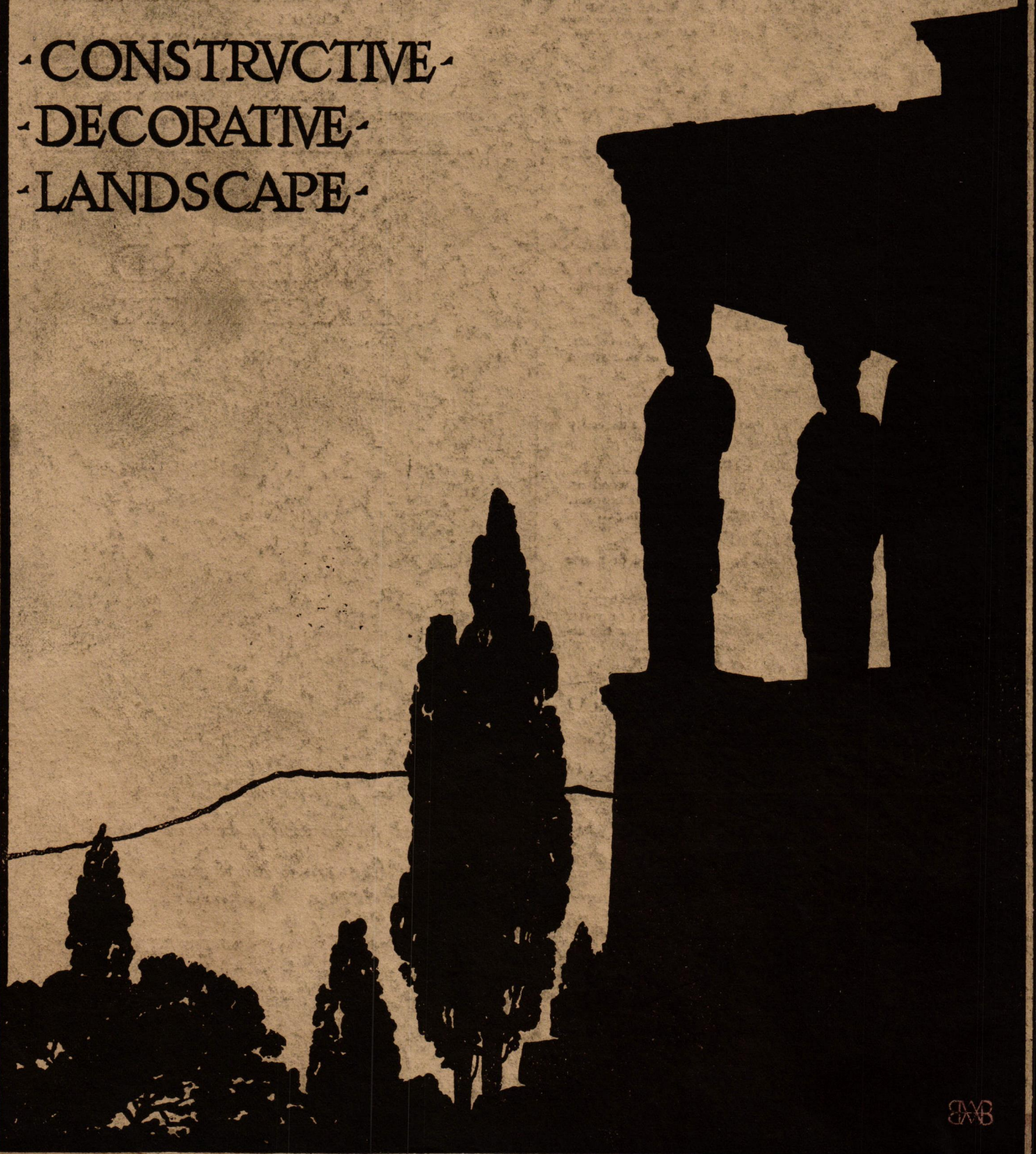


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VOLUME XXXV

MAY 1917

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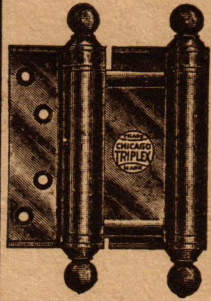
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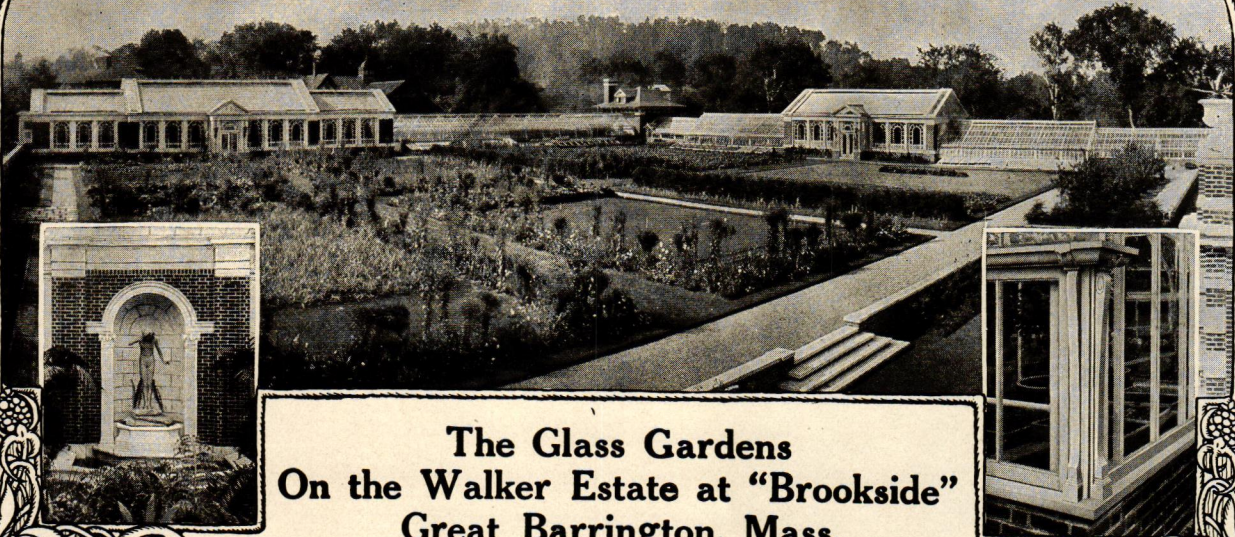
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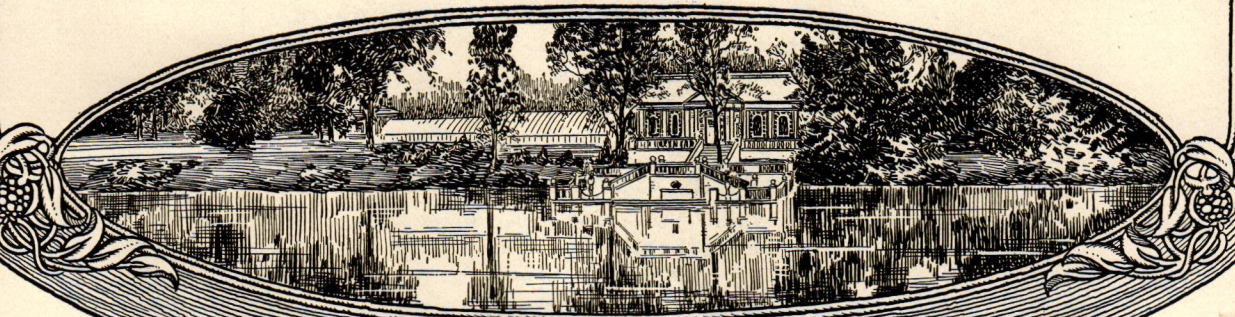
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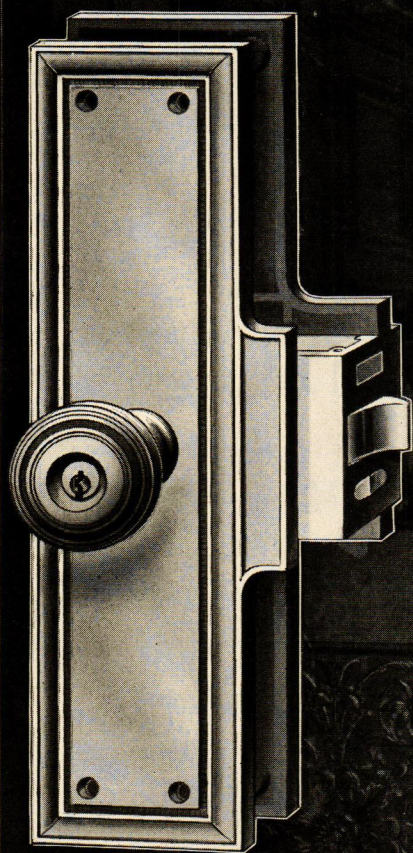
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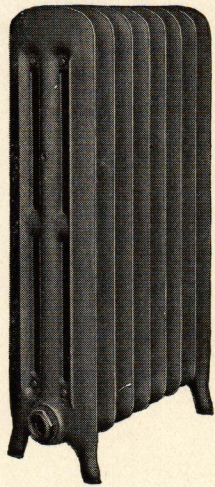
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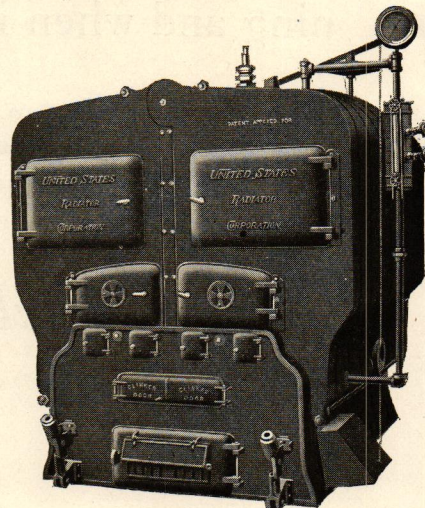
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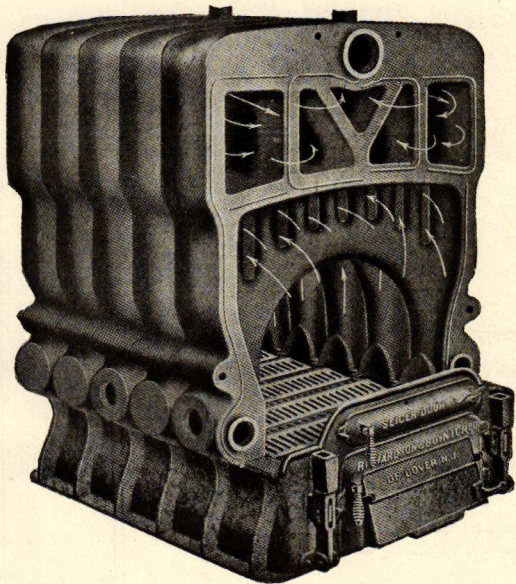
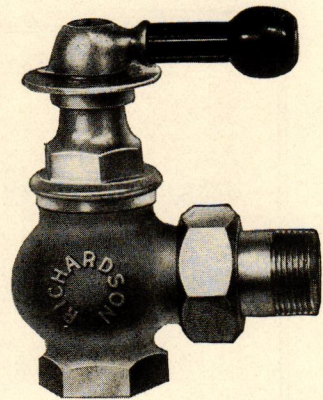


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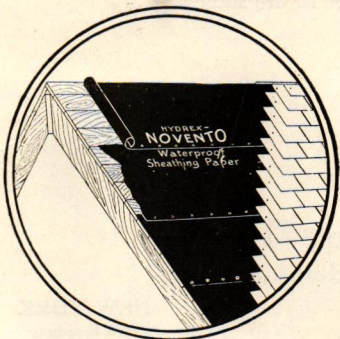
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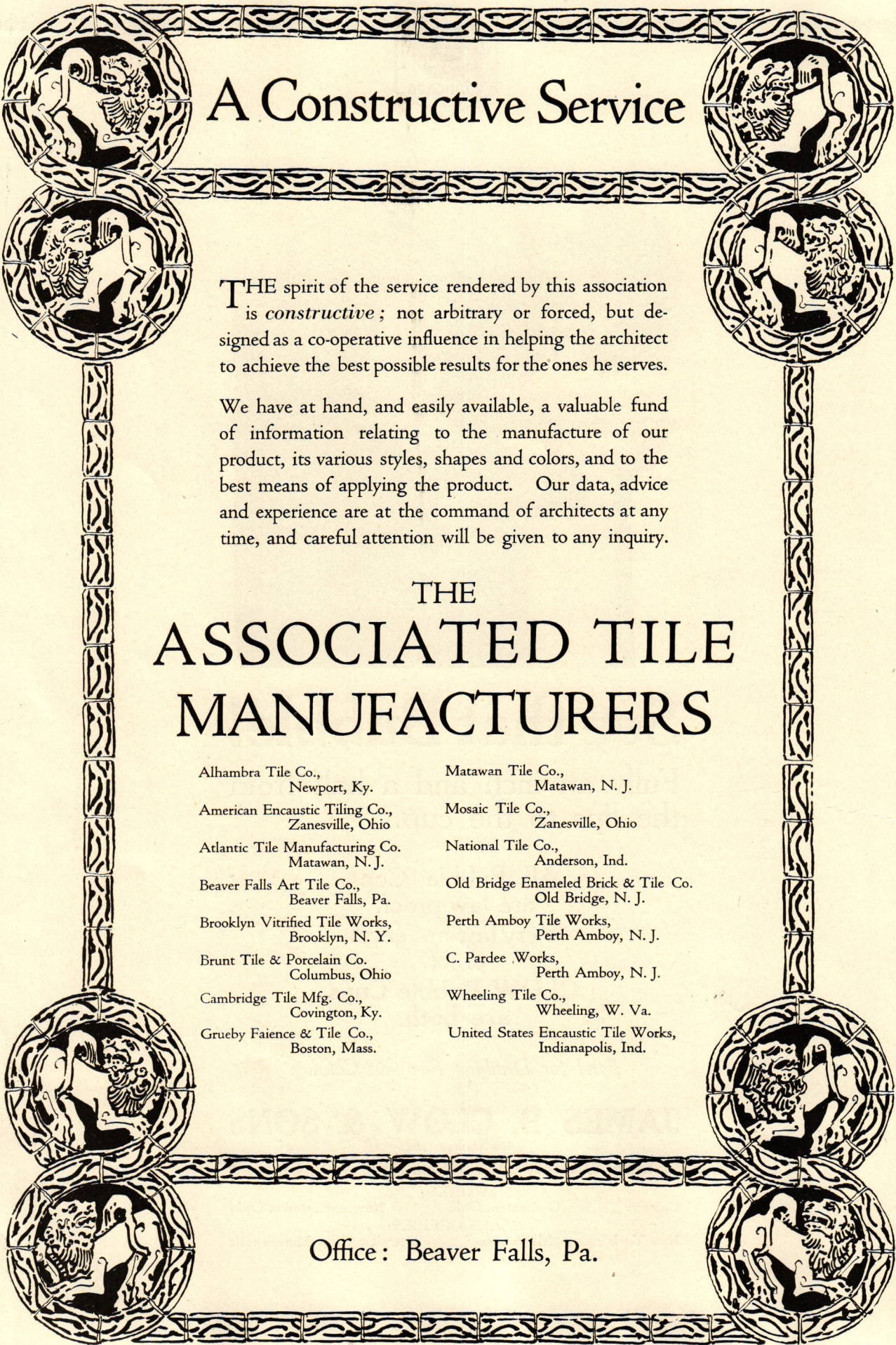
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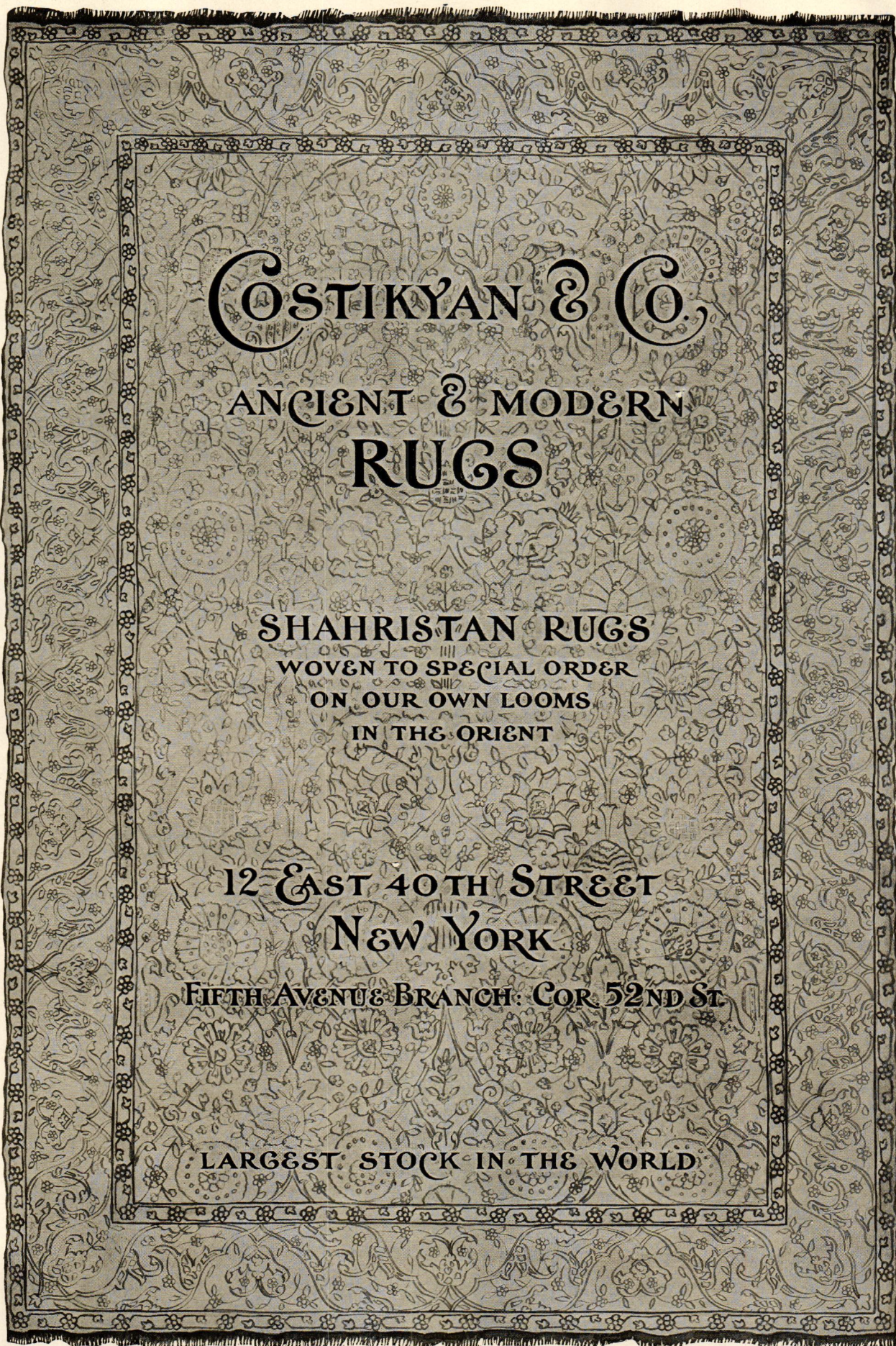
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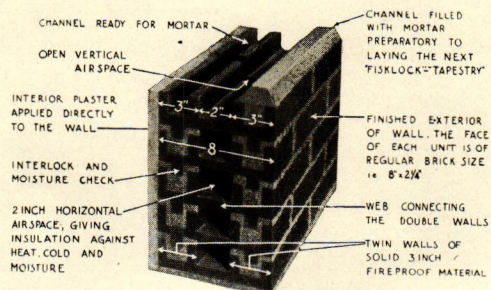
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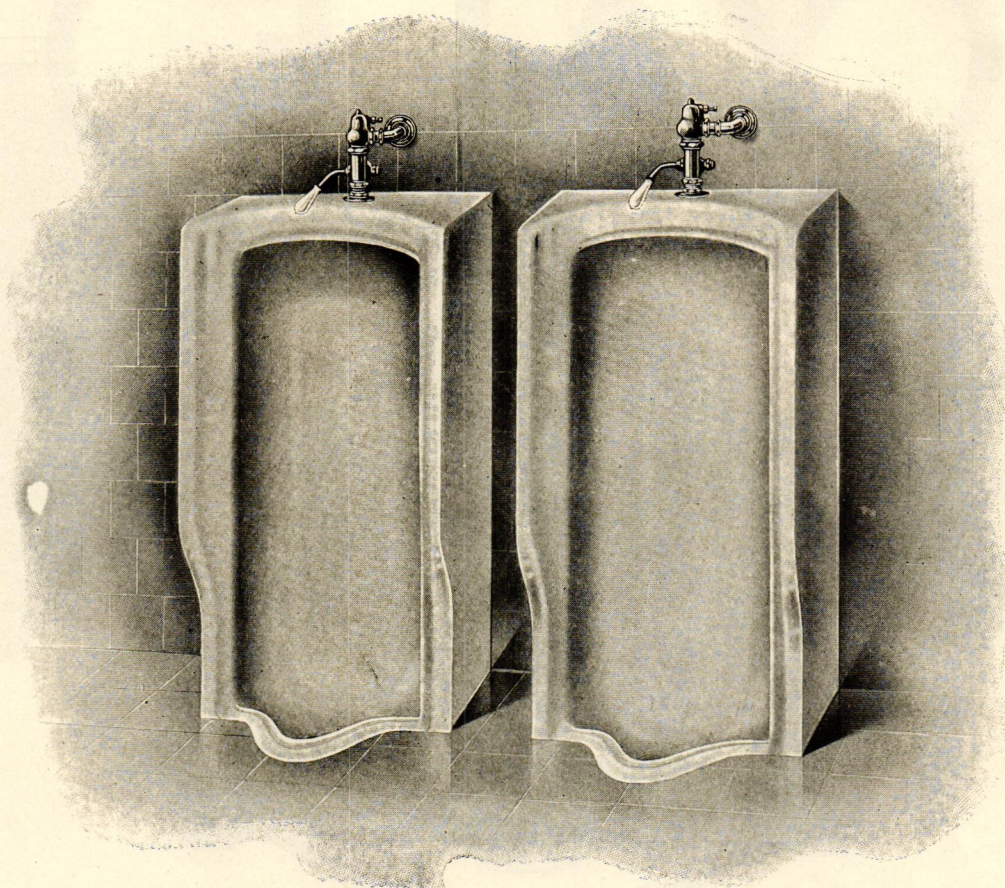


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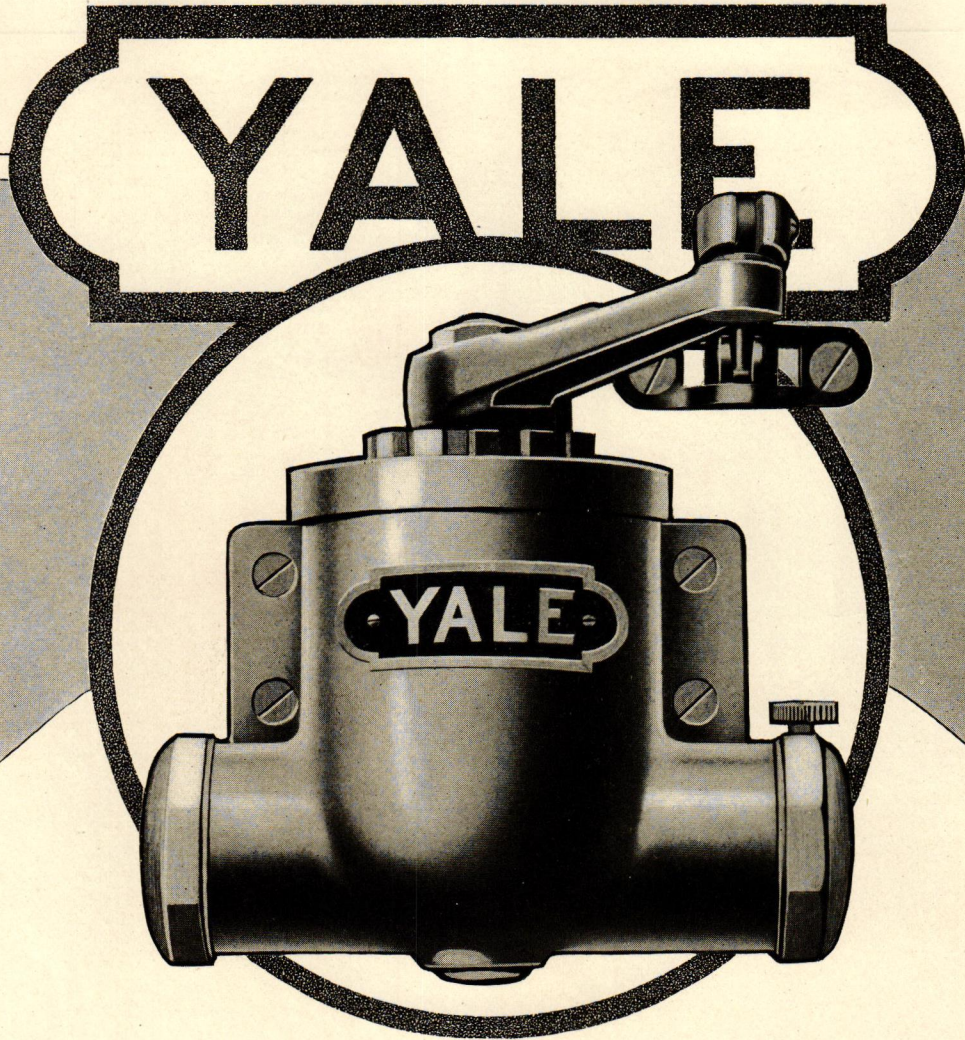
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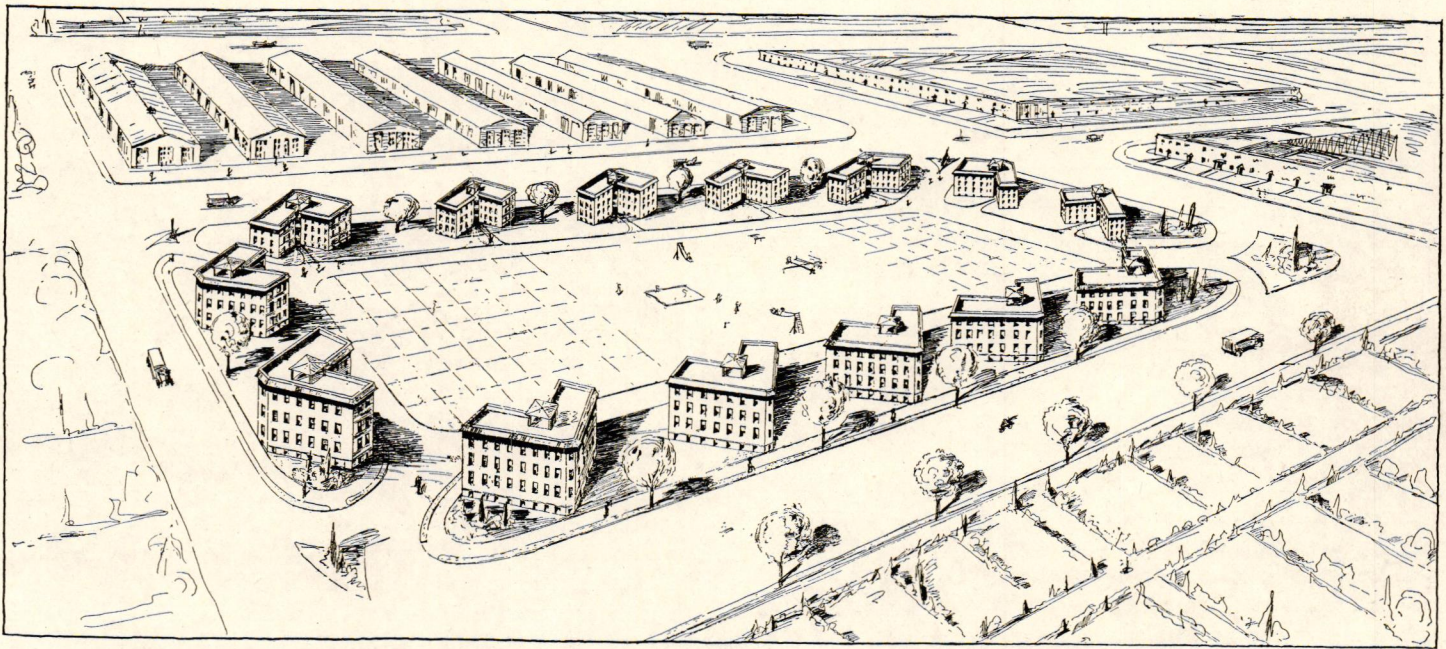
ARCHITECTURE

THE PROFESSIONAL ARCHITECTURAL MONTHLY

VOL. XXXV

MAY, 1917

No. 5



Economic Open Stair Communal Dwellings for Industrial Towns

By *Henry Atterbury Smith*

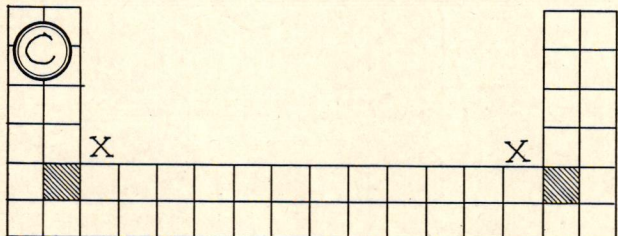
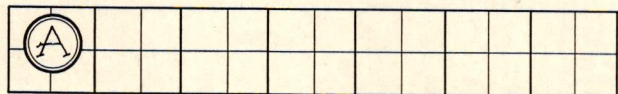
America can point to but few successful and accomplished solutions of the housing problem for industrial communities—dwellings that provide comfortable and suitable shelter for the minimum wage earner. The enlistment of mechanic and laboring classes in the English army, at the time of the Boer war, brought out the startling fact that a remarkably small percentage of these men were fit for military service. England was awakened to a realization that her laborers were under-nourished and poorly housed—that the degradation of the workers was productive of a low order of mental, physical and moral life. The government assumed a certain amount of responsibility in the attempt to better these conditions. Reforms were instituted in industrial centers and the manufacturers were encouraged to study the economic values of a well-housed workman and his family.—THE EDITOR.

THROUGH the general tendency all over the world toward co-operation and efficiency, caused by the ever-rising cost of the mere living, we are now forced to review the study of housing the masses as we in America have never done before. This matter, it seems, has not had the scientific analysis that it justly deserves. In the constant ascendancy in material prosperity the wage earner has had a hard struggle for what he has gained, and this has been given reluctantly. But now the mills and factories and mines are awakened to the fact that their profits are seriously endangered, their future is unstable, unless factory operatives, mill hands, have suitable homes in which to live. We are face to face with a demand for ready-made housing schemes, but there seems to be few—no adequate

study has been given to the problem although reams of words, written and spoken, had been given forth by more or less indifferent agencies, well meaning, but not vitally interested.

In response to the call of the manufacturer for a means to house his men, or have his men housed, many answers are made, mostly of the single house type, where each family lives in his own little home with his own little garden. An ideal arrangement, but who is to pay for the house? Everybody tries to shift that, for it can be readily proven that it is not an economic possibility—it will not pay. It has been urged that the manufacturer should own the homes—he shudders at that for he has no training in this line—he does not like it. It is pointed out to him that he can sell the house upon a

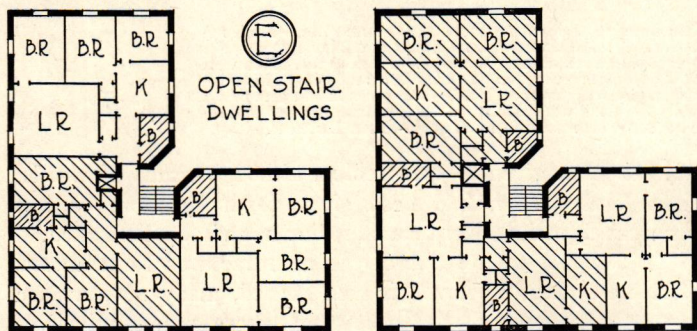
small margin to his operative—he is skeptical as to the ability and attitude of the purchaser. It is suggested that the State should aid—that the national savings banks be dipped into, or that taxes on such properties be decreased—something done to help house this mass which if improperly housed cease to work well in the factory and ultimately come back upon the State as a load.



The individual commercial speculative builder, on whom we used to lean for all such houses, seems to have vanished. Where is he who used to build blocks and blocks of all sorts of habitations, good and bad? He is not allowed to build badly any more, and he has not learned how to build well, AND MAKE A PROFIT. No one has blazed the way. The architectural profession has a big field right now—one of fundamental value to our nation and other nations if it finds a solution to this perplexing problem.

If my readers will bear with me in this article—the field is a large one—and will follow a somewhat technical argument, I will try to submit the matter as I see it. Unfortunately this has to be done by diagrams, uninteresting to some; however, locations are given where a few of the already existing buildings themselves can be studied.

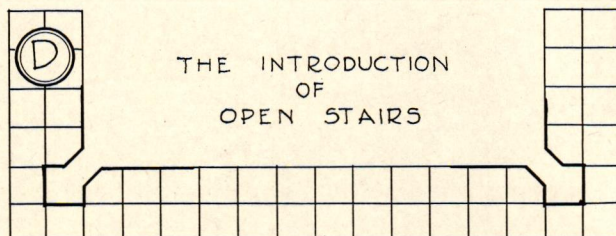
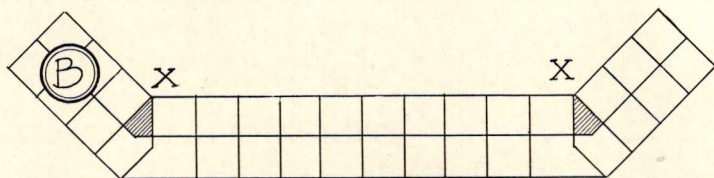
Although I fully appreciate the value of the uplifting and character-forming tendency of the individual home, without State or Municipal or other artificial aid, I fear it must be abandoned, for the low wage earner—the man for whom we are trying to provide a healthful, hopeful shelter. That he must dwell in a communal dwelling I honestly accept as axiomatic. I hope the reader will place himself in a receptive frame of mind or else he will find the rest of this article a waste of time.



THE COMMUNAL DWELLING.

Granted that the lowest wage earner is doomed to a communal dwelling, like his employer, who prefers the elevator apartment, let us make his habitation as independent of his neighbor and as inspiring and hopeful as we can. The keynote to this is that he shall not have any intercommunication

with any other family by any interior hall, or passage, or shaft. There must be no hall, as we know it—nobody groping in the dark for the door knob. There must be no interior stair—no stifling odors contributed to by adjacent families. The stairs must be open to the outer air at all time, winter and summer, whether in Florida or Manitoba, Bangor or Santiago.



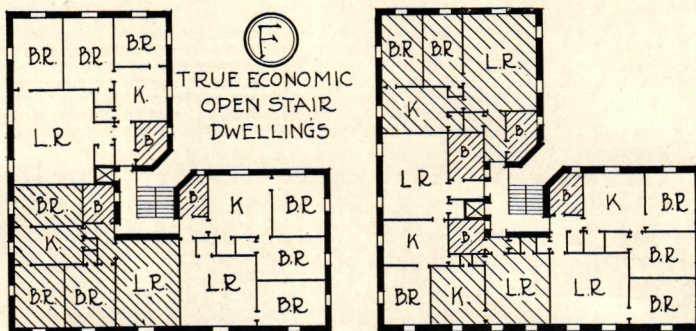
THE INTRODUCTION OF OPEN STAIRS

The occupant must have the same privacy as the most particular and self-respecting occupant of the individual house. He must have his own front door to his home in the open air, and once that he has passed his threshold he must be as independent of his neighbor as the most opulent. This must be done if we are to uphold our American standards—if we believe in the Americanization of our foreigners, whether they come to crowded cities or beautiful factory villages.

Can this be done? Yes, the answer is submitted here. Has it been done? Probably not, although it has been approached, and it is obviously capable of satisfactory solution. The fundamental vital principle of the communal dwelling itself is that it must be of the OPEN STAIR TYPE. This type is in existence in a number of places and in a variety of forms. These examples can house, and do house various strata of wage earners who welcome them heartily. But to house the lowest stratum we must have something most efficient and we must resort to the *ECONOMIC* open stair type, which type I will proceed to define by showing its development.

THE DEVELOPMENT

People can evidently be well housed in "A," in such a group of buildings known as the "Terrace Type," which is two rooms deep. This is the prevalent Philadelphia type. It

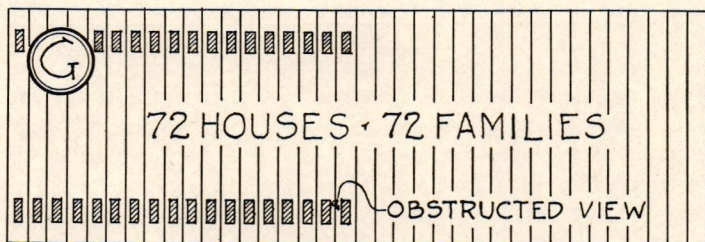


is a communal dwelling, but as built thus far it does not lend itself to many of the public utilities that reduce rent, increase efficiency and produce leisure. Each unit may contain two families, one over the other. A row of this type if bent up a little at the corners, as "B," becomes a little more conducive to economy and efficiency, especially if built high enough and

wisely enough to put all the building materials to their best advantage. But now we commence to be a little embarrassed at X at the bend.

If we bend up to the limit, as "C," which I will show in a moment to be a great advantage and the ultimate shape, space X, becomes actually useless for living purposes as it has no window.

Let us use this for the stairs, "D." Let us have them "open" in the fresh air but protected at the top by a glass

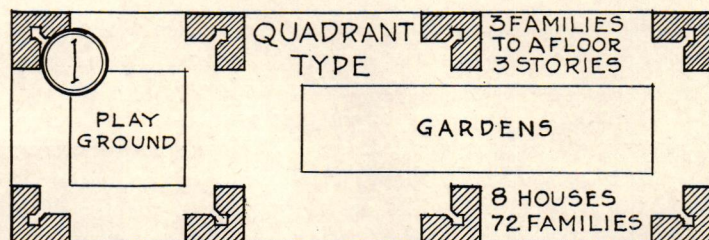


hood, and at the second and each upper story let us place a slanting glass apron or awning to shut out the rain and snow. Then we have an open stair communal dwelling, and it may be any number of stories high, depending upon how high the occupants are willing to walk up; it does not depend solely upon the cost of the land. If the toilets and baths and coal storage and wash tubs are at the ground level the occupants will not be willing to go up many stories, although the upper stories are the most desirable on account of the view, less noise, less dust, more privacy. If the domestic utilities can follow to the upper stories, so that the uppermost floor has exactly the same convenience as the lowermost, then the upper floors become more desirable than the lower and actually command higher rents. This is always very obvious in an elevator tenement and in an office building; it is also true, but to a less degree, in a "walk up."

Plumbing, heating, power, lighting and water supply are just as economical built vertically as horizontally, and so in practice plans "D," "E," or "F" are more economical to erect and pleasanter to live in, than the two-family terrace type "A," with which we began.

ECONOMIC VERSUS ORDINARY OPEN STAIR TYPE.

Plans "F" are preferable to plans "E" for, in the first place, they are more economical and efficient. The space roofed in and walled in is better utilized. The layout is more convenient and it is surely more pleasant to enter a toilet privately from a vestibule near the entrance, than publicly from a kitchen, living room or parlor. The outside wall space, the zone of primary value, the "periphery," is used for its most

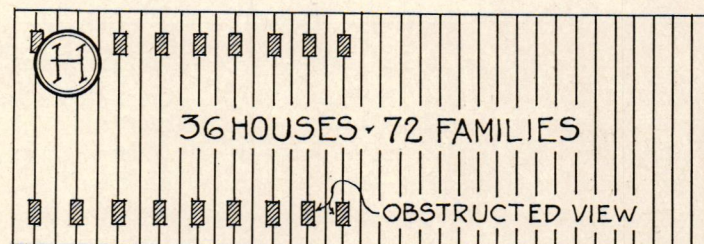


pressing purposes, that of living all day and night, while the toilet is relegated to the zone of secondary value around the fresh air and light of the open stair recess. Plan "F" is a true "ECONOMIC OPEN STAIR COMMUNAL DWELLING," as defined and filed in the Library of Congress, July 28th, 1900.

COMPARISONS.

Now let us see how we would use this type in any of the industrial towns, in fact anywhere except in the heart of our most congested cities. Even where land is more or less worthless, it is a type preferable to the single cottage, type, both from the point of view of the family that has to live therein and also from the point of view of the interest that originally erects it.

Let us make a comparison of the one-family detached

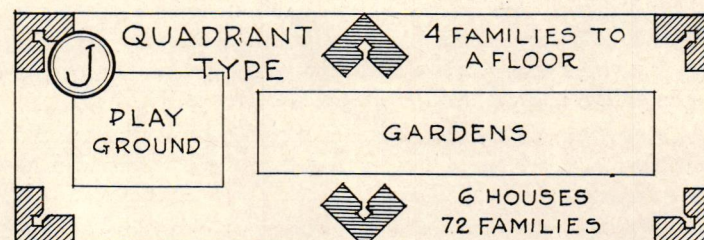


house and the—ultimate—communal dwelling—the two extremes. There is no use discussing the semi-detached house, the two or three or four-family house, for these are makeshifts—these are intermediate classes. They do not possess the undoubted advantages of the individual house nor those of the true communal type, whereas they do possess the disadvantages of both.

Given a piece of land, let us say for convenience, 300 feet x 900 feet, which contains about 6 acres, I assume a nice layout for single houses would be one to each 25 x 150-foot lot or 72 houses for 72 families in all, as shown in diagram "G." Another layout, although to my mind a makeshift, is the semi-detached house which would, however, in some respects be more livable and advantageous; this gives scheme "H" 36 houses and 72 families. It is obvious if we place different families on first and second floors schemes "G" and "H" become two and four-family interior hall houses—quite objectionable—but this is a digression.

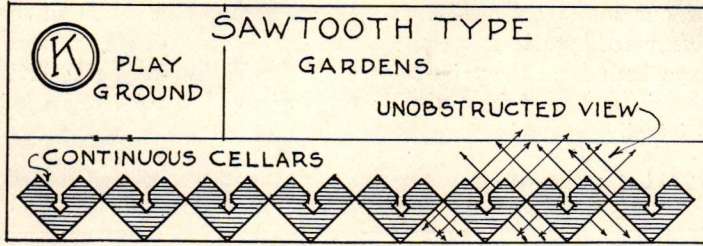
If we scheme for a nine-family communal dwelling, that is three stories high and three families to a floor, all having their separate front doors we have "I." Privacy is here assured, no windows look in any other windows. If 12-family houses are used, that is with four families to a floor, which is still equally comfortable but larger, we have "J."

"X" and "L" follow as a further development and now we can make a very careful comparison between "G" or even "H" with "K" or "L," of cost, maintenance, interest, domestic economy, leisure, the use of the space, the probable appearance of the place ten years later. That the advantages thus dia-



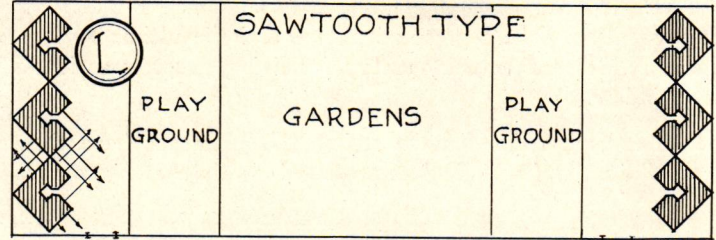
grammatically shown are profoundly in favor of the communal dwelling of the economic open stair type I submit for study to the careful reader. The homes can be owned, not rented, as in the co-operative apartment. So with the garden which is larger and less obstructed—the child's playground becomes large enough for children's group games. There is no preju-

dice to the ECONOMIC OPEN STAIR COMMUNAL DWELLING on the part of either the employing or employee class when once seen or tried or even understood.

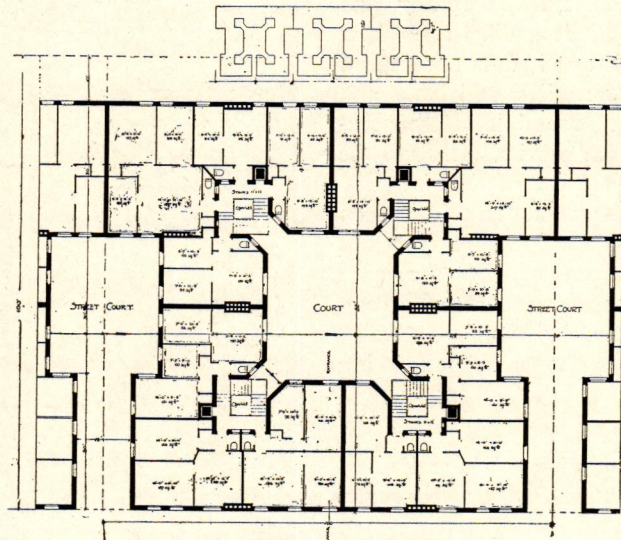


The type can be studied in the Vanderbilt East River Homes, erected in 1909, housing, 380 families—The John Jay Dwellings, housing 280 families—The Hartley and The Cutting Dwellings, each about 96 families—The North River Homes, housing 60 families—The Commonwealth Dwellings, housing when complete 648 families—all in the Borough of Manhattan in the City of New York, and also in the Parkway Apartments of Cincinnati, housing 84 families, and elsewhere for all I know. These buildings are necessarily pretty

crowded, but the occupants are even healthier and happier housed right here than many of their brothers in the industrial villages, and far more so than their immediate neighbors.



The type of 1900 no doubt owes its invention and subsequent refinement to the dictates of congestion in New York, but in its "quadrant" form, "IJ", or "saw tooth" form, "KL," it no longer smacks of congestion—it would in any event be re-invented in 1917 for the factory town through the demand for good, healthful, easy, housekeeping accommodation that will render the most satisfaction and leisure for children, adults and the aged, and, at the same time, the most profit to the owner, whether he be the occupant or absent proprietor.



MODEL TENEMENT HOUSE COMPETITION.
FOR
THE CHARITY ORGANIZATION SOCIETY.

RESOLUTIONS OF THE NEW YORK CHAPTER OF THE AMERICAN INSTITUTE OF ARCHITECTS, APRIL 11, 1917.

WHEREAS, It is evident that the best possible results in the way of housing are not produced under the present Tenement House Law and it is highly desirable that the better and safer building in tenements be encouraged, and,

WHEREAS, Among the many handicaps imposed on those who build better tenements is one which makes the desirable open air staircase type less effective because it prohibits the placing of toilets and baths on the stair court recess, be it

RESOLVED, That the Chapter considers that there is no objection to this form of design, and that the Chapter lend its aid to removing this handicap.

WHEREAS, Moreover, one of the great obstacles to housing betterment in New York is the absolute nature of the State-made Tenement House Law, which is therefore not subject to easy adjustment to new and better forms of design.

RESOLVED, That the Chapter give its support to a movement for the creation of a Board of Appeals which shall have similar powers of adaptation with regard to the Tenement House Law as is now given the Board of Standards and

Appeals with regard to the Building Codes of the City, the Fire Prevention Law and the Industrial Code of the Labor Law of the State and the districting and housing resolution of the Board of Estimate.

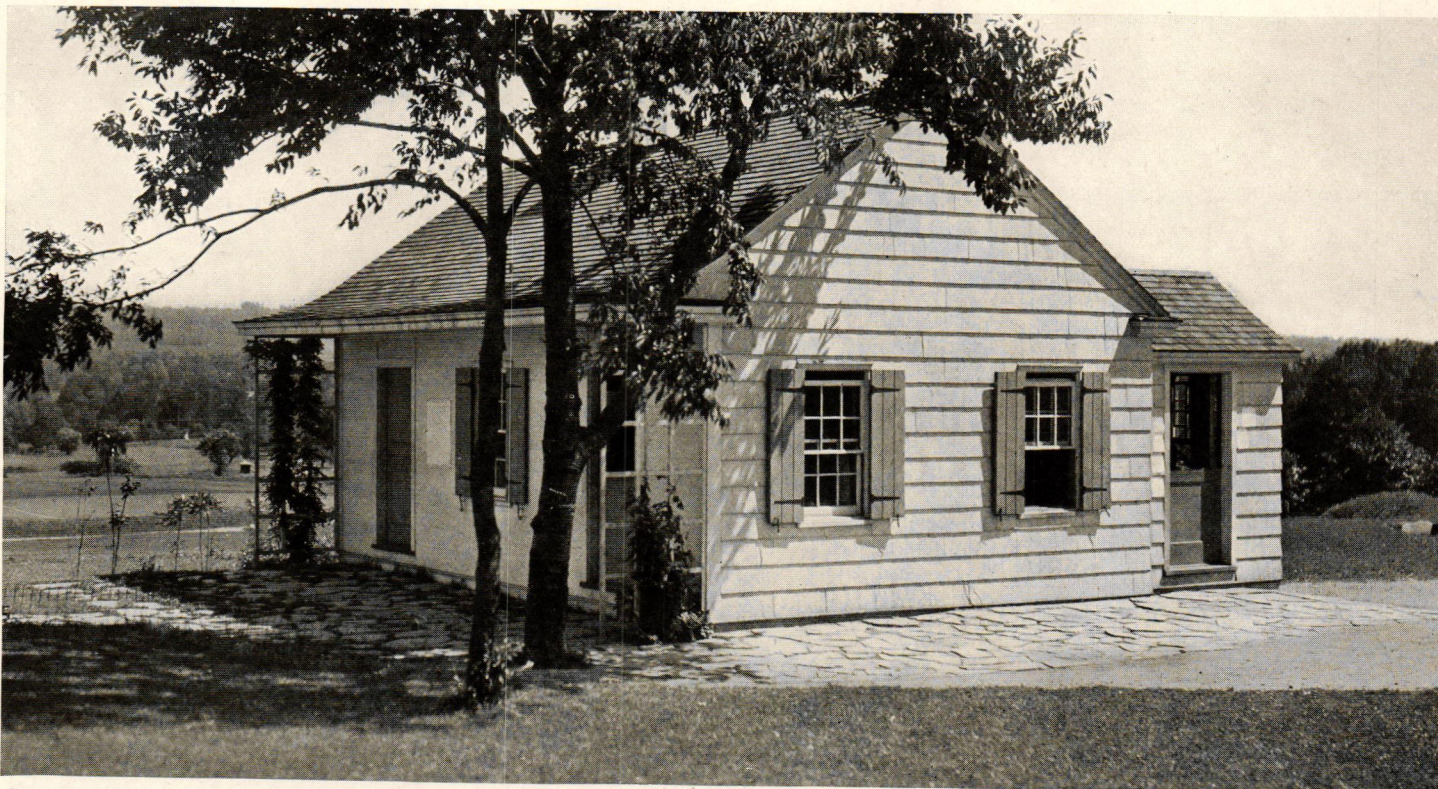
RESOLUTION OF THE BROOKLYN CHAPTER OF THE AMERICAN INSTITUTE OF ARCHITECTS, MARCH 26, 1917.

WHEREAS, The limitations of the present Tenement House Law tend to increase the cost of living by unnecessary expense in construction and wasteful planning, and,

WHEREAS, The law does not take cognizance of the full advantages of the economic features of the open air stair, be it

RESOLVED, That in fireproof tenements of the Economic Open Stair Type, six stories or less in height, the Brooklyn Chapter of the American Institute of Architects recommends that the Tenement House Law be so amended as to admit of the sole lighting and ventilation of toilets upon such stair court recess through windows of a character that are view-proof even when opened. Be it further

RESOLVED, That a copy of this resolution be forwarded to the various City Departments, and to the architectural and building societies of the city.



THE GOLF PROFESSIONAL'S HOUSE, KNICKERBOCKER COUNTRY CLUB, TENAFLY, N. J.

Aymar Embury II, Architect.

III. Types of Construction

By DeWitt Clinton Pond, M. A.

Mr. Pond, so well known to our readers as the author of "Engineering for Architects," is now writing for ARCHITECTURE a series of articles on different types of construction dealing with the more elemental problems.

A GOLF PROFESSIONAL'S HOUSE.

IN the last article the construction of a small garage was taken up, and, although not all of the details were investigated, enough was given to furnish a fairly accurate idea of the general method of erecting such a building. The garage was a small one and could be used only for housing a small car, but the same method would be employed for a larger one. In case the interior of the garage were to be furnished, ceiling joists would have been used, spanning from plate to plate and the entire interior would have been lathed and then plastered. It is proper to lath with metal lath to a height of four feet above the floor level and on this is plastered cement mortar. The metal lath is turned under the concrete flooring about six inches in order to bind the cement finish on the floor to the mortar. If this is done there will be no cracks at the joint between the side wall and the floor. All other lathing is wood and the plaster is put on with first a rough coat, second a scratch coat, and finally a white or finishing coat.

In painting, there should be four coats of paint applied in order to secure a finished piece of work. It is possible to apply only three coats, but it is always advisable to have three coats over the priming coat. More will be said about the matter of painting and plastering in a later article.

In this article an example will be taken up that has more architectural value than the garage. The Golf Professional's House, shown above, was designed by the well known architect, Aymar Embury II. Being one of a group of build-

ings it is important enough to be considered by an architect and yet it is small enough to be treated in an article of this length.

The first thing that the builder must consider is the materials that are to be used.

In order to do this he will have to refer to the drawings and specifications which are furnished by the architect. In this particular case he will find that the foundation walls are to be of stone. There is no basement beneath the first floor so these walls will be laid in trenches, such as described in the last article, and in this case they need not be more than 12 inches thick. It will be noticed that the drawings (Fig. 13) show the first floor level 1 foot higher than the grade level. This means that the foundation walls must be brought up to a level about 2 inches above grade (Fig. 14). There will be an unexcavated portion of ground enclosed within the foundation walls, but this should be leveled off so that a distance of at least 1 foot shall exist below the floor joists. This air space can be obtained by bringing the foundation walls up to a point 1 foot above grade and by using the dirt that is excavated from the trenches to grade up to within 2 inches of the top of the wall. The bottom of the floor joists will be on level with the top of the wall—one foot above the ground—and a new grade will be established.

The builder will see that there must be a foundation laid for the chimney, and this will have to be carried to a depth corresponding to that of the foundation walls—about 4 feet

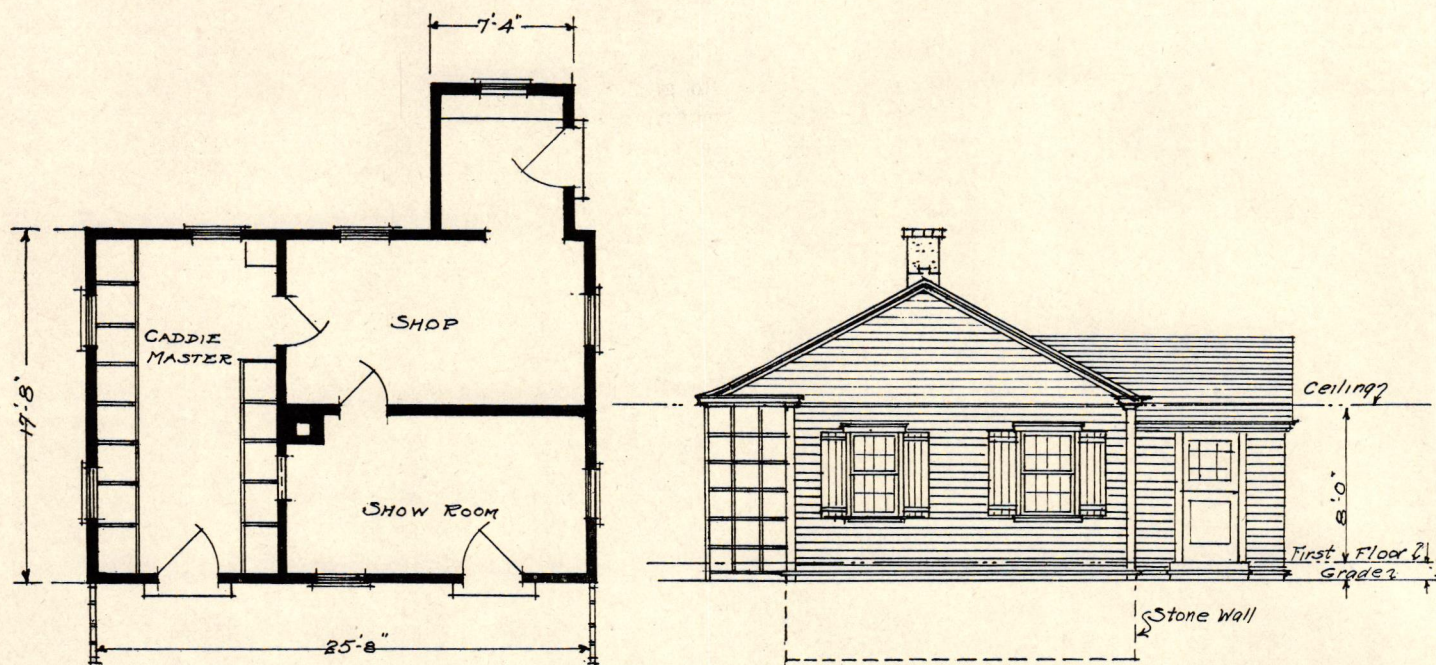


FIGURE 13

below grade—to avoid frost. This, like the trench walls, will be made of large flat stones. The reason for selecting stone as the material for the footings depends upon the fact that there is an abundance of stone in the locality where the building is to be erected. If there is no stone the footings should be made of concrete. The footings for the chimney should be made 4 inches larger on all sides than the chimney itself. It will be noticed from the drawings that there is more brick around the 8-inch by 8-inch flue lining than is absolutely necessary, but for architectural reasons the chimney is made large.

The builder will also see, in looking over the plans, that there will be needed stone for other purposes than for building the trench walls and the footing for the chimney. He will notice that, in order to give the floor proper support, there should be girders located in such a manner as to support the beams that will span from one wall to another. The least clear span that such beams could have would be about 17 feet and even if the beams were made deep enough to withstand the bending that might occur there would be a certain amount of vibration unless the beams should be supported in the middle. It is for the purpose of furnishing this support that girders are placed parallel with the long dimension of the building and at such a distance back of the front wall that they will not touch the chimney, but will be about two inches away from it. For the purpose of this discussion it will be considered that these girders cut the span into two equal parts.

This will mean that these girders will have to be supported, and for this reason it will be necessary to build up two piers of stone, 8 inches square, and located in such a manner as to provide the length into three equal parts. In theory these piers would be 8 feet and 2 inches on centers, but in order to have the girders cut in even figures they will be placed on 8 feet centers, with extra length put into the distance between the second pier and the wall. This will make it possible to order one girder 16 feet long which will span from one wall over the first pier and across to the second, and another which will be spliced to the first over the second pier, and which will be cut the proper length from a 10-foot length, to span from this pier to the outside wall.

This is all of the stonework necessary and the only other masonry work to be done on the house is the building of the chimney.

The next item to be investigated is the timber. The architect's specifications call for ceiling to be used on the interior of the house, and the entire piece of work can be finished by the carpenter and mason without the trouble of waiting for the lather and plasterer to get through with their work. The builder observes that he must have sills and girders to rest his floor joists upon. The specifications call for 4 by 6-inch sills and 4 by 8-inch yellow pine girders.

In order to determine whether the girders in the center are strong enough to carry the loads imposed upon them, the reader is referred to the third chapter of "Engineering for Architects," or to the several handbooks which contain tables giving the safe loads for wooden beams, and the safe spans. Experienced builders do not always stop to consider the mathematics involved in such a condition but are able to judge very nearly the proper sizes to be used. However, for the reader who desires to know the exact method of determining such sizes, the following example will be explained.

The tendency to bend a beam is determined by using the formula $M = \frac{1}{8}WL$, in which W is the total load and l is the length of the beam in inches. The tendency to resist bending, for a wooden beam or girder, is given by the formula $M = \frac{1}{6} \times b \times d^2 \times S$, in which b is the breadth and d is the depth, and S is the allowable compression or tension per square inch that the particular kind of wood found in that beam will stand. These two tendencies must equal each other. The tendency to resist bending must equal the tendency to produce it, or $\frac{1}{6} \times b \times d^2 \times S = \frac{1}{8} \times W \times L$.

Now b , S , l , and W are either known or can be determined. The breadth (b) of a girder is usually 3 or 4 inches, and in the present case the larger figure will be selected. The safe stress that yellow pine can be subjected to is 1,200 pounds per square inch. The span or longest distance from the pier to the wall will be assumed to be 8 feet and 6 inches, or 102 inches, and the remaining quantity (W) can be found by knowing the area of the floor to be carried by the girder and the weight per square foot to be carried by that area. The span has been taken as 8.5 feet so that this will be one dimen-

sion of the floor area. The width of the building will be considered as 18 feet so the other dimension of the floor area will be one-half of this, or 9 feet. The floor area to be carried by the girder will be $8.5 \times 9 = 76.5$ square feet. It is usual in this type of construction to figure that the total load per square foot of the floor and the load upon it is 60 pounds, so the total load on the girder $76.5 \times 60 = 4,600$ pounds, approximately, which will be the W in the equation.

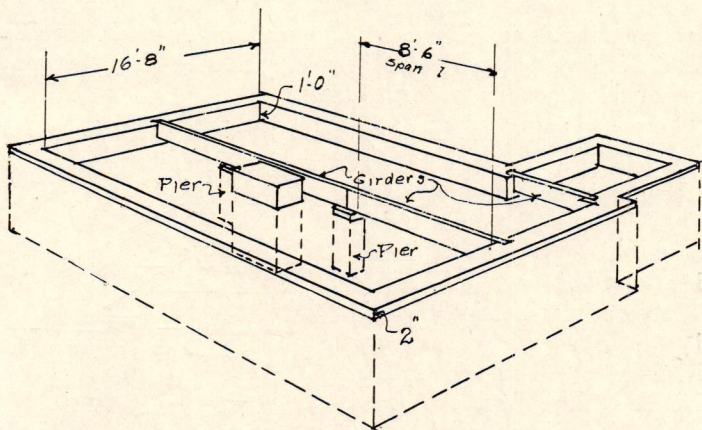


FIGURE 14

By substituting in the above formulas the result will be $1/6 \times 4 \times d^2 \times 1,200 = 1/8 \times 4,600 \times 102$ and $d^2 = 74$, $d = 8.6$ inches. If the full load from the joists came upon the girders, it would be necessary to make the depth of the girder 9 inches, but as the joists are laid from sill to sill, and as the girders are used more for the purpose of stiffening, rather than support, it will be safe to make the girders 4 x 8-inch yellow pine girders.

In case spruce is used the girder would have to be deeper as spruce is not as strong as yellow pine. In that case the formula would become $1/6 \times 4 \times d^2 \times 800 = 1/8 \times 4,600 \times 102$ and the safe stress of 800 pounds per square inch should be substituted for 1,200 pounds, which was allowed for pine. This will make the depth of the girders 10 inches and if it is so desired they can be made by spiking two 2-by-10-inch joists together.

There will also be another girder placed at the point where the entrance way opens into the shop. This can be figured to be a 4-by-8 yellow pine girder also. All these sizes should be on the architect's drawings or they should be given in the list of timber sizes in the specifications. The above example is given simply to show a method of determining the sizes.

The floor joists are specified to be 2-by-8-inch spruce joists spaced 16 inches on centers. They are run from sill to sill but are supported in the center by the girders. The floor under the entrance is framed from the sill to the girder.

In looking over the specifications the builder also sees that as the interior of the house is to be ceiled the studs are spaced wider apart than usual, or 2 feet on centers. This is due to the fact that the wood ceiling, which is to be made of $7/8$ -inch by $2\frac{1}{2}$ -inch beaded and center beaded North Carolina pine, is placed vertically on the side walls and is nailed to nailing strips placed horizontally between the studs. The plates are to be made of two 2-by-4 spruce timbers, spiked together, and the studs are simply 2-inch by 4-inch spruce uprights. The sheathing is specified to be $7/8$ -inch by 8-inch, ship lap, North Carolina pine. There is to be a double floor, according to the specifications, and the under flooring will be of the same $7/8$ -inch by 8-inch material. The finished flooring is to be

of $7/8$ -inch by $2\frac{1}{2}$ -inch tongued and grooved edge grain pine.

There are to be ceiling beams which carry nothing but the weight of the ceiling itself but which should be deep enough to give a stiff frame. These are specified to be 2-by-6-inch spruce beams. The rafters are also 2-by-6-inch timbers. The shingles are specified to be 18-inch, random width, red cedar shingles, laid $5\frac{1}{2}$ inches to the weather on the roof and 10 inches to the weather on the sides of the house, but double.

Having looked over the drawings and the specifications, and having obtained the foregoing information, the builder makes out his rough lumber list as follows:

Sills—4 x 6— $2/18$ — $4/13$ — $1/8$ — $2/16$ (cut 2, 7'-6") spruce.

Girders—4 x 8— $1/16$ — $1/10$ — $1/8$ yellow pine.

Floor beams—2 x 8— $20/18$ — $6/7$ —6" spruce.

Ceiling beams—2 x 6— $14/18$ spruce.

Rafters—2 x 6— $17/14$ — $17/12$ spruce.

Studding and plates—2 x 4— $90/9$ — $15/20$, spruce.

Sheathing— $7/8$ x 8 ship lap—1,400 sq. ft. N. C. pine.

Use same for under flooring.

Shingles—18" red cedar, random width.

Roof 5,100—sides 5,500.

Furring strips—1 x 2—2,000 lineal feet. Spruce.

Finished floor—500 sq. ft. $7/8$ x $2\frac{1}{2}$ edge grain pine.

Ceiling—2,000 sq. ft. $7/8$ x $2\frac{1}{2}$ beaded and center beaded N. C. pine.

Included in the list of materials should be the brick, stone, sand, cement and lime necessary for the stone walls and these will be listed as follows:

2,000 hard brick.

20 lineal feet of 8 x 8 flue lining.

10 yards of stone.

5 yards of sand.

8 barrels of cement.

2 barrels of lime.

There should also be ordered a proper amount of nails and spikes.

1 keg of 4-penny shingle nails.

15 lbs. 20-penny spikes.

1 keg of 8-penny nails.

50 lbs. 10-penny nails.

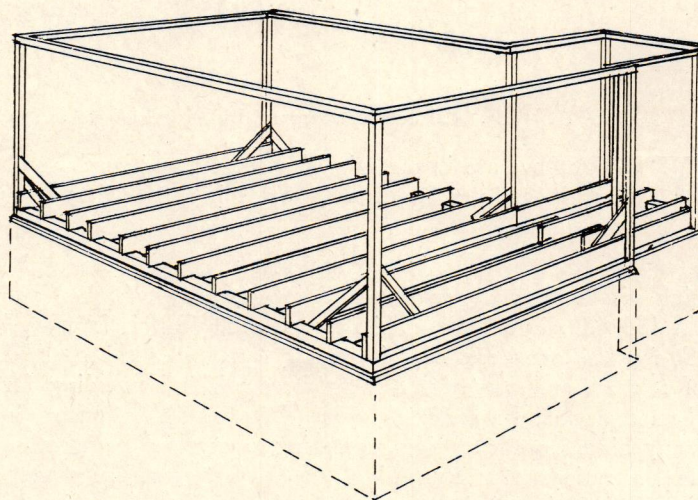


FIGURE 15

This is a complete list of the necessary material to construct the house with the exception of the millwork. The builder must list the rough lumber but the mill will take off quantities with regard to door and window trims, mouldings, etc. The builder will send a set of drawings with a set of specifications to the mill and the mill itself will send in return a list of the material that it will furnish and an estimate of the cost.

Having received his estimates the builder will determine the cost of labor and will submit his estimate to the architect.

In case his estimate is accepted he will go to the lot and stake out the position of the house. For any work that involves a large amount of precision an engineer is employed to set the lines. He usually establishes offset points from which can be measured the distance to the foundation wall. Once these points are established the builder will set up his batter boards and run cords in the proper positions as described in the last article. The trenches will be dug. The excavations for the piers and the foundation of the chimney will be made and if it is necessary to carry away soil from within the foundation walls in order to give a proper air space, this will be done. The mason will next lay his walls. These

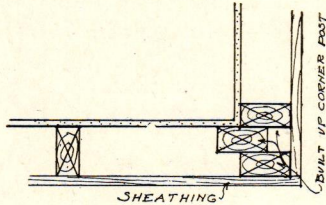


FIGURE 16

will be built of large local stones, laid flat in cement mortar mixed with a small amount of lime. The lime is added to make the mortar run well from the trowel.

Once the footings are in place, the sills are laid and the girders are put in place. Then the floor joists are laid as shown in Fig. 15. Next the corner posts are erected. These can be made of 4-inch by 6-inch spruce timber, or can be built up of 2-by-4 pieces as shown in Fig. 16. The advantage of building up the corner posts is that it does away with the need of an extra nailing strip which must be nailed to the 4-by-6. Once the corner posts are in place and braced, the plates are put on and the studs set in place. The ceiling beams are next laid.

It will be noticed from the architect's elevation that the

roof projects over one side of the house. In order to make this the builder will have to block up to the required height by means of additional 2-by-4 uprights with a plate on top to catch the rafters.

Owing to the fact that the ceiling line is shown on the drawings only slightly lower than the soffit of the outside cornice it will be necessary to block up to receive the rafters on the other side of the house. This condition is shown in Fig. 17.

The sheathing should be put on diagonally in order to brace the structure. There is one other form of bracing needed if this is done but otherwise 2-by-4's should be let in between the studs diagonally to form braces.

The shingles on the side are specified to be 10 inches to the weather. In order to make a tight, weatherproof piece of work it is necessary to put the shingles on in double thicknesses, the top shingles breaking joints with the ones below. When one row of shingles is laid in this manner, the next row is nailed on—also laid double.

If this is done there can be no chance for rain or wind to get through the cracks or joints even though the shingles should be exposed 12 inches to the weather.

The shingles on the roof are laid in the ordinary manner. They are specified to be only 5½ inches to the weather. The rough flooring should be laid diagonally, in a manner similar to the sheathing on the side walls.

With the laying of the finished flooring and the setting of the interior trim the house is completed as far as the carpenter's work is concerned. As to the millwork for such a piece of work as this, will furnish material for a later article.

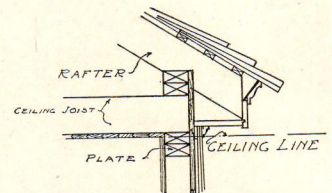


FIGURE 17

Modern Organic Construction

By Harold V. Walsh

Mr. Walsh is Instructor of Building Materials and Construction, Architectural School, Columbia University.

TO-DAY we are in the grip of a great transitional movement in architecture, and America is the leading force in this movement.

It is the pride of many architects that from the beginning of the Renaissance the bonds of style were broken and the individuality of the architects released. But it is not so! To-day the architects of this country are under the shackles of a great and powerful driving force which is welding for them a new and wonderful style. We see eddies turned in many directions, back tides, splashing waves and many other demonstrations of the freedom of the architects of to-day, but all in spite of themselves are being carried along in the great current of a silent stream which they do not recognize.

The splashings, the whirlpools, the eddies are more marked to their eyes than the great under movement, and they forget in their seeming originality that they are moved by it, just as much as the ancient races whose architecture they study.

The strange part of this great moving force is that the architects seem to be blind to it. This force is not the development of certain sects or Beaux Art Schools: it is not a New Art or a revival of Colonial or anything of the kind, but it

is a force which has for its foundation a system of construction. It is construction which is the moving power in the stream of architectural progress. Many schools for young architects seem to forget this. A superficial treatment of design is urged. All this training will not, however, in the end protect the architect from the subtle influence of this force. It merely stunts him in his actual growth.

Our outlook to-day is broad. We can study the buildings of the ancients in measured drawings, photographs, colored paintings, moving pictures and travel. All the knowledge of the ancients is in our hands. We are no longer separated from the rest of the world, where a little group of designers can work along one line from generation to generation and form what we commonly call a style. This narrow life, which in former times was one of the forces which produced styles, no longer exists. Many bewail the fact. They say that America can never develop a style because we insist upon looking back at the Old World and getting our ideas from all kinds of places.

Some would have us forget that there ever was a past, and strive to work along certain narrow lines to produce a

style. They forget that it was not the narrowness of a community which made the great and fundamental styles of the past. This only made local *characteristics*, in the same way that it makes local characteristics in languages.

It was not isolation which made these styles. It was the force of many minds working to perfect a system of construction. The fact that we are now definitely and forever connected to the rest of the world will not destroy our chances of producing a style. To-day the force of many minds, trying to solve a system of construction, is making a new style, more vigorous and more powerful than any that has ever been produced before in the world. No matter how hard we try to produce a building, inspired from some European work of the past, we are nevertheless very far removed from it and pushed along by the great current towards this new style.

It is construction which is doing it. It was construction which did it in the past. We are no different only a little broader. With all our individual tastes we cannot escape this fatal onward force.

Some day, out of the work and the toil of generations, looms this style perfected and complete. Then we recognize that it exists. From that day it dies, decays and passes away in the presence of a new system of construction which begins to ask the solution of the architects, and the work begins again.

If we will be frank we can recognize these things in the past. There have been three great ideas or systems of construction which have moulded the styles of the past. We see the *vertical system*, represented by the post and the lintel; the *thrust system*, represented by the dome and arch; the *cohesive system*, represented by plastic materials hardened into one mass. Each system had its day. Each system produced a great fundamental style of architecture when it reached its height of perfection. All the styles between these were merely transitional, just as childhood, youth and middle age are the steps towards the prime of life. Then decay and death!

The Greeks brought to perfection the vertical system. Their style is fundamental, is the climax in the solution of the problem of vertical construction by post and lintel. We can trace it back to Egypt in its growth. We cannot call the style of Egypt fundamental, only transitional, for it was but part of the growth of this one idea. At its climax in Greece this style fell.

Among the Romans sprung into being a new idea, in fact two new ideas. The idea of the development of the thrusting arch and the cohesive construction. All that the Roman style represented was a transitional period when new system of construction called for artistic solution.

Gradually the idea of the arch or thrust system worked itself out and reached its climax and perfection in Gothic. All the intermediate styles were transitional. Gothic is fundamental. It is the perfection by art of the thrust system. Then it died.

At the same time moving off in another direction and into the hands of a vital race was the idea of cohesive construction. Through the influence of the Moslem mind this form reached its climax in Cordova and Granada in Spain. We call it Moorish. It is fundamental.

The Renaissance then made its appearance at the death of Moorish and Gothic, the death of cohesive construction and thrust system. The Renaissance brought new life into the field. From chaos at first, to-day is coming forth a new system of construction which in turn must be solved and perfected by art.

America leads in its development. We cannot tell, however, whether America will see the perfection of this style any more than the ancient Romans could have foretold that the seeds of Gothic and Moorish were being sown by them. The fact still remains, however, that American architects are further along in the progress of this style than any others. They have solved the technicalities of this new system of construction. It must now be perfected by art. Because unconsciously or consciously all the architects of this country are turning their minds towards this end, we find this force so strong. None can break from it. It makes no difference whether they design in Gothic or Classic. Underneath is that same limitation, that same demand that they solve the problem of this new system of construction artistically.

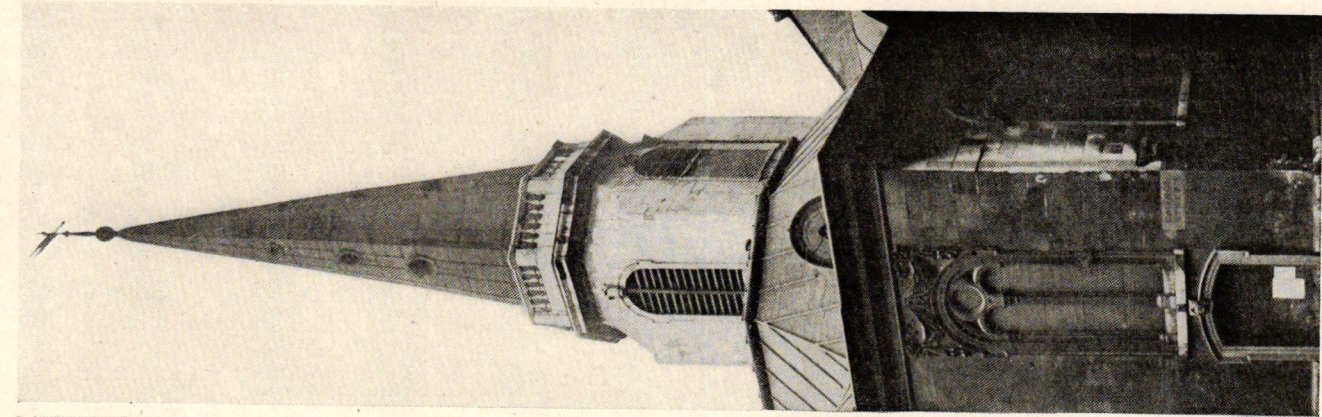
This new system is Organic. It is fundamentally a skeleton, covered with flesh. It is still covered with masonry. The flesh or masonry will not stand alone without the steel beneath. Never before in the history of the world has such construction been used. Its artistic solution means a new style. When, in the generations of future men, this system has been perfected, there will be recognized a great new style of architecture. They will wonder how it grew from so many diverse influences. This is the one unifying force that runs amidst the various trends of design to-day. We may design in many details of ancient styles, but we all build the same. The building code sees to that. The construction engineers are the dictators. The draftsmen who travel from one office to the other carry around the same ideas. Magazines, illustrated and written, are doing their share.

No one will deny that America has advanced the technical knowledge of this new system of organic construction beyond other nations. Our conditions made us do it. In our great cities like New York, we were forced by circumstances of land values to build large slender structures. No ancient system would have solved our problem. If we had built as they did, the first floors would be nothing but walls.

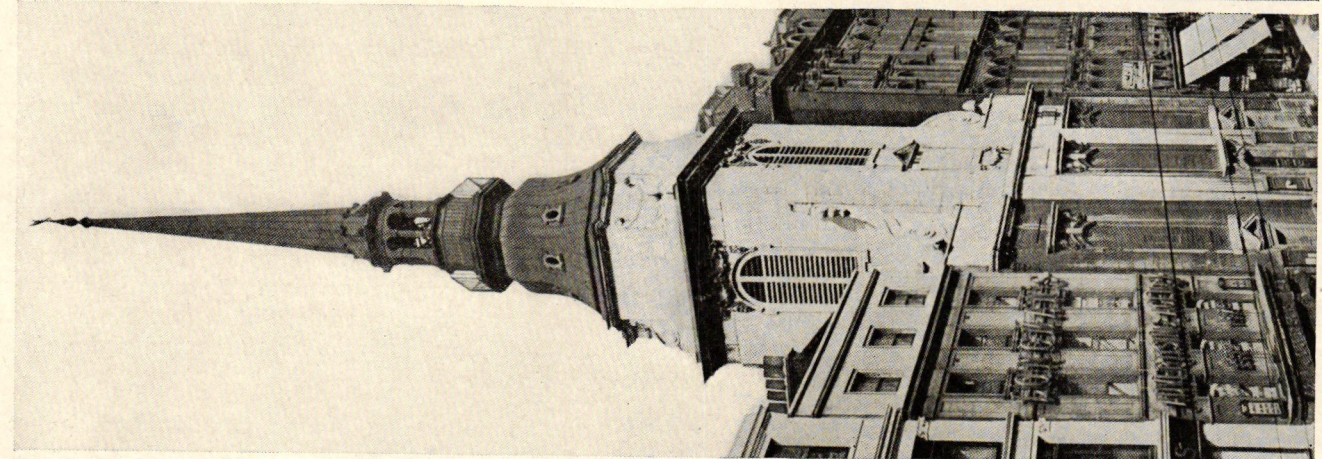
Because of this necessity we developed a new construction. The world has recognized its worth now. Even though a building need not be built this way, it has now become the practice to use this steel inside. We have found that masonry needs this high compression and tension value of steel, and that steel needs the protection from fire and the elements which masonry gives.

This is purely small and local growth of an idea. These periods are nothing compared with the periods necessary to create a style. But they work the same, however. No architect to-day will believe, if he is honest with himself, that he can design in the true spirit of the ancient style he copies. He knows that there is something lacking, something that is pulling him away. It is again this force of modern construction. He cannot break away from it. Night and day every architect in all the United States is revolving somewhere in his brain the solution of this new construction. He is adding his little mite to the collection.

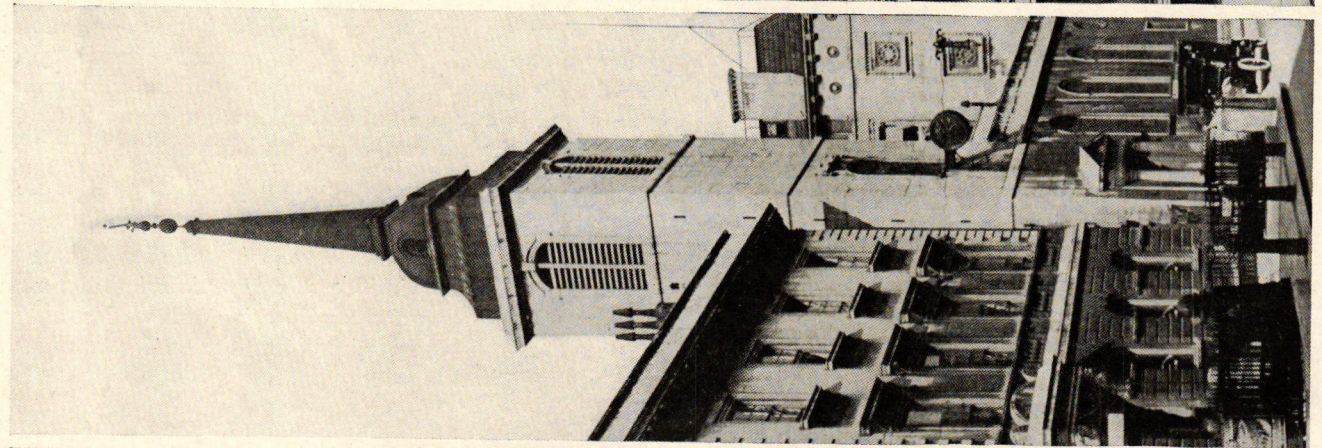
The day will come, the race will come, when the new Organic Construction will have received its perfected body. To-day it is but in its technical stages. To make it complete it must be solved artistically. Then will be a new style, the greatest the world has known. Let us hope that since America has begun the technical solution, her coming generations will solve the artistic problem as well, and that in this New World we can produce this new and wonderful style of architecture which will be the final stage of Organic Construction.



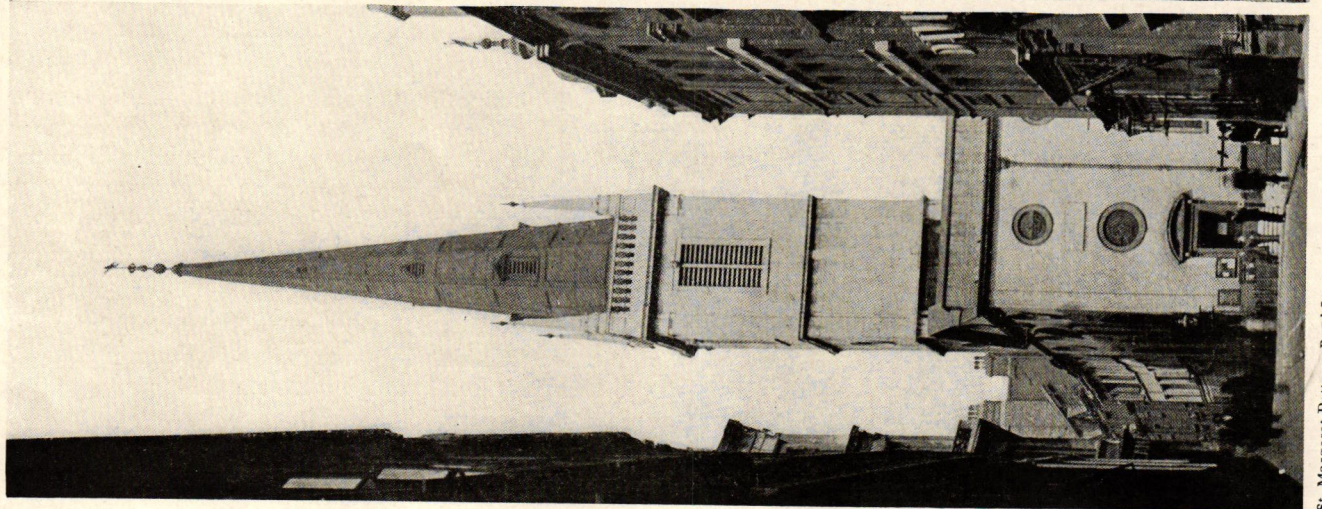
St. Swithin's, Cannon St.



St. Martin's, Ludgate Hill.



St. Margaret's, Louthbury.



St. Margaret Patten's, Rood Lane.

Sir Christopher Wren, Architect.

OLD LONDON SPIRES.

Steeple and Spires of London by Sir Christopher Wren

IN 1661 Sir Christopher Wren was appointed assistant to Sir John Denham, the Surveyor-General of Works, from whom he learned very little. His first work was Pembroke Chapel at Cambridge for Matthew Wren, his uncle (1663-4). It was a simple, well-proportioned design, though quite incongruous with the adjacent buildings.

In the summer of 1665 he started for Paris and stayed for six months, this being the only period of studentship he ever went through. On his return to England, he was at once immersed in the business of a most laborious career which allowed him no leisure until he reached extreme old age, and his rapid advance in technical skill was gained by the experiments in actual building which his exceptional opportunities allowed him. In all the early work of Wren's middle period, the influence of the French decorators is very marked, but it gradually disappeared towards the end of the seventeenth century, and in his later work he shook off the exuberant ornament which disfigures some of his earlier designs.

The fire of London, which began September 2nd, 1666, was Wren's great opportunity. The city was "a ruinous heap" and Wren, who had succeeded Sir John Denham as surveyor-general in 1668, had the field pretty well to himself. He at once drew up a masterly plan for laying out the city which the king accepted. Unfortunately, his scheme was never even attempted.

Wren next turned his attention to the rebuilding of the city churches and St. Paul's. This work occupied him for the next thirty-eight years. In dealing with the city churches he had an exceedingly difficult problem. He surmounted these difficulties with conspicuous success and probably in none of his works is his extraordinary fertility of resource more evident. The remarkable variety of treatment shown in these churches makes them difficult to classify. They may be properly classified by their towers or steeples, a method which has the merit of calling attention to their most attractive and successful feature.

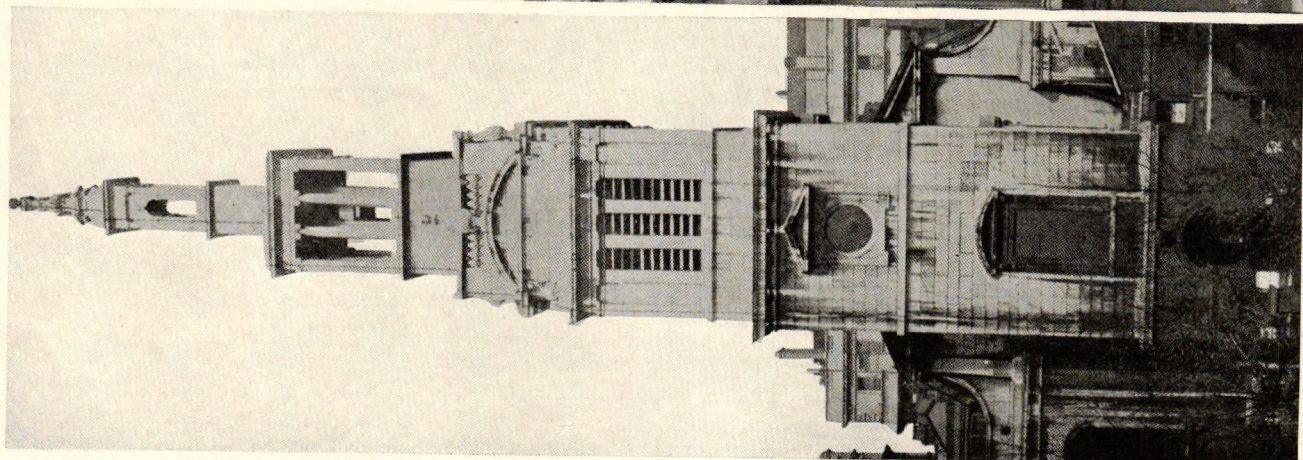
He selected the position of his towers and determined their general outline with fine judgment. He foresaw that in course of time most of his churches would be hidden away by adjacent buildings, and he accordingly concentrated his ornament on his steeples and the upper part of his towers. Here, again, Wren's fertility of invention is astonishing. With obvious ease, and without affectation, he varied his design for each fresh steeple, only adhering to two fundamental principles: (1) That the tower should, if possible, stand clear of the building, so that nothing should be lost of the full effect of its height and proportions; and (2) in view of the adjacent buildings, and also to emphasize the effect of the richer work above, he kept his lower stories simple and almost entirely free from ornament.

Of the smaller steeples, that of St. Martin's Ludgate Hill is one of the most beautiful. Though his scheme for the rebuilding of London was not realized, Wren never lost sight of his great conception of the city as a whole, and kept in full consciousness the relations of his buildings to each other. No-

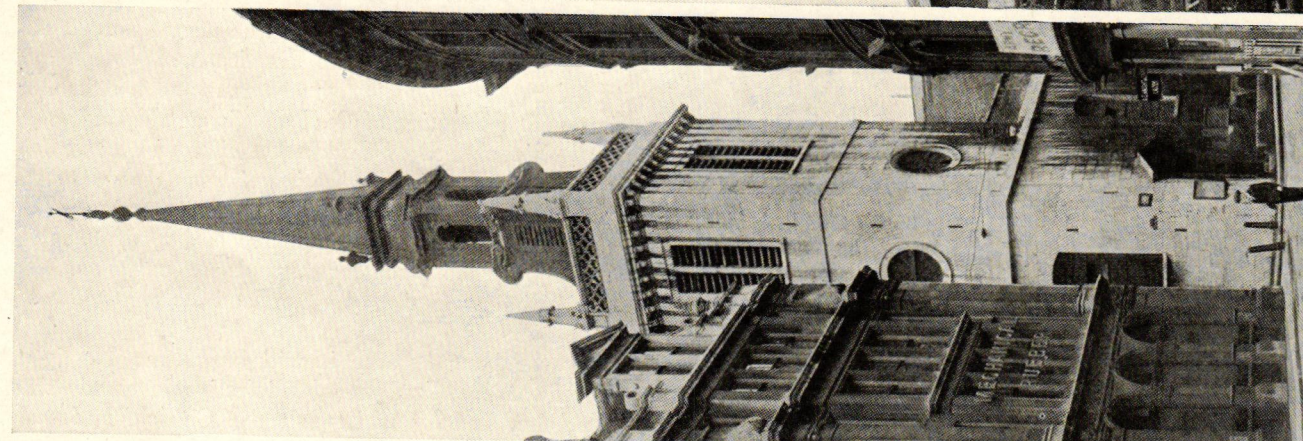
where is this more evident than in the grouping of St. Martin's steeple with St. Paul's. One of the most perfect specimens of Renaissance architecture in England is the tower and steeple of St. Magnus, London Bridge.

No English architect ever more thoroughly understood his materials, in regard not only to their permanence, but also to their possibilities of color and their decorative qualities.

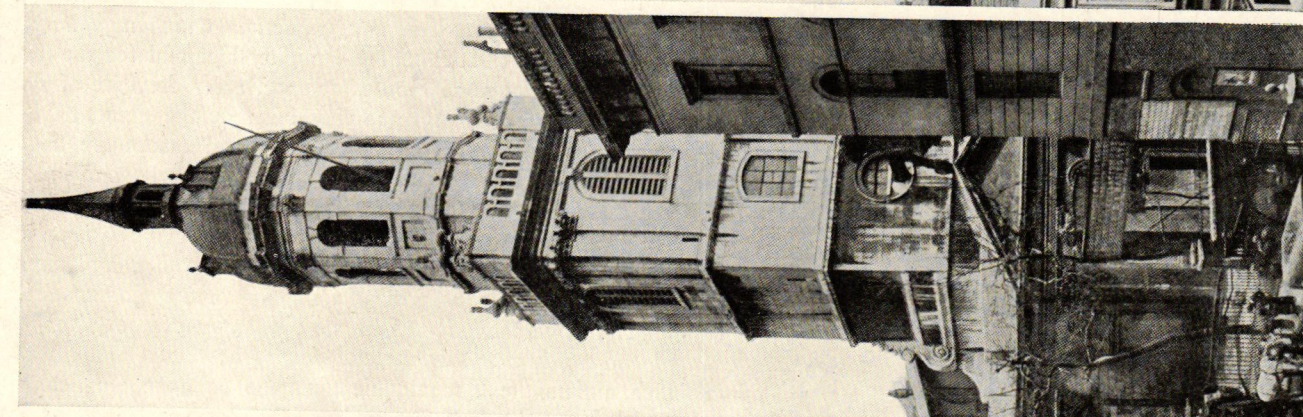
In a letter written to a friend on this subject he gives some details in connection with materials which may here be quoted. He says: "It is true the mighty Demand for the hasty Works of thousands of Houses at once, after the Fire of London, and the Frauds of those who built by the great, have so debased the Value of Materials, that good bricks are not to be now had, without greater Prices than formerly, and indeed, if rightly made, will deserve them; but Brick-makers spoil the earth in the mixing and hasty burning, till the bricks will hardly bear Weight; though the Earth about London, rightly managed, will yield as good Brick as were the Roman Bricks (which I have often found in the old Ruins of the City) and will endure, in our Air, beyond any stone our Island affords; which, unless the Quarries lie near the Sea, are too dear for general Use; the best is Portland, or Roch-abbey stone; but these are not without their Faults. The next Material is the Lime; Chalk-lime is the constant Practice, which, well mixed with good Sand, is not amiss, though much worse than hard Stone-lime. The Vaulting of St. Paul's is a rendering as hard as Stone; it is composed of Cockle-shell-lime well beaten with Sand; the more Labor in the beating, the better and stronger the Mortar. I shall say nothing of Marble (though England, Scotland, and Ireland, afford good, and of beautiful Colors), but this will prove too costly for our purpose, unless for Altar-pieces. In Windows and Doors Portland-Stone may be used, with good Bricks, and Stone Quoyns. As to Roofs, good Oak is certainly the best; because it will bear some Negligence: The Churchwardens Care may be defective in speedy mending Drips; they usually whitewash the Church, and set up their Names, but neglect to preserve the Roof over their Heads: It must be allowed, that the Roof being more out of Sight, is still more unminded. Next to Oak is good yellow Deal, which is a Timber of Length, and Light, and makes excellent Work at first, but if neglected will speedily perish, especially if Gutters (which is a general Fault in Builders) be made to run upon the Principal Rafters, the Ruin may be sudden. Our Sea-service for Oak, and the Wars in the North-sea, make Timber at present of excessive Price. I suppose 'ere long we must have recourse to the West Indies, where most excellent timber may be had for cutting and fetching. Our Tiles are illmade, and our Slate not good; Lead is certainly the best and lightest Covering, and being of our own Growth and Manufacture, and lasting, if properly laid, for many hundred Years, is without question, the most preferable; though I will not deny but an excellent Tile may be made to be very durable; our artisans are not yet instructed in it, and it is not soon done to inform them."



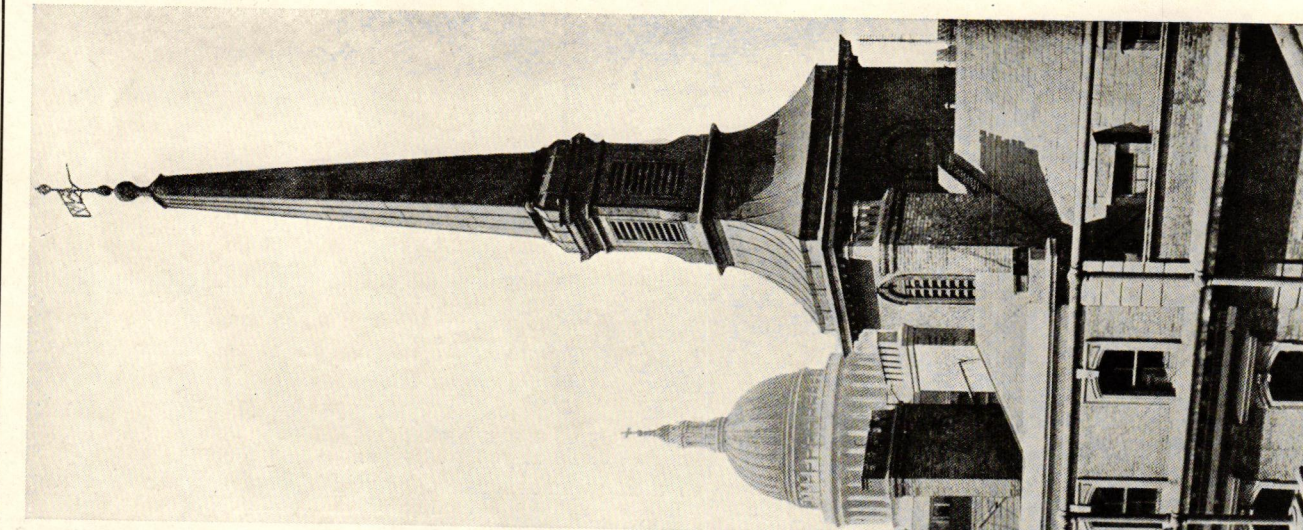
Christ Church, Newgate St.



St. Augustine and St. Faith, Watling St.



St. Magnus, London Bridge.



St. Mildred's, Bread St.

OLD LONDON SPIRES.

Sir Christopher Wren, Architect.

Building a Home and the Functions of the Architect

By Fritz Ehrsam, Architect

An address delivered before the Alexander Hamilton Institute Club, Reading, Pa.

THE Chinese have a proverb saying in substance: That it is the duty of every man to produce a child, write a book and build a house.

As an architect, I wish to outline some suggestions relating to the last requirement, as the one that I am most competent to speak of. There is no doubt in my mind that any one who has not built a house—or for the purpose of this address—a home, has foregone a great educational, emotional as well as enjoyable function of life.

The question of establishing a home will come to every man probably more than once in his lifetime—the one solves it by choosing the “flat” as his abode—the other by the building of his “own home,” as conditions and inclinations may direct him. In most cases it is only a question of time, when the “flat” solution has been worked to the limit and the building of the own individual home is considered the one step in the right direction—to get away from the artificial life—closer to Nature.

There is a middle way yet—the purchase of the ready-made or speculative house. Woe to him who falls a prey to this outcrop of the 20th century commercialism, for there are few builders who build these houses for the purpose of giving some unknown future owners the comforts and inspiration of a home—most do it naturally for the purpose of producing immediate financial returns.

Many of our magazines carry offers for ready-made bungalow-(and other-) plans, just as your wife is offered complete pattern for a spring waist or a baby coat. The problems are, however, vastly different and to design and construct a real home, no matter how small or large, the owner should retain a reliable and experienced architect.

With the choosing of the home site it should become clear to the owner that this initial step as well as all subsequent steps in the creation of his building operation must be determined by a clearly defined decision, having for its object a definite result.

Before any location is being visited the owner's individual requirements should have sufficiently crystallized as to number, kind and approximate size of rooms.

He may possibly already have taken a preference to a certain characteristic or style of buildings. In this case the selection of a home site becomes much more difficult inasmuch as the owner rarely can visualize his future home on the bare and unimproved lot such as the experienced architect can do.

Much better is it for the owner to consider in the selection of a building site the following points, leaving to his architect the evolution of a building that will fit the site and his requirements at the same time.

Proximity to business and employment.

Proximity to transit facilities, stores, schools, churches, etc.

Public facilities: Streets (avoid grade crossings and Dead Man's curves, etc.), water supply, gas, electric service, house and storm sewers, street lighting, central heat, central garages, community store, etc.

Healthiness of location: Elevation, exposure, streets, planting with shrubs and trees, out of smoke lanes, natural drainage, free from dampness due to low ground.

Beauty of location: General outlook, vistas.

Choice of locality: Growing community (off from industrial section).

Privacy: Back from traffic roads, schoolhouses and other public institutions.

General character of neighborhood: Restricted to residential section.

The relation of value of lot to cost of proposed building and improvements.

The size of lot.

All of these features require mature and serious consideration on the part of the owner, as each one will contribute to making his future home more or less desirable and happy.

The question of selecting the home site is actually of higher importance than any other question in connection with the building of a house and no wise owner will reach a final decision without consulting his architect whose task it shall be to transfer this ground into a home for him and his family.

The style of a home should be determined by definite conditions in which the character of the building site and its surroundings are of predominate importance. While the prospective home builder may have in his imagination a re-production or adaption of a period design, it is by no means possible to let this be the deciding factor in what the design of a building should be.

Undoubtedly, the architect will give fullest consideration to the suggestions and desires expressed by the owner, but he should not hesitate to advise the latter in clear and convincing terms of the importance of the arrangement of floor plans and the character of the building site in connection with the exterior of the building, if the owner's suggestions will make a good result questionable from an architectural standpoint. Too often we find imitation Italian villas, Queen Anne cottages or English half-timber houses in entirely inappropriate settings and to avoid such experience the style of the house should be a natural evolution from the floor plans.

Next to the selection of the home site the owner's most important task is the selection of the architect.

Many people are under the impression that the planning of a residence or a building of domestic character requires neither special skill nor a large amount of experience. To them the design of a church, office building, of a factory, a store, or of a public building represents the climax of the architectural profession.

This idea is to a large extent responsible for the great many architectural freaks and low grades of houses which are encountered in and near our cities—the result of untrained and unrestricted efforts.

Not only does the design of domestic buildings offer the same technical problems as above buildings, but it carries with it the perpetual consideration of the human element. As a matter of fact the domestic architect must be a thorough student of man. To be able to grasp the actual requirements of each individual client he must completely feel himself in the owner's position, dismissing entirely his own station in life.

The architect whose principal business consists of designing homes and home colonies and who moves continuously within the sphere of “Home” has a great advantage over his

colleague who is mostly called upon to design ecclesiastical, educational or business buildings.

The general requirements of the successful architect are, that he must be a gentleman in the first instance, well educated in history, art, literature, natural history, in mathematics, and all accurate sciences.

He must be a man of high intellect to be able to rise above the average of his profession—an original designer and not a copier. As a careful and conscientious constructor he will be able to provide safe and substantial work in an economical manner. He must be a strict and unbiased superintendent and purchaser, familiar with the technic, good workmanship, and the materials of the trades co-operating in the production of a home and its surroundings.

A broad general business training including such parts of law as affect the purchase and contract for work are of great importance for the protection of the owner.

The owner in the selection of his architect should therefore be guided by the ability and even the kind of ability that an architect possesses.

For these professional services the architect must naturally be paid a remuneration which is usually based upon the total cost of all the labor and material (exclusive of building site) that enter into the construction of a home.

As a basis for this remuneration the American Institute of Architects has set six per cent. as a minimum, specifying that for residential work, alteration, landscape work, furniture and fixtures, etc., a higher charge be proper in view of the small amount of the total cost in proportion to the time required to do such work.

In actual practice the owner will be offered services by some self-styled "architects" at much lower figures due to the fact that such men have not invested many years of their life and thousands of dollars in careful preparation for the future vocation. The results are naturally correspondent and the harm wrought by such incapable practitioners to a community is tremendous.

On the other hand the architect who is capable and whose services are appreciated and sought is likely to charge a higher commission conforming to the value of his superior services and to take care of his overhead expenses and for the maintenance of an efficient staff and such large items as current literature and a complete reference library, etc.

At the outset a few per cent. difference in the commission seem quite important to the prospective builder, particularly when he does not take the quality of services to be rendered in consideration. In view of the fact, though, that this difference in commission is at any rate only a few per cent. or a few dollars per hundred of the actual cost it will be seen that it is a good investment to consult the experienced architect of high standing and knowledge, as he is bound to save his client this difference many times over in the intelligent use of materials, etc., besides giving him more comfort, more beauty, more value.

This is particularly true and pertinent in times of unsteady prices of materials and labor when a careful study of the price fluctuation on the part of the architect, may save the owner hundreds or thousands of dollars.

The subject for the greatest discrepancy in the charges of the architect are the preliminary sketches. Their preparation and their remodeling, until they become final sketches, is of prime importance and their value should not be underestimated.

They present the foundation for all future work and for the real enjoyment of the completed home and should be based upon an exhaustive study of the actual problem.

It is a great mistake for any owner to ask an architect to

make preliminary studies unless he is willing to co-operate with him and pay for these services in proportion to their importance. He cannot expect to receive valuable services and consume expert advice for nothing. For the same reason it is entirely unprofessional and unworthy of any architect to furnish a client with some quick and cheap indefinite sketches for the purpose of obtaining the order for later professional services. He cannot afford to and will not give such unpaid work his full energy and the best of efforts and the result is poor work.

Any one who cannot afford to pay for the services of an architect had better wait with building, as there is no more valuable and important service performed or rendered in the entire building operation than that of the capable architect.

It is usually supposed that an architect is an idealist engaged in the happy pursuit of realizing his dreams with other people's money.

As a matter of fact, the architect is forced to be a highly commercial every-day individual, keeping in close touch with such duties and assuming those responsibilities of which the owner desires to be relieved.

He must inquire about such matters as the amount of money available to build and to upkeep; he must study the life of his client, whom he ought to meet within the family circle to be able to design intelligently. He must study the various building materials appropriate for the condition presented. All these things he does before attacking the actual problem of design.

Very fortunately each client and his wife (who, of course, must figure very largely in these calculations) have an individuality, expressed in their views of life, their social and economic standing, etc., and after a minute diagnosis it is the architect's task to combine these features with his professional conscience—a task which is frequently quite difficult.

The skillful architect, however, is impartial and knows how to subject his intellect to the facts of the case.

The services rendered by the architect to the owner consist in the analysis of the problem, furnishing of designs showing the result of his studies and conclusions to all concerned, the specifications, which are the detailed instruction to the contractor regarding the kind and quality of materials to be used and also the stating of the general conditions under which this work is to be carried out. In addition the architect will superintend the erection of the building to see that his instructions are being carried out properly.

The following is a list of contracts entering in the construction of the average good home: Excavation and grading, drainage, concrete work, stone masonry, cut stone or ornamental terra cotta, brick or structural tile masonry, plaster work, rough and finished carpentry and millwork, stucco and plaster work, roofing, electric wiring, plumbing and gas fitting, heating, refrigerating, painting and decorating, glazing, decorative and sanitary tile work, lighting fixtures, hardware, etc.

In elaborate residences a great many sub-headings and additional trades must be considered and for the purpose of enabling the various contractors to co-operate and prepare their materials in advance so as to insure rapid progress and correct fit, the architect prepares working plans and details.

The sequence of the architect's work is to prepare first, preliminary studies, changing and adjusting same until the arrangement of the rooms in respect to circulation—to each other—to the surrounding streets, gardens, vistas, etc., and to the architecture of the building has been found suitable and balancing and grouping the exterior to present with the predetermined surroundings a harmonious and melodious ensemble.

The next step in the architect's work is the preparation

of the working drawings. These drawings, usually made in a scale of $\frac{1}{4}'' = 1'$ show practically the same to the owner as do the sketches. To the tradesmen, however, they look entirely different. From these working drawings and the figured dimensions given thereon, the entire building is actually laid out. They furnish to the bidder the quantities of each material required, so that he can give a responsible estimate for all of his work and carry out such work properly.

In conjunction with these working drawings go the architect's specifications. These specifications describe in minute detail the grade and quality of workmanship and the terms of the contract. The more carefully and specifically these instructions are worked up the better protection and assurance has the owner (and his agent—the architect) that for a certain amount of money a certain quality and a certain quantity of work and material is delivered.

There is a vast difference possible in the makeup of the working plans and specifications corresponding with the difference in the education, experience and morale of their maker, and the final result depends greatly upon same. The details (scale details and full size details) are prepared to yet further explain to the manufacturer and tradesmen the intentions of the architect, as they show such items in a larger scale, so that curves, profiles, etc., can be taken right from the same and the actual makeup of each piece from different materials can be shown.

The architectural supervision provides for the inspection of the building by the architect or his representative for the purpose of ascertaining that his orders given by plans and specifications are followed out correctly.

This supervision should not be confused with the superintendence of the construction where an operation is carried out under separate contract or where, due to the size of the operation, a permanent superintendent is required to watch all material as they go into the construction of the building.

The position which the architect takes toward the owner is clearly that of an agent. The architect is retained to render services in the same manner as a lawyer or a doctor and he should have no personal interest involved in any operation which the owner is not fully aware of and advised. His position is a very confidential one, as the owner must communicate to him facts which bear not only on his financial position, but which touch his family life intimately. He is called upon to dispose over a considerable and sometimes proportionately large expenditure on the part of the owner in a manner often not clear to the owner until the work has been completed and it is therefore necessary that a clear understanding and mutual confidence between him and the owner exists.

While by nature of this position he becomes the owner's representative in all respects, he should not lose his impartiality in his dealings with the contractor (or contractors, if work is carried on by separate contracts). His past experience with the various contractors should be an important part in the giving out of the work and he should encourage the production of good work and careful workmanship by all means at his disposal.

The most interesting phase to most people is undoubtedly the decoration and furnishing of the home. They have seen good examples of home decoration and the pride in their own home will give them the assurance that they will accomplish similar results—no matter what the circumstances may be.

It is well to consider the matter of decoration right from the start, when the preliminary sketches are being evolved as the furniture of service, such as tables, chairs, sofas, bookcases, pianos, beds, etc., will require a certain setting in a room, which should give the prevalent note to the entire scheme as far as grouping is concerned.

Each room, to fully serve its purpose, must create a certain impression upon its occupant—it must have atmosphere.

This result is obtained partly through the various forms and groupings adapted and partly through the color-combinations used.

Rooms of southern exposure, for instance, require generally descending colors and rooms of northern exposure for the same reason ascending color values. The bedrooms, for instance, suggest a treatment of quietness and repose in form and color which would not be appropriate to a den. The service element of the kitchen and pantry should not be prevalent in the living and drawing room and the atmosphere of the dining room should be stimulating and rather vigorous.

A strictly separate consideration of these various requirements would, however, not create a harmonious effect and it is therefore necessary for the architect to study these questions as they correlate and use forms and colors which will make a dignified, pleasant and inspiring general impression.

The creation of a garden is as much a function of the architect as the design of a house, of a bridge, of a monument, or of a city. But ordinarily we fail to recognize this until the actual problem of making a garden confronts us, or until we have failed to realize results despite great physical and material efforts. Just as the home we live in can satisfy our body and soul only if truly adapted to our latent and realized sentiments and requirements, so can a garden be successful only when in harmony with the house and in blending with the surroundings.

The purpose of the garden is not to act as a place where to accumulate and store the various things picked out from the brilliantly colored catalogues of the speculative nurserymen.

Its true and valuable function is to serve as that part of the home where "man receives Nature as his guest, whole hearted, expectantly and gratefully."

How kindly do you look upon the trees and flowers in your garden! What sincere and thankful thoughts and care will you bestow upon them, how much happiness and pleasure will you derive from the same if you have laid out your garden so that it appeals to your imagination and to your higher feelings and ideals.

For parents, a well-planned garden is a delight and for children, the greatest teacher and builder of character.

The specific items that will create impressions in a garden are:

Lines: Horizontal, vertical, ascending, descending, straight and curved.

Colors: The three principals, red, yellow and blue, as well as untold blendings and shades of same.

Lights and shadows.

Odors: Sweet-scented and lovely—from the faint scent of the violet to the magnificent fragrance of the roses and to the strong odor of the hyacinth and the narcissus.

This analysis of the constituents of a garden is necessary to successfully compose a setting for a new building, be it the modest little home, the stately residence or the formal and imposing public building.

Many different characteristics can be established by careful and experienced planning of the grounds through the use of proper material befitting the occasion and in most cases more than one treatment will be required to fit the various aspects and conditions presented, particularly in large gardens.

A cozy informal effect with plenty of bright colors, well-scented flowers and curved forms will fit the bungalow, chalet or little suburban or country home.

A semi-formal garden will be appropriate to the city resi-

dence. Straight ascending and descending lines and blended colors with consideration of odors.

A highly formal garden made up of straight, horizontal and vertical lines, geometrical surfaces, exact preconceived use of lights and shadows is effectually used with public buildings.

Each of above type of gardens can be obtained by the use of various plants and, in deciding upon a choice we must carefully analyze the location, exposure, character of the grounds, drainage and climate of the garden-to-be.

Specific effects as rockgardens, formal sunken gardens, grottos, arbors, arboretums, rose-gardens, ornamental vegetable gardens, turf, etc., are parts of a garden and should be used with greatest care and only under appropriate circumstances.

The character of plants, annuals, hardy perennials, evergreens, shrubs and trees, must be carefully considered in their location so that a garden may improve with their growth and

age instead of the plans outgrowing their position or falling off from the desired effect.

The location of the various parts of a garden relative to the main and side buildings or the treatment of the grounds generally is of such importance as to come strictly within the sphere of the architect.

It is he who, after a thorough study of the building site, the interior and exterior arrangement of the house should develop the different axis of the garden, develop vistas from main points, locate the formal sections toward the main rooms and grade approaches and the various walks and sections so as to create an effective and harmonious ensemble.

A simultaneous study for the new homes as well as for the garden-to-be will undoubtedly give the best results, and it is therefore advisable to have the same architect handle these items together whenever possible.

The Architectural Orders

By *Ralph S. Fanning, Instructor of Architectural Design, University of Illinois*

THE layman at large, even though he be blessed with a fair education and an average keen conception of the beautiful, is very apt to judge a building by the classic orders in evidence upon its façade. The less commanding architect, anxious to gratify the desire of his potent though perhaps unappreciative client, is very often forced to submit a mask of columnar treatment before he can persuade his patron that he is getting his money's worth of real architecture. This tendency, influenced as it has logically been, by the security in following precedent, the love of classic and Renaissance revivals and the occasional real merit of the so-called "order-treatment," has filled our American cities and even rural communities with classic forms, quite disregarding true reason which is a fundamental of beautiful design and true architecture.

Very often, within the last few years, courageous members of the architectural profession have attempted to break away from all classical ties and express their feeling for logical design based on the correct use of material and pleasing proportions other than those laid down by the rigid rules of a Vignola. In this commendable attempt, many creditable works have been done, but there is ever the danger of becoming a radical in any new movement and of discarding too hastily all worthy precedent in the enthusiasm for the new and original. The laws of beauty are as old as the appreciative human mind and one should wisely hesitate long before rejecting even a consideration of the solution of architectural problems as conceived by the master builders of the past.

Surely worthy of the consideration of every student, and every successful designer must always be a student, is the origin and continued use throughout so many styles of the order motive.

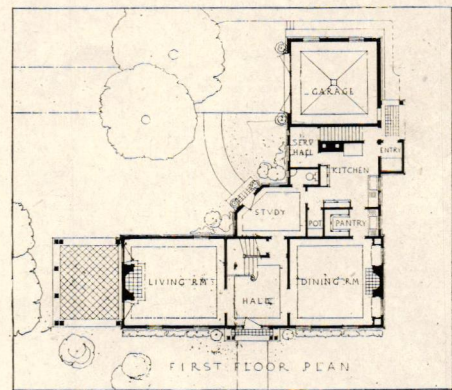
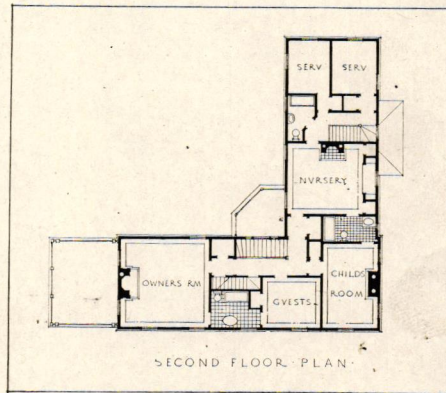
In the shadowy era of prehistoric times, when primitive man progressed sufficiently to desire an abode of his own creation, he naturally sought first an upright member to raise aloft a sheltering roof. If this far remote ancestor inhabited a rocky country, boulders and movable stone was the material with which he accomplished this end, piling one stone upon another until he had reared a solid wall to hold the horizontal slabs of stone or the trunks of trees that formed the roof. As the uses of metal were discovered and crude implements of craft developed, larger, better shaped stone and longer, more adjustable timbers could be utilized. Thus the builder found that a

rectangular section would do the work of the heretofore continuous wall. So the pier originated, bringing with it that elementary architectural form—the post and lintel construction. In a similar mode, the dweller of the non-rocky regions, where perhaps only vegetable growths could easily be obtained, devised supporting members by binding together bundles of reeds or using trunks of trees, thus arriving at the columnar member by a shorter route than did the rock-hueing contemporary who, however, trimmed off the corners of his stone pier until the round shaft appeared as the most economical and pleasing of supporting forms.

Architecture began only when man began to consider beauty of form and the aesthetic aspect as well as the purely utilitarian. The established forms were enhanced by painting, carving, and any decoration that appealed to the gradually awakening sensibilities of the inhabitants. Thus early in ancient Assyria, we see the flowery tassels of the bundle of reeds developing into the bell-like cap as the original shaft was imitated in more durable material made possible by the crafts of a growing civilization. The perpendicular reeds became flutings in the firmer stone or stucco. Other decorations were added, images of deified animals, scrolls of elegant vegetation, and colors that served to gratify the desired beautification.

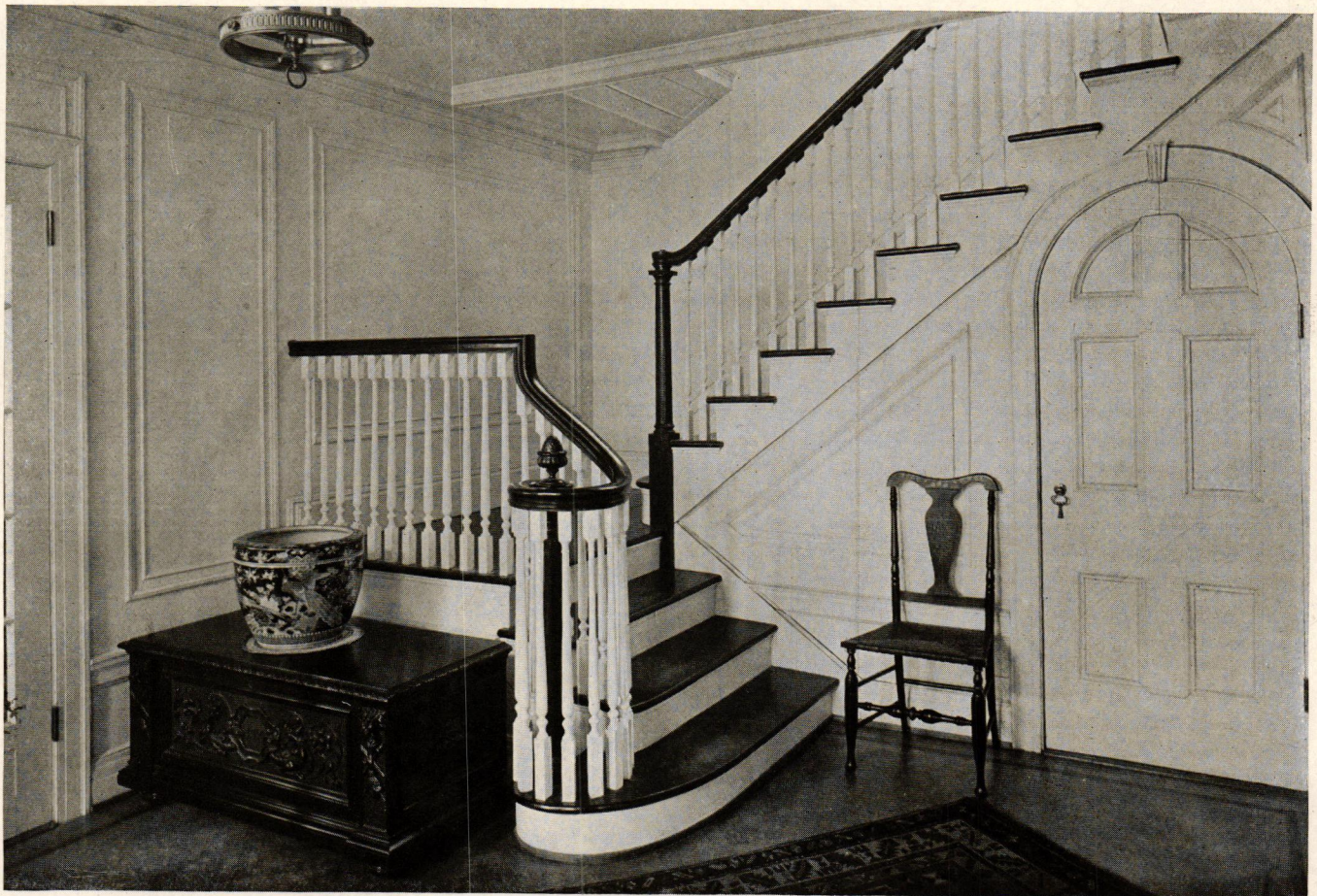
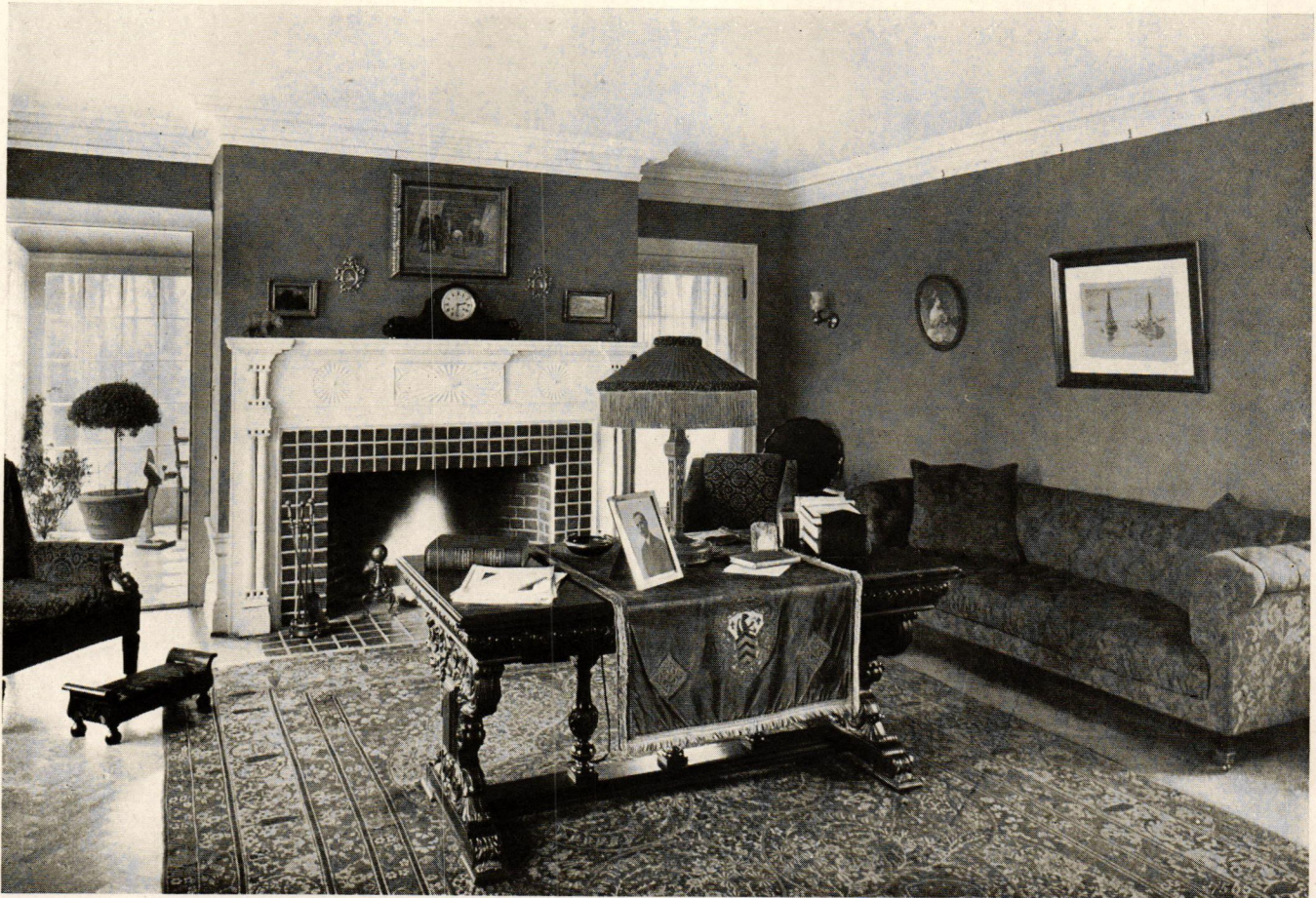
Even more apparent is this in the Egyptian art where the post and lintel construction was more arduously employed. The columns thickly placed serve as charts upon which pictorial records could be traced. The great circular surfaces offered charts for hieroglyphics and chromatic decorations demanded by the brilliant atmosphere of the Nile. Neither was the mass nor the proportion of these supporting members neglected. To make the column seem more stable, a plinth was added to the base; to enhance the contour of the shaft, curving and tapering were deemed essential; and at the capital, to give better bearing to the spanning lintel, block, the top flared out in a graceful bell-like form, suggested no doubt by the nationally venerated lotus bloom, which gave a base for the supporting plinth or abacus.

Next, in the swift review of early architecture, we find the Greek lands offering the purest types of the order forms, influenced by countless decades of Oriental culture, and the perhaps, more splendid culture of the Greek lands themselves.



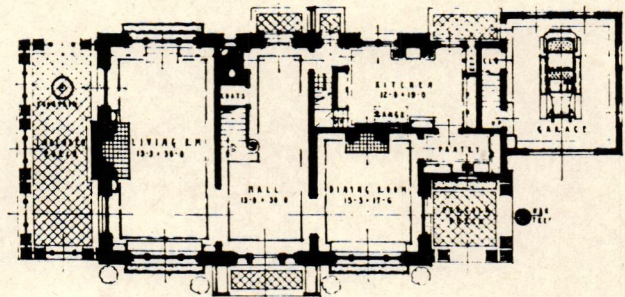
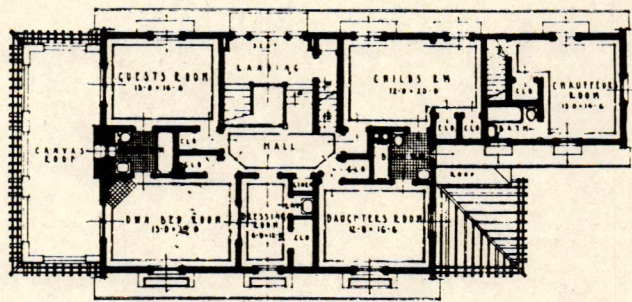
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Dwight James Baum, Architect.



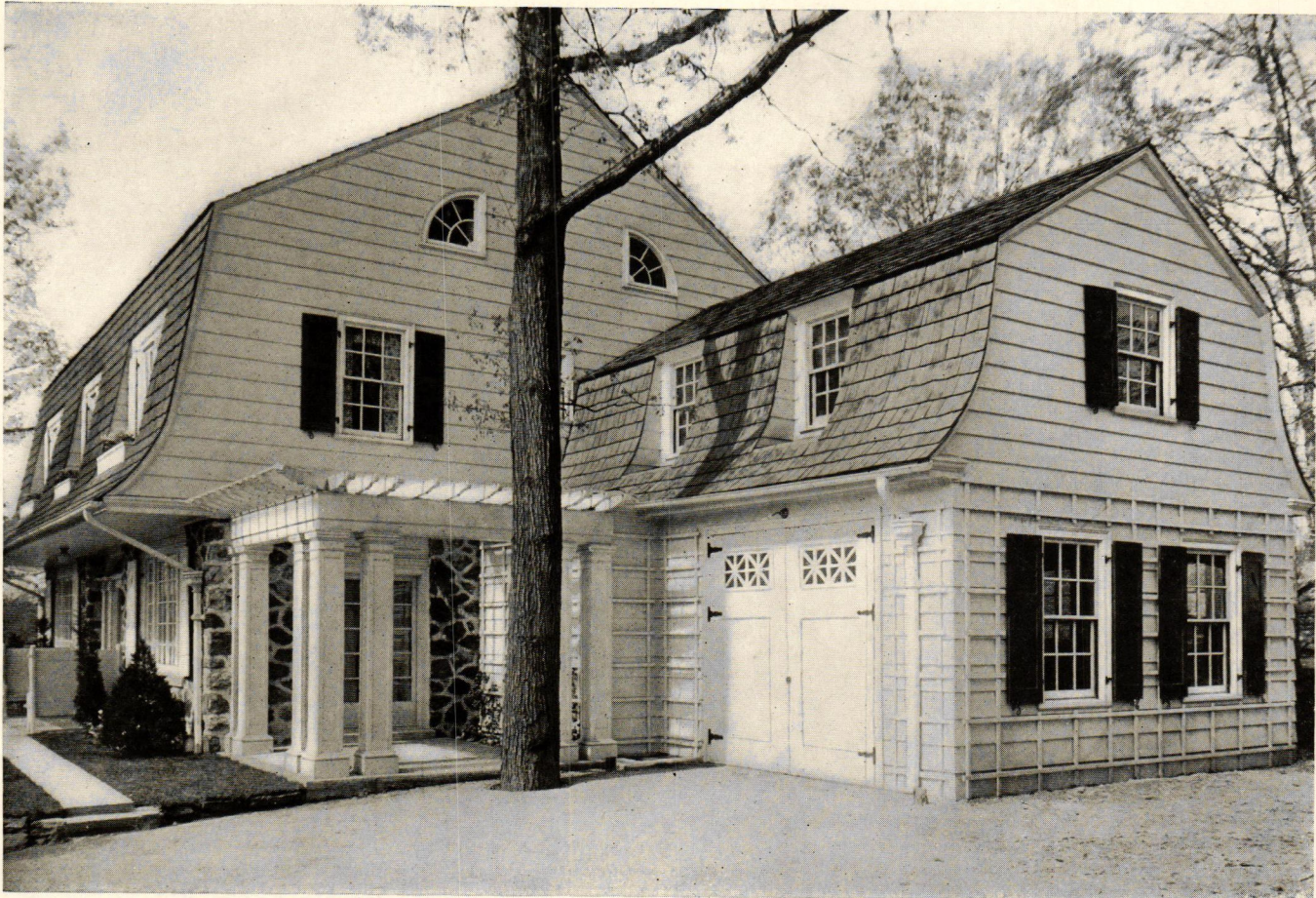
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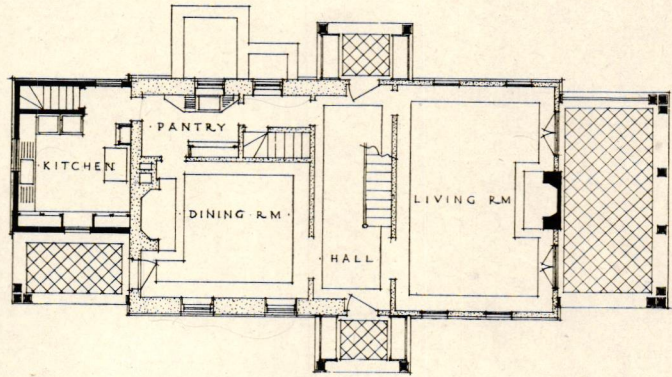
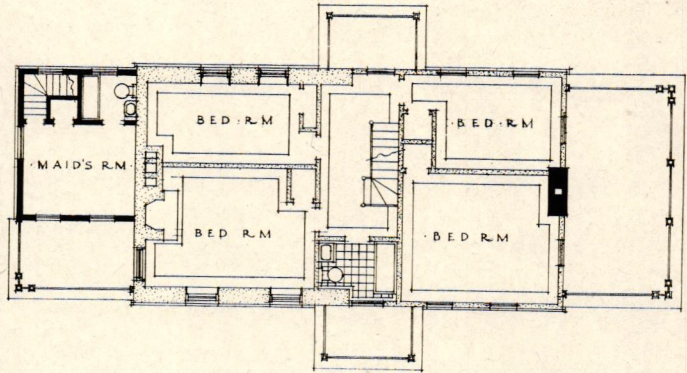
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Dwight James Baum, Architect.



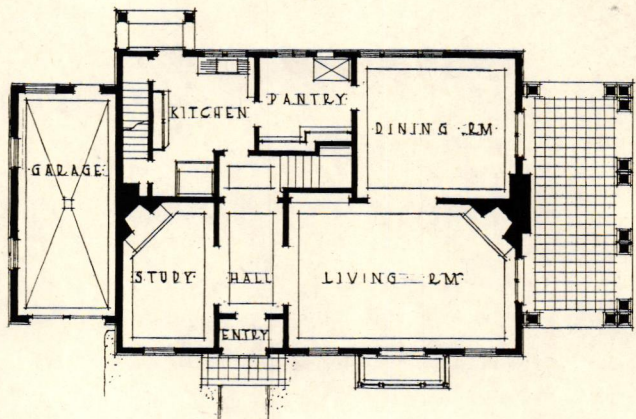
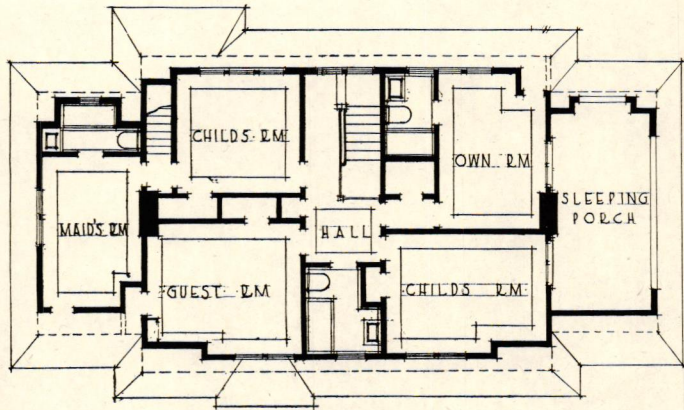
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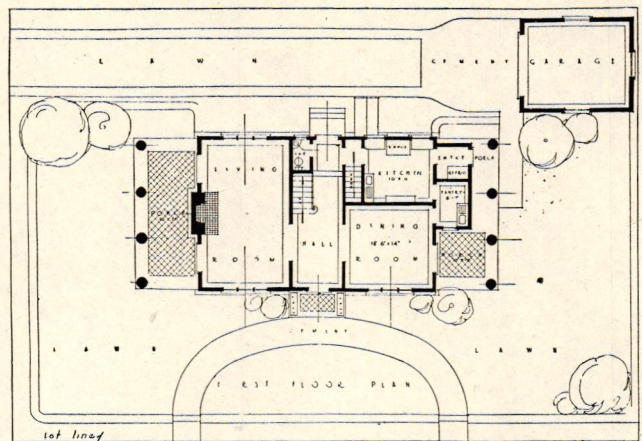
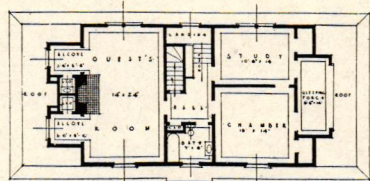
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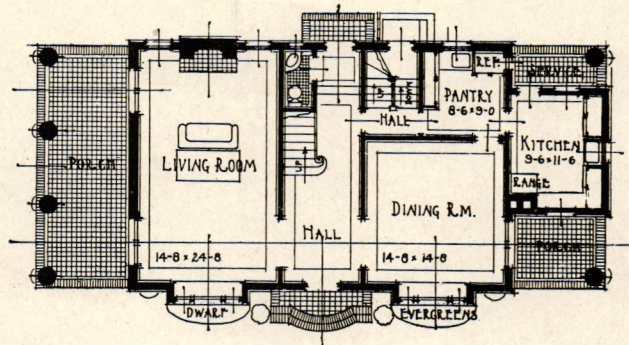
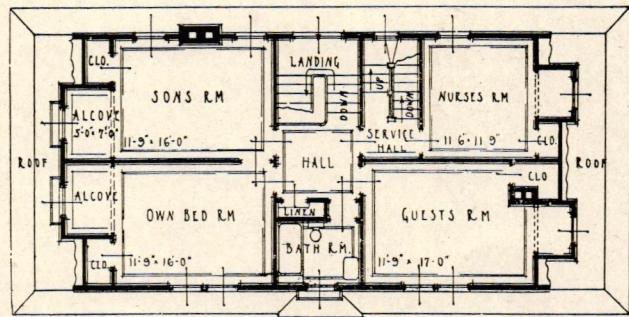
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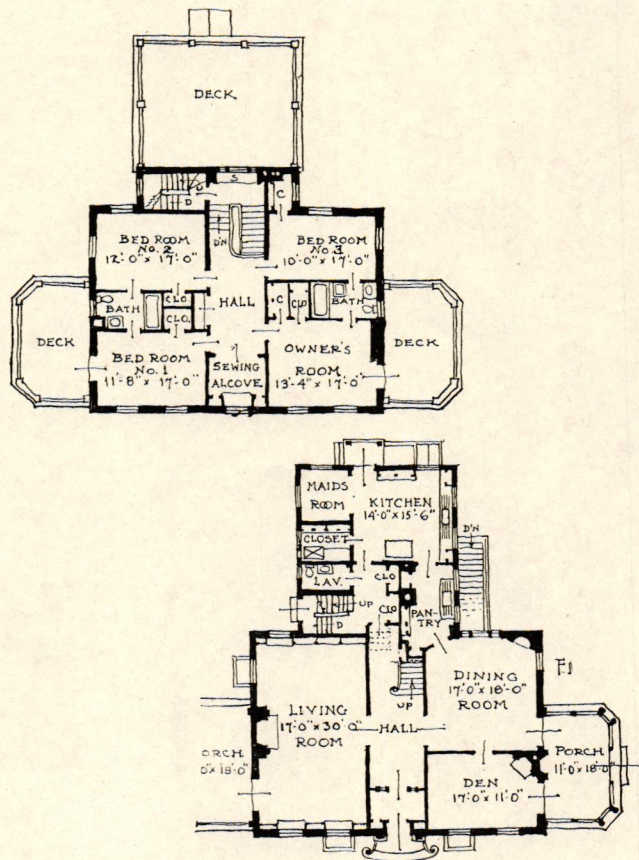
HOUSE AND PLANS. H. J. HUMPHREY, BELLE ROSE, L. I.

Dwight James Baum, Architect.



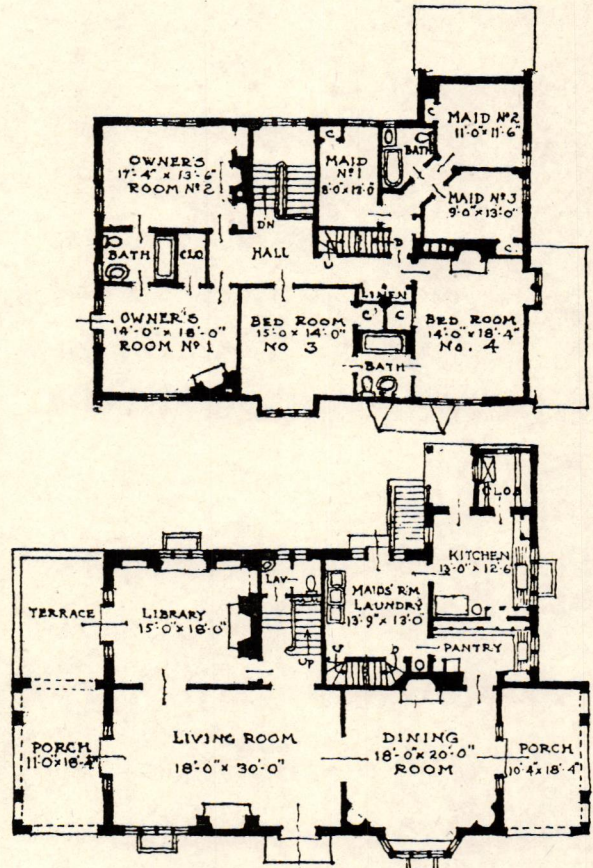
HOUSE AND PLANS, ALBERT C. SCHWAB, RIVERDALE-ON-HUDSON, N. Y.

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HOUSE AND PLANS, T. G. TREADWAY, BRISTOL, CONN.

Murphy & Dana, Architects.

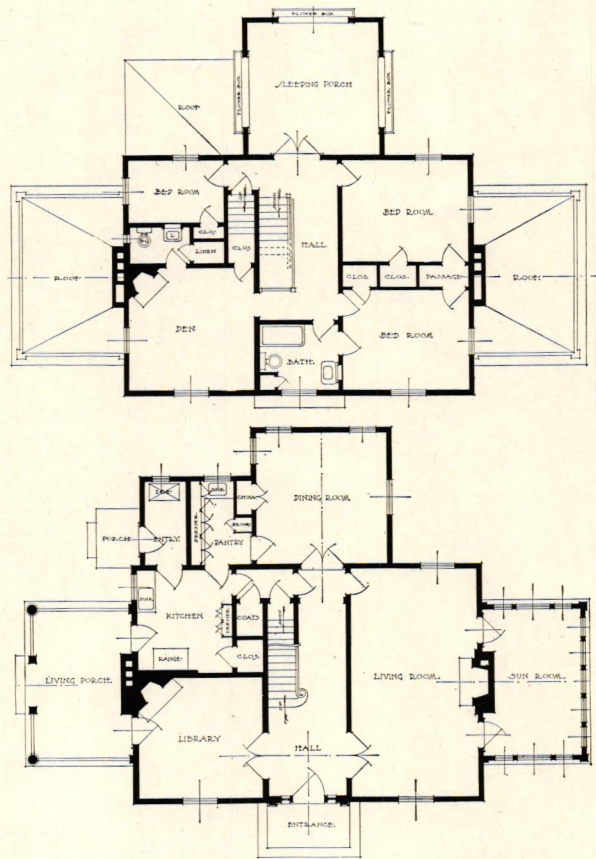


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Murphy & Dana, Architects.



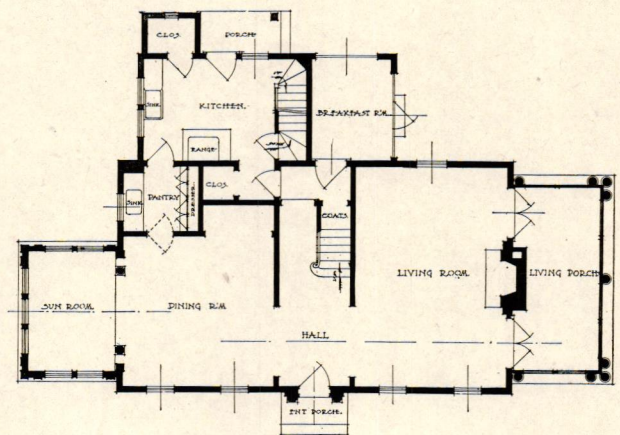
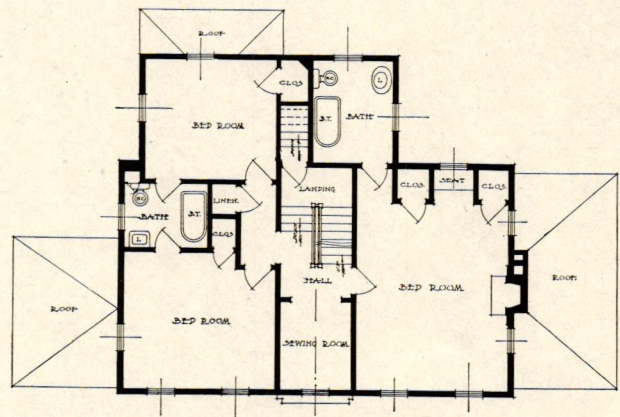
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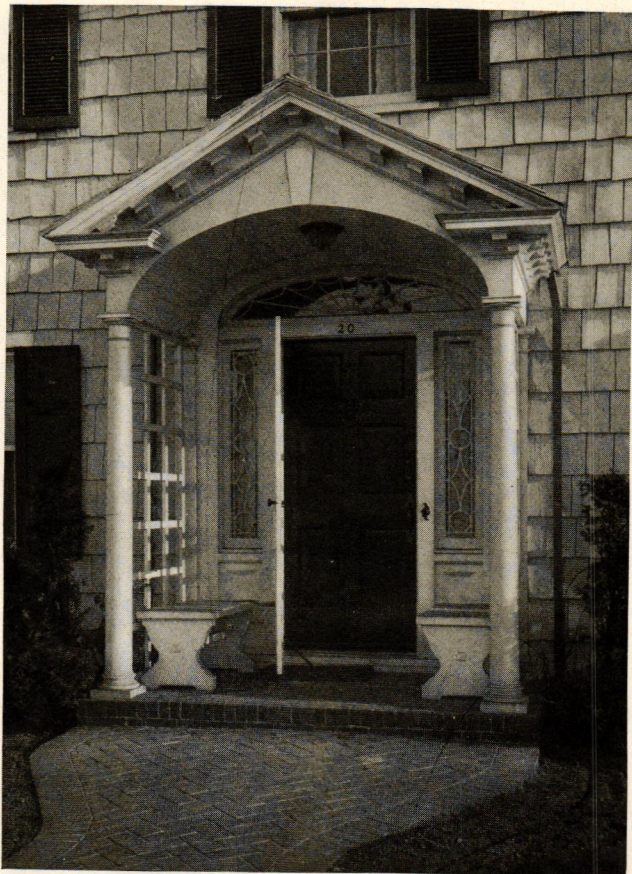
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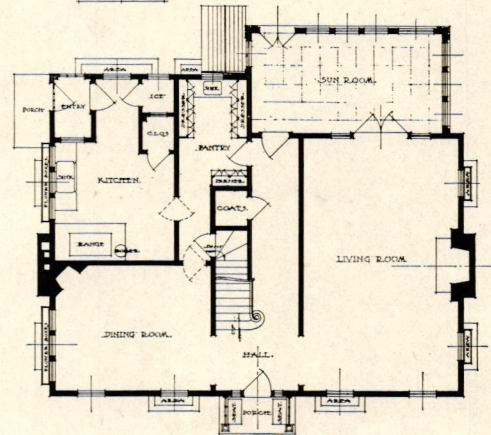
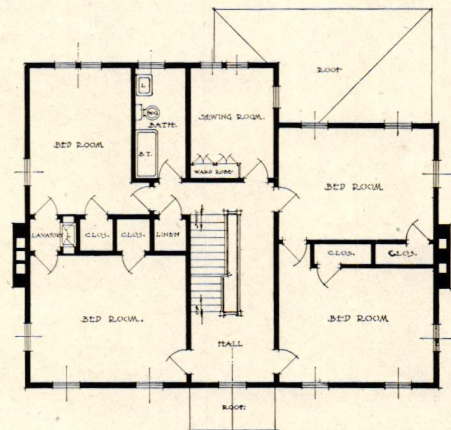
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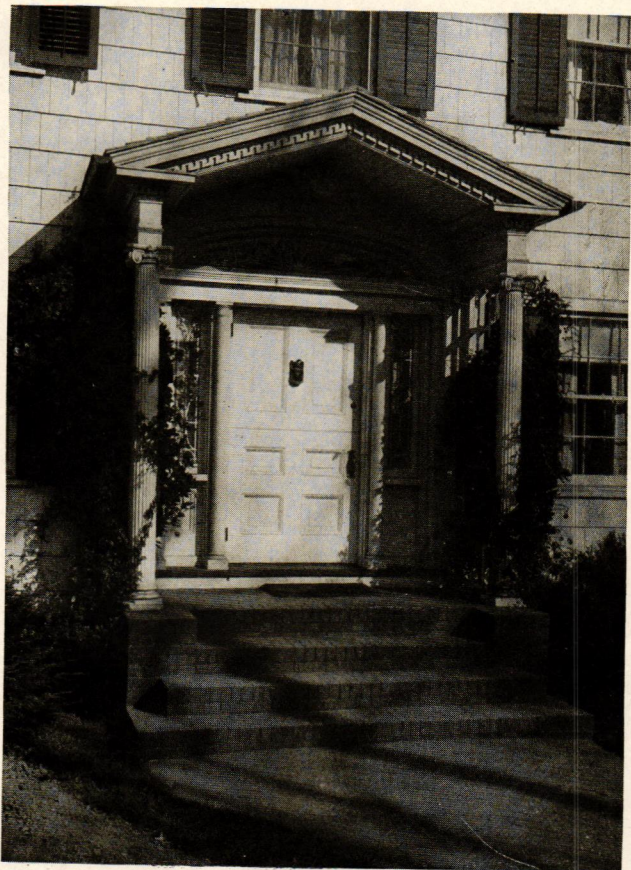
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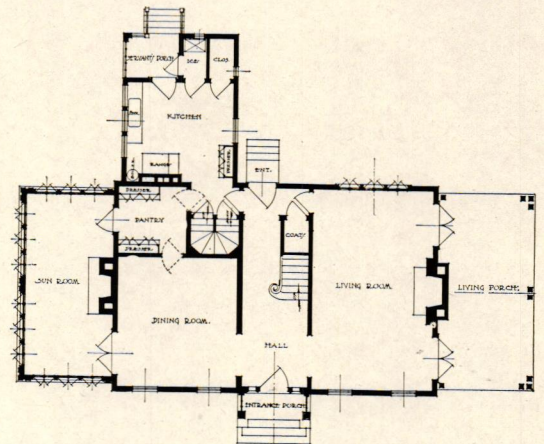
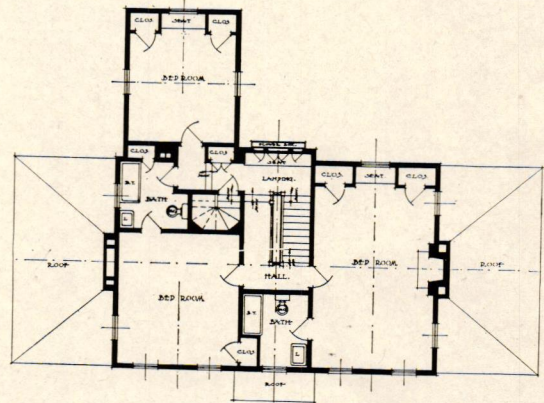
HOUSE AND PLANS, LOUIS A. MATHEY, CRANFORD, N. J.



Hollingsworth & Bragdon, Architects.



HOUSE AND PLANS, ROBT. J. MIX, CRANFORD, N. J.



Hollingsworth & Bragdon, Architects.

Space will not permit of even mentioning these manifold modifying agencies, but the fact is sufficient that in this Grecian land of pure marble, clear outlines, beautiful scenery and lofty civilization, the order treatment advanced to the noblest form that the ages have produced. The lintel construction was still the one means of edification, nor did the Greeks depart from a logical expression of such by any sham for the sake of display. They retained and improved upon every device that served to gratify their sensitive appreciation of the beautiful. They proportioned their columns to suit the masculine taste of the Dorian and again to the more effeminate taste of the Ionian with its marked influence of the more ornate East, and yet again to the special demands of the Caryatid support and the more pretentious Corinthian shaft. The lintel for each order, developed now into the distinct members of architrave, frieze and cornice, grew to a proportion harmonious to the height of the column—a harmony which succeeding ages have recognized as approaching perfection.

It is true that the Doric order apparently clung to the decorations of the discarded wooden construction, in the triglyphs, mutules and guttae, but were these marble forms that rendered such virile light and shade and such harmonious lines of rhythmic composition not sufficient in their own beauty to withstand any adverse criticism founded on disputed derivation? The Ionic scrolls may have been derived from a curling parchment, an organic growth, or the mode of hair-dressing of a Greek maiden. Who cares, when the beauty of its subtle lines is seen in the proper relation to the graceful order? In all, the Greeks adopted the decoration to the function of the decorated member, were it the annulets of the Doric echinus of the acanthus leaves on the bell-shaped Corinthian cap.

When the Romans conquered Greece they were in turn conquered by their forms of architecture, and here we find the inconsistency of form to function which has been the detrimental characteristic of so many later styles where the orders have been used. The Romans developed and utilized the Etruscan arch by greatly differing from those of their Greek instructors. Still they clung to the order form and, although they often employed the columns in a logical manner, too often the whole order became a mask pasted upon a solid wall, serving no other purpose than to clothe a splendid body in ill-fitting garments.

They developed the five orders—Tuscan, Doric, Ionic, Corinthian and Composite, each of which with its peculiar proportions possessed much of beauty and harmony especially as preserved for us by the Renaissance students. The Corinthian and Composite were the most popular with the Romans and much of the lofty grandeur of the best Roman types is due to the use of these orders. Too often, however, the Roman use of the orders displays an illogical following of Greek precedent coupled with a love of display and a carelessness of detail.

After the fall of the Roman Empire, the Early Christian, Byzantine, and Romanesque which developed as distinct styles throughout the European lands, all clung to the column as a supporting member, but the accompanying entablature became greatly altered or discarded. Shafts of innumerable types originated, from the twisted and incongruous knotted forms where in all sense of supporting member was lost, to the sturdy cylinders of the Romanesque with their most marked devotion to duty. In all is seen the use of the order as column or more often pilaster, as a mere decoration, pardonable if the aesthetic value of such entitles it to the sole duty of ornamentation. In these styles, the arch formed the chief principle of construction and the order treatment which is above all, the more elementary lintel construction, was of secondary service.

The Gothic builders introduced the third great constructive principle that has determined style in architecture, namely, the principle of the thrust. Their form followed function and the Gothic growths were as organic and natural in their best period as the severest critic could desire. The order, as it is recognized by its components, ceased to exist, yet in the clustered shafts with splendidly carved capitals, there is what might be termed a Gothic order. The verticalness of the design would not tolerate the horizontal bands of the classic cornice and the capitals themselves assumed the duty of providing a transition from the tall shafts to the vaulting ribs.

When the light of the Renaissance with its revival of classic art and learning, broke in upon the darkness of the Mediæval, its first rays disclosed a renewed employment of the classic order motive. The great masters of Florence seem to have delighted in the classic orders as things of beauty in themselves and strove to enhance them still further by rich decoration. So ardent did the later schools of the Renaissance become in their devotion to classic precedent that the decorative faults rather than the structural merits of ancient Rome were emphasized. The architectural treatment of any wall was almost bound to result in a veneer of engaged columns or pilasters which could give no evidence of supporting more than the accompanying cornice, which in turn served only as some excuse for the columns.

The Renaissance movement spread with tremendous popularity from Italy throughout all Europe, each country adopting it to fit its own peculiar problems, but as a rule misusing the order treatment in direct proportion to the distance from the original source of the ancient classic. Political agents transferred it into France where it found a fertile field, trained by the artistic skill of the native French and imported Italian. In Germany this combination of skill was apparently wanting and much of the German Renaissance is filled with unintelligent and far from ornate uses of the order treatment. From Germany via the low-countries, England received the Renaissance impulse in architectural design and with it the oft transplanted and sadly maltreated classic order. This was reared to some degree of purity by the genius of Inigo Jones and Sir Christopher Wren, who went back to the fountain source of classic inspiration.

Even in America did the revival classic forms penetrate at the early period of our Colonial times. Here is an interesting example of striving to use inherited forms with a handicap of poverty. As fond as every American is apt to be of the Colonial style, one must needs wonder what might not have developed had there been no copies of Vignola nor loyal craftsmen brought in to guide the Colonial workman. The architectural charm of the Colonial comes in the clever adaptation of inherited forms to material, but not always in the foreign form itself.

In our present day work, the problems that confront us are ever changing with the increased use of steel and the innumerable ever-improving materials. Should not the architect frankly meet these problems and express as honestly as possible the material in which he is obliged to work? If such material is adaptable to the order treatment, and the problem allows for the frank use of the post and lintel construction, what more splendid motive can be obtained than the order treatment with proportions refined by ages of study? On the other hand, good proportions and pleasing decoration are very possible without a thought of the classic orders, and there is certainly no excuse for introducing an uncalled for decoration that belies the real construction it conceals. The true artist is the one who can profit by all the wealth of past experience and yet be true to present demands.

Legal Decisions of Interest to the Architect

These decisions appear monthly and are edited by Mr. John Simpson, the well-known lawyer.

SUBSTANTIAL PERFORMANCE—ARCHITECT'S AUTHORITY.

In an action on *quantum meruit* for work done and material furnished, the evidence tended to show that the plaintiffs entered into a written contract to erect for the defendant a dwelling house on the terms indicated in the plans and specifications prepared by the defendant's architect; that thereafter the defendant modified the contract by certain changes which, the plaintiff's testimony showed, were agreed on with the defendant; that before the house was completed in some minor detail, the defendant and her family took possession of and occupied it as her dwelling. The plaintiffs' testimony was to the effect that the house was completed by them according to contract and in a workmanlike manner, and that all changes made by them were as directed by the defendant in the course of construction. This, however, was denied by the defendant's husband, as a witness. There was thus presented an issue of fact for the jury, as to the completion of the work as per contract, and as to the acceptance thereof. The contract and plans and specifications were offered in evidence. The contract contained clauses to the effect that the defendant would provide an architect, who was designated therein, to supervise the construction of the building; that this architect should have authority to accept or reject all of the materials furnished, or work done in the construction, and that a final certificate from him, on full completion of the house, should be furnished. The owner's husband testified that he was his wife's agent. There was testimony tending to show that he not only became dissatisfied with the architect, and assumed a personal charge of the work to the architect's exclusion, but, after the contract was substantially executed, excluded the plaintiffs.

The Alabama Supreme Court held that if the defendant discharged or dispensed with the services of the architect, and assumed personal control of the erection of the house, the defendant could not thus place it beyond the power of the architect to give the final certificate and defeat the plaintiffs' recovery for the substantial execution of the contract on the ground that the certificate of the architect had not been obtained by the plaintiffs. If the architect was authorized to bind the principal in the acceptance of the work, and to represent both parties to the contract in the construction of any doubtful specifications thereof, and if he did so act for his principal, and the right of action accrued to the plaintiffs against the principal by reason of the contract and of the act of the architect thereunder, the remedy employed by the plaintiffs for recovery—whether a suit for a breach of the contract or one on the *quantum meruit*—would not affect such accrued right of the plaintiffs. The defendant could not thereafter defeat this right by a change of architect or superintendent, or by unreasonably excluding the plaintiffs from the further prosecution of the work. Judgment for the plaintiffs was affirmed.—*Cataurzano v. Jackson* (Ala.), 73 So. 510.

REFUSAL TO ISSUE ARCHITECT'S CERTIFICATE AS FRAUD.

In a mechanic's lien suit by the principal contractor allegations were made by the plaintiff of fraud on the part of the architect in refusing to issue a certificate and this question was left to the jury under instructions. The defendants' position was that there was no question of fraud raised on the evidence. As to this the Court of Errors and Appeals of New Jersey said, on appeal: "It is inferable from the architect's

own testimony that he was ready to issue the certificate, but that the defendants wished to cut down the final payment by several hundred dollars on account of a counterclaim which the architect refused to recognize or support except for a much smaller sum; that he advised the plaintiff to 'get after them and get his money'; and that when plaintiff asked for the certificate it was on the day before the suit was begun, after plaintiff had retained counsel, and that he then refused it because he 'did not want it to appear that he was issuing a certificate for a case'. Such a reason was, of course, no reason at all, and led the judge very naturally to inquire of the witness whether he did not think that he had assumed responsibilities not belonging to his duties as architect. If the witness' statement was true, and there was no reason to believe the contrary, his refusal under such circumstances was fraudulent in the sense in which the Court understood it in *Clusin v. Schipper*, 51 N. J. Law 1, and *Bradner vs. Rofpell*, 57 N. J. Law 412. It is claimed that, to constitute such fraud, the owner must be a participant. If this were the rule, a corrupt architect would be greatly aided in extorting money from the contractor as a condition of awarding a certificate that was fully earned. The injustice of such a situation is obvious."—*Rizzolo v. Poysheer* (N. J.), 99 Atl. 390.

CONSTRUCTION OF BUILDING CONTRACT.

Where the thing to be done under a contract does not pertain to articles of taste or fancy, and it is stipulated that it shall be done to the satisfaction of one of the contracting parties, the party to be satisfied cannot act capriciously, and the law will say that he is satisfied with that with which a contracting party under the circumstances ought to be satisfied. In an action for damages for the alleged breach by the defendant of a written contract it appeared that the contract provided that the plaintiff should procure plans for three or more houses to be built on the defendant's land, and should superintend construction, and upon completion use his best efforts to dispose of the houses at the prices to be approved of by the defendant. The contract, after providing for a division of any profits realized, declared that should the continuance of building prove unprofitable, in the opinion of the defendant who furnished the capital, he should have the right to discontinue the building of any further houses. The St. Louis Court of Appeals held that the matter for the defendant's determination was whether it would be profitable to continue building on the land under contract, and not whether it would or would not be profitable to continue building operations. In such case the plaintiff could not complain of the defendant's determination that further building operations under the contract would be unprofitable where the defendant had reasonable ground for his belief; the defendant being entitled to the untrammelled exercise of his judgment so long as he was acting in good faith. The evidence was held to warrant a finding that the defendant's refusal to further proceed with the contract was based on substantial grounds, and so the plaintiff could not recover a share of the profits obtained by the defendant as a result of subsequent building operations not under the contract.—*Burns vs. Reis* (Mo.), 191 S. W. 1096.

BUILDING RESTRICTIONS.

In a suit to enforce a building restriction the question was presented as to which way the building, which was on a corner

lot, fronted. The Illinois Supreme Court holds that in determining such a question it is proper to take into consideration the interior arrangements of the building as well as its external appearance. The restriction provided that no building should be erected upon the front three-fifths of the corner lot facing a main street and a side street. A building, consisting in part of storerooms, but mainly intended for use as an apartment house, erected upon the lot, was so fashioned as to present an attractive appearance on both streets, although the main entrance was located upon the main street. It was held that under the rule requiring the entire instrument to be considered so as to give effect to the intention of the parties, it was apparent that the object of the restriction was to preserve the main street as a residence street, and that, therefore, the restriction had not been violated.—*Boylston vs. Holmes* (Ill.), 114 N. E. 522.

ACCEPTANCE OF BIDS.

A religious body, desiring to erect a church, advertised for bids. Three builders responded, each bid being accompanied by a certified check for \$1,000. The lowest was accepted; it was for \$30,973, \$3,900 below the next highest. The successful bidder was notified. The same day, on returning home, he discovered that through some oversight the item of structural iron required in the building had not been included in his bid. The value of furnishing this in place was estimated at \$2,350. The next day he notified the building committee of his mistake, and that he could not enter into the contract unless he received at least \$2,000 more than his bid. This the committee declined to give. The bidder refused to enter into the contract and stopped payment of his certified check. The contract was awarded to the maker of a belated bid of \$32,775. The church sued the bank on the certified check, the amount of which the latter paid into court, and the maker intervened. On appeal from a judgment for the plaintiff it was held that the intervener was not entitled to the amount of the check unless he could be relieved by a court of equity from the effect of the acceptance of his bid. It was held that the mistake of over \$2,000 in the bid was fundamental and not merely incidental. The amount was so large that it was unreasonable to suppose the intervener would have made the bid he did make, if he had known that the structural iron work was not included therein. It was an honest mistake made without negligence. The plaintiff was apprised of the error at once. No intervening rights accrued. The belated bid which the plaintiff accepted was a trifle less than the one the intervener intended to make. The plaintiff did nothing in reliance upon the intervener's bid, and did not change its position in the least between the time it notified him of the acceptance and the time it received notice of his mistake. Although the checks of the other two bidders were returned to them, the plaintiff accepted another bid obtained without any effort on its part, and in an amount very much lower than either of the two upon which the checks were returned. Judgment for the plaintiff was reversed and the money was directed to be awarded to the intervener.—*St. Nicholas Church vs. Kropp* (Minn.), 160 N. W. 500.

NOTICE TO OWNER OF CONTRACTOR'S REFUSAL TO PAY SUBCONTRACTOR.

The New Jersey Court of Errors and Appeals holds that under the New Jersey Mechanic's Lien Act, which provides that whenever a contractor shall, upon demand, refuse to pay any subcontractor, the subcontractor shall give notice in writing to the owner of such refusal and of the amount due to him, a notice, served by the subcontractor on the owner, referring to the contract between the subcontractor and the contrac-

tor stating that the work was completed according to contract, that the contractor had money due the subcontractor, and notifying the owner to retain any money due the contractor—did not comply with the requirements of the statute, in that it did not allege demand on the contractor and his refusal to pay.—*Engel vs. Central Bldg. & Const. Co.* (N. J.), 99 Atl. 311.

REQUISITES OF CLAIM FOR MECHANIC'S LIEN.

The Michigan Supreme Court holds that a notice of claim for mechanic's lien which fails to state the name of the owner, part owner, and lessee, will not support an enforcement of the lien, though the name could be supplied by reference to an attached copy of a contract and the pleadings, where the statutory requirement is that the name appear in the claim.—*John F. Noud Co. vs. Stedman & Co.* (Mich.), 160 N. W. 547.

PARTNERSHIP ACCOUNTING.

Two firms of architects entered into a partnership for the special purpose of accepting employment in connection with particular buildings, and a member of one of the firms was made executive head of the new partnership. About seven years later he died, leaving the work unfinished, and the other component firm procured the termination of the contract, and a new contract for the completion of the work, without consulting the survivor of the first firm, or the estate of the decedent. It is held that the organization which the new partnership had built up was a partnership asset, of which the surviving partner and the estate of the decedent would be deprived if the other component firm were not required to account, and such firm was guilty of a breach of trust, requiring an accounting.—*Stern vs. Warren*, 161 N. Y. Supp. 247, 96 Misc. 362.

APPROVAL OF WORK BY ARCHITECT.

A contractor brought suit against the owner, on a building contract, for the balance alleged to be due to him. The contract declared upon, and attached to the petition as an exhibit, contained an express stipulation that payments were to be made by the owner to the contractor in installments only when the work had been approved by the architect, and that no money should be paid to the contractor except upon orders from the architect. The Georgia Court of Appeals holds that the petition, in the absence of any allegation that the work of the contractor had been so approved by the architect, or that any order had been given by the architect for the payment to the contractor of the balance alleged to be due, or that this stipulation in the contract had been waived by the owner, did not constitute a cause of action and was subject to be dismissed on general demurrer.—*Hilton vs. Taylor* (Ga.), 90 S. E. 223.

FORECLOSURE OF MECHANICS' LIEN.

A materialman, on receiving from the contractor a check which was not paid for want of funds, authorized the owner to pay the contractor the balance due on the contract, and the payment was made as authorized. In an action to foreclose the lien the Washington Supreme Court held that the materialman was estopped to foreclose, notwithstanding the statute provision that a lien is not discharged by taking any evidence of indebtedness unless the instrument accepted expressly provides that it is received as payment.—*Nelson & Castrup vs. Culver* (Wash.), 162 Pac. 978.

MECHANICS' LIENS—ITEMIZED ACCOUNT.

The Missouri Supreme Court holds that a mechanic's lien is not defeated by the materialman's failure to itemize and include in his lien account the material sold and delivered up to a date when receipt in full to that date was given by him, the owner of the building acquiescing in such settlement and no fraud appearing.—*N. C. Nelson Mfg. Co. vs. Doherty*, 191 S. W. 983.

The Education of Public Taste

By Dr. Jesse Benedict Carter, Director of the American Academy at Rome

An address delivered at the annual dinner of the American Institute of Architects.

TWO years ago I had the great privilege of addressing this institute, and when I think that at that time I had the childlike and simple audacity to prophesy to you that we were approaching the Middle Ages, I tremble tonight at what I may say, and at the gruesome way in which the fulfilment of that prophecy has been revealed in the last eighteen months. I told you then that we were approaching the Middle Ages. They have not only come, but they are in full darkness. Europe is very dark today. She is dark physically, for fear of the terror that fieth by night. She is dark spiritually, for the bubbling up of that perpetual query, "*Cui bono?*"—What is it all about?

And still we stand in an age of prophecy, and prophecy goes, if you will, very cheap. We have old men seeing visions and young men dreaming dreams. We have our peace ships. We have our peace congresses of mothers and wives getting together and throwing themselves, in good old Roman fashion, between the combatants. These are strange days, my brethren.

The history of them is full of those things that are so simple—that seem to us so tragic. And, in the midst of this prophecy, I have only one prophecy that I dare to make tonight, and that is that when this war is over the result of it will be felt in the United States more than anywhere else in this world.

But that is not my subject tonight. I would not have chosen my subject as it is; it was given me by one of the institute, who asked me to speak on the Education of Public Taste. Now that, to me, is an unnecessary thing to speak of in the presence of this institute. To you, who are doing all things, it seems impossible that I should tell anything about the possibilities of educating public taste; all the more so when, as I could not hear, I came and saw the growth, the wonderful strides that public taste is making year by year. I stand in rapt admiration of what you are all doing to give us the expression of those things that are latent in all true Americans.

But, seeing I have been asked to do it, I do it in the same spirit in which the request came; for I can think of nothing more touching than the fact that you who are doing these things should so entirely for the moment forget your commissions in the spirit of the realization of your omissions, that you should write pamphlets and circulate documents and publish a journal, in the hope that you may be able to rouse America to a sense of the necessity of the education of public taste. It seems to me such a wonderful thing—so old, so ancient! Like the patriarch that labored all those years and forgot them, for the love he bore to her—the love you bear to your art.

And so, in the spirit of perfectly straightforward honesty, and having been asked to answer this question, I propose to say something to you that may seem very crude. It may have the transcendental uselessness of those counsels that transgress all the rules because they seem to discourage reasonable effort.

As a matter of fact, when we look at the beginnings of public taste, we must look at the history of our country. And

there is a thing that could be written in a wonderful way, if somebody could only do it—the story of how in the progress of our country, our history, we have gradually forgotten the individual entirely and gone into, not only the psychology of mob-motion, but the personal appreciation only of the mass.

We understand it perfectly. Our ancestors came up with the most wonderfully developed taste, a small community. Except the ancient Greeks, there was never a community in the world so perfectly individualistic, so absolutely personal, as the Eastern Atlantic States in the seventeenth and eighteenth centuries. And then there came that great, sublime ideal—no man can have reason that speaks against it—the ideal that this continent must be ours; we must possess it; we must cultivate it; we must cover it with a network of railroads; we must extract its mineral wealth; we must populate it—by ourselves, and by the hordes of those who would come to us in the great principle—gradually diluting, if you will—in which our ancestors came here first.

But in that process we have long lost the appreciation of the copper cent. From the cent we have passed to the dollar; from the dollar we have passed to the thousands of dollars; from the thousands to the millions. And, in the same sense, the individual went into the mass. It is so much easier to handle the dollar than one hundred copper cents. So much easier to speak of one hundred human beings than one hundred personalities.

So we have gone on massing, massing, massing—working with masses until our alienists, teaching us mob-psychology, in order to make the vicious circle complete, divide us into double, triple, quadruple personalities—until we are in danger of making little mobs inside ourselves. And, when those little mobs come into existence, we may feel, perhaps, more at home, because we are so much more accustomed to dealing with masses than with individuals. We may, perhaps, feel a certain old-fashioned sense of shame in the presence of a little internal mob.

I say this in all seriousness, for it seems to me that the only problem we have to deal with in this difficulty in regard to public taste is the problem of private taste and the problem of the elevation of individuality. Taste is the most personal thing in the world. It is quite as personal as religion. A public taste could be, of course, the taste of a committee appointed by some political or organized mass; but it would simply be then the standardizing of the tastes of its members.

We may go beyond that. We may develop a taste among ourselves that may be harmonious. And that is what we are doing. To inculcate the whole thing, it is an absolute necessity that we should develop private taste—that people should come into harmony with their surroundings. The trouble is simply that we as a nation have forgotten for a moment the necessity of appreciating individuality.

A man goes through the streets of New York, his mind filled with wonderful schemes for helping the masses. He gets on the tram, he gets off the tram, and he doesn't see the man

who runs that tram. He would do a great deal more good if he recognized the personality of that tram conductor.

Really, rowdies are themselves the most courteous men in the world, if you only realize that. I come here and I say to the lift boy, "please," and the man takes his hat off to me a year afterward. I say to the man, "Forty-two, if you please," and he says, "Certainly, sir; thank you."

But this is, after all, only the appreciation of individuality. What other difficulty is there? These persons having been crushed by this massing movement—they are individuals—what are they doing? They are trying to escape individuality, poor things, by being all alike! We establish in this country the great principle that all men are free and equal; and then we spend all the time trying to be equal, and never try to be free.

Speaking for the masses, what is the freedom of our intellectual life? It is the equality of the headline in the newspapers. It does our thinking for us; it does, usually, our reading for us. And what is the freedom of our private dress, of our habitations? We stand there under that anemic influence of commercial advertising. We find that the wonderful Icthyosaurus Department Store has ten thousand lingerie gowns at ten dollars, and at once ten thousand women must buy those ten thousand lingerie gowns. We find that the men who "saw that hump" put it on the toe of the shoe; and thereupon all our shoes wore humps, until we rebelled and sent them to Europe, where they are still wearing them.

We find that the X. Y. Z. Tile Company makes the only roof used by "respectable" people, and in great anxiety we lap up that tile, saying, "By their roofs ye shall know them."

Now, we may not be able to cure these things. I do not see how we are going to stop them. At the same time, don't forget that they ought to be stopped. Don't give up the great ideal, the possibility of education along these lines.

Don't you see? We are not all of us as we were yesterday. We know, more than we ever knew before, that we are a very mixed nation; there are so many of these "ignorant foreigners" coming in every day.

They're the people who go to the museum on Sundays.

They are men and women who know a good picture when they see it. They know it is a good picture, not because it cost a million dollars, not because the artist died last week, but because the picture speaks to them with the still, small voice of their own admiration.

Those are the people that are ignorant, and the people that are following in our lead. They are wearing the cheap finery; they are chewing the inexpensive gum.

And for the doing of these things we have no right to condemn them, because we have set the example before them. We should, rather, emulate the reverence of their spirit; for I guarantee that many a man or woman that comes here from another land, and does these things, does them with a spiritual consciousness of being nearer to that great ideal—the American spirit.

There was once a man in this world who did more for culture than most men have ever done—Saint Benedict. He founded a monastic rule. In his rule, he puts the doctrine of *stabilitas*—stability. Don't you see, we need that rule. We need a little bit of the recognition of the value of the pools and backwaters. There is where your culture stands. We don't know the people that have had the most of it. Thousands of them we have never met. They are the quiet people, the *stabilitas*-loving people. They sit quietly in their pools and their backwaters, and the great stream rushes on.

And culture lives in the pools and backwaters, lives on things that have been done away with now. All taste is bar-

nacles, if you will; but as soon as we wipe and wash and vacuum-clean all our civilization, where is the residuum, the sedimentary deposit, from which these precious things are to arise? When we find pools and backwaters we organize movements that will drain these things into the great rushing stream, instead of letting them lie there and respecting them.

This all seems criticism. It is not criticism of anything you have done, only criticism of conditions called forth by the spirit of our time. We have not had time to do these things yet, you say. Perhaps we have not, but let us take a quarter of an hour a day and think about them.

On the other hand, what we have done is so wonderful! You men have written these living books that can be read—that he who runs may read. Most people are running here, and so I suppose that is the most popular literature.

Take, for instance, New York. Take a man who is able to put the blessing of God in the shape of a cathedral, or a skyscraper; who is able to make a Woolworth Building into a sort of amphibious thing, half commercial and half divine. Take your railway stations. I entered the gate of one today, a wonderful building, the great Pennsylvania station in New York. I entered it some two years ago, a dark winter morning, at seven o'clock, and there was a light such as I had never seen in such a place, a light such as exists in the Pantheon—that blue, purple dawn, scattering itself in those coffers. I forgot myself. I forgot I was in prosaic America, and, standing before the man that was going to sell me my ticket, I exclaimed, "Oh! this is wonderful." Then I hesitated, somewhat confused; but I was agreeably surprised. The man said, "My dear man, I am the night ticket man, and that is what I sit up waiting for. Isn't it beautiful?"

You take a city which has on its Fifth Avenue a church like St. Thomas', and when we walk that avenue it divides itself into two parts for almost everybody—until you have seen it, and afterward when you are thinking about it.

The history of taste is a most marvelous series of vicissitudes. In the ancient world it stood again and again at the brink of failure. There came a time when the city of Rome was in the balance, when Totila had captured it and was preparing to raze it to the ground, in order to celebrate his victory. Those things are not so far away now as they once seemed. He was preparing to raze that wonderful city to the ground simply to show his joy in acquiring that valuable piece of real estate, and the Imperial General, Belisarius, wrote him a letter saying: "Great cities are not the work of one generation of men, or of one age, but of countless ages. And surely of all the cities in this world the fairest is the city of Rome. And therefore, O Totila, should you destroy this city, and should you fail to win this war, what can you expect of us, of pity or mercy, after you have destroyed it? Whereas, if you win the war, how sorry you will be that you have destroyed the brightest jewel in your crown."

Totila spared Rome, and in sparing Rome he left to it that building which of all buildings is the most wonderful—the Pantheon. He left that building, and Boniface came and rescued it by making it into the Church of St. Mary and the Martyrs. And so it has stood there down into the present.

And when we stand in that Pantheon, and see that moving light and shade which thousands and thousands of our fathers have seen—our spiritual fathers—it means a beautiful thing which is not made by man, except in so far as its effects bring out the beauty of God. Those are the things in this world which create taste. They educate our taste. And God be merciful to those who, in any case, destroy a monument such as that!

The Relation of Lighting to Architectural Interiors

By *Morgan Brooks*

Extracts from a paper read at a meeting of the Illuminating Engineering Society, New York.

AT first it appears surprising that an architect who has successfully produced a beautiful interior should relegate the lighting thereof to an uninspired subordinate, or even leave it to chance, with results often so inharmonious as to obscure his art. Doubtless this is partly due to the fact that the architect did not visualize his illumination with his interior plan, and will not or cannot give it afterthought, and partly because he is not seriously disturbed by the incongruous lighting of an interior which appeals to him as beautiful with or without light, so powerful is his original idea. Probably one specially trained in illumination, who has artistic perceptions, and is eager by skillful lighting to point out to others the beauties of an architectural design, and to soften any defects, will obtain better results than could the architect himself.

It has been customary enough for architects to design their specially built gas and electric fixtures, but it will be agreed that, as a rule, the harmoniousness of these fixtures is felt more by day than by night. There is a certain antique conventionality inherent in a porcelain-candle miniature-lamp design that makes it hopeless to derive therefrom adequate modern flood lighting.

The rapid advance in lamp making which gives us powerful units also necessitates new methods of indirect or concealed sources to avoid glare. Yet possibly the successful attempt to introduce light from nowhere has outdone itself, as the logical mind is baffled by the absence of a source of light.

Not only is it a satisfaction to know whence light emanates, but it is artistically pleasing to have illumination non-uniform. Indeed non-uniformity is a neglected means of success in architectural appreciation by light. When we admire a cozy-corner in a home, its attractiveness results from its being set apart from the rest of the room by its furnishings. A table lamp with an attractive shade provides good illumination but over only a limited area. Take away the table lamp and flood the corner with superfluous light, and all coziness is gone.

In a similar manner much of the artistic taste in the design and furnishing of a room is nullified by immoderate or by monotonous lighting. When a room is completely lighted it is grasped at a glance, and maintains no interest. If only the center table is illuminated, there is opportunity for the play of the imagination in the darker spaces, and the room appears larger. Of course, if the entire room is to be occupied, as is a concert hall, it must be completely lighted; but even here the effort to obtain uniform illumination may result in diminishing the attractiveness of the room. Given a concert hall that is unduly long, with a platform at one end and entrances at the other; if evenly lighted the first glance discloses the full length of the hall and the extreme distance to the platform from the rear. Now let the stage be overlighted, the center only moderately lighted, and let the rear, under the balcony, have an intermediate illumination. On entering, the stage is conspicuous, and the middle portion of the hall loses a few rows of seats, bringing the rear seats decidedly nearer to the stage. Of course, the differences must be skillfully managed to show no sharply dividing lines, and the minimum must be up to program-reading standard. When such illumination has a valid psychological basis it proves acceptable, although often unnoticed. To diminish the length of a hotel corridor

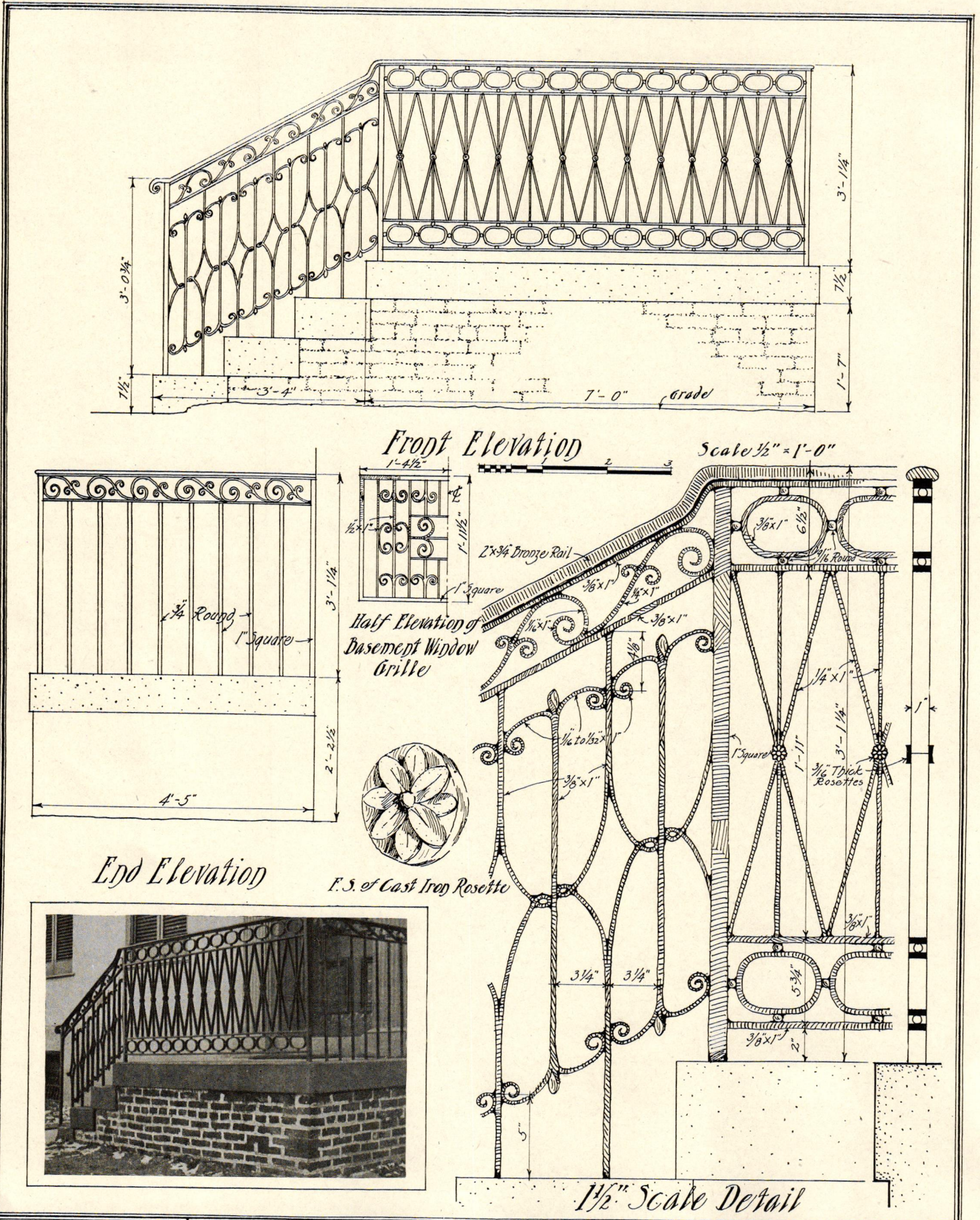
this scheme of graded lighting is inadequate; but if the mid-length is well lighted, especially by visible lamps, while the portion beyond is less brightly lighted and from concealed sources, the ordinary vision hardly goes beyond mid-length.

To take another case, a wide room will appear longer when the side walls are illuminated more than the ends, which then recede. The effect is enhanced if the ceiling-wall line is somewhat indeterminate, as the eye judges not merely by illumination but also by geometrical outline. Experiments show that a difference of the order of 10 per cent. may be produced in the apparent distance of a wall by altering its illumination.

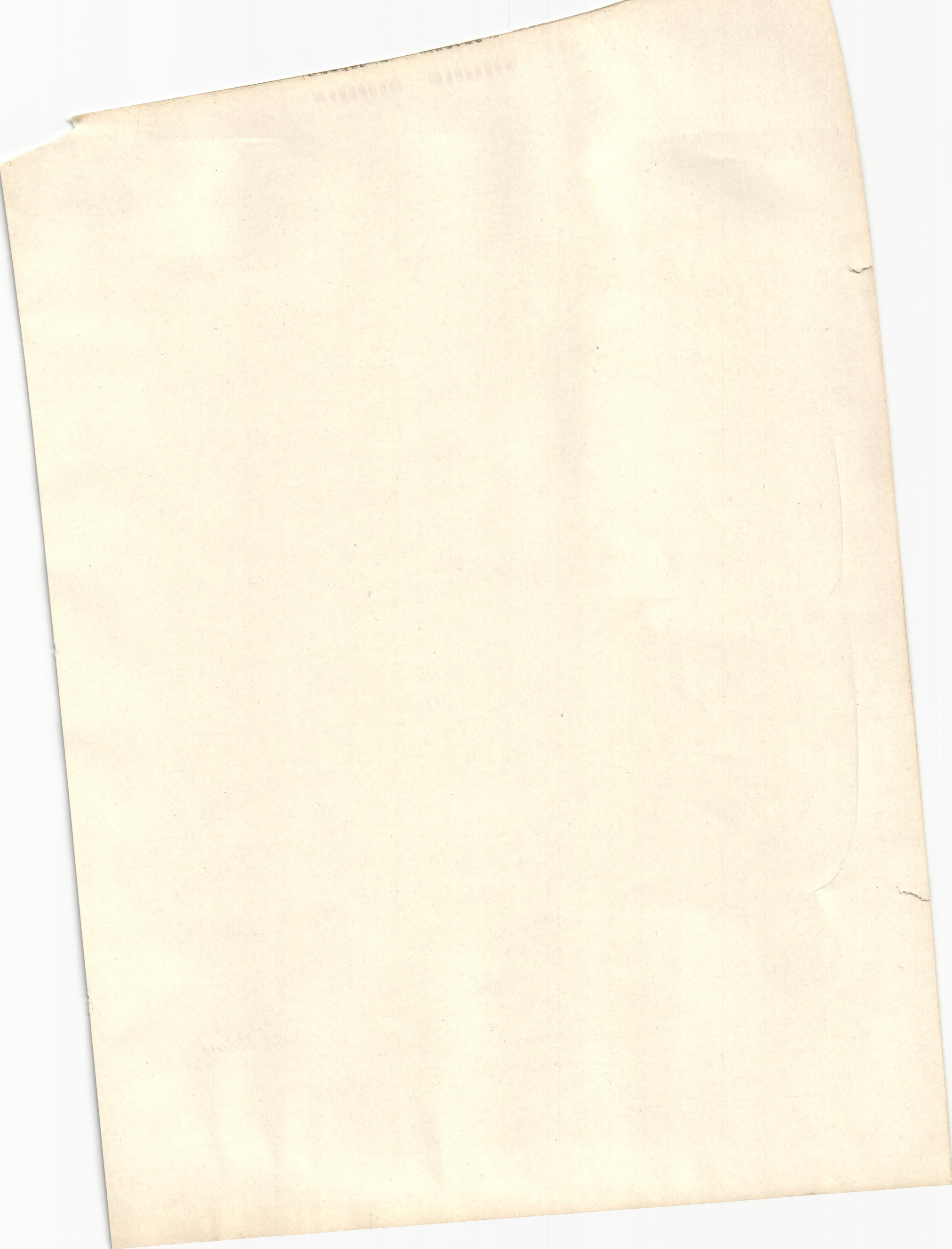
Photographic art teaches us that pleasing contrasts may be produced by proper management of light, suggesting possibilities in artificial lighting of interiors often artistically superior to that of daylight. Fairly bright illumination is necessary to bring out a color scheme, while if form alone is to be shown, contrasts may be increased or diminished by throwing more light on the brighter surfaces or on the darker. In this way desirable contrasts may be enhanced, and undesirable ones subdued. Thus to display a colonnade the columns should be accentuated by illumination if naturally bright; but if dark, should be silhouetted against a well lighted background. Shadows should be produced. For extreme conspicuousness they should be made to run quartering by a 45° position of lamps. On the other hand objectionable pillars can easily be made inconspicuous, if they are rectangular, by dimly illuminating their surfaces to agree with a dull wall behind. In the case of round columns only perfectly diffused lighting will cause their rotundity to merge into the background. Pilasters, always an architectural embellishment, should be brought out by throwing their projecting sides into comparative darkness.

Any artistic feature of a house, such as an oil painting, a choice bit of furniture or a handsome stairway may be emphasized by superior illumination, just as a masterpiece of sculpture in an art gallery is specially lighted. Care must be taken, however, not to overdo this, or an exaggerated theatrical spotlight effect may result. These effects depend wholly upon relative illumination, and are equally possible with dim or brilliant general lighting. The beauty of a landscape is enhanced at sundown by the lengthening shadows of directed but diminishing light. Modern powerful high-efficiency lamps tend toward a lavish use of light often in entire disregard of artistic proportionality, imitating midday glare.

Psychological as well as artistic considerations suggest varying the illumination progressively for one entering a house. Finding the vestibule brighter than the entrance steps, the hall brighter than the vestibule, and the reception room brighter than the hall, a guest is insensibly directed by the increasing light in a hospitable manner. Where a valid reason for illumination differences exists, dependent on the use and the relative importance of the various rooms, pleasure is felt in the lighting interpretation, even when the means are not recognized. When the conditions are disturbed, perhaps merely by failure to replace a burned-out lamp correctly, the discord is felt by one at all sensitive to harmony in illumination.



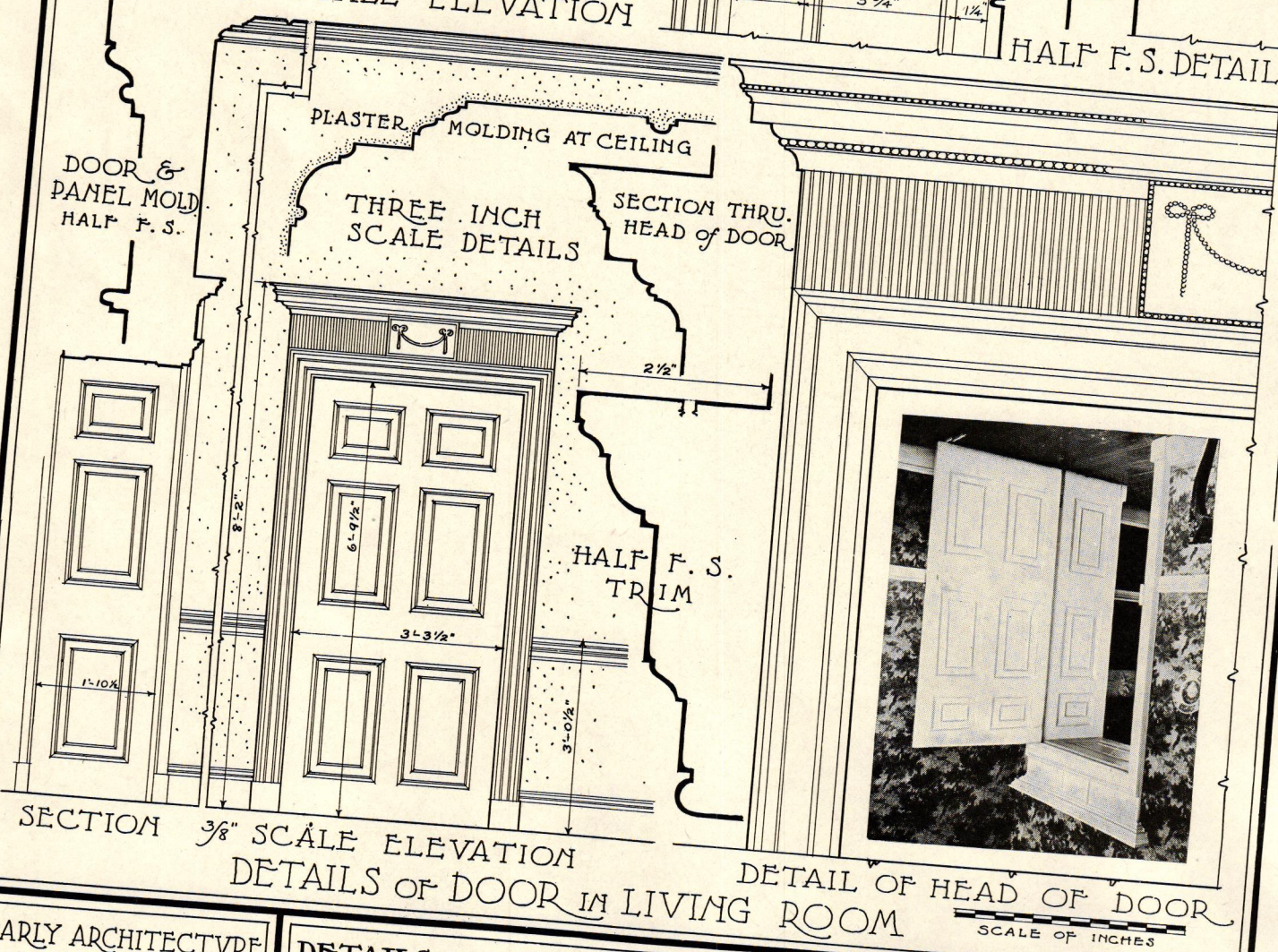
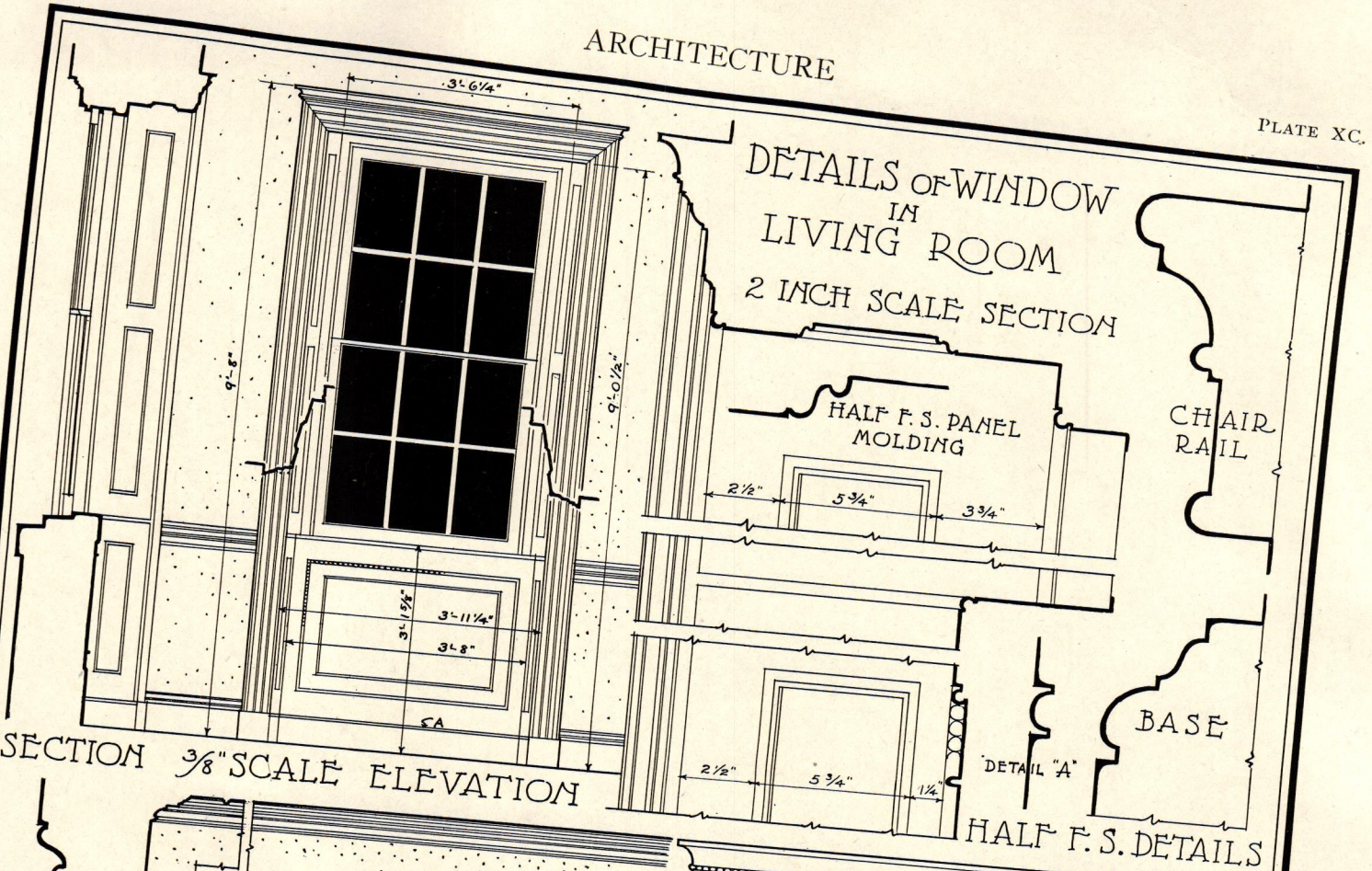
<p>Early Architecture of Virginia</p>	<p>Wrought Ironwork - Murphy House Alexandria, Va Date About 1800 Architect Unknown</p>	<p>Measured & Drawn by J.L. Keister O.J. Mudson J.A. Weber</p>
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MAY, 1917.

ARCHITECTURE

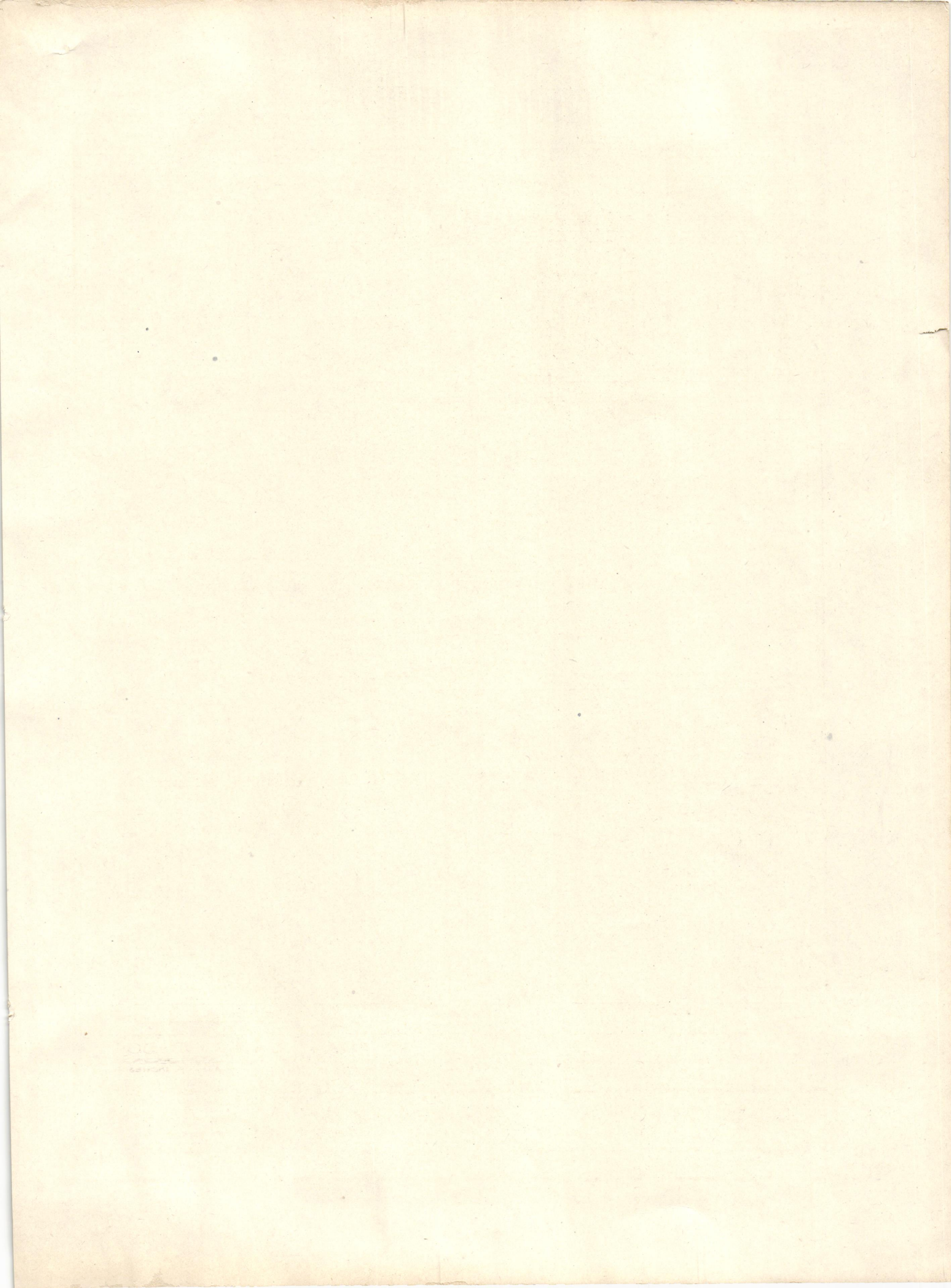
PLATE XC.

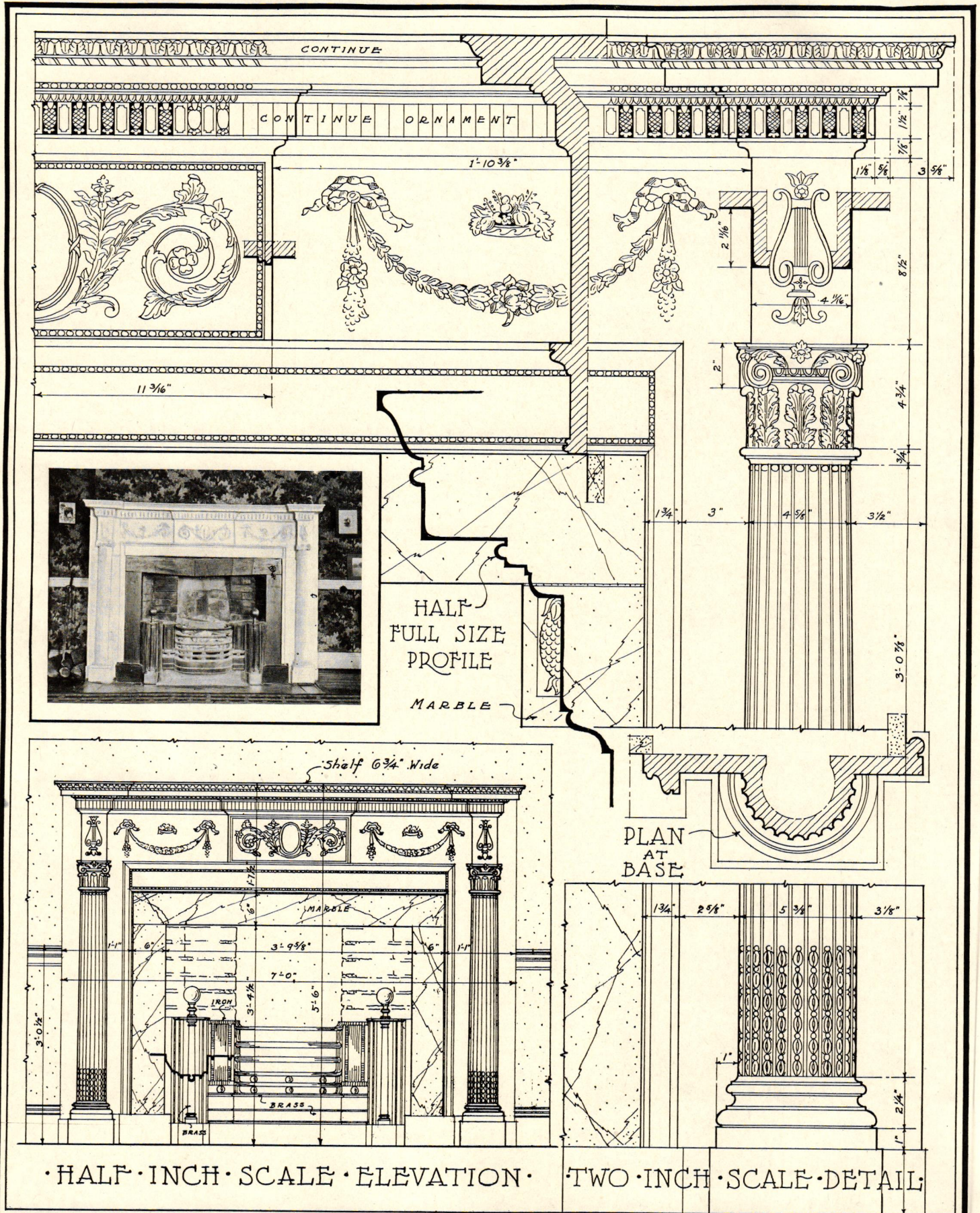


EARLY ARCHITECTURE OF NEW JERSEY

DETAILS FROM WESTMINSTER HOVSE (RESIDENCE OF GOVERNOR FRANKLIN IN 1774) PERTH AMBOY NJ BUILT IN 1764

MEASURED & DRAWN BY Albert E. Micklewright





EARLY ARCHITECTURE
OF
NEW JERSEY

• LIVING • ROOM • MANTEL •
WESTMINSTER • HOUSE • PERTH • AMBOY
• BUILT IN 1764 •

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Editorial

The Architect and Preparedness

TECHNICAL magazine is not the place to review the causes which have led the United States of America into the war, the patience which our Government has shown with the government of Germany, or the impatience with which our people in general have regarded the long delay previous to our entrance into the war. It is, however, one of the places in which the possible services of the architect to the Government in time of war can be discussed, and in which those men whose knowledge of the processes of the Government in connection with the war is slight, can be informed of what they can do.

Our profession, unfortunately, cannot as a whole be of the direct great and practical service that can the other important professions of medicine, chemical engineering, and mechanical engineering. Those three seem to be the civilian pursuits upon

which the burden of the war will chiefly rest; but there are very many things that an architect can do which need to be done for the comfort and assistance of the army.

The first field of utility, however, which architects should consider is the United States army, either as officers or as part of the enlisted personnel. To become an officer of the new army which the United States is intending to raise one must become an officer of the Officers' Reserve Corps, and as there has been concerning the methods of selection for the officers of this corps, a considerable amount of confusion and contradiction in the newspaper reports, it may be well to set the matter straight here. The Officers' Reserve Corps is neither very easy nor very difficult to enter. A simple application will not obtain a man a commission, nor is it necessary for a man to have had extensive military experience and training before he is able to

pass his examination. The requirements for this corps are, in brief, that a man should be a citizen of the United States, of good moral character, of physical condition at least equal to that required for enlistment in the United States army, and of suitable age. In general, no officers are taken older than forty-five, but in the quartermaster corps and in the engineer corps, the two branches of the service in which architects would be most useful, applications for position of major will be received from men of over this age.

The method of entrance to the corps is as follows: Those desirous of entering the corps must make application for examination to the Adjutant-General of the Army at Washington, D. C., or the Adjutant General of any of the Army Departments, as for example the Department of the East at Governors Island, or the Department of the West at the Presidio, San Francisco. The examination varies considerably with the different arms of the service and also with the rank for which application is made, but it is not on the whole of prohibitive difficulty nor is it a mere formality. Previous military experience is of great benefit to the applicant, and also in summing up the results of the examination, the examining officers take into account the general appearance, alertness, and apparent ability to command men, of the applicant.

The engineer corps has charge of the construction of all buildings within the theatre of operations, which is an elastic term and might mean within a mile of the front or within twenty-five miles of the front. In France today, the theatre of operations is considered the space, roughly, fifty kilometres back from the front line trenches. Outside the theater of operations practically all building construction is under the quartermaster corps, and as there is a considerable amount of construction constantly necessary during the progress of any military operations, architects and draftsmen are useful in these two corps. The duties of the engineer corps likewise include the construction of roads, bridges, etc., and the surveying, sketching and mapping of the theatre of operations, construction of field fortifications, which involves calculation of earth work, the calculation of angles of fire, the calculation of distances between our own and the enemies position, and the construction of trenches, water supply and kindred matters. To architects of any experience in landscape drawing, most of these matters should be simple, and in many respects architects would be of greater use than engineers since they are accustomed to working to approximate sketches, whereas the engineer is apt to emphasize detail at the expense of time. As one army officer expressed it to an architect who has a commission as a reserve officer in the engineering corps, "Accuracy within 5 per cent in the required time will do; perfect accuracy two hours late will mean we are all blown to hell."

In France architects have been of considerable value in two branches of the French service which do not exist in ours; one, the translation of photographs taken from aeroplanes into maps by comparison with existing maps of the terrene. This is done by working back from the perspective of the photographs to the scale of the map and should be quite possible to all architects familiar with the principles of perspective. The other is the construction of what is called "camouflage," which means, roughly, the painting of scenery designed to deceive the enemy. One case about which the writer has been told is where two architects, accustomed to architectural drawing and rendering, painted a street scene which was hung up across the intersection of two streets so that from the German trenches the street would always appear the same, whereas in fact, the cross street was used constantly by artillery and infantry marching to the front. It is said that it took three weeks

for the Germans to wake up to the fact that the apparently vacant street was in reality a clever piece of camouflage. For service of this kind there are not at present any positions in the army, but as the requirements of the war become better known and Congress furnishes the army officials with authority to act, there will be demands on the part of the army for men to perform just such services, and architects, painters and scene painters will have an opportunity to serve in a way in which no one else can serve. For the architect who is incidentally a sculptor, and for the ornamental plasterer, there is a service which is of great importance—the making of plaster casts in the hospitals and the modeling of artificial limbs, etc. It is work of this kind which the distinguished sculptor, Mr. Francois Tonetti, did during the two years of his service in France.

The American Institute of Architects, through its Central Committee on Preparedness, has sent out to all members of the profession whose names and addresses it had, a circular requesting information on a number of points similar to those above, and the answers to this circular it is now filing, indexing and cross-indexing at the headquarters of the American Institute in Washington (the Octagon), so that as the Government needs men for any particular type of work, there will be one central point to which the Government can turn for information about men who are both able and willing to furnish particular services. England "muddled along" through the war for sometime without realizing how much useful talent was being wasted, and even efficient France for many months was using her architects and painters as privates of infantry, instead of in positions which no one else could fill but them. Our Government is undertaking to raise, equip and properly organize an army of a million and a half, with an organization which is intended to take care of an army of two hundred thousand, and every bit of time which can be saved for the Government by independent organizations such as the American Institute of Architects, the American Society of Civil Engineers, or other similar associations, will shorten the war by just that much.

None of us wanted war; we hated to see it come. It has hurt our profession and has taken away from many of us our means of livelihood. It will compel many of us to leave the little niches which we have established for ourselves and enter directly into the service of the United States; yet by comparison with the architects of France and England, we are infinitely well off. There the architectural profession is dormant; the enormous financial strain which has been put upon those countries has reduced to nothing the amount of money available for new building. It has taken away as well, many millions of people who would be engaged in building; the young man about to build a home for himself and his young wife; the young man intent upon enlarging his business; the men upon whose services the factories, the stores and the offices depended, and when one considers that in England, France, Germany, and Austria, there is practically no one of whatever age who is engaged in any business not directly necessary to the success of his country in this war, one can realize how much better off are we than they. Unless France and England collapse utterly, we can never be called upon to strain our resources to the limit and our business in general will go on, curtailed perhaps, freed from all wastes, extravagance and expansion, but they will nevertheless go on, so the profession, while it must be prepared morally for the lean years which lie before it, and mentally and physically for the services which may be demanded of it, need not at present consider itself as something wholly useless and unnecessary to our country.

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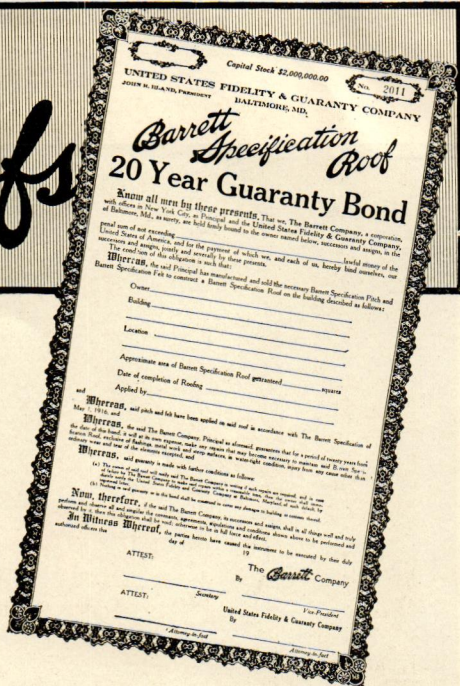
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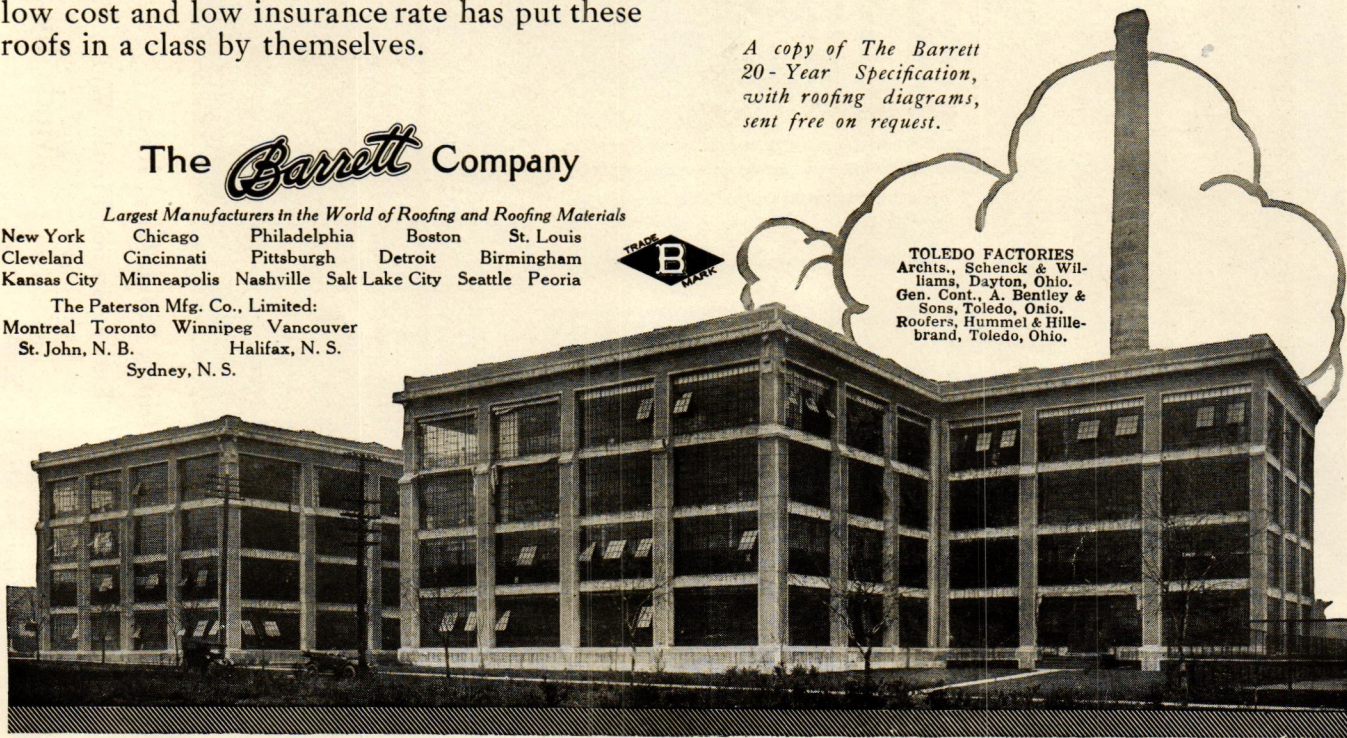
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3'-9"	14x20	3	1
4'-3 1/2"	12x18	4	1
4'-11 1/2"	14x20	4	1
5'-4"	12x18	5	1
6'-2"	14x20	5	1
6'-4 1/2"	12x18	6	1
6'-8" to 6'-9"	12x18	6	2
7'-4 1/2"	14x20	6	1
7'-8" to 7'-9"	14x20	6	2
8'-9" to 8'-10"	12x18	8	2
10'-1 1/2" to 10'-2 1/2"	12x18	9	3
10'-1" to 10'-2"	14x20	8	2
10'-10" to 10'-11"	12x18	10	2
11'-1" to 11'-3"	12x18	10	3
11'-6 1/2" to 11'-8 1/2"	14x20	9	3
12'-1 1/2" to 12'-3 1/2"	12x18	11	3
12'-6" to 12'-7"	14x20	10	2
12'-9" to 12'-11"	14x20	10	3
12'-11" to 13'-0"	12x18	12	2
13'-2" to 13'-4"	12x18	12	3
13'-5 1/2" to 13'-8 1/2"	12x18	12	4
13'-11 1/2" to 14'-1 1/2"	14x20	11	3
14'-2 1/2" to 14'-4 1/2"	12x18	13	3
14'-11" to 15'-0"	14x20	12	2
15'-2" to 14'-4"	14x20	12	3
15'-3" to 15'-5"	12x18	14	3
15'-5 1/2" to 15'-8 1/2"	14x20	12	4
15'-6 1/2" to 15'-9 1/2"	12x18	14	4
16'-3 1/2" to 16'-5 1/2"	12x18	15	3
16'-4 1/2" to 16'-6 1/2"	14x20	13	3
17'-4" to 17'-6"	12x18	16	3
17'-7" to 17'-9"	14x20	14	3
17'-7 1/2" to 17'-10 1/2"	12x18	16	4
17'-10 1/2" to 18'-1 1/2"	14x20	14	4
18'-4 1/2" to 18'-6 1/2"	12x18	17	3
18'-9 1/2" to 18'-11 1/2"	14x20	15	3
19'-5" to 19'-7"	12x18	18	3
19'-8 1/2" to 19'-11 1/2"	12x18	18	4
20'-0" to 20'-2"	14x20	16	3
20'-3 1/2" to 20'-6 1/2"	14x20	16	4
21'-2 1/2" to 21'-4 1/2"	14x20	17	3
21'-9 1/2" to 22'-1 1/2"	12x18	20	4
22'-5" to 22'-7"	14x20	18	3
22'-8 1/2" to 22'-11 1/2"	14x20	18	4
23'-10 1/2" to 24'-1 1/2"	12x18	22	4
25'-1 1/2" to 25'-4 1/2"	14x20	20	4
25'-11 1/2" to 26'-2 1/2"	12x18	24	4
27'-6 1/2" to 27'-9 1/2"	14x20	22	4
29'-11 1/2" to 30'-2 1/2"	14x20	24	4

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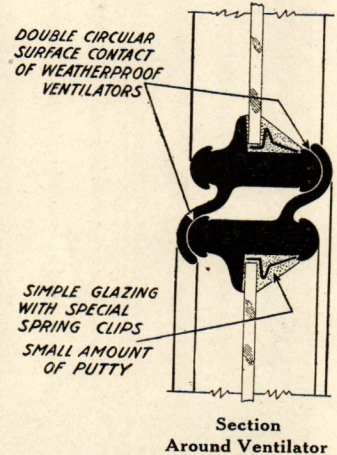
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4'-8 1/2"	12x18	3	1
5'-2 1/2"	14x20	3	1
6'-3"	12x18	4	1
6'-11"	14x20	4	1
7'-9 1/2"	12x18	5	1
8'-7 1/2"	14x20	5	1
9'-4"	12x18	6	1
10'-4"	14x20	6	1

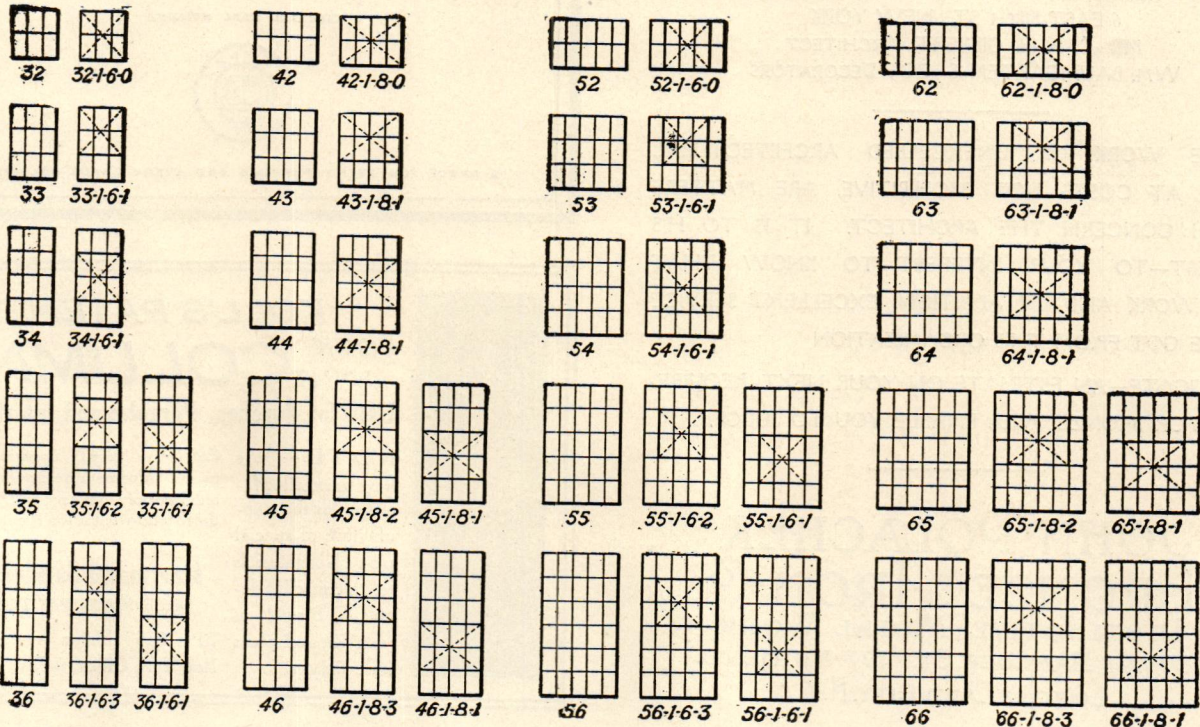


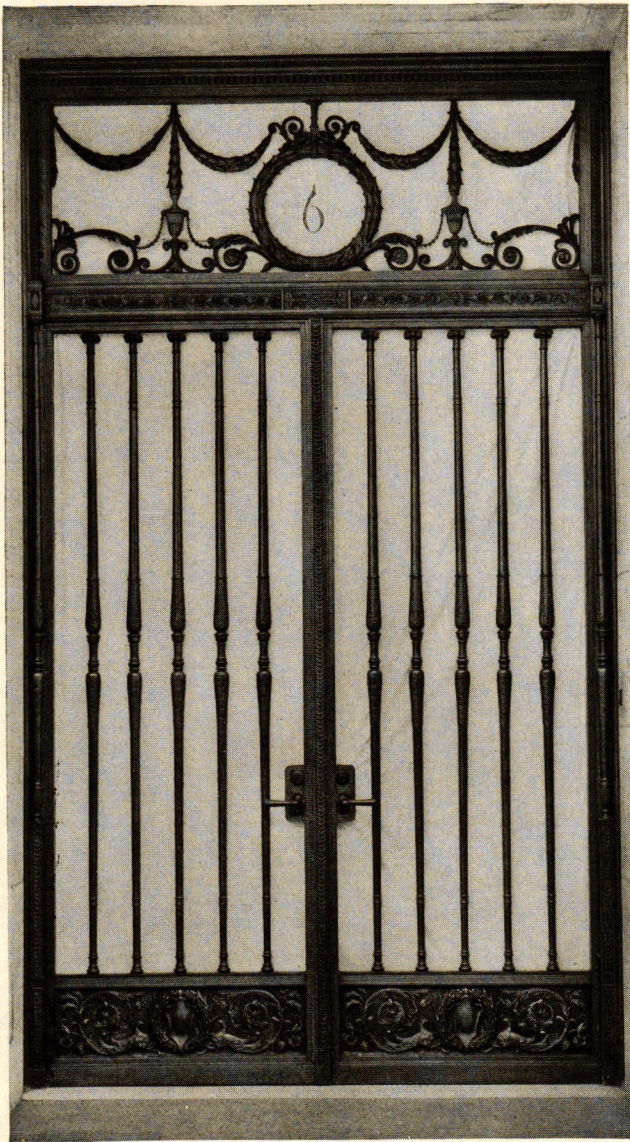
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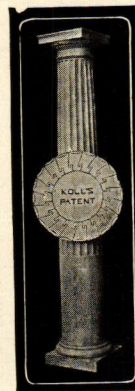
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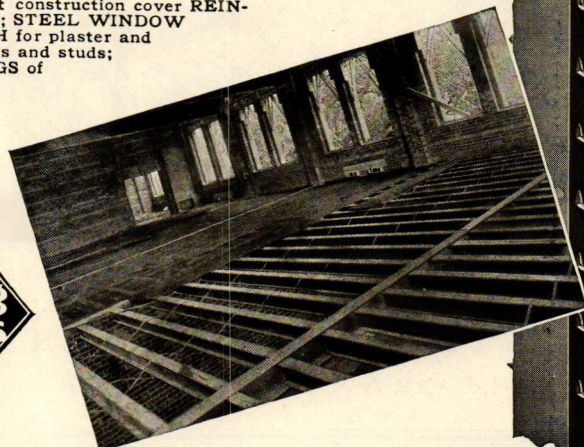
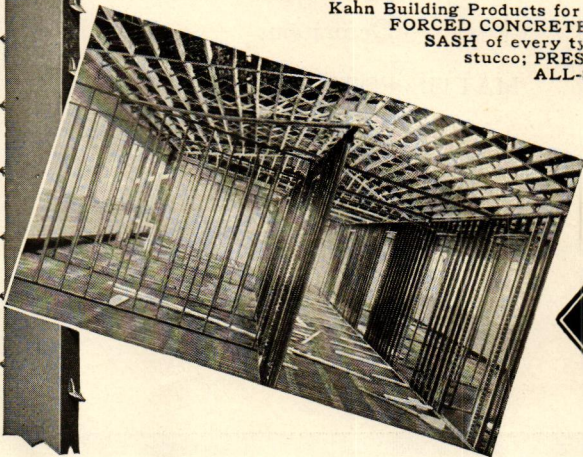
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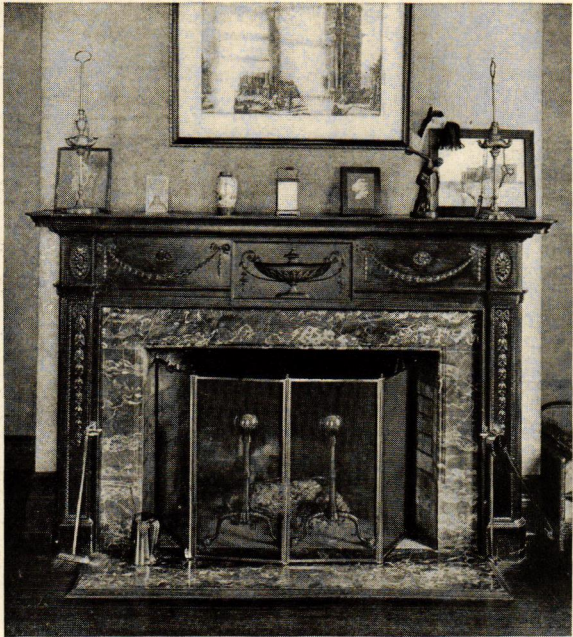
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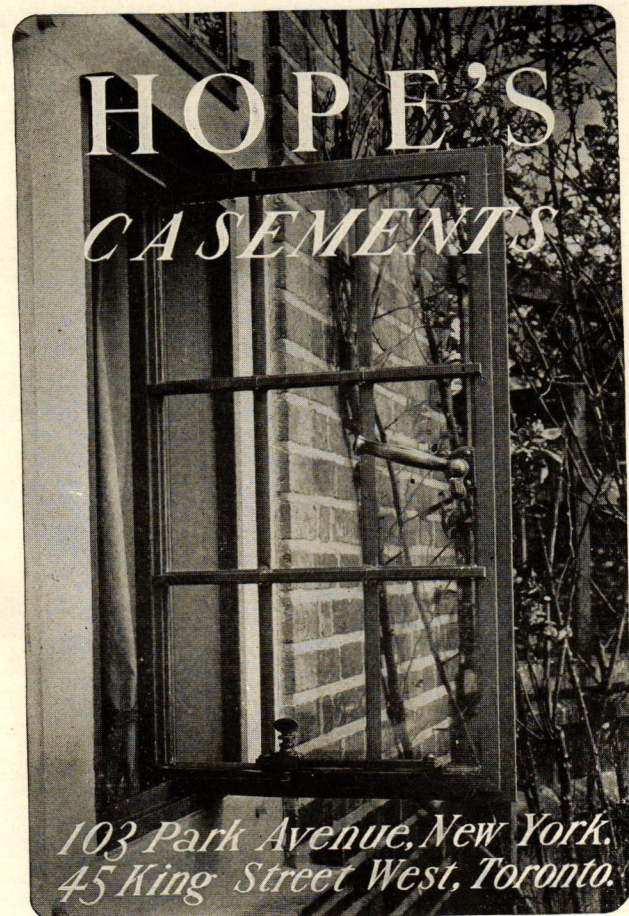
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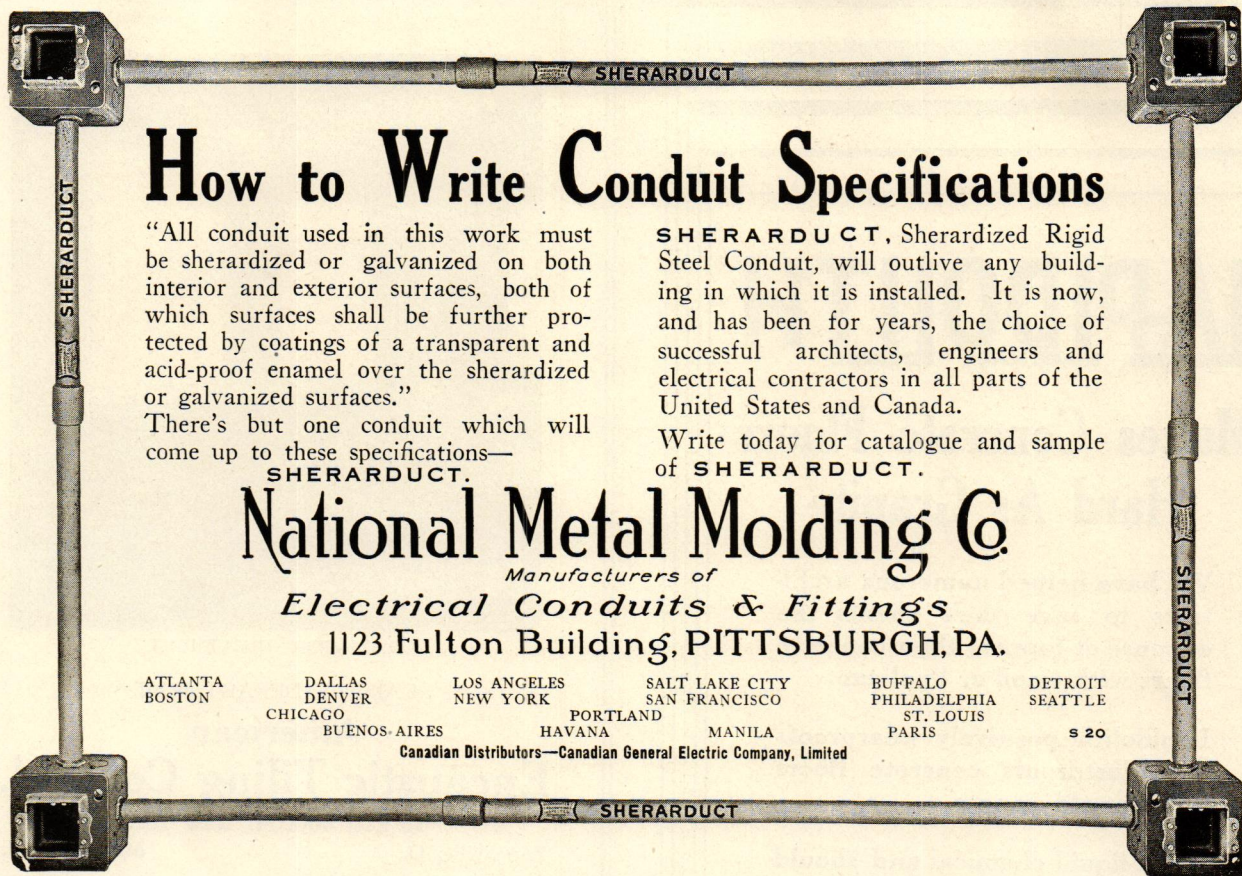
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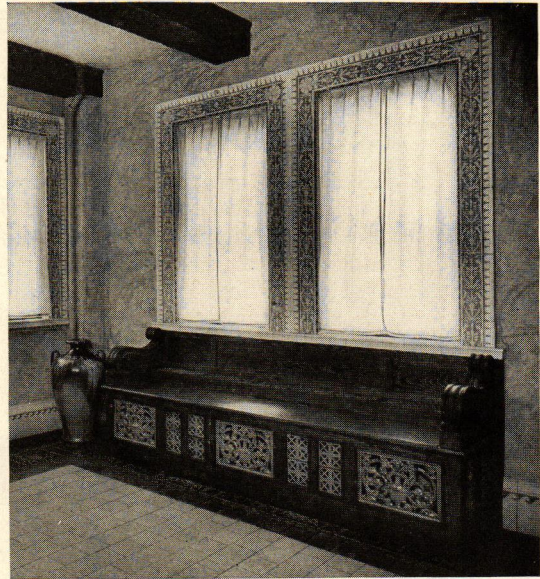
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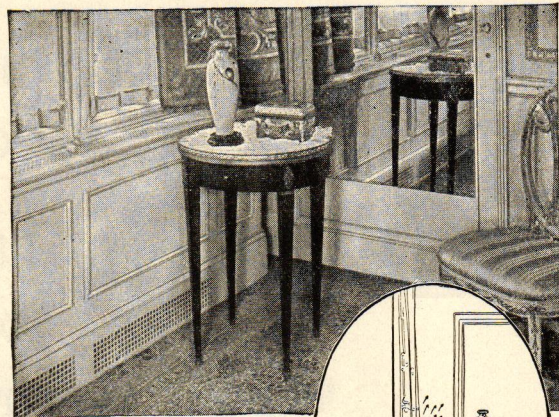


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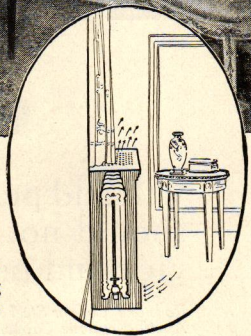
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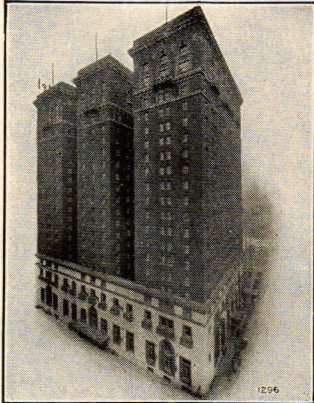
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Brunswick-Balke-Collender-Co.,
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REFER TO No.

DATE Mar. 10, 1917.

Attention of Mr. E. C. B. Judd.

In accordance with the request in your letter of March 2nd, 1917, we are glad to recommend Whale-Bone-Its seats that you furnished us.

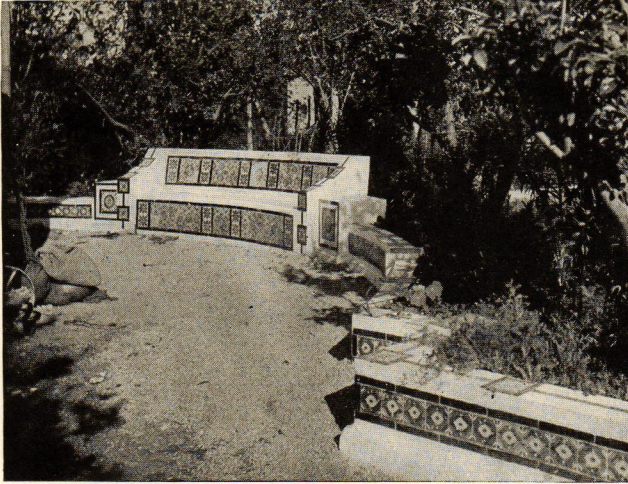
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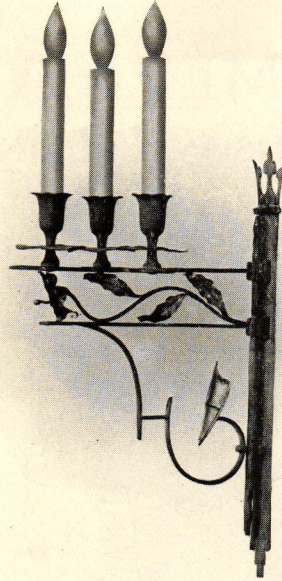
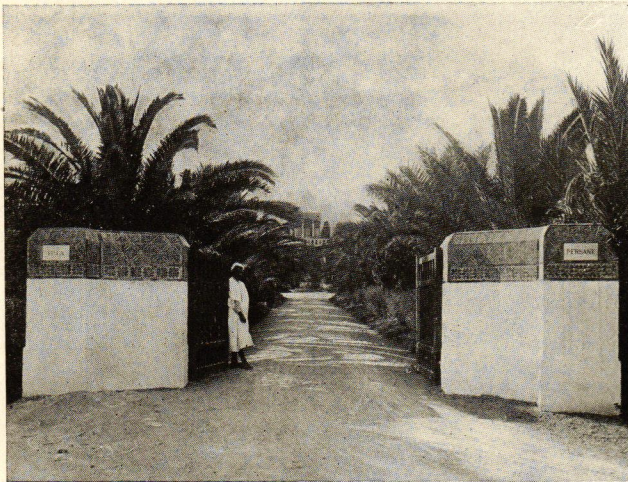
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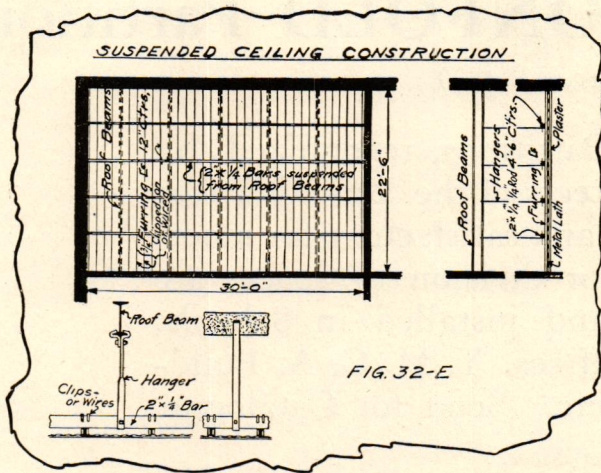
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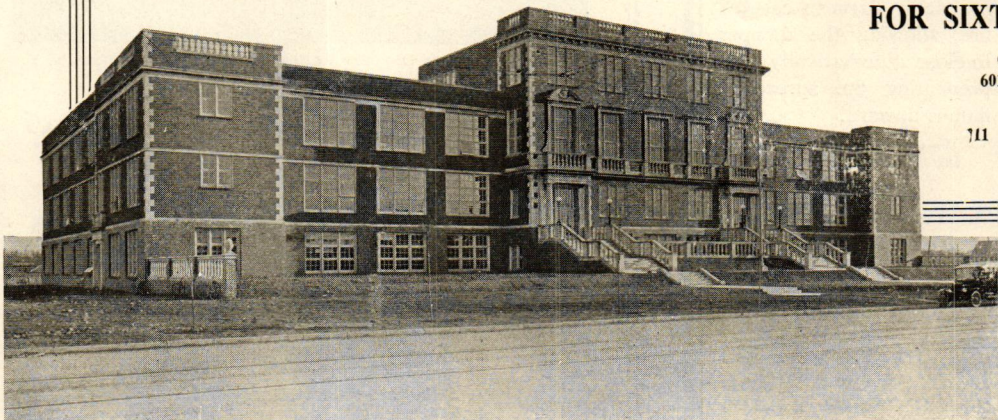
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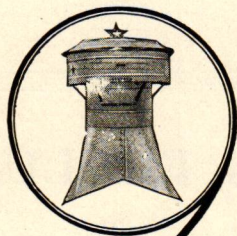


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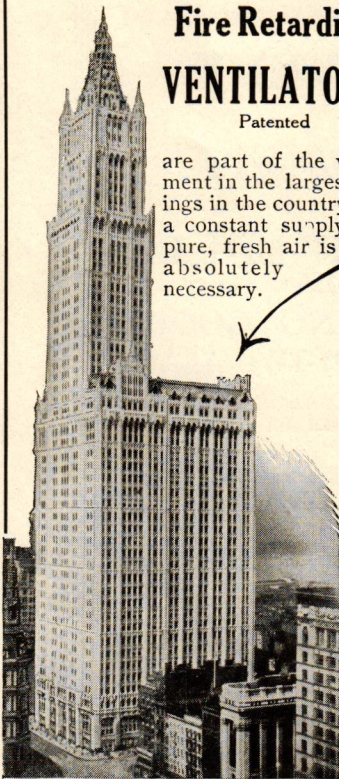
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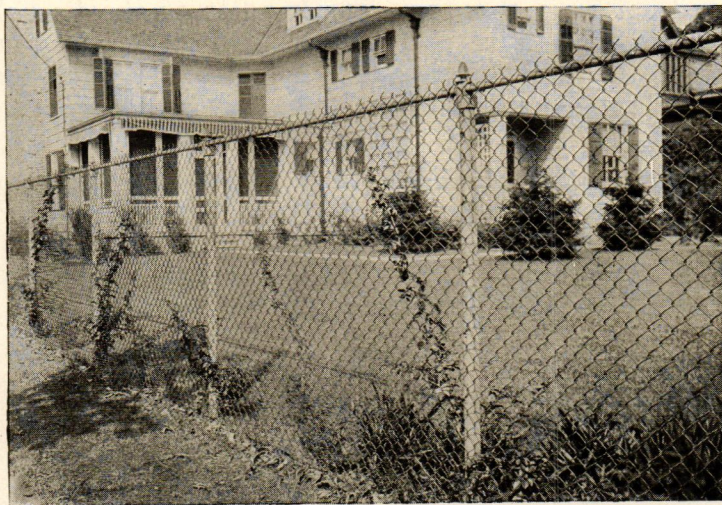
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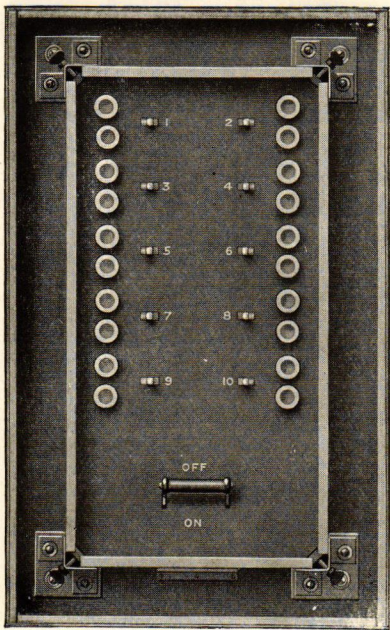
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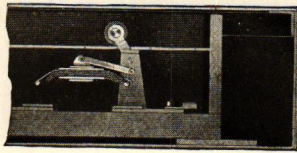
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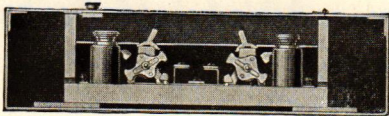
All parts of this panel board are removable from the front of the board. This construction provides a minimum number of electrical joints.



The brush contact

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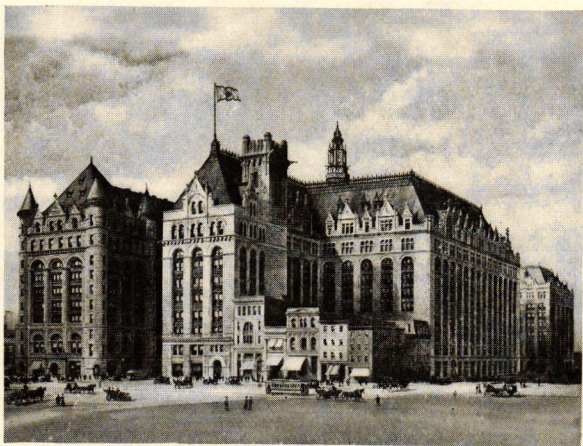
which is provided when desired is a distinct feature of this panel



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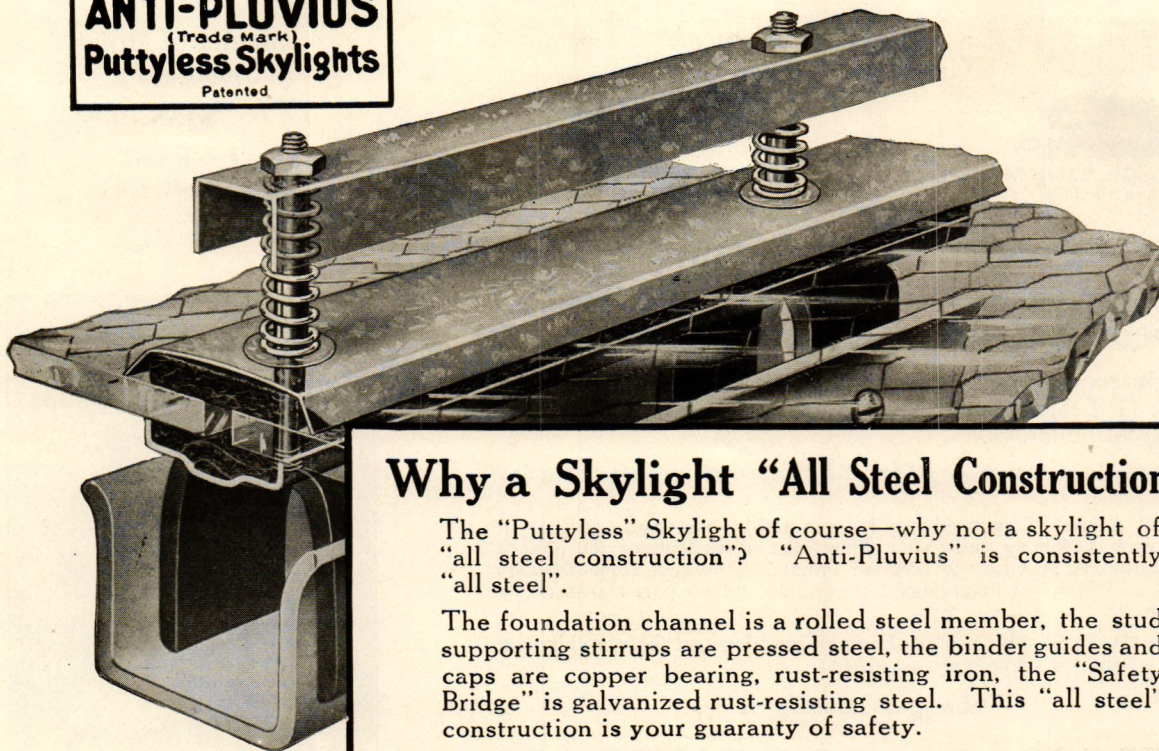
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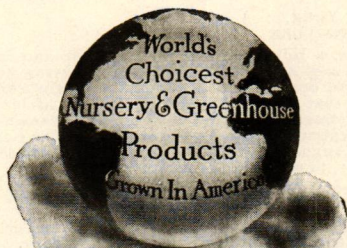
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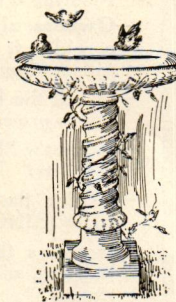
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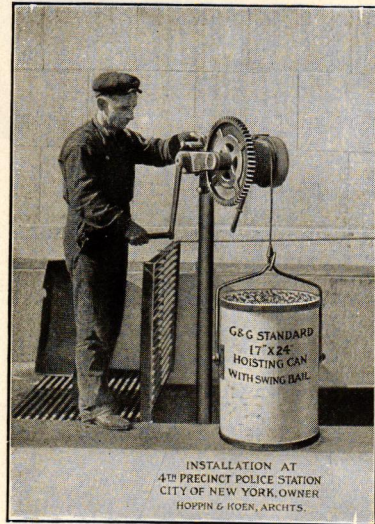
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STATE OF NEW YORK,
COUNTY OF NEW YORK } ss.

Before me, a Notary in and for the State and county aforesaid, personally appeared A. Holland Forbes, who, having been duly sworn, according to law, deposes and says that he is the editor of "ARCHITECTURE," and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

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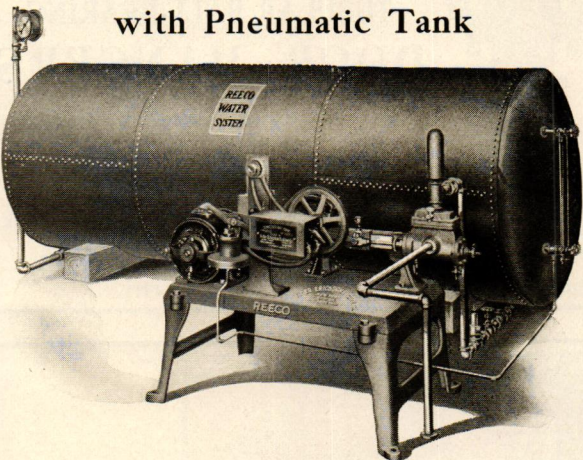
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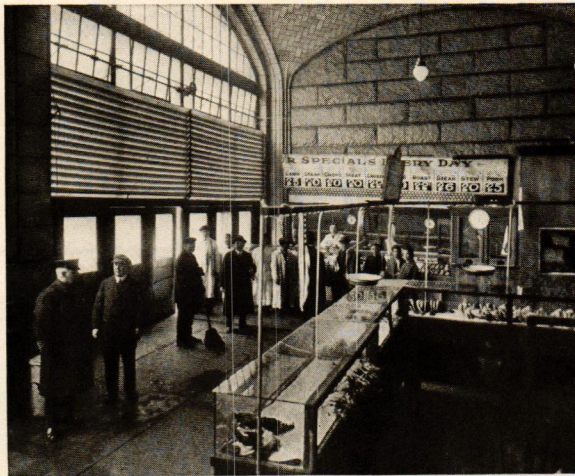
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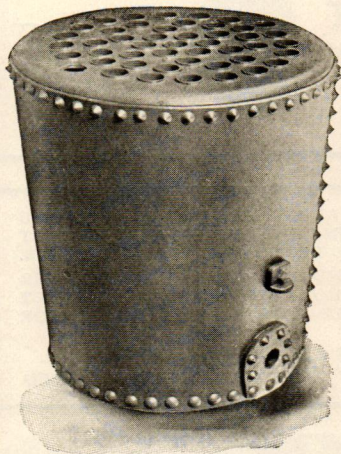
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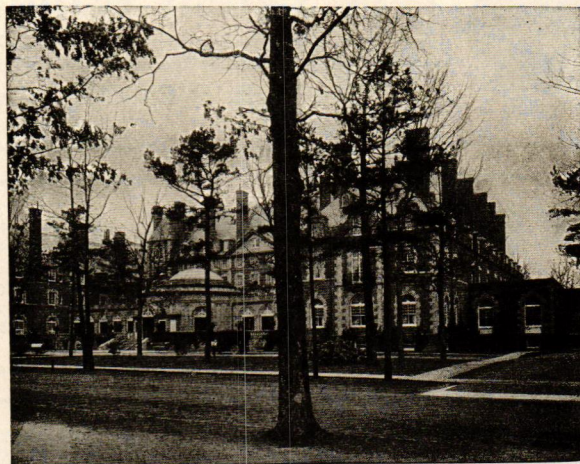
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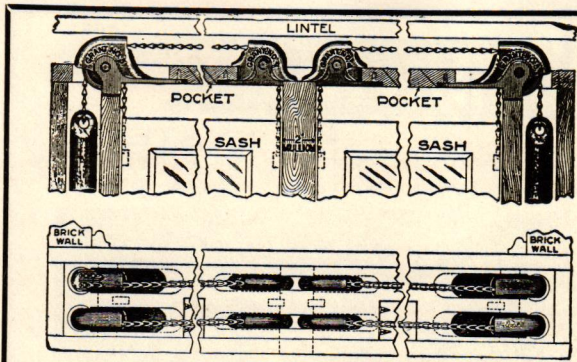
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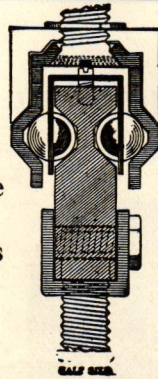
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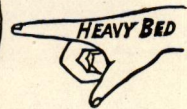


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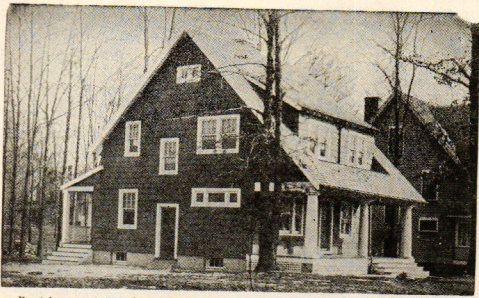
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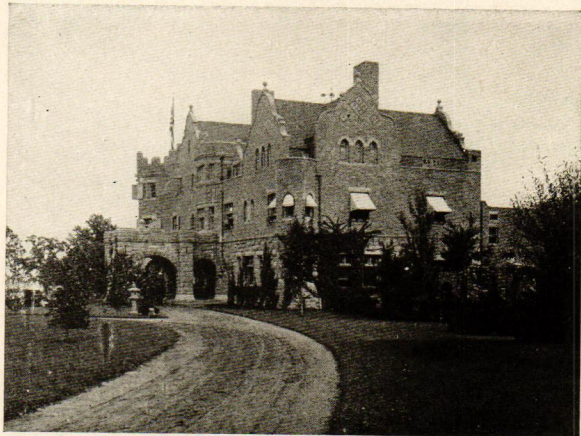
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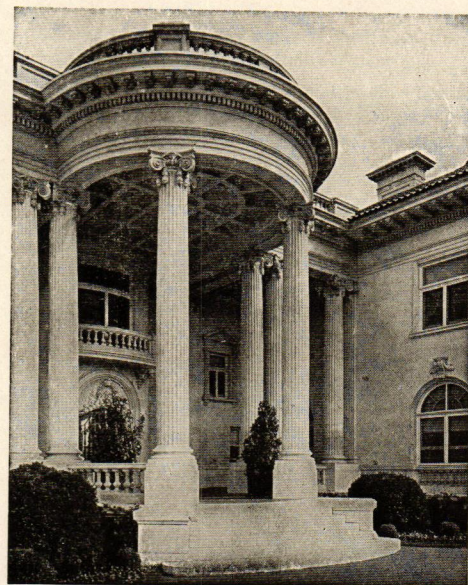
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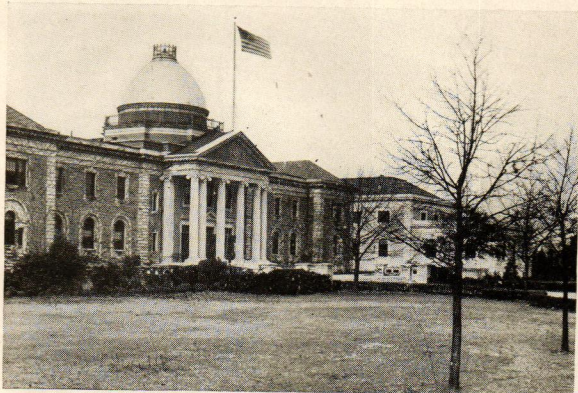
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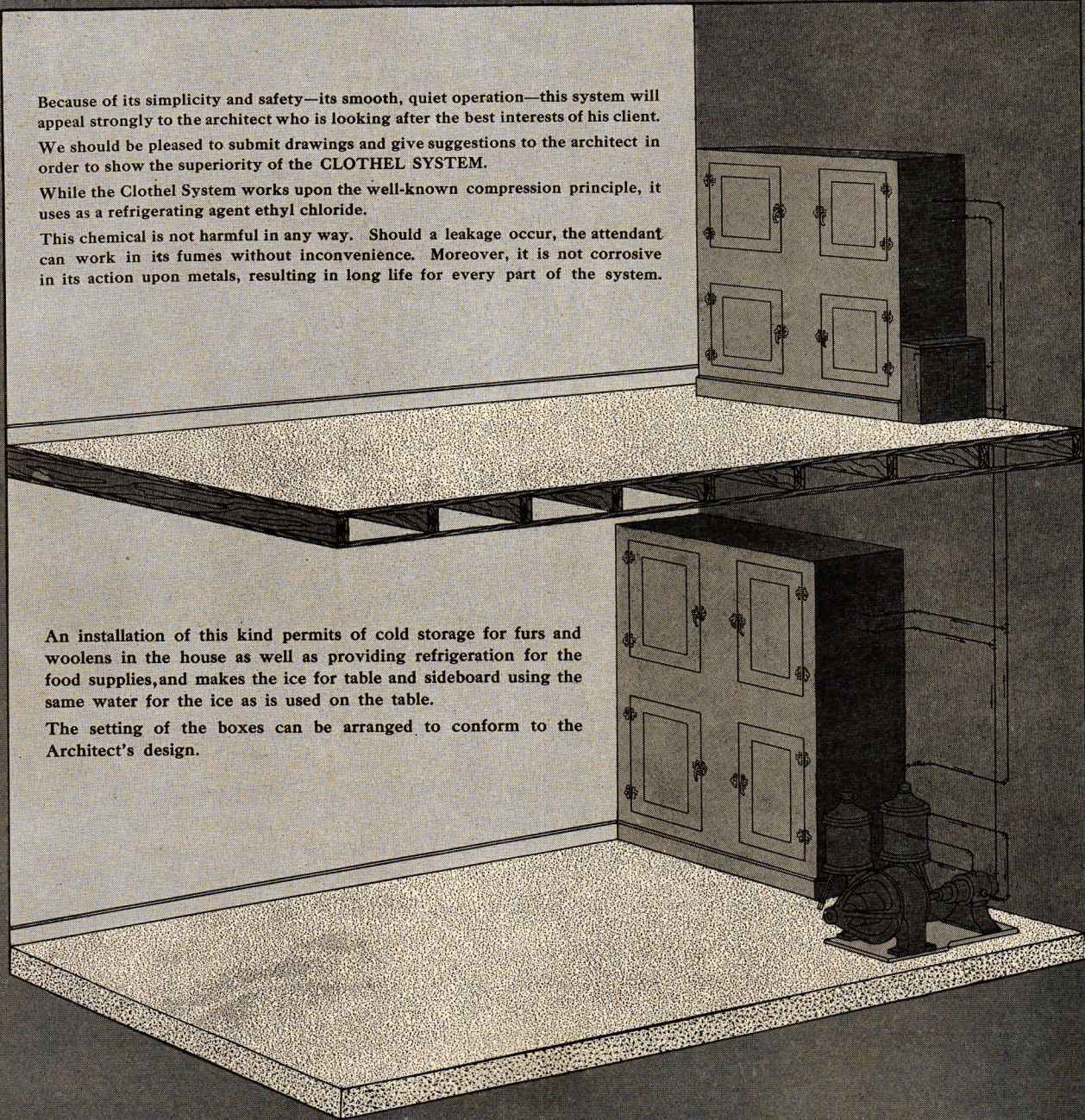
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