapted to roofing purposes, and published it, but it *cracks*, and this spoils it. Put on in November, it was perfectly tight till April, during which time I wrote my description of it; but the *changes* of temperature from hot days to frosty nights caused it to swell and shrink so as to crack it. But even yet I tried and hoped to patch it with the same material, but was obliged finally to give it up, and resort to tin—the best metal material yet generally known for roofing. My material was composed of one part Blake's black Ohio paint, to six parts fine beach sand, mixed together when dry, and wet with raw linseed oil till thin enough to work with a trowel, and spread on to a covering of cotton cloth, wrung out of linseed oil and spirits of turpentine, and tacked down. Or thus: sew together three

breadths of cotton cloth, wet it in spirits of turpentine and linseed oil, wring as dry as you well can, these breadths stretched and tacked down, the whole covered with a compost made of six parts, by measure, of white, clean, dry beach sand, such as is used for scouring, to one of Blake's Ohio paint, mixed together while dry and wet with linseed oil, and worked over as you temper mortar till thin enough to spread with the trowel; spread as thin as you well can, say one sixth to one fourth of an inch, and, after standing a few days to harden, paint with Blake's Ohio paint and linseed oil. It hardens as hard as stone, will grind iron or steel like a grindstone or mower's rifle, and is impervious to water. Yet it cracks when exposed to sudden changes of heat and cold. Still, if inside of those cisterns just described, or even in their corners and joints, I think it will work well; still have not tried it there.

I regret that I should have raised public expectation only to disappoint it, but was misled by its *not* cracking in *cold* weather, but cracking by sudden *changes* from heat to cold. The properties of this compost are certainly most remarkable, and I doubt n >t its only fault can be obviated; still, to improve on it is out of my line.

Mr. Joseph Hawley, of Detroit, Mich., says he has discovered a composition of which water-lime is the bond ingredient, which he *warrants*. Its cost is about five cents per square foot, and I know Mr. H. to be an honest and honorable man. His material may be worth the trial. I recommend it with much confidence, for I know the man himself altogether favorably, yet refer you to him for particulars.

Some roofing material which can be *spread* on, yet will withstand heat and frost, is indeed most desirable, and will some day be discovered—for Nature provides for all the wants of all her children—and water-lime, and sand are obviously the material, if they could be kept from cracking, which is doubtless possible.

GLASS FOR ROOFING.

But I can not resist the growing conviction that *glass* is *Nature's* roofing and flooring material. Impervious to water, unaffected

by extremes of weather, indestructible by time, and exactly adapted to light the house from the roof, why is it not as well adapted to roofing as to windows ? All requisite is to cast it so thick as to prevent hail from breaking it, and, if you wish to walk on the roof, to sustain a person's weight. Crystal-Palace glass effects this end. Common green house glass costs only some four cents per foot, and can be made abundantly thick for from six to eight cents. For roofing purposes the green-bottle glass, or any other of poor or coarse quality, will answer just as well, and a junk bottle, furnished at six dollars per hundred, would contain material enough, I should think, for half a foot square. The stock for green glass costs little, being composed mainly of sand, everywhere cheap and abundant, and saltpeter and ashes, two other cheap ingredients, so that the material for glass roofing need cost but little, and its casting or working into forms adapted to roofing need not be expensive, for, unlike window-glass, wrinkles and spots do not hurt it. I doubt whether to make Crystal-Palace glass costs over eight or ten cents per square foot. A tin roof costs eight to ten cents for tin and laying, and two cents for the boards under it—say twelve cents; while glass, if manufactured on a large scale, would probably not cost more.

As to putting it together, I would suggest casting it in plates as wide and long as is convenient, and the longer the better, and put together by putty, or India rubber, or some other elastic substance, pressure on which, by crowding the glass hard, will keep out water. At all events, they can be easily put together so as to shed water with putty, which is cheap and water-proof, and well adapted to this end.

But again; can not this glass be *cast* on the roof by having small portable furnaces, so that they can be stationed on the roof, and melt and run your sand, saltpeter, and potash on the spot, and all in one solid sheet ? I only suggest. To this end, could not, after the floor-timbers are placed, a board as wide as they are far apart be nailed along *between* them, a coating of sand—that used for molding—be spread over, and the melted glass *run on* this sand, and the boards and sand then taken away from below? Glass can be melted at ordinary red-heat, by a recent invention. Can not some ingenious man work out this suggestion

into some practical results worth a fortune to him and the world ? But, at least, observe these two facts, that glass is admirably adapted to roofing purposes, and that glass material is almost as cheap as dirt, and abundant everywhere.

The inventor just mentioned proposes to use it for the *walls* of houses, so cheap does he hope to make it. If glass can be used for roofing, it could be run in all sorts of forms and molds of beauty, interweaving, as in carpets, any varieties and combinations of beautiful figures. In this case iron should be used in place of floor-timbers as rafters, the sun and light kept out, or softened by paint, and all kinds of colors could be added; thus rendering floors and roofs most beautiful, and dispensing with lath and plastering overhead.

THE OCTAGON FORM AND GRAVEL-WALL APPLIED TO SCHOOL-HOUSES AND CHURCHES.

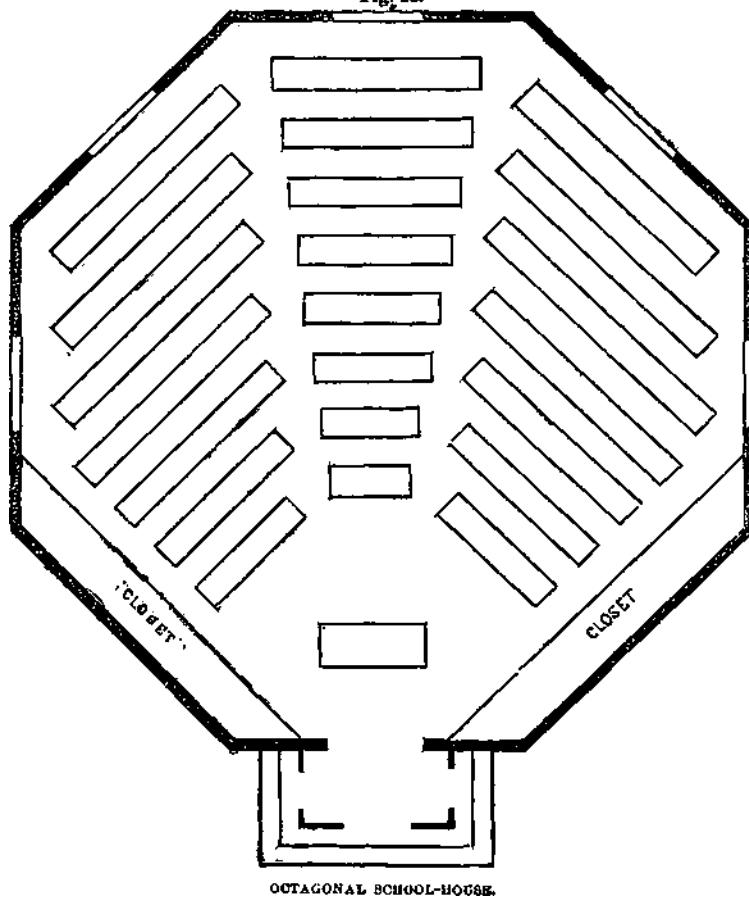
The SCHOOL-HOUSE is the first corner-stone of our nation's greatness, the next being the ballot-box; but the former underlying and guarding the latter. All my neighbors refused to locate our district school-house on their lands, while I coveted its location on mine. It teaches READING AND ARITHMETIC, and these start human intellect on its ascending pathway, to be carried onward and upward illimitably.

Then, since whatever appertains to schooling is correspondingly important, the best *form* for a school-room becomes a matter of no small consequence. And here, the nearer we can approach the *circular* form the better. To gather around a spherical or elliptical table, occasions more harmony and agreeable sensations than around a square one. To have a truly agreeable chit-chat, we require to form into a *circle*. Why our universal use of "the family CIRCLE," "circle around the fireside," and the like, but that this circular arrangement of the parties facilitates that magnetic flux and reflux of emotion which creates these delights? As in magnetic and electrical experiments we must complete a *circle*, so, that several *minds* may act in concert, it is requisite that they form around and face a common center. The more so where, as in school, all eyes are often required to be directed simultaneously toward the same object—the teacher. This pur

pose the octagon form serves better than the square, and is preferable every way—more than enough so to build the extra angles.

This form will also give the teacher a far more sightly and advantageous stand-point. Of course, to be heard and seen well, he requires to front the whole school. A desk at one end spoils that end, by placing all its scholars actually *behind* the teacher, while those at his right and left on the sides near this end must look at his *sides*, not front, while those at the opposite end are farther off than if the house were octagonal.

Fig. 28.



OCTAGONAL SCHOOL-HOUSE.

Besides, these square angles break the sound, and cause echoes for more than octagonal ones. Many other like advantages ap

pertain to the octagonal form over the square, but these should suffice to secure its universal adoption, wherever a *good* school-house is attempted. Yet we leave it mainly on its naked merits, or on the way it strikes the reader's obvious common-sense view of this important matter. Let the foregoing engraving speak to the eye, and through it be allowed to lay its appeal to the sound *judgment* of those who would put their children into a *good* school-house.

Of course, since the cost of school-houses consists mainly in walls, roofs, seats, and floors, and since our gravel-wall greatly cheapens walls, it must cheapen the school-house more, relatively, than other houses—roof, floor, and seats being the same by this method as by that. But its *light* is far more advantageous. The square house must, of course, have two windows on a side, else its corners will be dark—will any how be much darker than our octagonal corners—whereas a window to each octagon side will look better and more proportionate outside, and be far better inside than a square house with two windows per side. The light will then come in at the back and over the shoulders of the scholars, hurt their eyes less, shine on the book far better, be more equally distributed through the corners, and be exactly what is wanted in every respect. The same is true of the heat.

The room, too, will be more *compact*, the scholars more equidistant from the teacher, not some too far off, while others are too close by, so that every feature of this octagonal plan recommends its universal adoption.

Of course one side should be appropriated to entrance and the teacher's desk, which should be contiguous. This form will also enable teacher to see scholar as much better than the square, as scholar teacher, and allow him to take in the whole school at one furtive glance better than he could do in a square room.

The seats should all face inwardly, and rise from the center toward the sides; but this has no special reference to our octagon form.

COMPLETE VENTILATION.

No school-house should ever be erected without ample provision for fresh air—this most essential human requisition. An

opening to let it in from below, and another for its escape at the top, are indispensable alike to the child's health of body and vigor of mind; for foul air thickens the blood, and thereby renders intellect obtuse, memory confused, and the feelings blunt. Better cut short their supply of food or clothes than of fresh air. Yet how easy its supply—a few dollars at most securing it while the house stands—but how almost universally neglected! And how many scores of thousands, every day, and all over our country, are breaking down their constitutions and enfeebling themselves *for life*, in *mind* as well as body, just for lack of this simple contrivance.

To WARMING THE FEET special attention should also be paid. Cold feet occasion colds, headache, and mental dullness, besides deranging the circulation permanently, and breeding disease most effectually. If they can be kept warm, the body will take care of itself. Provide for this, and you need not heat the room any thing like as hot as you otherwise must, to insure comfort. To do this, the room should be heated by a furnace placed below, into which admit fresh air, and from which have a brick flue extend around the house, *under the floor*—not very expensive, but *very* comfortable.

Parents, on your love of your dear children I ground this appeal. Perfect your school-houses. no longer suffer them completely to *ruin* so many fine children—some by breaking down the life-power, and leaving them sickly and inane for life, and so many others by burying them in the very dawnings of humanity. Inattention here is child-murder; for in almost every school- house these death-inducing causes are silently, insidiously, but most venomously at work, dealing out disease and death to chil dren, and heart-breaking agony and desolation to bereaved parents. Yet the school-room might be made perfectly healthy to both teacher and scholar. Parents, make it so. Teachers, urge this point. School-teaching, in and of itself is pre-eminently healthy. Only bad *school-houses* render it otherwise. This want of ventilation, and unequal temperature, and other like causes, render it unhealthy to both you and the scholar. See that houses are built and kept right, and teaching will promote your own and their health, whereas now it makes such havoc of both.

CHURCHES

The octagonal form is as advantageous as to school-houses, and for like reasons. To impress an audience, a speaker requires that they be gathered all *around* him, except at his back, where the choir should be located. The octagon form secures this end *'perfectly'*. The square form, with the pulpit at one end, and the house much longer than wide, is most awkward for both speaker and hearer. Some are too far off, others too near. Compactness and equi-distance facilitate impressibility. These the octagon form promotes, while the square and oblong shapes prevent, the same as in school-houses. Let the *principle* here involved, namely, that an audience is much more readily impressed or affected if seated in the spherical than square form, and square than oblong, be duly appreciated, for its bearing is *cardinal* and *fundamental*. ' This alone should secure the universal adoption of the octagonal form for churches.

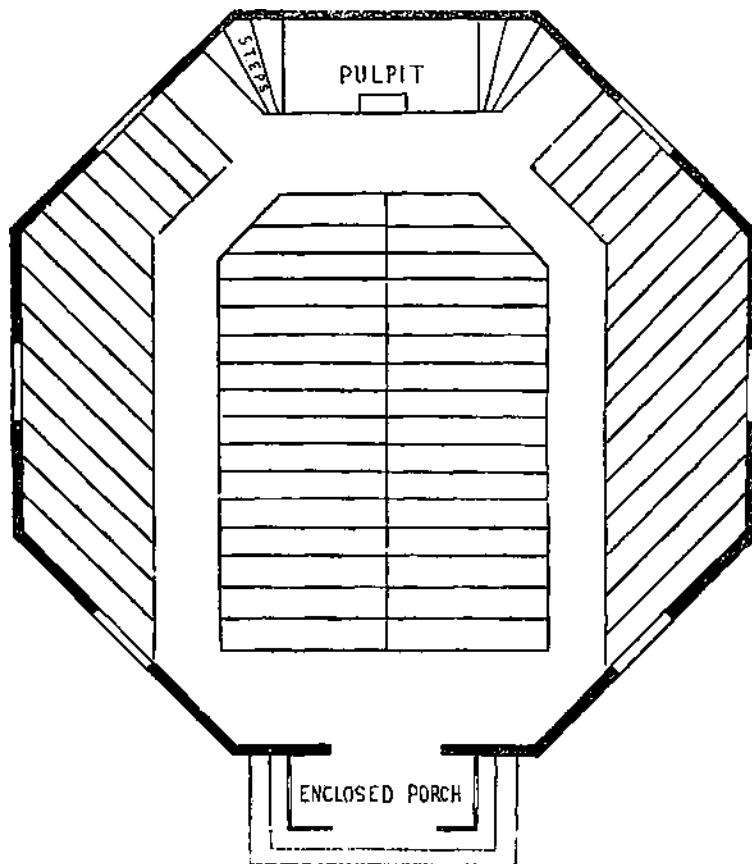
And our gravel-wall is just the material out of which to build them ; for the wall is one of the chief items of expense, and we have seen how much can be saved on that score by using our material instead of brick, especially at present prices.

One window on a side should suffice, and made the larger the more light is wanted, but is in better taste than two. The entrance should always be in *front* of the speaker, so that the whole congregation need not have their attention diverted to witness every ingress and egress. That is, the entrance should be at the *back* of the audience.

The octagonal form also facilitates the congregation's *seeing one another*, and thereby the interchange of friendly and benignant feelings toward one another: mark this point. Seat a congregation in a long, narrow house, with the pulpit at one end. Of course the *faces* of all are to the *backs* of all. None can see the faces of any, except when beholder or beheld *turn around*. Hence, but little interchange of good feeling *through the countenance* can well occur. But seat them in the octagonal form, the seats all partly facing all, thus allowing all to see each, and each all, and the benign smile of recognition and good feeling enkindled by this freedom of seeing each other, and expressed in the

countenance, will spread from "face to face," and soul to soul. In short, what a world of meaning is embodied in this "*face to face*"—exactly what our form secures.

Fig. 29.—OCTAGONAL COUBCH.



This form will also accommodate those who attend church "for looks" or to "see and be seen." I once asked a lady what were her reasons for attending Grace Church; "Sympathy of doctrines ■?"

"No," she frankly answered ; "to tell the whole truth, I chose it because of its *extra gentility*. The fashionables all go there, and of course I must go too."

Now, ought not our churches to be built so as to serve the wants of this class of attendants % If a genteel woman wants to exhibit

her dress, or tinsels, or paddings, why do let her. She may thereby be brought within the reach of good.

Seriously, is not our form of house and arrangement of seats admirably adapted to promote the ends of religious meetings? Let a congregation worship in the octagon, and then in the square, and they will *feel* the difference most delightfully in favor of the octagon.

The mere arrangements of the seats we have not studied particularly, because the architect can do that better than we, because various arrangements of seats and aisles could be made to suit various societies, because different plots of ground will require different entrances and arrangements of slips, and because our form allows even a greater diversity in this respect than the rectangle form.

True, in a square or oblong form the seats can be so arranged as to secure this facing of the minister and one another, yet not as naturally, whereas it can not be made as effectually to secure *compactness*.

51. GENERAL BUILDING DIRECTIONS AND ADVICE.

It would seem proper to conclude this work with a few general common-sense directions to novitiates in building, partly by way of saving them from learning by bitter experience, and partly to facilitate economy and expedition.

MATURE YOUR PLAN WELL.

Think up, beforehand, *just what you want*, in order to provide for it at the right *stage* of the building. Study where you can crowd in this little convenience, or that means of comfort, and lay out your shell accordingly. If you want a dumb waiter, or cistern, or any article whatever, consider which, what, where, and how, in season. Few houses have a dumb waiter, yet every two-story house should have one; and an entry is a good place for one. They are easily rigged, thus: A good-sized wheel, one, two, or three feet over, according to the width or length of the waiter, so that one side of this wheel shall take the rope from the center of the dumb waiter, and the other side drop the weight attached right into its pocket—this wheel, rigged to run on four

little wheels, such as are often used for grindstones, and the waiter itself made by erecting four corner posts, a slat across each end at every shelf, for the shelf-boards to rest upon, no boards at back or ends, and only half-inch shelving, all well braced, and rope and weight finishes it. I planned my own traveling closet long after I planned my house; and at more cost and less completeness than if I had thought of it seasonably. Yet far better such improvements added on *afterward* than not at all. Having matured your plan, and embraced all you intend or can afford—

GET ALL READY.

Work done at a disadvantage is done at great extra cost. All delays are very expensive. Anticipate what is wanted, and have it at command. To wait for one thing will often stop all or most of the work, and occasion much loss of time and temper.

EMPLOY GOOD WORKMEN.

One really good hand is worth several poor ones. A poor one or two, thrown in to do odds and ends, may do, but must be trusted with nothing on which any thing else is depending, unless watched at every stroke. The boss—for every thing must have its head—should at least possess both mind and knowledge of his business, as well as industry and integrity.

Then seek to promote good feeling toward yourself and each other, and especially *interest them in your work*, as if it were their own. But send away the disaffected at once. Best of all—

Keep your own common sense ever about you, and sharpened up for any emergency. In nothin? do men fail in building as much as in this commodity.

May this book aid every reader in either CREATING OR IMPROVING A GOOD HOME.

Finally, your house once built, CONSECRATE IT BY LOVE; never desecrate it by discord. Let it be made holy and sacred by conjugal, parental, and filial AFFECTION. And in this, its united *head*—the father and mother—must lead off. They disaffected, all will dislike all. They fond, all will be fond. Show me disobedient, bad-tempered children, and I will show you discordant feelings, if not heart-burnings between their parents. Husbands

and wives, do live in love—at least agree to disagree—or live apart. Your house is holy ; do not defile it. Let every night's rest, every gustatory repast, every intellectual and moral entertainment, and every other pleasure participated in by the family within that hallowed HOME, but enhance your love for IT and for EACH OTHER.

SCATTERING OBSERVATIONS.

These, omitted in their proper places, had better be inserted here than omitted.

THE AUTHOR'S FRONT STAIRS.

1. In the drawings in the book his front stairs are drawn at the ice and green houses, so as to leave the lower as the main entrance, whereas in the upright drawing in the frontispiece the stairs are drawn at the front door. He has thought best to change them in front, because none will naturally come up these stairs except those who may properly enter parlor or sitting-room. Others will naturally pass in behind, and enter under these stairs into the lower or through entry.

This octagon form can be adopted for brick or frame buildings about as well as in the gravel wall. An octagon angle is not quite as easily framed as a square, yet is not difficult; and when brick are used, they can be either clipped, or laid up with their corners projecting, thus furnishing an ornamental cornice.

EXCLUDE VERMIN.

2. Be sure to stop out all rats and mice in the start; first, by making a projection of some inches, even with or just below the level of the cellar-floor. They absolutely *must* have holes for nests.¹ They rarely dig into the middle, but always at the *sides* of rooms, or down by the wall. Now, if they dig an inch or two and find a piece of stone or brick they give up, and finding no home go elsewhere. To stop them out of the house, fill in all your walls clear up to the *top* of the floor-timbers, or to the floor above, and also, after mop or base-boards are nailed on, and before lathing, fill in between these boards, or at the bottom of all walls, with stone or mortar, or our concrete—only a few minutes' work, yet it *forecloses all thoroughfares*; so that if one gets in, he can not get round the house to breed or feed.

SECTION V

OTHER PLANS FOR PARTITIONING AN OCTAGON HOUSE BARNS, ETC.

52. A SUPERIOR PLAN FOR A GOOD-SIZED HOUSE.

AFTER our last sheet of proof, as we thought, had been read and returned, our engraver, Mi*. Howland, who has quite an architectural taste and talent, and to whom we refer our readers for any additional drawings, plans, etc., suggested another mode of partitioning off an octagon house; and feeling that we have not given a sufficient number of plans, we append another section. The following diagram represents a house so concordant with both the author's taste and the octagonal mode of building, that he not only appends it, but, for an ordinary sized house, recommends it as superior to any other he has seen, for simplicity, convenience, and practical utility.

It gives four square rooms to each story, a front and back entry, central stairway, two bed-rooms, eight closets, and a dumbwaiter, as well as chimneys. The four rooms can be used as follows, or in any other way thought best. F, E, front, and B, E, back entrance, P, parlor, D, dining-room, K, kitchen, B, bed-room, S, stairway, ascending and descending; A, dumb waiter; b, small bed-room, c, closets, and p, pantries.

Now we submit to every judge of a first best suite of family rooms, whether this is not complete and perfect. It retains all the peculiarities and advantages of our octagon style, namely, compactness and contiguity of rooms, central stairway, closets, and small bed-rooms. Let us examine them.

Suppose the front door to be on the southwest side, and back entrance northeast—or the reverse will do about equally well, as

16. Elmira, Chemung County, New York This structure was built by Mark Twain's sister-in-law on her farm as a study for the author. It was supposedly designed to resemble a river- boat pilothouse. Originally constructed in 1874, it was moved to the Elmira College campus in 1962.

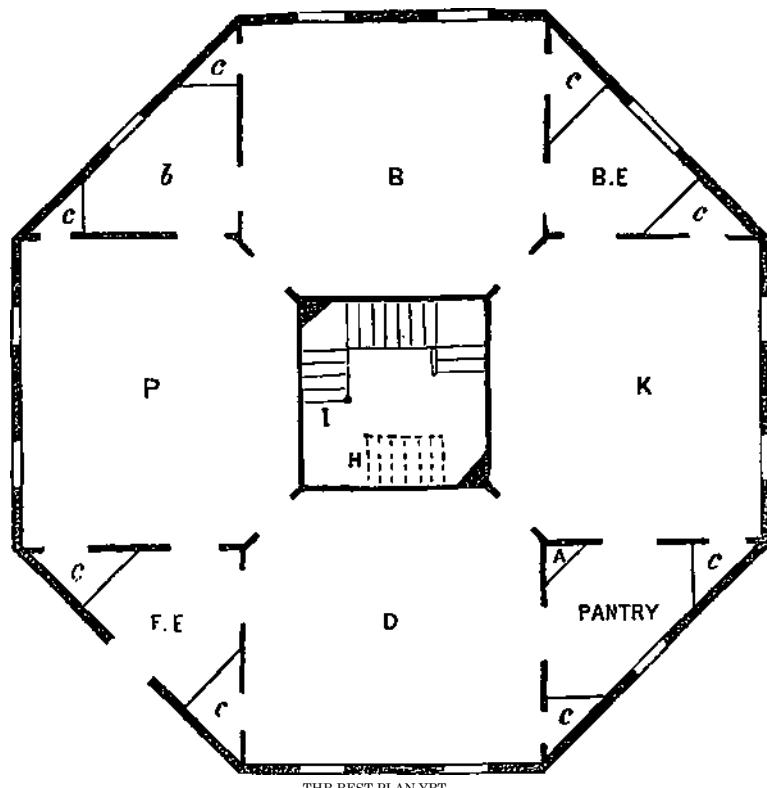


17. Sherburne, Chenango County, New York Dr. Devillo White was the builder of this gravel-walled house, *circa* 1855. The floor plan, similar to the one on p. 161, included a square central stairhall with a spiral staircase. The walls are 20 feet long, covered with stucco scored in imitation of stone; the two-story bay was added and the porch was added or rebuilt.



will also a southeast front and northwest back entry, or a southeast front and southwest back entrance, if this is handiest to the back buildings, or a northwest front and southeast back entrance, or a southeast front and northwest back entrance, or any other arrangement of front and back entrances which will best serve your front road or street and back buildings. Yet it is preferable that they be *between* the four cardinal points of compass, so as to bring the four main rooms due east, west, north, and south. Our parlor will now front toward sunset, which is peculiarly appropriate, since we use this room mostly afternoons and evenings; and our kitchen toward sunrise, also peculiarly appropriate; our dining-room on the south side, to enjoy all there is of spring, winter, and fall mid-day sun, while the bed-room faces north, and its aspect is of little account.

Fig. 80.



THB BEST PLAN YBT.

162 A SUPERIOR PLAN FOR A GOOD-SIZED HOUSE.

Another point worthy of remark is, that the dining-room is the great central living and congregating room of the whole family, and therefore should be the most pleasant room as to sun and air in the house. And I think a south aspect to be the most pleasant, because during fall, winter, and spring, sun is a far greater luxury than shade, and a southern aspect more inviting than any other. Even in midsummer it is preferable, for in sultry weather the wind is usually in the south, so that at those times when the intense heat renders a breeze to cool your room most desirable, you can have it; whereas, on the north side, you can get only a northerly breeze, which you rarely need, because when the wind is northwardly it is cool enough without any. Most northerly winds are so cool as to require their exclusion instead of invitation. Of a very hot day it is but little hotter on the south than north side, while the south breeze, if breeze there is at all, which always accompanies extreme heat, more than counterbalances this excess of heat. Moonlight evenings a southern or southwestern aspect is better than any other, and hence a southern or south-western bedroom is better than any other aspect. At all events, the aspect of all these rooms is peculiarly appropriate to the use of each. Yet, since each is alike, different builders can make different uses of each according to their respective wants, fancies, grounds, etc., as may best suit themselves. Obviously, however, the parlor should be on one side of the front entry and the dining-room on the other, while the kitchen should join the back entry.

But the back entry could be on the lower right-hand side, or between the dining-room and kitchen, quite as well as between kitchen and bed-room—would probably be even more convenient, for we rarely need to go from entry into bed-room, yet often from entry into both kitchen and dining-room. And, doubtless, in most cases, the out-buildings can be so arranged as to have the front entrance between parlor and dining-room, and back entrance between dining-room and kitchen, or, relatively, where the pantry is now placed.

Still, while this would be a better location for the entry, it would *not* be as good for *pantry*, which should, of right, be *between* kitchen and dining-room, so that you can pass from either into

this pantry with and for things, and then *through* into the other. This location of pantry *between* kitchen and dining-room is really admirable—the very handiest place possible.

Two small closets could and should be partitioned off from its two acute angles, the one opening into the dining-room for dishes, castors, and other table utensils, and perhaps table-cloths, pies, etc., and the other into the kitchen, in which to set away kitchen things, "cold victuals," and the like, for which its being dark will make it all the better, by excluding flies. At all events they will be exceedingly convenient.

A triangular dumb-waiter, A, might well be located in its right or inner angle, having three openings, one into kitchen, the other into dining-room, and the other into the pantry, so as to serve each room—a complete place for this essential requisite to every complete house. It would bring things up and down into both chamber and cellar, and save a world of weary steps. If this traveling closet is not put here, the doors from kitchen and dining-room should be put close into the inner corner; but if placed here they should be put close to it.

Six other closets are also provided for by our plan: two in the angles of each entry, and two more in those of the small bedroom. They can be made larger or smaller at pleasure, to open into whichever room is deemed best, and to run at right angles to either wall, but I should prefer to have them square with the outside wall, excepting those of the bed-room, which may square with the cross-walls, so as to give the more room for the bed. As we hardly need a closet to the parlor, we will have the one at the left of the front entrance open into the entry, and appropriated to overcoats, hats, umbrellas, etc., while a hat-stand placed at the inner angle of this entrance would receive those in every-day use.

The other one should open into the dining-room, where it would do admirable service. Another naturally opens from the left-hand angle of the back entry into the kitchen, and would serve for tins, kitchen utensils, etc., while the one at the right hand can be made to open into either the large bed-room or entry. But this large bed-room has another on its other side, so that this might be used for a wash-closet, having a pump con-

164: A SUPERIOR PLAN FOR AN OCTAGON HOUSE.

nected with a cistern below; and still another angle in the left-hand corner of this small bed-room gives another closet to either parlor or bed-room; yet, as closets to parlors are considered out of taste—though not by me—it can connect with the bed-room, where it would probably be needed even more than in the parlor. This abundant supply of closets and small rooms furnished by the octagon plan will perfectly enamor every one who experiences its luxurious convenience.^{43*} ⁴⁴ People do without them only because they have so few of them as not to know their value. Description, however vivid, can not do justice to their utility. Only experience, both without and with, can adequately impress their usefulness. This feature alone of the octagonal plan should and will secure its general adoption.

Small rooms, too, are a very great convenience. They serve some purposes even better than large ones. Every house, to be any way complete, should have a gradation of rooms from large down to small. This will render a given amount of room far more *available* and serviceable than if all the rooms, as is usual in double houses, are about equal in size.³⁸

Observe, also, how much shorter the passage from room to room than in the usual double house, having a through entry.³⁸

Thus you pass from parlor to kitchen by only passing through one ten-foot stairway, or across the narrow end of the diningroom, and from parlor to bed-room, and dining-room to kitchen, even easier than if side by side. You go around or across the stairway, and from room to room, or to and from each room above or below with at least one quarter the steps required for like passages in ordinary double houses, as shown in fig. 1.6.³⁸ See, too, how little room, comparatively, is consumed by entries, yet how completely every end of an entry is subserved!

Let us next inquire how much *room* this plan will give us, both absolutely and comparatively. If your sides are fifteen feet, each large room is $15 \times 12 = 176 \cdot ^{-}9 = 18^{\wedge}$ yards, minus those small corner clips, which do not lessen the real working size of the room at all, as seen in fig. 11 and its explanation.³⁵ The stairway should be ten feet square, yet one door, probably that out of the bed-room into the stairway, may have to be sacrificed, unless the stairs pass from one corner through the center across

diagonally, or the longest way, and then turn an acute angle. But of this anon. This square can be made larger or smaller at pleasure, but should not be so large but that the doors will come in between the corners of the stairway and those triangles. Ten feet square is the least we can well have it, and eleven or twelve will be better; but twelve will be ample for as large a house as may be needed.

It might be well to connect the small bed-room with both the parlor and large bed-room, so that it can be used with either.

This small bed-room off the parlor will be very genteel and handy into which to introduce visitors for the night. Yet as the large bed-room will be the dormitory of the master and mistress of the family, it will also be convenient for a children's sleeping-room. It is at least one of the handiest little rooms imaginable. Its size will depend on that of the house and closets. In a 15 feet sided octagon it would be 7 by 7, besides those corners cut off by the closets. In this case the bed must stand against the window, and the closet-door open into the closet, unless it is connected with the parlor. Yet if the closets are small, and the wall is made as drawn, it can stand against the parlor- door when used with the large bed-room, but removed against the bed-room door when used in connection with the parlor. But if the sides are 18 feet, equal to a 36 feet square house, or one 30 by 42, it will give us a nine feet square room, besides those angles at the closets, together with good-sized closets, in which case a bed can be placed several ways. In this case, the four large rooms will measure 18 by 16, less width of wall, which will come right for carpet, of which each room will hold 30 yards, and be of full size for comfort and use. At the doors a great deal of wear will occur, which those corners of the carpet turned over or under, or cut off and used as a rug, will just serve as a resupply.

Box-boards, as described for making the outside wall,¹⁴ come 16 feet, and therefore this will be a convenient size for the house. This will make the rooms, walls, and boards deducted, about five yards wide, another convenient size for carpets.

But a house 20 feet sides will cost no more for doors and windows, and but the merest trifle more for floors, partitions, base

166 A SUPERIOR PLAN FOR A GOOD-SIZED HOUSE.

boards, lath, and plastering, etc.,³⁸ and will a hundred-fold more than repay in usefulness this trifling extra cost in money. The outside box-boards could then be spliced easily by cutting one board into four pieces, and splicing by simply nailing on a batting across the place of junction, extending a foot or more on each side, and consisting of any piece or pieces of board, of any shape and length at hand. This will take twenty boards to form one tier of boxes. Or the walls could be made 21 feet just as well, by cutting two five and two three-feet pieces from a 16 feet board, the five feet to splice on the outside, and the three feet on the inside box-board. This splicing a board by nailing a piece on to both, is the work of only a minute. This will render your rooms $21 \times 18 = 378$ square feet $\div 9 = 42$ yards—large fine rooms, and make a fine-looking house. Yet I do not see how it could cost over \$50 to \$75 more than one of 15 feet sides.³⁸ And since the room occupied by entry and stairway is the same in all three, all this increase of room will be *in the rooms*.

Let us see how much room it will give compared with a square house of like size. A house 30 feet square, with a through entry of eight feet, gives us 900 square feet in the house, less 240 in the entry, or only 060 in the rooms, and only two rooms on a floor, unless the entry is in the middle, which gives us only 11 feet wide rooms, or 11 by 15, or 165 in each, $-5-9 = 18$ square yards. But by the octagon form we have only $10 \times 10 = 100$ sq. ft. stairway, and $8 \times 6 \times 2 = 96$ in the entries, $= 196-5-9 = 21$ square yards, and $15 \times 12 \times 4 = 187 \times 4 = 748 + 4$ half squares, or 2 squares of 10 feet in the triangles $= 200 + 748 + 196 = 1,144$, or about a quarter gain in the whole house, and *one third* more room within the rooms, and that three times better adapted to family purposes—this complete, that awkward β this compact, that scattered ;^M this cut up into four good-sized rooms, all adjoining each other—a parlor, dining-room, kitchen, two bed-rooms, and eight closets, besides front and back entry, and stairway, and a dumb waiter—that only illy-contrived, long, and narrow parlor, bed-room, kitchen, and dining-room, separated by a through entry, the stairs unhandy to at least two of the rooms, and not one place for a closet (see fig. 16), nor any place for chimney, unless it is taken right out of whole cloth; whereas ours takes up no

room at all which could or would be appropriated to any other earthly use, but only taking a small unused corner off from our broad stairs, and a capital place for a dumb-waiter besides. See how many ends ours subserves, and how few yours.

But if your square-angled house is oblong, say 22 x 38, the matter is much worse, by taking more room into the entry, and giving only two rooms, 14 x 19,-or only a parlor and back parlor, and obliging you to build another house out back for kitchen, pantry, and other such uses. Is not our plan incomparably the superior, in every possible aspect? That gives you only 532 square feet within the rooms to our 944, or **948.n_80.12_7i 532**

48 ~4

as large again, all but g of one.

But if our sides are 21 feet, our room inside is $21 \times 18 = 378$ x 4 + $14 \times 14 \times 2 + 12 \times 12 = 2,048$,* and our net room within the rooms, 12×12 stairway - f 8 X 8 > < 2 entries $272 = 1,776$, while the net room of a square house of the same size would be only $42 \times 42 = 1,764$ — $8 \times 42 = 1,426$, which reduced by

division

$$\frac{1,766}{1,426} \div 12 = \frac{148}{119} \div \frac{23}{19} \div 6 =$$

almost *one fourth* the most available room in our octagon house, and that more than one fourth the more available, or a difference of more than half in favor of the octagon. If the right-angle house is oblong, say 34 x 50, the difference will be still greater, or 1,700 square feet— $50 \times 8 = 400$ in the entry, if it runs the long way of the house, or 1,300, but if the short way, 256 or 1,444 net room to our 1,776; and yours only 5 rooms, all told, but ours 18! besides providing for chimneys, which the other plan does not. By that plan you must separate kitchen from dining-room, or else dining-room from parlor, by your through entry; whereas by our plan, both kitchen and parlor join dining-room—an arrangement the superb convenience of which we respectfully yet triumphantly submit to every practical housekeeper and common-sense observer.

* As our figure is a little more than 14 feet to the inch, while we measure it as just 14, we shall get a little more room than is here estimated.

Now here are two good-sized country houses, one on the old, the other on the new plan. To say that the new is as good again as the old is far within bounds. It might cost a hundred dollars the most, because of the greater number of inside walls, an increase, however, utterly insignificant, compared with its increased utility and beauty. The number of windows would be the same, twelve in each, of doors the most in ours, the entry doors the same in both, but ours gives two the most rooms, and four extra doors into the stairway, besides a door to each closet.

53. THE CELLAR STORV.

But let us descend into the ground story to see what chances for conveniences we find there. We will have the main story two or three feet above the ground, and enter the cellar story under the stairs which go up to the main story, or at any other place deemed best; will build eight square pillars in this cellar, one under each corner of the stairway, and one under each inner angle of those four triangles, out of our concrete, making the box in which to cast them by nailing together at their edges four boards as long as the story is high, and as wide as we wish the pillars large, say a foot or 16 inches. This gives eight solid resting-points, and if preferred you can now make walls, as drawn in the accompanying figure, or any others liked better, or none at all. (See engraving on next page.)

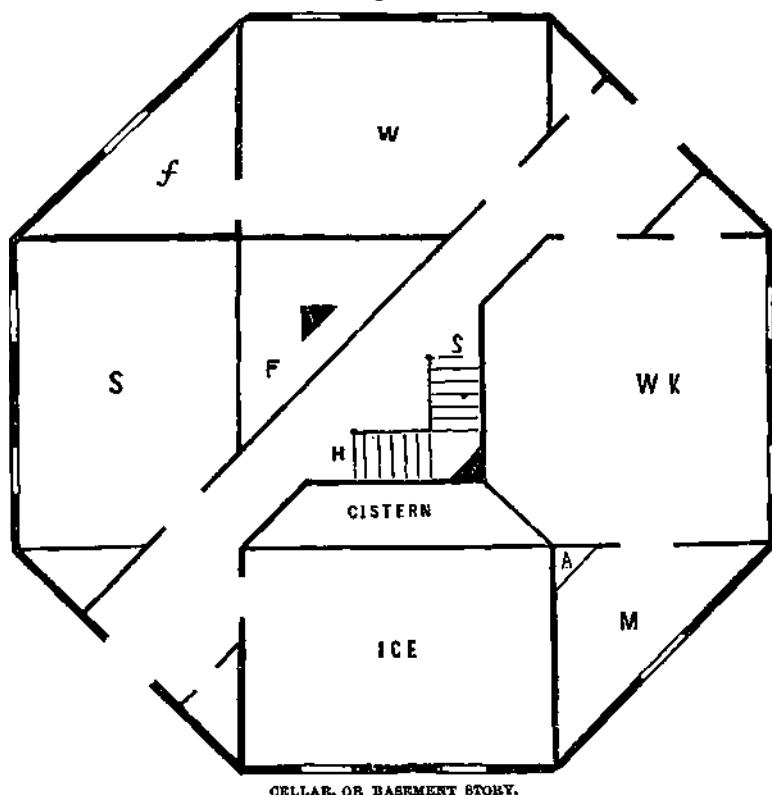
Yet there should be a furnace atf to heat dining-room and parlor—the kitchen being heated by its own cooking fire—while the bed-rooms will need none, yet can also be heated.

A kitchen below, located as marked in our engraving, in which to do up the rough and bad smelling work of the family, will be desirable, and can be ventilated through the corner of the stair way between dining-rooin and kitchen.

By the side of this work-kitchen or wash-room and iceroom near the pantry is an excellent place for a milk-room, which is all the more convenient on account of the dumb-waiter coming into it, to transport milk and other things up and down.

Adjoining this wash-room should be a cistern to receive the rain-water from the roof.⁴⁵ This can be located at the right of the back entry, and will then, by means of a pump, furnish

Fig 81.



water to the bed-rooms above—the closet located in the angle cut off from the back entry above—a better use of it perhaps than that for boots, shoes, and tools above noticed, for these wash- closets, adjoining bed-rooms, are most comfortable and luxurious indeed ; or it can be placed at the left, which will be under the kitchen, and adjoining the work-kitchen—also very handy—or in any other place chosen, yet I think the latter the best, especially since lead pipe can conduct the water from this cistern, wherever located, into the bed-room closet just mentioned.

A tool-closet for spades, shovels, hoes, etc., will be handy either in this cellar, near the back entrance, or in the barn; and if in this cellar, on the right as you enter is a good place.

The adjoining space, W, will make an excellent place for wood,

which would naturally come in at the back-door, and will then be near both the furnace below and the work-kitchen as well as the foot of the stairs leading above, which, obviously, should start near F, because you will need in descending to land near your work-kitchen ten times as often as anywhere else, and in ascending to land at the kitchen above. And then, too, if we must sacrifice or discommode any room above let it be the bedroom, because we need to go from it up and down less than from any other room, but most from kitchen. The foot of these stairs will also be near the dumb-waiter—another fine arrangement They will also be in the large square below, and therefore handy to all the cellar rooms. The balance of the rooms can be partitioned off or not, and used as preferred. There yet remain five unappropriated rooms, viz.: two south, two west, and one northwest. Dispose of them to your liking. One of them would furnish a good place for an ice-house. One of those to the north, already appropriated to wood, will make a good one, the wood being shifted to some other, because farthest from furnace, yet would be under sleeping-room, which is bad, while that to the south, adjoining milk-room, would be handiest, as cooling milk-room below and pantry above; and if rightly made,⁴³ neither furnace nor southern aspect will seriously affect it. It should be at least 15x13, though the larger the better, and might occupy the whole space between milk-room and entry, and be filled at window or entry. Its being under an upper room will not hurt but rather benefit the room above, unless it be a bedroom.³³

We mentioned a place for wood, not because best for heating houses, but because generally used in the country, yet decidedly prefer coal as handier, for a fire once kindled lasts all day, is several times cheaper, costing less than even the mere cutting and hauling of wood, gives a better because more uniform heat, and is as healthy, probably more so, because it keeps a steady heat, whereas that of wood is fitful; and the gas of wood is quite as deleterious and likely to escape as of coal. Yet when that invention, already barely mentioned, which converts wood-gas into lighting-gas, so that we can light our houses with the same wood used to heat them wood may be cheapest. Indeed,

since a cord of wood is said to furnish ten times more light than a ton of coal, we could burn our surplus gas early in the daytime for heat.

54. STAIRS.

Starting our flight of stairs so as to land at the door which passes from stairway to dining-room, varying our starting-point as our height of cellar may require, we turn on a broad stair to the left, leaving room for the parlor door, and turn at every corner on a broad stair, as often as necessary. If our stairway is ten feet square, and our stairs are three feet wide, we shall have a run of four feet at each turn, which will carry us fairly above the bed-room door by the time we reach it—it being placed in the corner next to the kitchen, and the kitchen door in the corner next to the bed-room.

In a 15 feet octagon this story should be about 10 feet high, and the stairway 10 feet square, which, if our stairs are three feet—large enough for this sized house—will give us a four feet run, and require us to turn three times. If our rise and run are equal, and we crowd our parlor passage-way into two feet, we shall have a two feet landing-place at the top of the stairs. This is rather narrow, and our stairs are too steep, yet it is a small house. Still, either a narrower stairs, or a 11 feet stairway, or lower ceiling, will give us an ample broad stair above, and an easy rise compared with our run. But in an 18 or 21 feet sides, our stairway may be 12, and stairs 3¹/₂ feet, which will give a run of five feet and rise of four between each broad stair, which is an easy rise for our run. If our walls are 12 feet high, which they should be to look and be well,²⁷²⁸ we shall have to turn on only two broad stairs, and will land over the bed-room door. Circular stairs will get us up sooner, yet are much more costly, and not as handy, yet look well. This gives us a good stairway, and perfect access to and from every room above and below. Our fur-nace-chimney will, however, interfere a little with our parlor door, unless—which is possible, yet have it clear the stairs—we place it a foot from the corner. We then and soon enough turn to the left into the east chamber room above, on the north side, marked 1, will continue this same platform right on around the

A SUPERIOR PLAN FOR ANY-SIZED HOUSE.

m

width of the stairs, enter from it into every room as we pass, clear round to room marked 2, and, leaving barely room enough to pass into 2, start our stairs for the cupola in a 15 or 16 feet octagon—for it will not bear a third story—which can be made both narrow and steep enough to give sufficient head room to clear the main flight. But in an 18, 20, 21, or larger sided octagon, and a 12 feet stairway, we shall need a third story to make the house look well, and, having a five-feet run, can get rise enough to clear our required head room. Like remarks will apply to the stairs from the third story to the cupola.

It may be best, however, even in an 18, 20, or 21 feet octagon to have one or two of these upper rooms the full size of one side of the house; that is, to have one or two good-sized rooms above, rather than so many small ones. In this case the north room at the head of the stairs now marked 1 and 2, need not be partitioned off, which will enable us to start our next flight of stairs back at the door into 3, and so to completely clear the door into 1. Or, if you see fit to start your stairs at any other point, or to arrange them differently, the room will be true relatively of rise and even, and starting and landing, in that case as in this.

The dumb-waiter can, and should be, continued up into this story, as marked, which will render the adjoining rooms very handy as nurseries, and in cases of sickness.

55. UPPER STORIES.

A 15 or 16 feet octagon, to look well, should be only two stories above the cellar, the first 10 or 11 feet between joints, the other about 9, with a small cupola; but in one of 18, 20, or 21 feet sides, or larger, the main story should be 11 or 12, the next 9 or 10, and the upper 8. This will render one of 18 feet sided rather high for its breadth—yet, I think, none too high. Most houses are quite too low for looks, while I go in for height in houses and rooms.

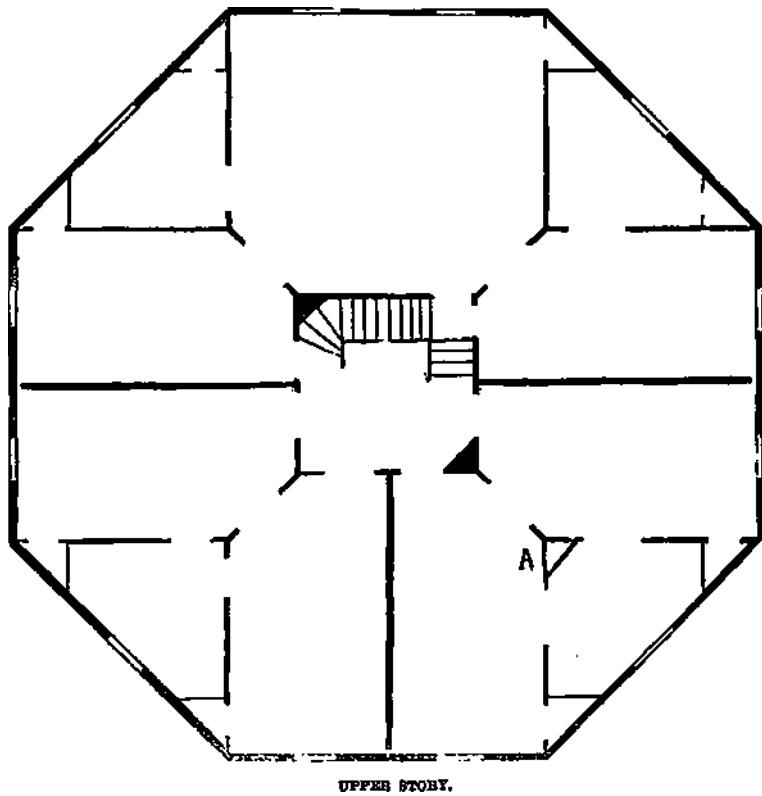
As to the partitioning off of our rooms, I see no plan better than to follow the pattern of the story below. In a 15 feet octagon it would be best to have but one window per side, but in one larger, two windows on the sides of the four large rooms are admissible, perhaps best, as breaking the monotony of one per side, and ena

bling us to partition off our upper stories so as to get 12 *rooms per story*, eight square and four irregular, besides a closet to each square room. This arrangement, in a three-story house, gives us 29 *rooms above the cellar!*

But if four large rooms are preferred to eight smaller ones, omit those separating partitions. You can then enter this north room either at the top of your main stairs, or pass around to the foot of the stairs above, as may be preferred.

One other feature of this plan is, that it admits of great variations in partitioning off your house—an advantage well worth considering.

FIG. 83.



MOLDINGS.

We do not propose to take up the general subject of moldings, but only to describe our own, which we think an improvement on any we have seen. Plainness is better than fancified ornament, and in Boston it is quite the custom to put on only casings without moldings. But to our own. It consists, first, of a rather narrow casing of ordinary thickness; secondly, of a strip of inch board, about three inches wide, on which is worked an og, leaving about an inch margin before the og commences, and working it down to an edge. Nail this on the casing about two or three inches back from its inner edge. Now, if it shrinks, it leaves no crack between it and the casing. It simply shrinks *on* the casing, not *from* it, so as to show no open joint. Then take another strip, say inch-and-half or two inches wide, bevel off its two corners on one edge, so that these bevels shall be just equal in width to the space on the edge between them, and nail this on edgewise to the og just described, and plaster up to this. This gives us, first, three or four inches of casing, according to how far back the og is nailed, then the og and an inch of plain surface, and then this edgewise piece, its inner bevel being just even with this og, which gives an octagon inner angle and two outer angles. This looks well; but its chief beauty is, that if it shrinks it shows no open joints, for this back octagon beveled piece shrinks within, and hence shows no joint between itself and the og, while, if the og shrinks, it shows no open joint between itself and the casing.

56. OCTAGONAL BARNS, CARRIAGE-HOUSES, ETC.

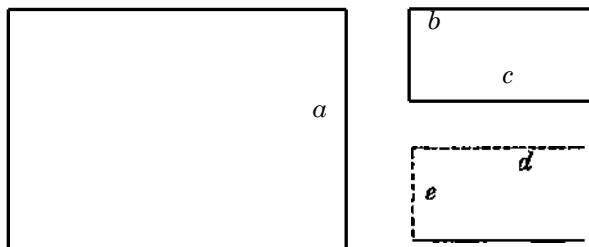
That an octagonal house can be partitioned off into rooms and closets to far better advantage than a square one, this work has demonstrated, and any occupant of one testifies. But can it be applied to *barns* with equal advantage? It can, perhaps, comparatively, with even greater. In them especially we need some common *center* in and around which to work. This form will turn the heads of all the horses and cattle, and openings to all the bays and bins toward this center, so that one can pass from bay to stall, and from every part to every other, with half the steps required

in a square one. This is rendered obvious by a law already proved and applied to houses.³³

This form subserves several other purposes, one of which is, that it gives more sides, and hence, different bays for different things, than a square barn furnishes—one or two each for cattle, horses, hay, wheat, oats, straw, stalks, etc.—and will furnish many more handy places for different things. For reasons already shown, it is both more compact³¹ and more capacious for its outside wall, than a square or oblong.³³

If of average size, this form will enable you to turn around in this center, or drive wagon and cart around in a circle, and close to the inner end of each bay, thereby reaching all, and turning round so as to pass out where you entered. This consumes less wall-room for entrances, and saves backing out, besides furnishing just the shaped *floor* required for threshing with horses, viz., circular—the best also for threshing with the flail. Considered in any and every aspect, the octagonal form of barn facilitates all the ends of a barn far better than the square.

These same principles and remarks apply equally to wagon-houses and other outbuildings. Still, it is best to unite just as many objects as possible with the barn, so as to need few if any outhouses. Thus, to appropriate one octagon side of a barn to carriage and harness, is far better than to have the carriage-house separate. For the same reasons that we recommended one house and no L or T additions stuck on,³⁴ we recommend one barn and no outbuildings around it. And this is by far the most economical. To illustrate by appealing to the eye.



Let the larger figure represent the barn, and the two smaller the wagon-house and corn-crib, or any other outbuildings; now the walls *a*, *b*, *c*, *d*, and *e*, represented by dotted lines, or five out

of twelve, are *saved* by our plan, but lost by the usual one. And this loss appertains to foundations as well as sides. And then how much handier.³⁰

A few general observations on barns must suffice. If a farmer can find a knoll or bank, so that he can drive in on to his main floor, several feet above the foundation—and the higher the better, for it is easier to pitch down than up—so as to have a cellar or basement story, say 8 feet high, and arrange bins under his floor for carrots, beets, potatoes, turnips, etc., so that he can drive in on to the floor and *dump* them right from the cart down a hatchway into each bin, he will save half his labor in handling them. And by arranging the floor on which th^o stock stand a foot or two below the barn floor, the cattle can feed off of the barn floor. This plan has several advantages over mangers, one of which is, that, in turning their heads, . 3 in feeding, they do not drop their hay or grain under their feet, but only on to the barn floor, and within their reach. In this case, since the heads of the cattle are over the barn floor, their breath is not confined, but ascends readily, not into the mow, to vitiate the smell of their fodder, but into this center, so that they get far better air—a point as important, relatively, to beast as to man. This plan gives several feet under them to receive their manure and keep it *under cover* and *in a body*, so that it retains all its original virtues; whereas, if thrown out, and especially under the eaves, or if the water from the barn-yard *runs off*, it loses a large proportion of its fertilizing elements. Manure should always be kept under cover till drawn out, and then should be spread and plowed under the very day, and, if possible, the very hour it is drawn. The bad smell from manure is caused by the escape of its nutritious elements.

Especially should the *liquid* or urinary portion of manure, its very best part, be saved; whereas it is now mostly lost. A good plan is to put dry muck or loam behind cattle, to soak up this element, and retain its virtue till applied to the land.

And why, pray, did nature render human and animal excrement so offensive to eye, smell, and taste, but to induce us to bury it, that it may again be transformed into vegetation % Is it not a sac'ed duty to save all there is of both human and animal

excrement, that it may enhance food 1 It is an instrumentality of *life*, and therefore to be counted both valuable and sacred. Yet how often do we see it running perpetually from the farmyard into the road, or some rill, to be lost to him, but not to the earth; for, passing into gas, it permeates the air, and is from it taken up again by vegetables. Nor should human excrement, as now, be wasted, but provision should be made in every village and family for restoring it to the earth from whence it has been abstracted. Incalculably would this course, if generally adopted, multiply, and thereby cheapen, human and animal food.⁴⁴ * ⁴⁸ Indeed, so almost infinitely important is this matter, and so profitable withal, that men *must* see its force and adopt it. Life itself is not more important; for whatever enhances food increases life. I repeat, then, plan your barns to keep *all* the manure *housed till applied*.

That the gravel wall is exactly adapted to barns, is obvious. They consist mainly of wall, and the gravel wall is far better for a barn than boards or stone. It can be plastered on the outside with common mortar, or an addition of coal screenings,⁴⁹ or left rough, as the builder can afford.

As to the cost of a frame, as compared with a concrete barn, I can not state, but as our upper story costs only \$80, or less than four cents per running foot, the walls of a barn 40 by 40, and 20 feet high, at this rate will cost \$68, and could be at least built for \$100, with any sort of economy and management.

A large barn is far preferable to a small one. Does not every farmer lack barn-room? How many things have you got, reader, which ought to be housed, and are rapidly decaying for want of it? Would not more barn-room pay many times over the interest on its cost? Then let farmers build larger barns; especially since large barns are relatively so much cheaper than small ones. To see stacks of hay and stalks standing out of doors, and cattle "run out" winters to eat them in the lots, is poor policy; for hay wastes by summer rains, "wastes when fed on the bare ground, wastes by storms during its use, while the top of the stack is oft, and wastes by taking a much larger quantity to keep cattle equally well out of doors than in. Nor should corn be allowed, as now, to stand out till its stalks are nearly spoiled. They

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lose a large proportion of their virtue by being exposed to rain and sun. One load cured under cover is worth four cured out. Now make your barn and its floor large enough to take in your stalks, and they can be stacked on poles thrown across girths five or six feet high, so as to be well aired, yet got into a small compass, and the extra virtue of your stalks as fodder will more than double the interest of the money spent in enlarging the barn. Corn-stalks soon perish if out in the weather, yet make the very best of fodder if cured under cover.

To facilitate this and other like ends, ana give cattle sun, it will quit cost to have a part of the roof made of glass. Its cost is not much more than shingles,⁴⁹ and allows you to have sun in your barn, with which to dry potatoes, corn, hay, etc., in doors, and will be found very useful for a great many ends of which we do not now dream.

Nor can I see why two or three stories on bams are not as advantageous as on houses. A neighbor of the author drives his grain in upon his second story, where he threshes it—the horsepower being below—which allows the straw to be tumbled *down* into the yard below, instead of having to be pitched up on to a stack, and lets the grain sift down through on to the main floor, where it is cleaned, and passes from the tail of the fanning-mill right down into the grain-bin, still below, in the basement, from which it is loaded into the wagon.

In a great variety of ways, money spent in erecting barn conveniences will save time, money, produce, every thing. We give no diagrams for barns or carriage-houses, because we have neither studied nor written on details, but would leave them to be planned by each builder in accordance with his grounds, wants, and taste; but feel assured that the octagon form and gravel wall are peculiarly applicable to barns and outbuildings as well as to dwellings.

18. NEWPORT, HERKIMER
COUNTY, NEW YORK Built in 1849 by
Linus Yale for his daughter Mrs. I. L.
Cady, this house is constructed of
Trenton limestone. Note the recessed
porches and bay windows.



19. Delanson, Schenectady County, New York This house is constructed on the board-wall plan advocated by Fowler in the first *Home for All* in 1848 and briefly discussed in the present edition. One-inch thick boards, alternately 5 inches and 5 $\frac{1}{2}$ inches wide, are laid flat upon one another to form the walls. The result is an irregular surface inside, which is an ideal base for plaster. This house has sides 14 feet long; it was built by a son of Nathaniel Jenkins circa 1868.



57 THE BOARD WALL IN PLACE OF FRAMES.

At first we considered the board-Wall plan, brought forward conspicuously in the preceding edition, so inferior to our concrete material as not to deserve mention; yet have finally concluded to describe it, especially since it may benefit some builders, yet can injure none. The author built, and lived several years in, a house of this kind, and found it much cheaper, and he thinks better every way, than a frame house. A master builder in Bennington, Vt., has erected several houses in this style; and, in one of his contracts, was left to choose for himself between the board wall or frame, at the same price, and chose the former as cheaper; and its owner expresses himself as far better satisfied with it than with a frame house.

A frame house, unless "filled in" with brick, is very cold in winter and warm in summer, whereas our board wall is better than any filling in can be, besides being far cheaper than the frame house, without the filling.

The simplicity and ease of its construction also strongly recommend the plan—for any tolerably ingenious man may put it up. Having erected and plumbed his inside corner boards as guides, all he has to do is to lay on boards straight, and nail them down.

The plan of construction is this: Have boards sawed half four and half six inches wide, and 1, 1½, 1¾, or 2 inches thick; erect and plumb a board at each inside corner, and perhaps one in the middle; lay down a wide, and then a narrow, course of boards all round the house, at the corners letting one board pass clear out to the corner from one side one time, and the next time letting the board from the other way run clear out; and thus proceed, tier by tier, till high enough for window frames; then insert them, and proceed till high enough for the floor timbers, which are to be laid right upon this board wall. Prepare the place and first rough frames for the doors and windows, as already described for the gravel wall,¹⁶ or by simply setting up two boards as wide apart as window or door is to be, making allowance for weights, if your windows are to be run with them—and the window casings will just form the required box for them to run in—and nail

180 THE BOARD WALL IN PLACE OF FRAMES.

through this hoard into the ends of your wall boards. The widest of your wall boards single will do, yet two nailed together will make it the stronger, or less liable to shake when walking on the floor above—and the second board should be nailed on after the first has been nailed to the wall boards.

Arrived at the tops of windows and doors, let your wall boards extend over them. Carry up inside partitions *along with* the outside walls, and let a board every few rounds project from the inside walls through the outside wall, and be nailed to it, so as to bind inside and outside walls firmly together.

By using alternately a wide and then a narrow board you *save lathing*, for as every alternate board projects an inch over the one next above and below, the plaster *clenches into these openings*. This method, by saving both the lath themselves, and nails, which cost some two cents per yard, and then putting on, which costs some four cents more, makes a large saving—namely, twelve cents per square yard, both sides being counted.

Another method is to take boards of equal widths, and lay one out, one half, three quarters, or one inch, and the other in, thereby forming the same openings for the plaster to clench. In this case the boards may be four, five, or six inches wide, at pleasure.

Still another plan is to lay the *outside* of the wall up *even*, by taking boards half four and the other half five, or half five and half six inches wide, and laying them even on the outside, which will bring the *inside* uneven, so as to hold the plastering.

One other method is to take boards of equal width, say five or six inches, and, after nailing one down, put on sticks crosswise, as in sticking up boards to dry. nailing through sticks into boards, thus leaving half the space open, which plastering will fill up, and render both warm and strong. I have seen them built thus, yet not tried this method.

The manner of fastening them together is by driving tenpenny nail3 down through each board, some three, four, or five feet apart, into the board below. This renders the corners, and all the points where walls intersect, *perfectly solid*, and the whole immovable by winds.

Another method of fastening is to drive a nail or two at some given point, into eight or ten boards, then bore down through

all with a half, three quarter, or inch auger, and pin them all together solid. This makes the structure all the more solid. A dowel pin in the end will increase the solidity, yet the wall will be strong enough without.

THICKNESS OF BOARDS.

If plastering will adhere to two-inch spaces as well as to one—and I do not see why it will not—why not saw our boards two inches thick? Why saw boards up thin only to nail them together again? I have not tried it, but I should think two by four and two by three would be as well as one by four and one by three—better, if the plaster will only stick till it hardens. This will save something in the sawing, and half in the laying—for a thick board can be laid as quickly as a thin one.

Another suggestion: Can not *scantling* and wavy-edged pieces be used for half the wall in place of the narrow boards? Suppose, instead of first squaring the log, it be slit into two by four pieces. This will leave the inside pieces square two by four, and all *around* the log the *slab* part will be in wavy-edged pieces, with three sides square and the other irregular. But the plastering will fill up the irregularity. This will take more mortar but less timber. Where mortar is dearest, this suggestion is useless.

Any kind of timber will do—hemlock, poplar, willow, oak, coarse pine, maple, beech, elm, buttonball—any and every thing, however knotty, or shaky, or wavy—all fill up and count equally with clear stuff. And the lime will prevent its decay.

Sixteen feet is one of the most common lengths for box boards, and will be just the length for a sixteen feet octagon house. Yet to join them is perfectly easy. If you would make your walls twenty feet, cut sixteen feet boards into four pieces, and use one sixteen and one four feet; and thus of other lengths. Short pieces can be laid on and nailed down, so that all the odds and ends can be worked up. In laying up it is not necessary to cut each board separately as it is laid up, but getting your lengths, say between windows, or from windows to corners, saw off all at once, enough to carry up that section nail them down, measure, saw, and nail another section, and so on. Yet once above all openings, go all around one board at a time. Two can

work to admirable advantage: one on the ground, to saw and fit, and the other on the scaffold, to place and fasten.

58. COST, ABSOLUTE AND RELATIVE, OF THE BOARD WALL.

“But what a raft of timber, and what quantities of nails, this plan will consume!” it is objected. Let us see. If your house is sixteen feet octagon, and your boards half three and half five inches wide, averaging four, a sixteen feet board makes three boards, and carries up one side three inches, and four boards one foot, which takes sixty-four feet per foot per side. If your stories are ten and eight feet, it will require $18 * 64 = 1,152$ per side $\times 8 = 9,216 \times \12 per 1,000 = \$111 for the outside wall—16 windows or doors, say 216 feet. But at \$8 per 1,000 it will cost only \$72, at \$5 only \$45, and at \$15, \$134. But since the most common lumber, the tops of trees, pine and hemlock, and any other coarse kind will answer, it can probably be got in most localities at from \$5 to \$8.

The inside walls will cost in the same proportion. If lumber is \$8, and the inside wall half as long as the outside, it will cost \$108—less by considerable than a frame house.

Then the putting up. If a fair carpenter could not put up one foot, all around, per day, he must be slow. This would require him to lay less than 150 boards per day, or one board in about five minutes. But he can do more. An ingenious laborer can build a foot per day all round, and put up the house in eighteen days, except the floor timbers. From \$20 to \$25 should put it up, which includes the *raising*, whereas this for a frame house would require fifteen or twenty men half a day, or eight to ten of the twenty days’ work required to put up the board wall.

In building my old house, we were all astonished that so little work put up so much, though it was new work to all. My carpenter said he would not have put up as large a frame merely, for any less than \$120, whereas this cost, in timber and labor, less than \$80. It took about twenty days’ work, ten of carpenter and ten of common labor, to put up my board house, twenty-seven by twenty-seven, and twenty-two feet high, including placing the floor timbers and rafters. And this leaves your house the *same as lathed*, except overhead, and all ready for mortar. Yet some abatement

must be made, because it will take more mortar and work to put the first coat on this wall than on lath, and unless pains are taken to lay it straight, more trouble to get the walls perfectly true.

The outside can now be clapboarded, yet the house will be warmer if plastered outside first. My own was thus plastered. It took a mason and tender four days, besides mortar, probably costing \$12 or \$15, but is much more than enough better to quit cost. No pains need be taken to smooth it off, but only to stop up the open spaces •, and coarse mortar or clay is as good as any thing. Nor do I see why common mud, or any soil, wet up, will not do. This will make the house very warm in winter, and shut off all wind, both from the floors and walls; because it can not get *in* to the house as it can in a frame house, through the clapboards, and, therefore, can not get *to*, or pass *through*, whatever cracks exist in floor, ceiling, and wall.⁸⁶ It also excludes vermin.⁸⁶

But a single objection has ever been urged against it—namely, that in damp weather it swells, and in dry shrinks, thus leaving doors and windows disjointed. I experience this difficulty only slightly in my own house; yet in damp localities it may be greater. Yet by plastering mine *outside* I probably excluded dampness and air from getting access to my boards, and therefore forestalled the evil.

59. PLANK WALLS.

Another form of building board walls consists in placing plans *edgewise*, one above another, and dowel pinning them together along the walls, and halving or dovetailing them at the corners, and building the inside walls in with the outside, as you go along up. This takes less timber, by one quarter, if three inch plank is used, and two and a half, and, I think, even two, will do equally well, which will cost only half as much, or \$36, or \$54, at \$8 per 1,000. That is, an octagon house, 16 feet sides, embraces 128 x 18 = 2,304 surface feet, less 24, outside doors or windows as per our last plan—say, $7 \times 4 = 28 \times 24 = 672 == 1,732 \times 2$, for 2 inch plank = 3,464 or x 3, for 3 inch — 5,196 x \$8 only, equal to \$36 86, or \$56 29. This kind of wall can be put up for about the same as the other, yet will require a carpenter, and can be clapboarded on the outside, and lathed and

plastered inside—lathing on cross laths set sixteen inches apart, up and down in place of studs. The floor timbers rest on this wall. This also makes a warm and very strong house. The Williamsburg octagon⁴¹ is made this way. I intended to have built my new house on this plan, and ordered the plank, but meanwhile coming across the gravel-wall method I substituted it instead, and am glad I did.

60. THE POOR MAN'S COTTAGE.

Sufficient consideration has hardly yet been given to the *poor* man's cottage—to a *very* cheap tenement—such as the poorest laborer or Western squatter can afford to put up with his own hands merely, “just for now,” till he can procure something better—something which can be rendered comfortable for from \$30 to \$50 or \$100. The poorest laboring man can earn at least twelve and a half dollars per month, or \$150 per year, and save \$4 per month for a prospective home. But *how* save it, if he has a family to feed and clothe, and rent to pay? *From his food alone*, if in no other way. *Nature's* wants are few—*artificial* wants consume by far the largest part of human time and earnings. To feed a human being well, so as to keep all the bodily and mental powers up to their fullest action, costs very little. One pound of wheat and a few sweet apples per day will do it. To the fullest possession of human power, meat is not necessary—is probably more prejudicial than otherwise, for both the strongest and the fleetest animals eat no meat; and Liebig proves that what we get from meat comes first from the vegetable kingdom; and men abound in every community who have never tasted it, yet are as strong and healthy as meat-eaters. Wheat is the very best single article of human diet, and contains every ingredient requisite to feed man perfectly. Now suppose yourself the poorest man possible—not worth a dollar in money or credit —yet an *honest* man always *will* have credit wherever known—but able and willing to work—and poor men can be healthy if they obey the health laws, which poor persons should do *first*, for on this all depends. Buy a bushel of wheat with your first labor. Boil a pound per day—not overboil, but leave something for the teeth to do; and, if married, it will last yourself and wife a

month—less, if you have children. Add two bushels of sweet apples, which, besides flavoring your wheat, are highly nutritious. Food need thus *cost only* three or four days' work per month, and clothes two more, with incidentals, half a month in all, leaving half your earnings to go toward a house. Forego tea, coffee, tobacco, all fancies, all luxuries, every thing not absolutely necessary, for a home of your own will be the greatest possible luxury. Dress plainly, even coarsely, till you provide a house. By these means you can easily lay up at least \$50 per year, now spent on extras, for looks, taste, pride, or passion.

Next, buy or lease a few rods square in the corner of some field or wood, say for \$5, \$10, or \$20. Yet here is a difficulty. Farmers hate to sell to poor neighbors. But observe the reason. They too generally make themselves obnoxious by various means —by mischievous children, tattling, sometimes petty pilfering of fruit, nuts, possibly eggs or chickens—but by a life of honesty and goodness from boyhood you can establish a name, and make any neighboring farmer glad to sell you a small corner. Choose your location, if possible, close by your material, a gravel bank,⁹ or stratum of clay dig your foundation 16 * 14, if you can afford to build no larger—better thus small than to have to pay rent; excavate four feet deep, or if not able to afford a floor, dig a trench four feet deep and one foot wide, and build a nice solid stone wall in it, and extend it two feet above the ground. Or, if stone is not handy, buy a barrel of water lime or cement, at \$1 50, to mix with gravel and stone for the foundation,¹³ and add two barrels, or from five to eight bushels of lime for the wall;¹⁰ or if a lime-kiln is near, buy or beg some of the old, dirty, cast-off lime lying all around its mouth, costing not ever \$2 or \$2 50; add four boxboards, sixteen feet long, for the side of the boxes,¹¹ four for inside boards, the ends cut off serving for cleats;¹² or, if you can afford it, double this number for two tiers of boxes,¹¹ and as wide as possible, and as near one width as may be ; get 100 laths to nail across these boards to keep them from spreading,¹¹ five pine boards inch and quarter thick, sixteen feet long and eight inches wide for window and door frames,¹⁶ four boards sixteen feet long and eight inches wide for top boards,¹⁸ five floor timbers, sixteen feet long, and two or three by eight for rafters,

and any other poor stuff you can get cheap for incidental purposes; add a few nails; provide saw, hammer, square, jack-plane, compasses, shovel, hoe, and wheelbarrow; make a plumbob; and you are ready to begin the wall proper. All this will cost you from \$10 to \$15, according to prices, and how many of your tools you can borrow. You will now have some \$20, \$25, or \$30 or your \$50 left.

Your cellar wall is one foot thick, but eight inches will do for your house.¹⁶ This leaves a two-inch projection outside as a water table, and to rest your boxboards on, and inside on which to rest your floor-timbers, which, if you are able to have a floor ir. the start, you can get and put down now, but if not, live awhile on the bare ground, and put in floor afterward. Next make and place your door frames, of which perhaps you will want two, thus. Plane three of your 8 x 1*i* inch pine boards, fourteen feet long; saw two of them in two for the uprights, and the other for the four bottom and top pieces, and nail them together.¹⁸ Next fasten four strips of board, as long as your wall is to be high, and three or four inches wide, firmly at the bottom, close to the corner, and even with the *inside* of the wall, so as to be within it, and nail your inside boxboards thereto, having first sawed them to the exact length, and deated them to prevent warping.¹⁴ Put up two sixteen feet boards on the long side, and then nail the other two outside boards upon their *ends*, which will leave your boards on the short sides to *project* past the corners, on whien to secure the ends of the sixteen feet boards, thereby saving outside standards; see that these boards are true and right, and nail on lath or strips across their tops and brace their bottoms to prevent all spreading¹¹ and moving; and mix temper, and fill in your lime, gravel, and stone concrete,⁹ or your clay and stone.⁵³⁵ If you have two sets of boxboards, repeat this process, and you are now high enough for the window-frames, which make and place as for doors;¹⁶ and then proceed till as high as you design your house to be, say eight or nine feet above the floor timbers.

You now want a *roof*—make it thus : Continue one of the long sides up two courses' higher than the other side, and make the gable ends to slant evenly from the lower up to the higher side. Bevel off the top with good mortar, and lay on your eight-inch

Doards all around,¹⁸ observing, after your walls become six feet high and upward, to *brace* them well, for they are soft yet, and liable to fall. If you have other work to do, let this wall now stand and season a few days, but if not, put on your four rafters, first beveling one upper edge on each end, so that they will set level, and the whole of their lower edges, to correspond with the pitch of your roof-boards, and nail on these boards, first, if possible, plowing a groove some 'three-fourth inch from each edge on their upper side, and to joint and match them will make it still better; and saw up boards enough to make battens, say three or four inches wide, and nail on over each joint. These grooves will now prevent all water from passing into the joints, and send it along down and out.

Probably a better way, where it can be done, is to mix five parts of fine sand with one of Blake's Ohio paint; white lead will also do, and wet with linseed oil till thin enough to work well; spread it over the joints, say a strip an inch wide, and bed these batten boards down into it.

It is best to nail on weather boards all around the top of your house, and make an eaves-trough, so as to keep as much water off from the wall as possible.³³

You now need a fire-place and chimney,^{43*48,44} two batten doors, hung on leather hinges, with wooden latches[^] latch-string out, for you will now begin to feel rich enough to shelter a poor neighbor[^] and two windows, costing say \$5 or \$6. But since a goodly number of your \$50 still remain, spend them in adding any improvement deemed next most desirable, among which is a floor, if only over a part; to make which, lay down seven or eight floor timbers thirteen feet long, and 2 or 3 x 8, and nail down the best flooring you are able to procure. Plaster it yourself outside and in, whenever convenient.

To only one evil are you now exposed—dampness. My own walls do not show the least of it, yet this may be owing to my material leaving so many honey-comb openings for dead air all through my wall. I also have porticoes at each story, except the upper, yet see no dampness there even. My foundation, too, is protected against the access of wet to it. Unless your wall differs from mine, no dampness will trouble you, *provided*[^]—and this

is indispensable—you have the eaves project duly, say a foot at top and bottom over the walls, which can be effected by nailing a board on the upper side of the roof boards at top, letting it project as far as its width will allow, and another on the *under* side at the eaves, thus shooting the water still farther off.

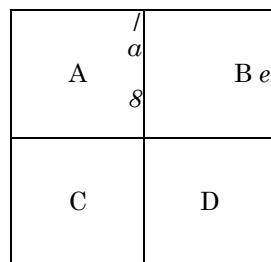
For emigrants to new countries or Western prairies, this plan is far better than log-houses, because so much cheaper and warmer. In prairie lands wood is dear, but gravel abounds everywhere, some two feet beneath the soil.⁹ This saves all carting, except of boards and lime, and the latter abounds all through the West.

SUBSEQUENT ADDITIONS.

This plan has another great advantage over log-houses—that of making additions and improvements without tearing down or loosening the part already up. When a log-house rots down, or its occupant can afford to build something better, it becomes a dead loss. Not so with our plan. As soon as able, build three walls on the highest side of your first one, or that opposite the pitch of roof—and you should, in choosing which way your roof shall pitch, have reference to subsequent additions, and pitch the roof of the addition the opposite way—knock out a door-way or two between them; yet you can also *plan* your prospective addition before you begin, and place one outside door, in view of this addition. Yet to make doors any where through this kind of wall is perfectly easy. After laboring another year, and laying up another \$50—yet \$25 will now do—you are ready to build your addition.

Your first house, A., is 14 x 16, one side being 14 to allow 16 feet roof boards to extend clear across it, yet have ample length for pitch and eaves, having its eaves at *e*% and ridge at *a*; *f* front door, and another door or a window at *g*. Now all you have to

Fig. 80.



do to make an addition, is to build the three walls on the right hand of A, and the new and old will join at the corners easily and completely, if your mortar is made thin there, especially if you knock off and rough up these corners—I joined several walls in this manner—and the addition is ready for roofing, sliding the roof boards of the addition up under the projecting ends of the old roof, and the weather board will make the upper rafter.

But suppose you want to make your addition one story higher, now, or at any subsequent time, do so, forming the roof as before; and when ready to raise your old part, saw down through your first rafters in about two places, to enable you to remove it in three sections ; knock off your gable ends and lay on floor timbers, build up the outside walls to the height of your addition, make other gable ends to correspond with those of the additions, replace the three sections of the old roof, nail on strips of board each side of each rafter where sawed in two; this will fasten the whole roof together just as it was before sawing it apart, and you now have a house A B 16X28, and two stories high, and at a cost not reaching \$200, with a like opportunity of putting on two other additions at each gable end, making a house 32x28, and can make a new roof whenever the old one fails to answer its purpose; or to make any other improvements afterward which time or means will allow, and *without throwing away any thing previously built.*

New country settlers, is not here something worthy of consideration % In fact, does not every poor man need some such plan capable of being *added to afterward*, without throwing away any thing previously built ?

Poor man, does not this chapter give you suggestions worth many times more than the whole book costs ?

If objected that it contemplates only a poor, rough house, I answer, better this than pay rent. My father moved into a twelve-mile woods, threw up a small log cabin, open on one side, covered with hemlock bark, with hemlock boughs only for bed and bedding, and two logs at the right height projecting out several feet for chairs. He had a partner, carried his ax unhelved and wrapped in a linen cloth on his back, drove in a cow, and yoke of oxen, to begin a clearing. The cow was tied to a rather heavy bush, pulled up by the oxen to prevent her straying; yet allow grazing. At night

his co-worker says, "I'll milk, if you'll get something to strain it in." Father, with a trowel, cut large smooth basins in one of these projecting logs, took his linen ax-cloth for a strainer, dug little holes for bowls, and thus lived from May till October to put in a wheat crop, and build a log-house. My plan is far less rustic, and bettei every way than many a backwood's settler has been obliged to adopt; those who have more means can make it all the better.

61. ASSOCIATIVE HOUSES.

Though far from advocating agrarianism, but believing in separate families, yet a large house, capable of accommodating several families, can be built several hundred per cent, cheaper than separate houses for each. Thus, foundation and roof for a six-story house cost no more than for a one story,³⁷ and the outside wall of a twenty feet square house is sixteen times greater, as compared with its inside room, than one of eighty feet.³⁸ In addition to this, inside walls bound or inclose two rooms, whereas outside walls inclose but one room—another loss of a hundred per cent.—while outside walls cost twice or three times more than inside ones, which involves another loss of from 100 to 200 per cent. Add only these four items together, and they make some *four or five hundred per cent*, in favor of large houses over small ones. That is, sixteen families, combining to build one house to accommodate each family with a given amount of room, can obtain five or more times the room for the same money, or as much room for one fifth the money, it would cost each to build a separate house. We may err slightly, but wish rather to show the reader how to canvass this point than to arrive at accurate results ourselves.

Foundation and roof are reputed to cost forty or fifty per cent, of the entire expense of a house; hence for a six-story house, as compared with one of two stories, they cost only twelve to fifteen per cent, for the same amount of room—a saving of \$25 to \$30 in every \$100 the house costs, or a quarter or third of the total expense—no small item.³⁷ The outside wall of a large house over a small one will save you, comparatively, from 400 to 800 per cent., according to how large and small they are.³⁸³⁹³⁴ In both cases the inside wall is, relatively, about equal—least in

the small one—but an inside wall incloses two rooms, that is? *both sides* count, whereas only one side of outside walls counts, or incloses room. Then suppose outside wall costs twenty-four cents per square foot, and inside wall twelve cents, as compared with the room it incloses, it costs only six cents, or only one fourth as much for the room given—a saving of 300 per cent.; so that \$100 goes as far in a large one as \$400 in a small one. Other advantages of a large house, for several families, over a separate house for each are, that the floor of each story becomes the roof of the next below, the heat from each room escapes into adjoining rooms and upper stories, instead of out of doors, so that upper stories are warm enough almost without fire; each room shelters adjoining rooms against heat and cold, which secures *uniformity* of temperature; the members of each family can associate with whichever or none of the others on a friendly basis as they please, much more frequently and easily than if they lived apart, yet can enjoy just as much seclusion as different families in the same block ; can serve each family with one well as completely as to dig sixteen wells ; can warm the whole house with one furnace instead of supporting say fifty or more fires; could attach a steam boiler to this furnace for churning, washing, and other like purposes, whereas single families could not support one; and in a great many such ways could effect a wonderful economy of the labors and expense of living, including, also, purchasing groceries, vegetables, wearing materials, etc., at wholesale, instead of by dribbles, and dividing at cost, a/c each wants, thus saving twenty to fifty per cent, on most family expenses, besides all the saving in the cost and rent of house itself.

Yet, not having given special attention to the planning of such a house, we append no drawings, leaving readers disposed to associate together in building such a house to devise the internal arrangement of rooms for themselves, simply adding, that in the center should be an open court, twenty to forty feet square, having an inside piazza at each story, and stairs connecting; and an outside piazza either at each story, if all the rooms of each family are on the same story, or at every other story, if they occupy two stories, which would, doubtless, be preferable; and each family occupying one quarter of a story. This would give eight families to a floor.

story house, provided each occupied a quarter of two stories, or sixteen if they occupied only one story. The inside rooms would then be lighted from the open court, and the main rooms be square, as in the second-story rooms of the author's residence,⁴⁴ while the triangular room there cut up into small bedrooms and closets, might be appropriated to entry, closets, stairway, and perhaps kitchen, unless thought best to put this in the corner next the court. Or, to illustrate from the same figure, let those large rooms be divided the short way, one lighted from the court, and the other from the outside, one appropriated to kitchen and dining-room, the other to parlor and sitting-room, and the triangle cut at pleasure. Yet we leave this matter to be studied out and applied, or not, by the reader.

Finally, reader, the great outline ideas of this work—"the gravel wall and octagon form," we leave at the door of your common sense, to be adopted or rejected, and modified or improved, as each reader pleases. That its details are complete is not claimed. That it is susceptible of important improvements is admitted—and this is one of its beauties, that it admits of so much diversity in its internal arrangements of rooms, thus suiting itself to the tastes and wants of all. That it is in part suggestive, or throws out general facts and suggestions not worked out perfectly into detailed specifications—like a loaf of bread put upon the table, requiring to be cut up into slices, but the *bread*—the main thing—there for all, is also admitted. But that no reader who intends to build can read this work with a scrutinizing mind without gleaning therefrom a great variety of most valuable hints, plans, suggestions, and ideas, capable of being applied so as very greatly to improve his prospective house, even if he adopts neither the gravel wall nor octagon form, so as thereby to enhance his home comforts for the balance of his life, and that it will enable him to save himself scores and even hundreds of dollars in building a house, is maintained by the author, and submitted to the sound sense and practical experience of the builder. And if criticised, let it be with generosity, for it has been written, not to make money to the author, but save it to the builder, even while adding to his "home joys."