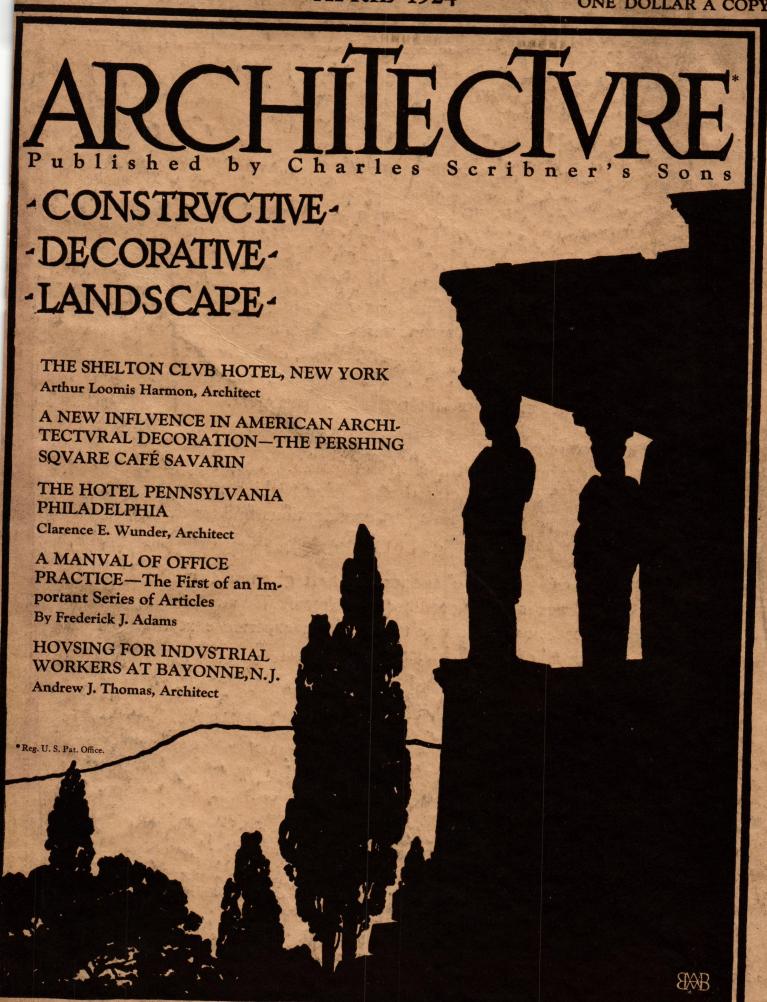
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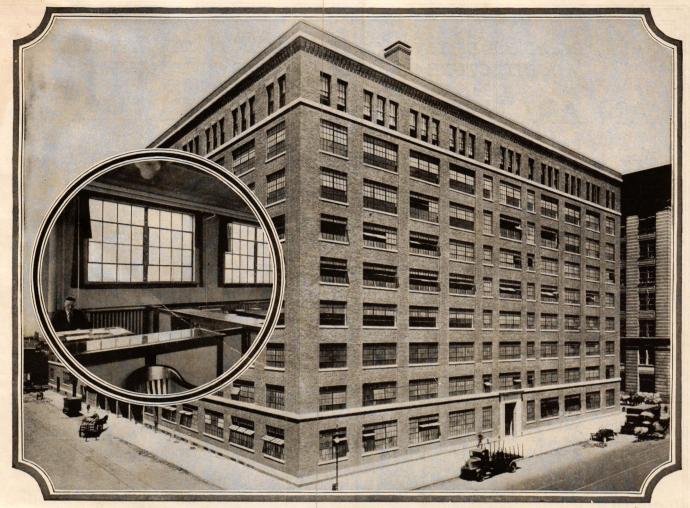
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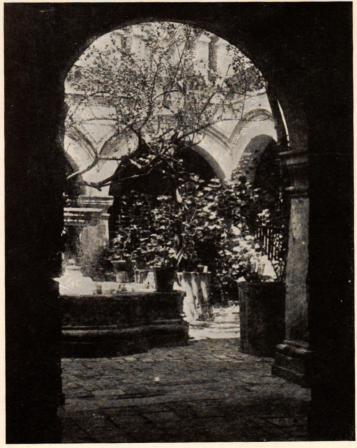
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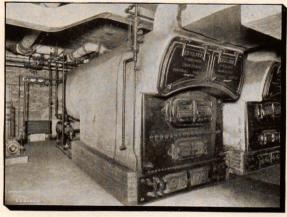
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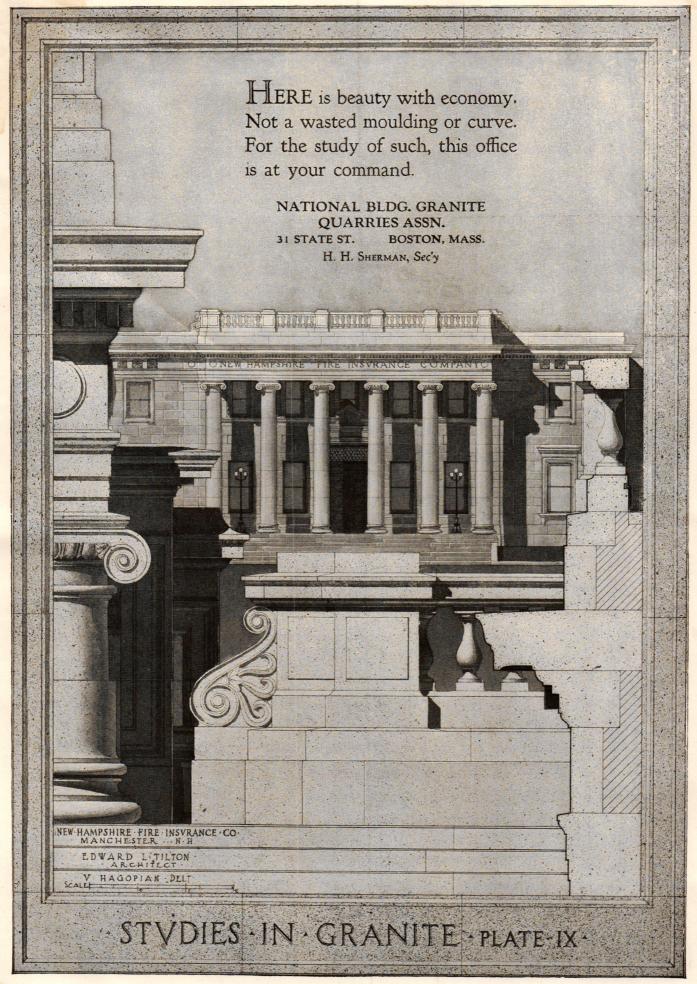
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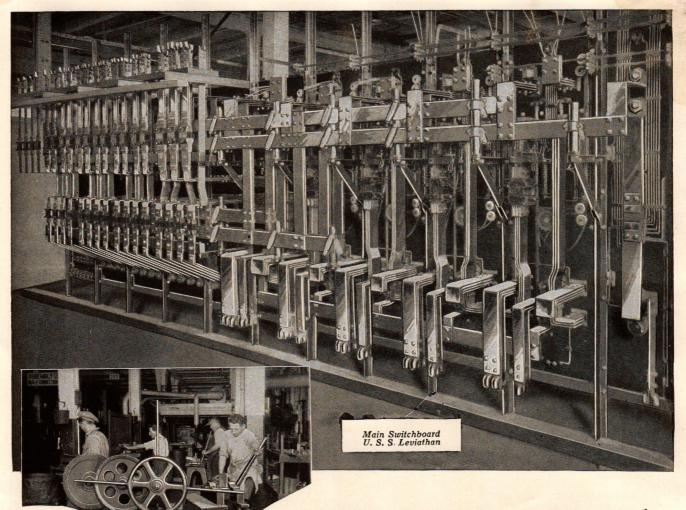
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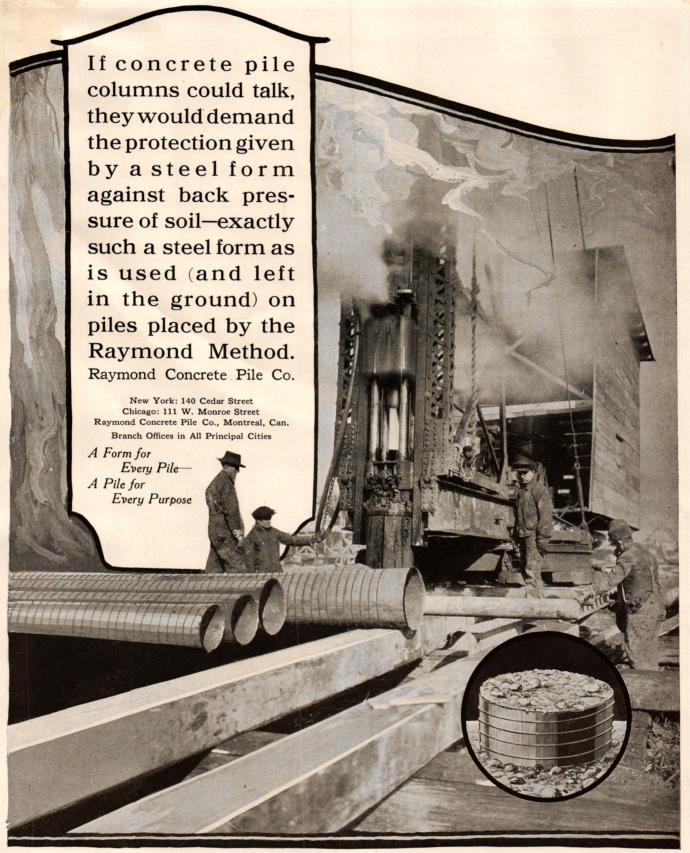
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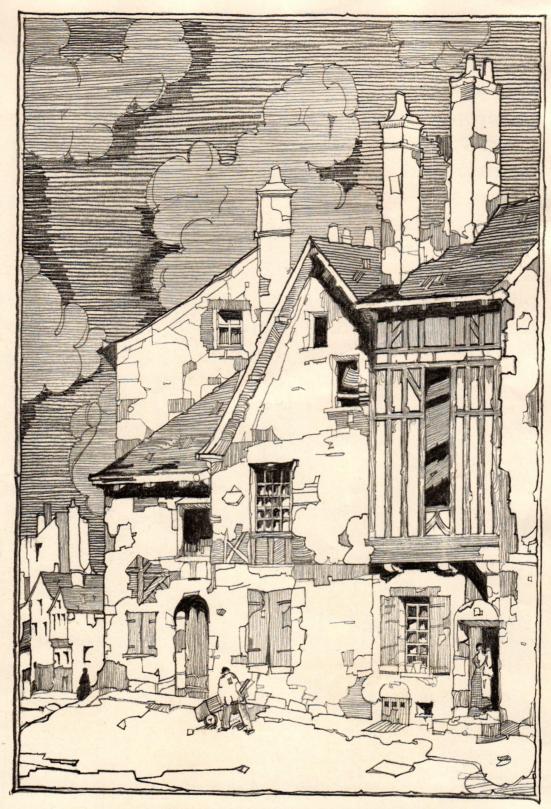
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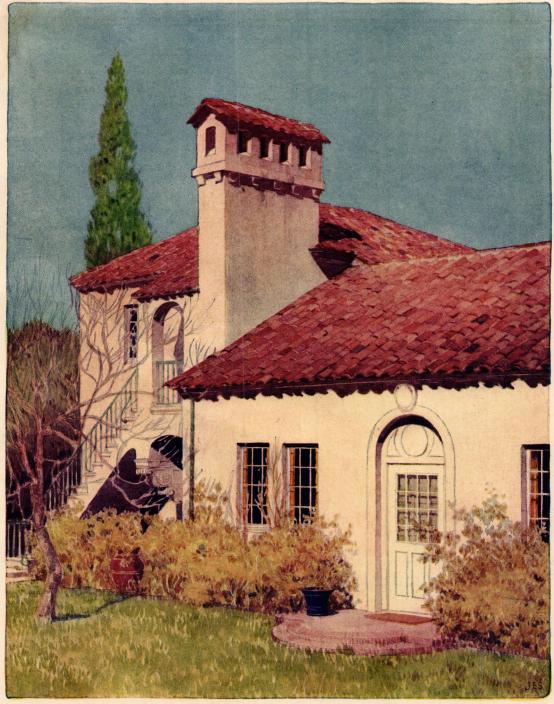
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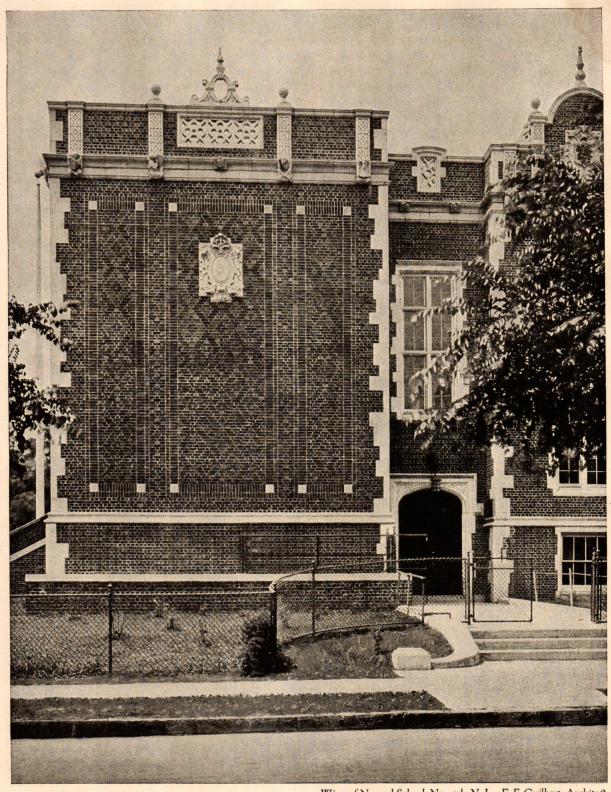


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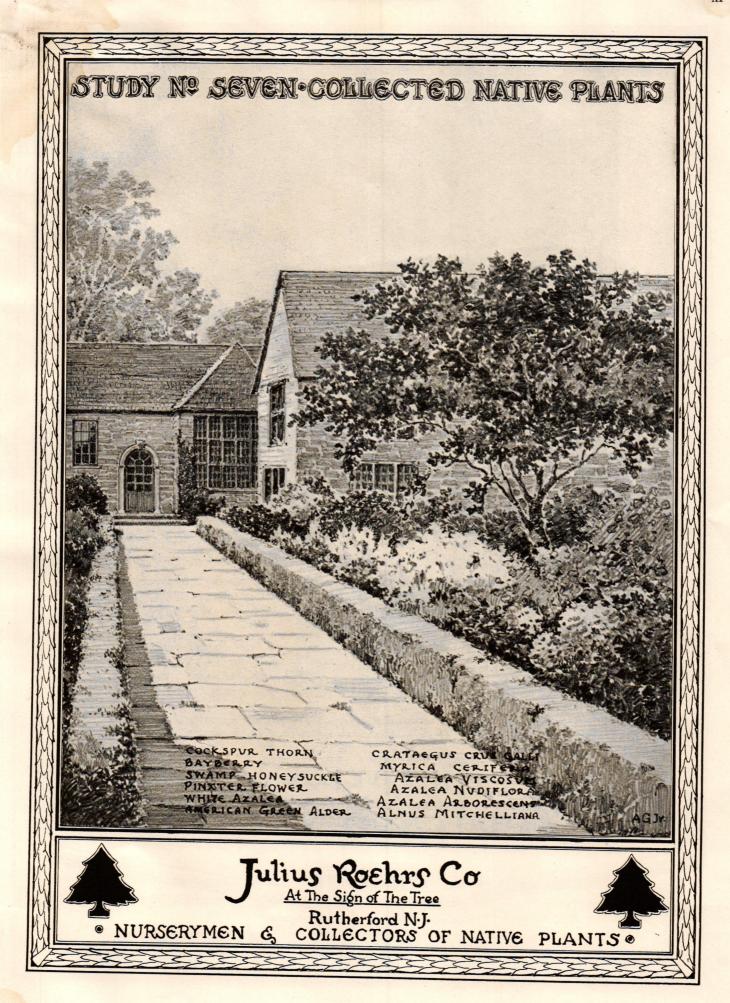


Wing of Normal School, Newark, N. J. E. F. Guilbert, Architect

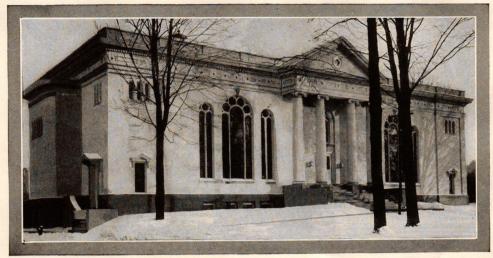
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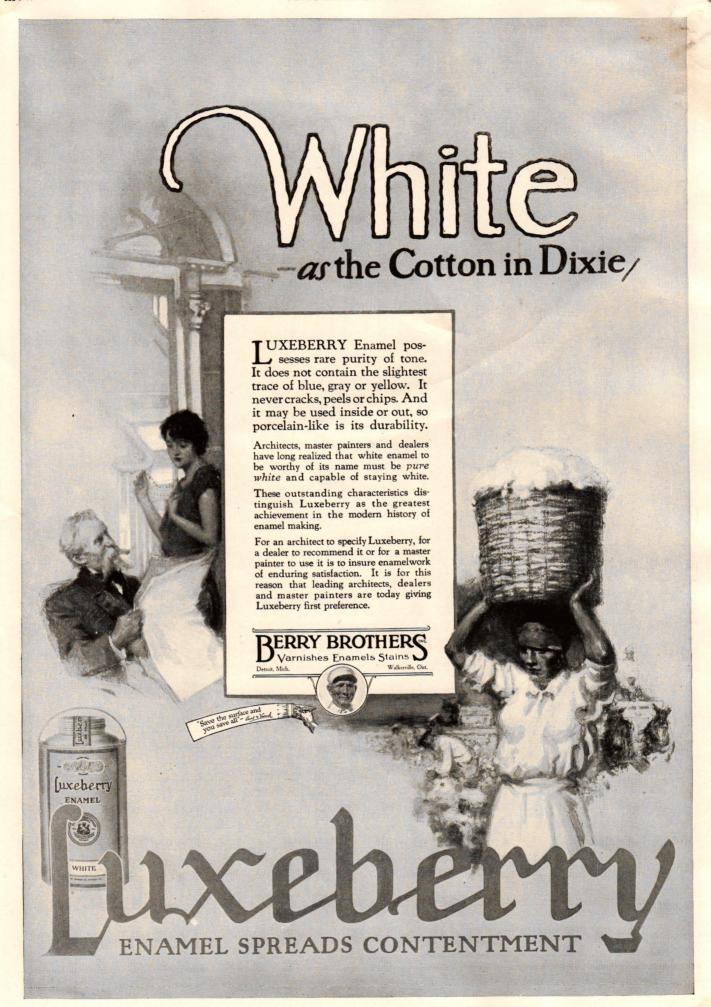
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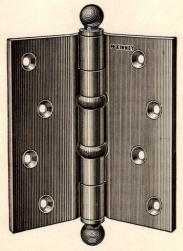
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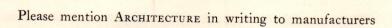
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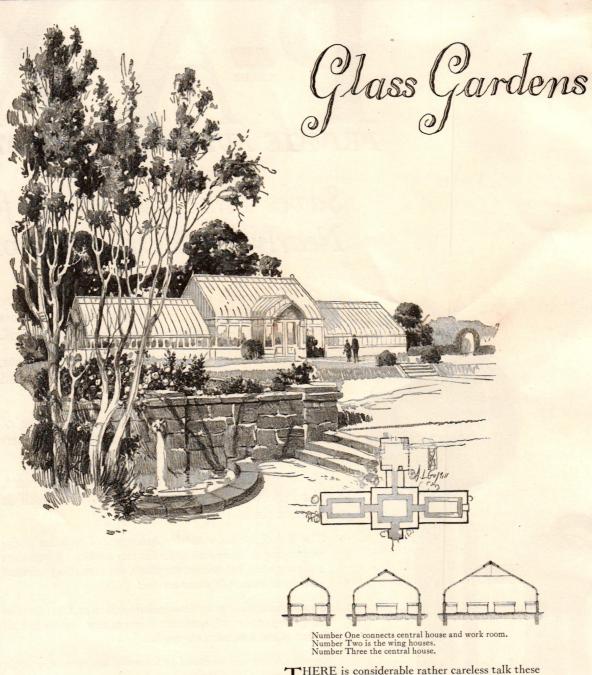
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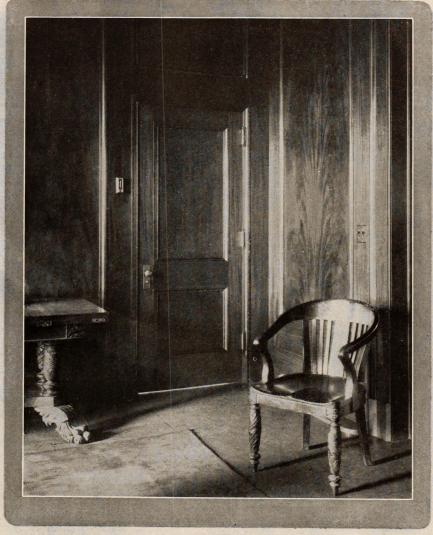
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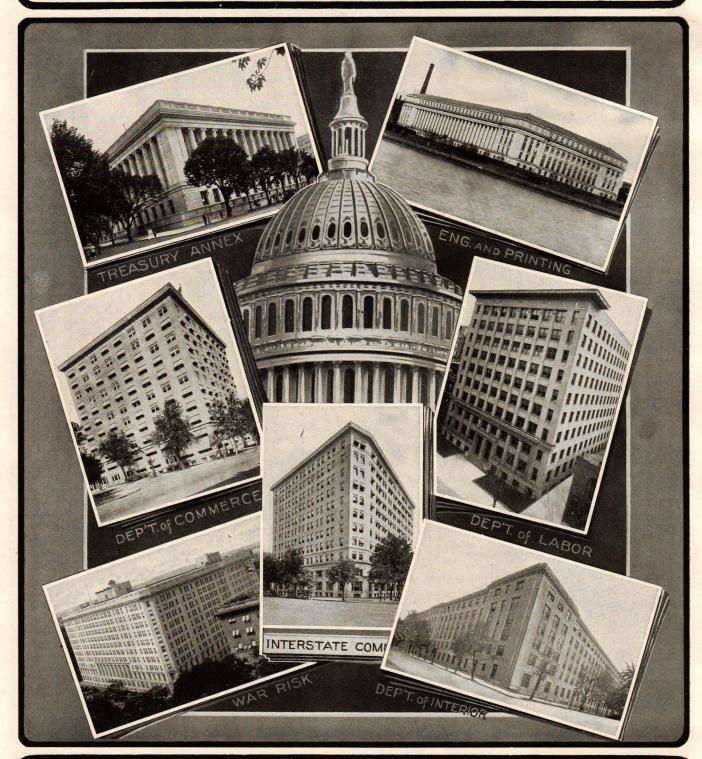
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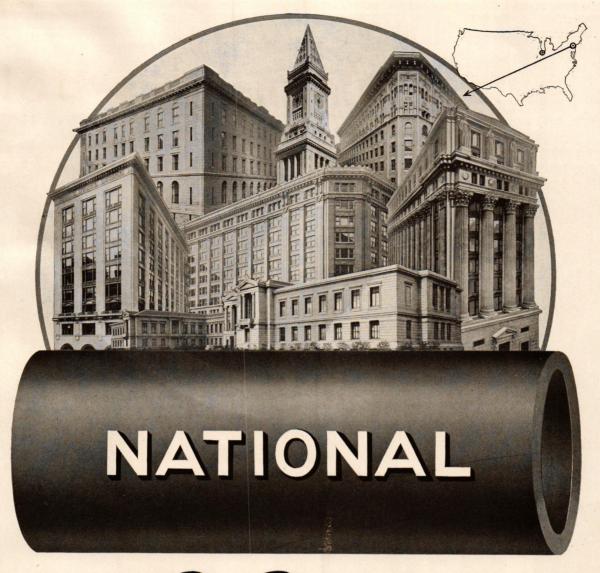
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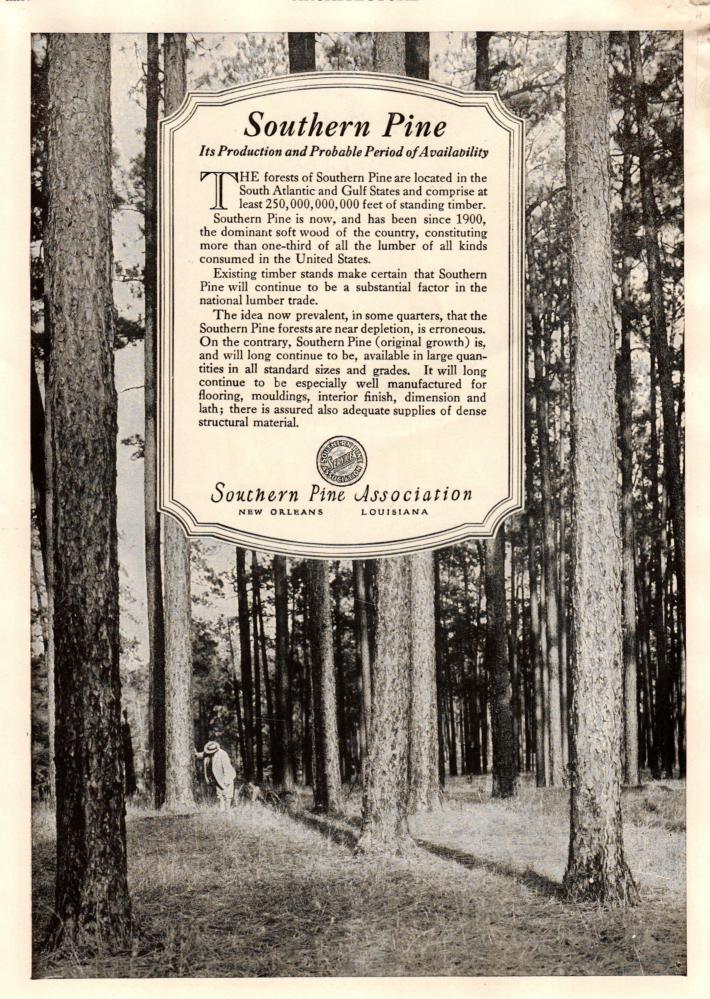
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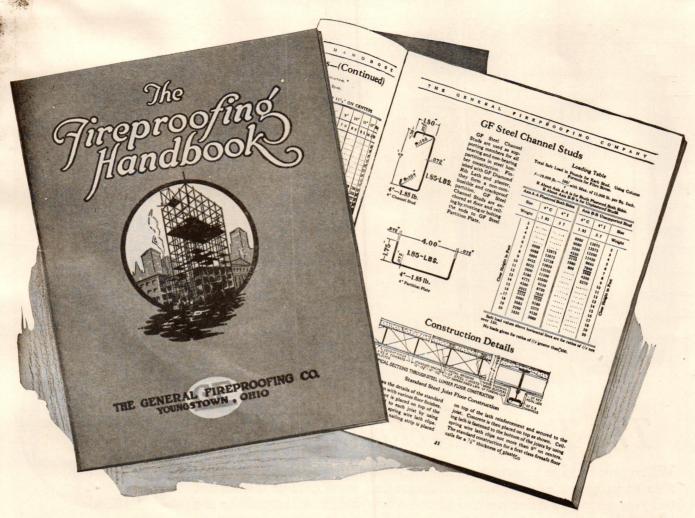
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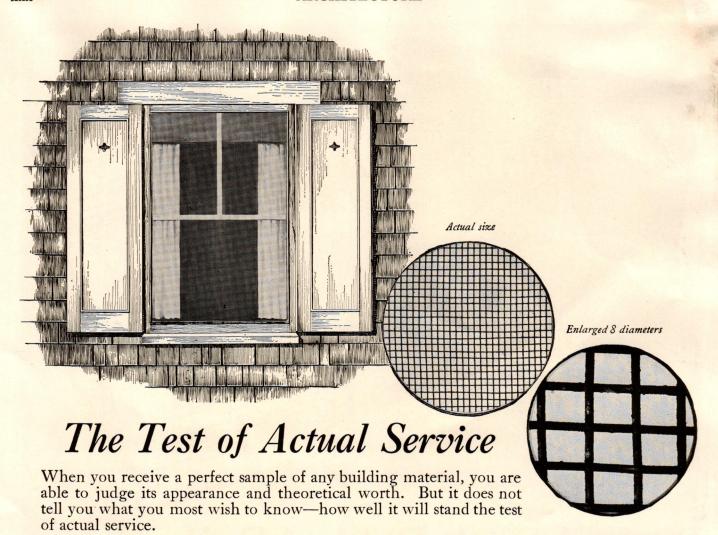
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THE NEW JERSEY WIRE CLOTH COMPANY
618 South Broad Street



Copper Screen Cloth



The index of the complete modern home

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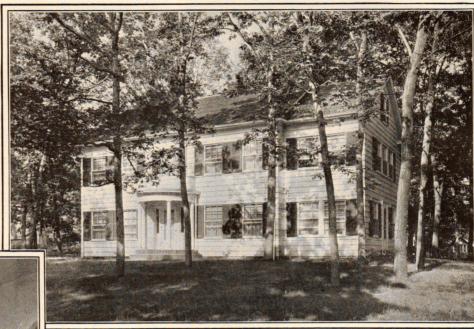
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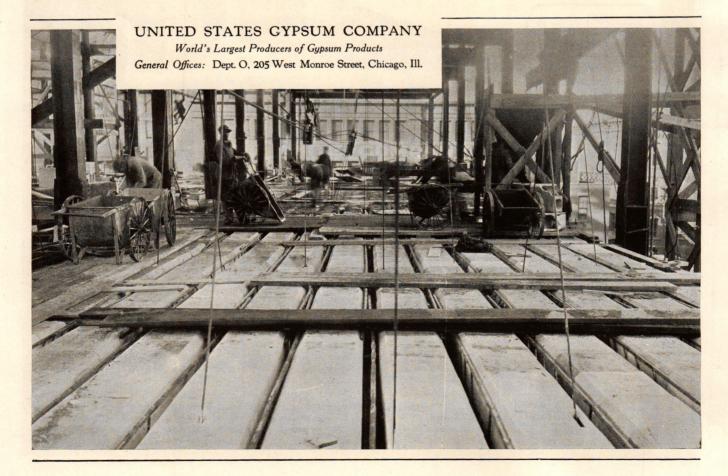
FLOOR VOIDS

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Cleveland Public Library.

Architects: Walker & Weeks.
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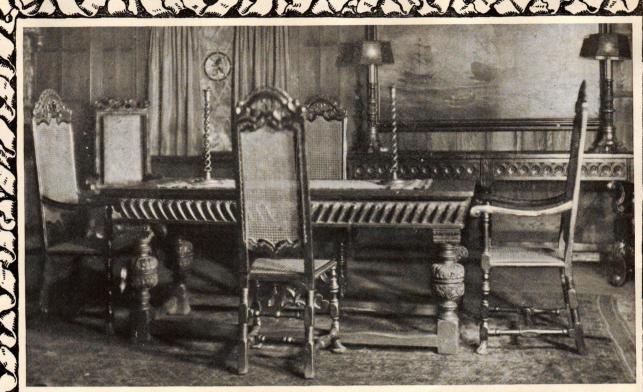
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If you are completing an Elizabethan house

If your attention is just now absorbed in the completion of some rambling, homelike Tudor residence; if paneled walls, strapwork ceilings, mullioned casements, and bulbous newel-posts are first in your mind—the stately dining-room above will arrest your eye. Yet you would be more interested if you would but visit the Hampton Shops and see for yourself how perfectly these delightful pieces fit into this Elizabethan background. And we could show you other rooms

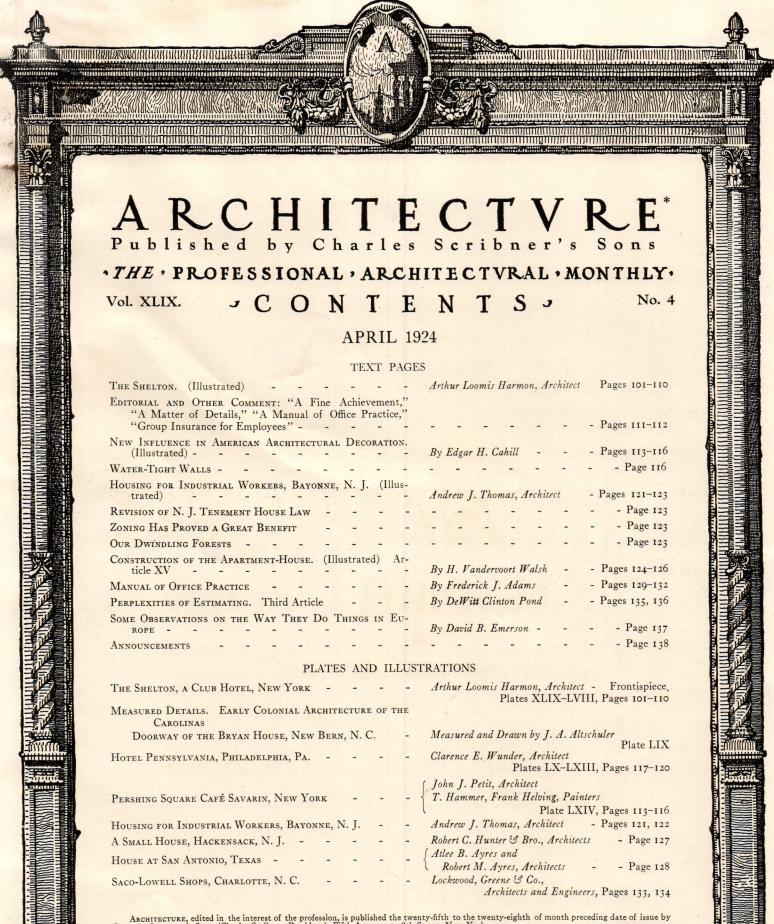
as perfect in detail of paneling and of furnishings, as gracious in their air of hospitality, as instinct with beauty and luxury. ¶ Architects find at the Hampton Shops a cordial and sympathetic cooperation, which, with deep understanding, carries to a full completion the work they have planned. For the interiors which we execute develop the spirit and the intent of the architect into homes notable alike for their correct beauty and their livableness.

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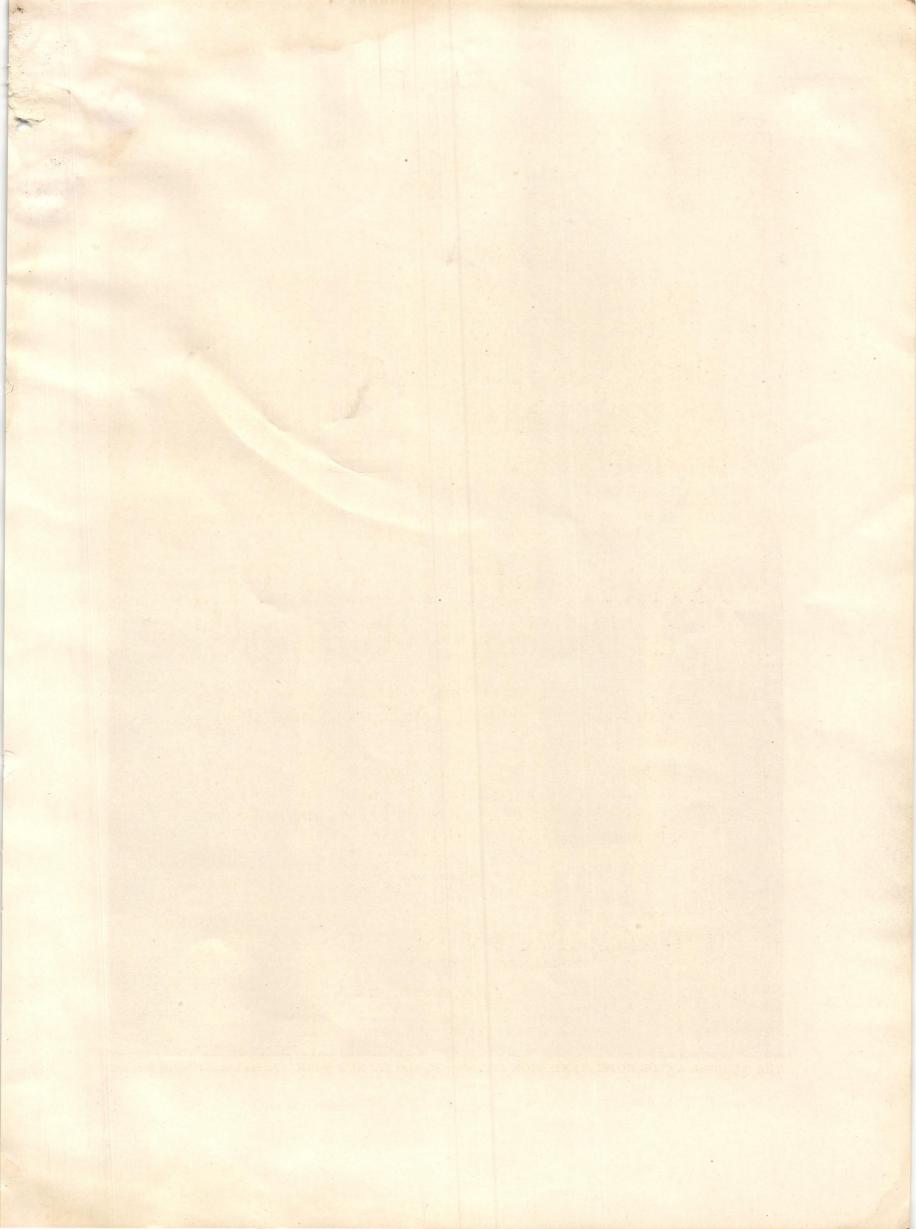
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THE SHELTON, A CLUB HOTEL, LEXINGTON AVE., 48th TO 49th ST., NEW YORK. Arthur Loomis Harmon, Architect.



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ARCHITECTVRE*

Published by Charles Scribner's Sons
THE PROFESSIONAL ARCHITECTVRAL MONTHLY

APRIL, 1924

No. 4



The Shelton

Arthur Loomis Harmon, Architect



Lighting fixture, main dining-room

AN English architect says that a building such as the Shelton would be almost impossible to erect in London owing to property restrictions and the like, and that if erected it would not be successful, because the single male Londoner lives either in lodgings or in a club; that these clubs are very numerous, many of the smaller ones being formed more particularly to provide, if not living, at least lounging and eating accommodations.

Evidently the Englishman defends his individuality more

strenuously than does the American. Perhaps he is less socially inclined, or perhaps he has not been forced to realize that in great communities freedom is more easily reached by mingling with a large mass than with a small, closely woven unit. It may also very well be that such buildings, after the first shock, would be highly successful there.

Clubs in New York are comparatively few and do not

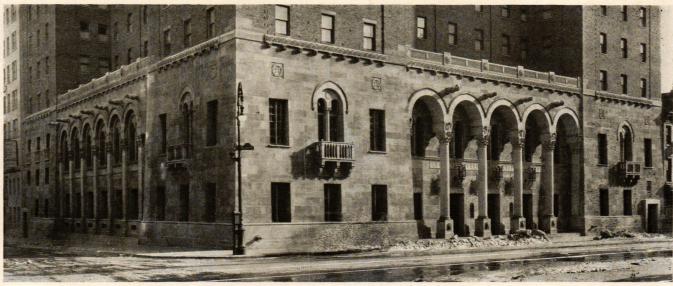
cater to young men. Their membership is limited, and their living accommodations few. The great proportion of single men in New York is naturally going and coming from other smaller communities.

Up to a few years ago the boarding-house, or some variation, was the chief factor in providing accommodation for such men. The reason for its decline is economic and rests on such hard facts as the increase in land value and taxes, the difficulties in obtaining domestic labor, and the cost of operating in small units. It had also social handicaps in the closeness of its contacts.

Smaller communities talk scornfully of the lack of "friendliness" of the denizens of great cities, particularly of New Yorkers. It is not so much lack of friendliness as lack of time and of breathing space for one's ego. In such communities the individual can get a measure of freedom only by restricting his social contacts.

The romantic theory that the owl, prairie-dog, and rattlesnake occupied, in amity or otherwise, one small burrow probably originated in a boarding-house. Science has, I believe, disproved this theory, or requested a different spelling of the word. The economic advantages were evidently not apparent to the owl or snake as tenants, or to the prairie-dog as landlord.

Boarding-houses may be places of much comfort and



Lower stories, Lexington Avenue and 49th Street.



IN CONSTRUCTION, JUNE, 1923.



DETAIL, UPPER STORIES.



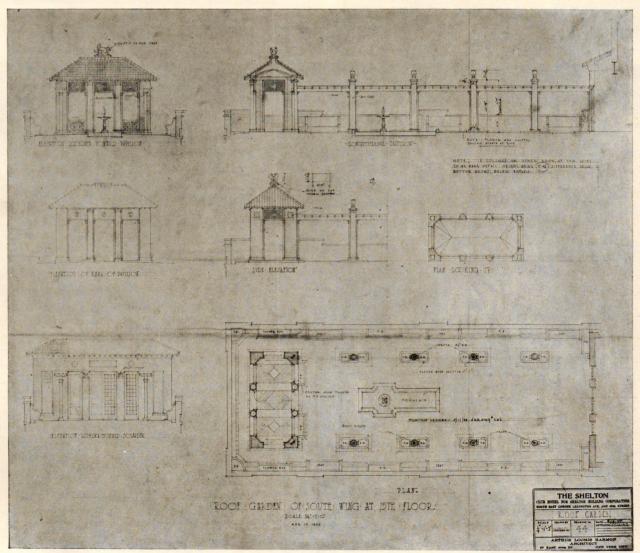
BOWLING-ALLEY.

Arthur Loomis Harmon, Architect.

THE SHELTON, NEW YORK.



ROOF-GARDEN.

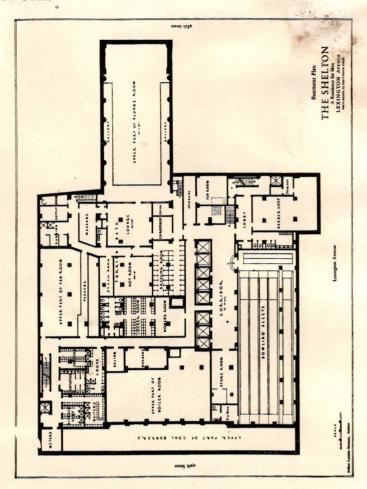


THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.



STAIRCASE TO BASEMENT.

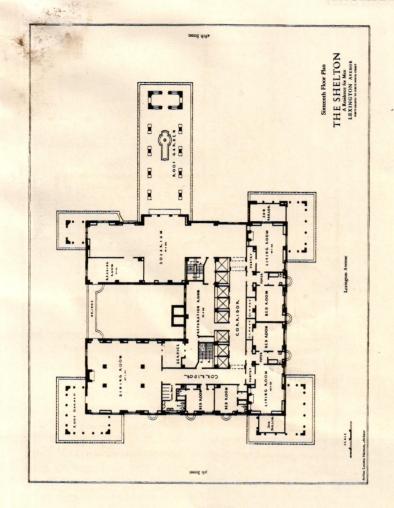


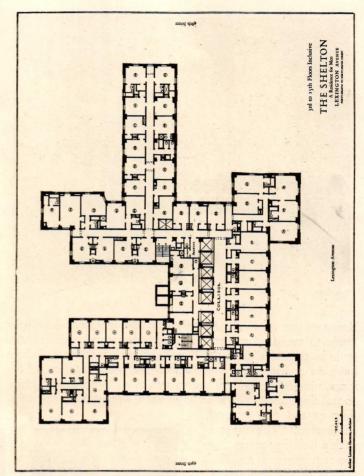


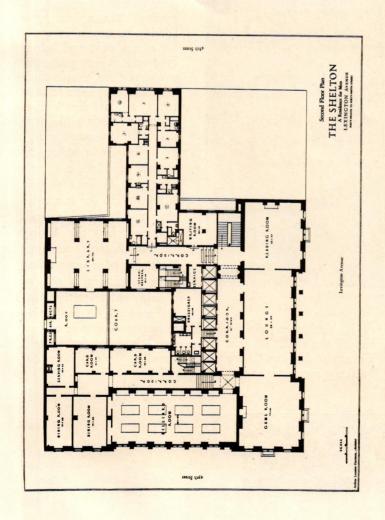
SWIMMING-POOL.

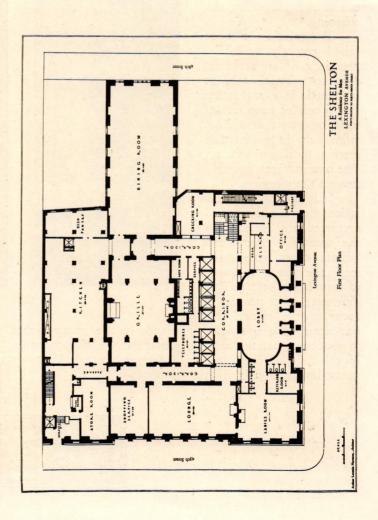
THE SHELTON, NEW YORK.

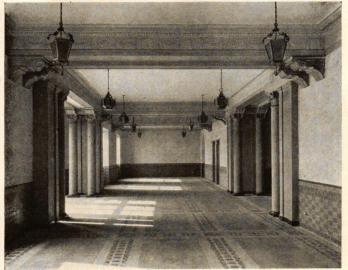
Arthur Loomis Harmon, Architect.











Solarium

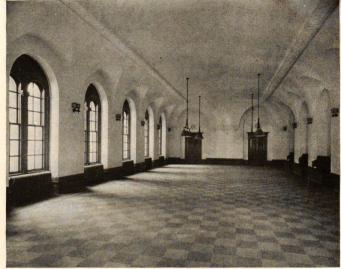
Romanesque or Early Christian. The attempt has been made to avoid an evidence of any pronounced architectural style in the details, as the masses of such modern buildings have no architectural precedence. In the treatment of the mass, vertical lines have been given every precedent. Horizontal lines above the base have been, except for a few roof-

lines at the first setback, eliminated. The mass of such a building arises from the requirements and limitations of the Zoning laws letting nature take its course and adopting the offspring.

The question has been raised recently as to the propriety of an architect doing commercial work. It is a little like suggesting that a soldier keep out of the army or that a duck swim only in pools of a certain form and clarity. The owner might properly reverse the question.

It is true that the relations between owner and architect are different in the case of a commercial building from those existing in the case of an owner of any other sort. This difference is in general in favor of the owner. He

has acquired a practical experience in the requirements, in the construction, and, in particular, in the operating of the finished building which the architect has less opportunity and less inclination to possess.



Billiard-room.

If the design of the building is good, the owner has helped by suggestion, by insistence, or by sympathy and understanding. If it is bad, he is to blame—if in no other way, in his selection of an architect.

The owner is a co-author. He brings to the work, in

addition to the wherewithal, the original constructive vision

and the nerve to trust this and his investment to the execution of an architect; also the patience to cope with building conditions, where patience ceases to be a virtue and becomes a necessity. The unions have been so successful in making a mechanic and helper take root where one man worked before, that in their blindness they seem to have taken a "last line" from Milton: "They also serve who only stand and wait."

Violets can afford to shrink, safe in the knowledge that, while acquiring a reputation for modesty, they are being widely advertised by the living friends of their perfume. But the odor emanating from a building is not, as a rule, sufficiently pro-

nounced to be indicative of its designers. So the architect has to absorb into himself all the credit he can. The owner is more fortunately situated. He can "take the cash and let the credit go, nor heed the rumble of a distant drum.'







Terra-cotta ornaments (exterior)





DINING-ROOM, SIXTEENTH FLOOR.



LADIES' ROOM.

THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.



SECOND-FLOOR ELEVATOR CORRIDOR.



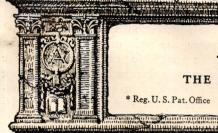
CORRIDOR LOOKING TOWARD LIBRARY.



GRILL, FIRST FLOOR.

THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.



ARCHITECTVRE*

Published by Charles Scribner's Sons
THE PROFESSIONAL ARCHITECTVRAL MONTHLY

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Editorial and Other Comment



A Fine Achievement

I N these days of seemingly unlimited resources in the development of all kinds of buildings, of the going up of hundreds of structures that but a few years ago would have been spoken of as remarkable enterprises, now the commonplaces of every day; in these days, as one editor has put it, of "ferocious activity," we hardly take the time to stop and notice anything that may, after all, be out of the ordinary.

No matter how big the enterprise, how great the cost, how many difficult structural problems involved, there are those always ready to say "go" to the architect and builder, and these in combination are changing the whole architec-

tural aspect of our high buildings.

In New York we were never so impressed with the feeling of "a ferocious activity"; the city is in a turmoil of building development. New office-buildings of a size and character almost unprecedented are as common as tents on some favorite motor camping road, and the new hotels built and in prospect bid fair to eclipse anything yet known. Size, mere bulk, enormous spaces divided into remunerative square-foot rentals are the conditions apparently to be met in order to make the tremendously increased cost of build-

We have had ample indications of the wisdom of building large; the problem has been more or less demonstrated

to be both feasible and a far-sighted one.

In observing these gigantic enterprises we never quite get over the feeling of admiration for the daring, the splendid faith in the future, and the ability shown in organizing

and in handling the immense sums involved.

One of the outstanding developments from both an architectural and financial point of view is the new Hotel Shelton on Lexington Avenue, between 48th and 49th Streets, whose massive walls and soaring height make such a wonderfully picturesque silhouette from a distance and, we may say, thrilling impression as you stand near it and look up at its ascending lines.

To those who have taken the time to study it somewhat in detail it appears as one of the really notable architectural achievements of our time. It has been called Gothic, Byzantine, Italian Renaissance, Romanesque, and by other names that may have a certain suitableness so far as certain details go, but the delightful thing about the building is that it can't be classified along traditional lines. It is intensely modern in its main elements and the architect has developed a style born of the inspiration of a big opportunity.

Mr. Arthur Loomis Harmon has shown his fitness for doing something different in the admirable Allerton Houses, with which he has been identified. In those he demonstrated a fine sense of the value of breaking up the plain surfaces of huge brick walls with an unobtrusive but effective variation of the pattern.

Architects will, of course, immediately notice the battered walls and the effect they convey of stability, of a footing that is braced against any possible pressure from the masses above. And every one will study the ingenious and subtle variations in the brick-work that relieve the walls of monotony and supply an atractive element of ornament.

Many will notice with especial interest the spirals that carry the eye up along the four corners of the upper stories and relieve the sharp edges, giving them a certain graciousness as well as an extra feeling of the aspiring character of the walls they adorn. As the eye follows them it is caught by the silhouettes of the griffins that surmount them and afford a pleasing contrasting variant of the lines.

The ornament at the top of each of the main masses seems most happily chosen, affording an agreeable contrast and carrying the eye pleasantly to the receding stories be-

yond.

The pergolas and the roof-garden add their notes of intimacy, the assurance of places where one may stop on the way up the mountain and look off at the hills and valleys and other distant peaks that lie beyond and around.

An inspection of the interior of the building will bring a convincing impression of the fact that every detail has been studied with meticulous care. Good taste in such matters is not a matter of guesswork, but the result of knowledge and forethought. Mr. Harmon has had the good judgment to call in consultation special authorities in regard to the stonecutting and the use of color and other details, and he has been fortunate in having his ideas developed by such competent hands. Mr. Solon's color schemes for the ceilings and tiling and Mr. Keck's work in stone are notably attractive.

Hotels for men and hotels for women with something of the atmosphere of a club to take them out of the commonplace, the segregation of the sexes in separate caravansaries, seems to be one of the developments of the modern business

world and the newly emancipated fair sex.

Mr. Harmon has contributed a splendid text on the new American architecture, and certainly no one will say that he has been lacking in an appreciation of the modern spirit in getting away from conventional ideas of design. He and others of our modern men are demonstrating the fact that we are not bound by any traditions, but are ready to meet new conditions with new ideas.

The site of this building offered exceptional opportunities, and Mr. Harmon has improved them in full measure and with a fine and distinguished sense of proportion and

The Shelton is indeed "a fine achievement."

A Matter of Details

HE club aspects of the Shelton are unsurpassed by any purely social organization in the city. No visitor who takes a look at the beautiful and spacious swimming-pool will go away without thinking he'd like to take a plunge into its clear water, and he will probably be impressed by

the charming color and patterns of the tiled walls and the ship's railing of knotted ropes that surrounds the upper deck.

And the Saturday-night bowling club may rejoice in the fine alleys provided for this wholesome and vigorous

Away up near the sky-line are the squash-courts and gymnasium, and the cosily furnished game room affords abundant opportunities for exciting contests at bridge, mah jong, checkers, dominoes, and that more or less exclusive sport of the highbrows in play, the ancient and honorable game of chess. And the billiard and pool players have a beautifully proportioned room in which to listen to the

clicking of the ivories.

Mr. Harmon has with some humor referred to the beehive in his comments, and the tenants of this great caravansary will not be without some resemblance to the hive's body politic. There will be both workers and drones living there, but, the proprieties forbidding, not a single queen either in active reign or hidden away in some secret cell, to some day fly away and take her subjects to a newer and possibly higher and bigger Shelton.

These hotels for men only offer a hermitage for the retiring, or a place of possible friendly and encouraging contact for those who may find the world but a dreary place

without informal contact with their fellow men.

Certainly there is no comfort or luxury that may not be had in these very modern days, if you have the price! And in the case of the Shelton and its predecessors (the Allerton Houses) in the field of "men only," the price seems to have been adjusted to both the modest purse and the one that can afford a "baronial suite," if he be so inclined.

Even the casual visitor to the Shelton will be impressed with the admirable good taste shown in the matter of such details as the wrought ironwork, the lighting fixtures in the corridors and dining-rooms, the refined and yet colorful use of tiling and mosaic, the ventilating grilles, the quiet and unobtrusive character of the floor-coverings and draperies.

And no doubt some with a thought of perhaps making the place a future home will look with approval upon the arrangement of the lighting fixtures in the bedrooms

The matter of adequate and suitable lighting of livingrooms is receiving much more serious consideration than formerly, for which, no doubt, the electrical folks are some-

what responsible.

In the case of the Shelton, a place intended for the permanent rather than the casual guest, each room is provided with a wall fixture which has an attachment-plug receptacle built into its lower portion. The ornamental design of the bracket back-plate is so arranged as to disguise the utilitarian nature of the device.

The base outlets in all rooms are provided with twinplug receptacles, and a feature of the installation is the use of a new universal receptacle base in both the lighting fixture and the base-board. This permits latitude to the tenant in arranging his portable lamps to suit his own convenience.

We take pleasure in mentioning here as a detail of importance the many admirable photographs of the Shelton

made for us by Mrs. Hewitt.

A Manual of Office Practice

WE begin in this number a series of articles of more than ordinary interest and value on this important subject by Frederick J. Adams, whose years of experience in the offices of McKim, Mead & White have qualified

him to write on matters of this kind with both knowledge and unusual ability. He says that "he was fortunate in coming directly under the supervision of the late Stanford White and remained under the ægis of that great artist until his death." Later he worked for each member of the firm, the operations constantly increasing in importance and complexity. His field of endeavor has been exceptionally wide, including field superintendence, specification writing, and engineering.

Architecture has always made it a point to begin with the practical concerns of the profession it tries to serve, and to engage in its behalf men of known ability and special

training in their special fields.

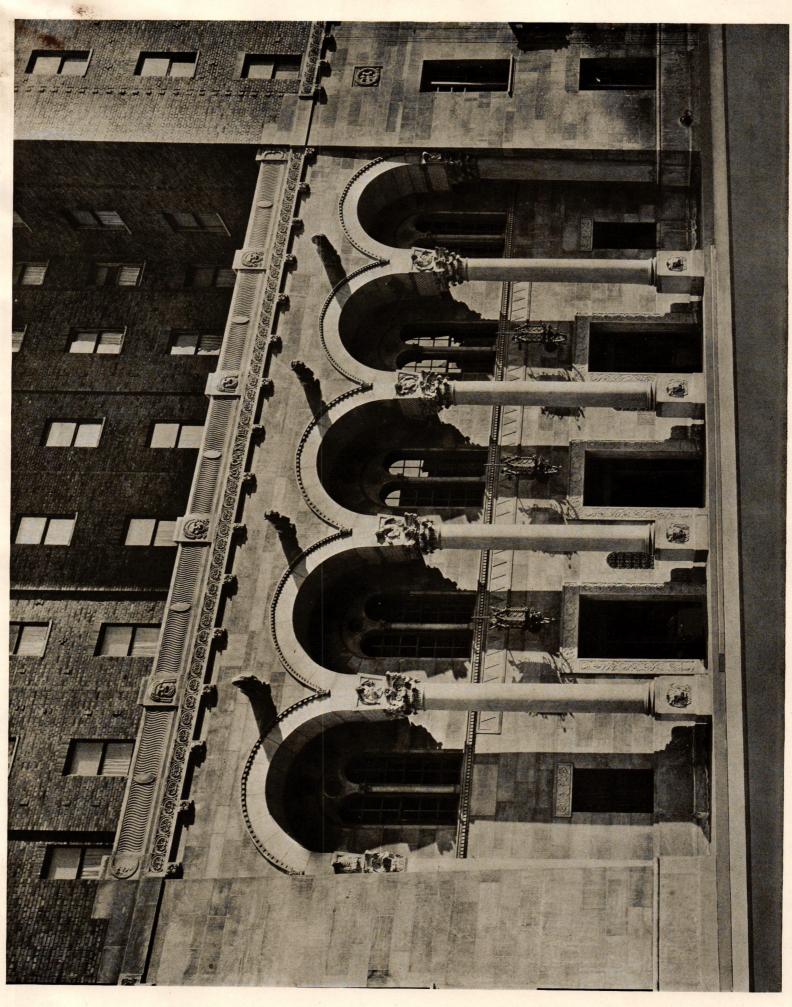
We have no hobbies to ride, nor do we ever presume to declare that there is but one standard of taste, our own and a very few others; no, we have been too long in the world not to appreciate that the world is full of a number of things, about which we may not be able to say the last word. We try to think in your terms first, and "Be practical" would be the motto crocheted and hung over our office-door. But we are not too old still to believe that some of the most practical things the world has known may yet be accused of a sneaking liking for making the practical attractive. That is why we give so much care and thought to presenting the work of the architects in as attractive form

An attractively drawn perspective, a rendering by one of the masters in this field, is often considered a very important part of the architect's appeal to his client. We have felt that a handsome presentation of your work in our pages is in keeping with the best practice, and if we take some pride in our rather phenomenal growth in circulation within the last year, we attribute it to the fact that we begin with the practical, continue with the practical, dream of the practical in all that we do. We believe at the same time that beautiful architecture is worthy of the best possible presentation when it comes to making our plates, and in justice to both you and ourselves we do our best to live up to what you expect of us in both the practical and the artistic parts of our job.

Group Insurance for Employees

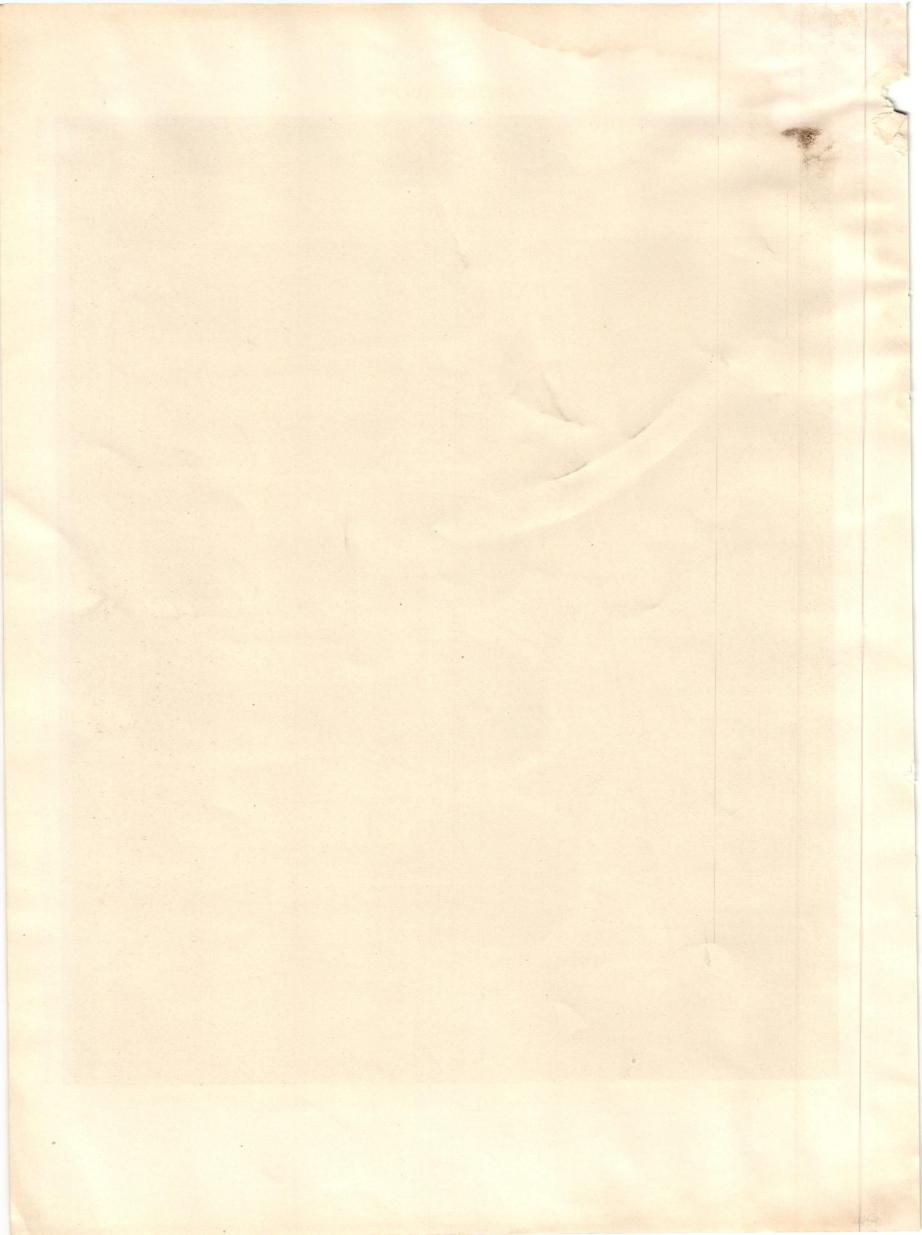
HE new group-insurance plan for employees, worked out by the Industrial Association of San Francisco, to overcome the difficulties attached to providing insurance for men engaged in the building trades where employment is necessarily intermittent and subject to constant change, has been most enthusiastically received.

The plan provides that without the necessity of a physical examination, and at a cost of approximately ten cents a week, the employee can secure a \$1,000 policy covering death and total disability; and for an additional seventeen cents a week, coverage also for sickness and accident. The employer pays the balance (approximately 50 per cent) of the cost of this insurance, which is being issued at a 5 per cent lower rate than group insurance has been heretofore supplied; and provision is made that an employee may transfer from one employer to another, or may even be granted a six months' leave of absence without forfeiting his insurance. Already employers who have adopted the plan testify to the increased efficiency and better spirit of their employees, and the prospects are that within another ninety days virtually all of the 25,000 to 30,000 American Plan workmen in the San Francisco Bay District will be participating in its benefits.



MAIN ENTRANCE, COLONNADE, LEXINGTON AVENUE, THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.

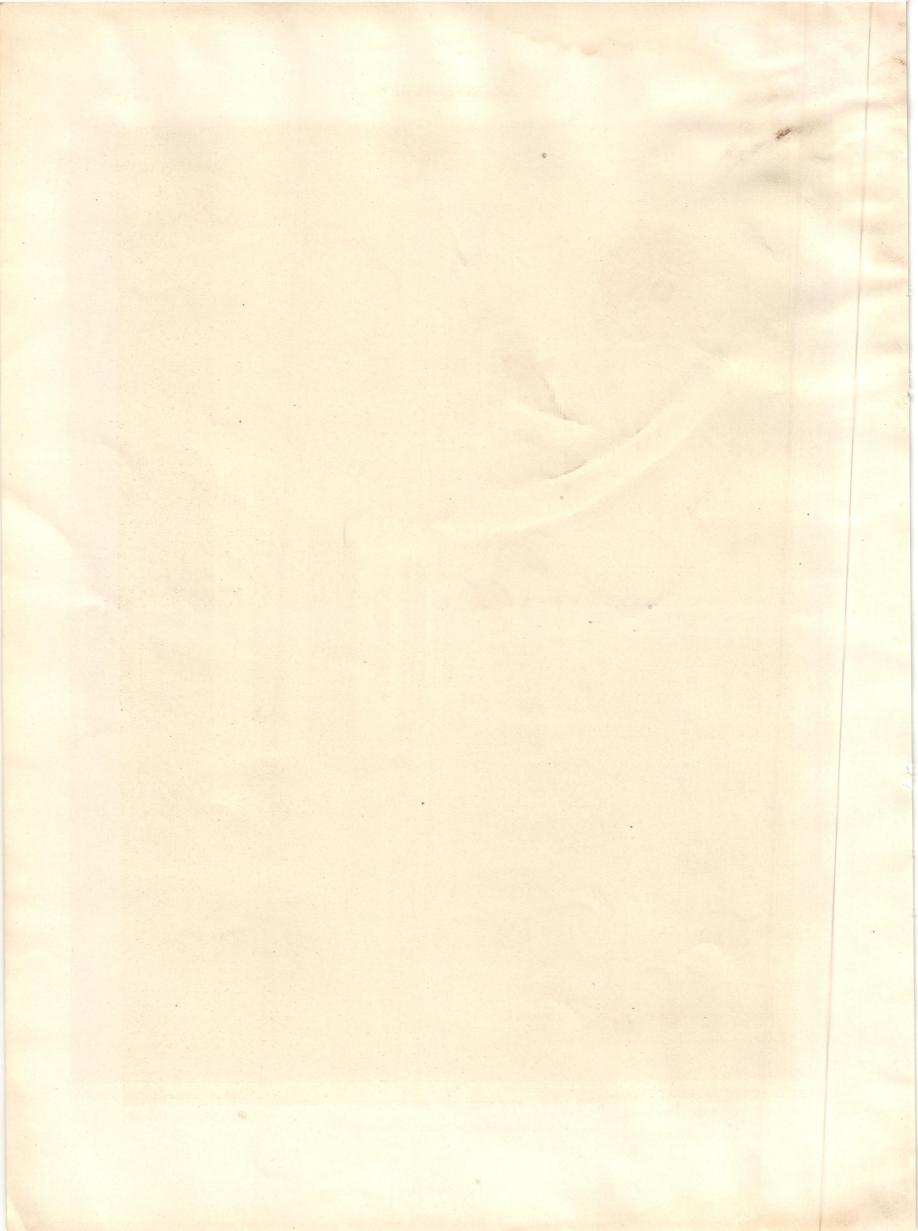




ELEVATOR CORRIDOR, FIRST FLOOR.

THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.





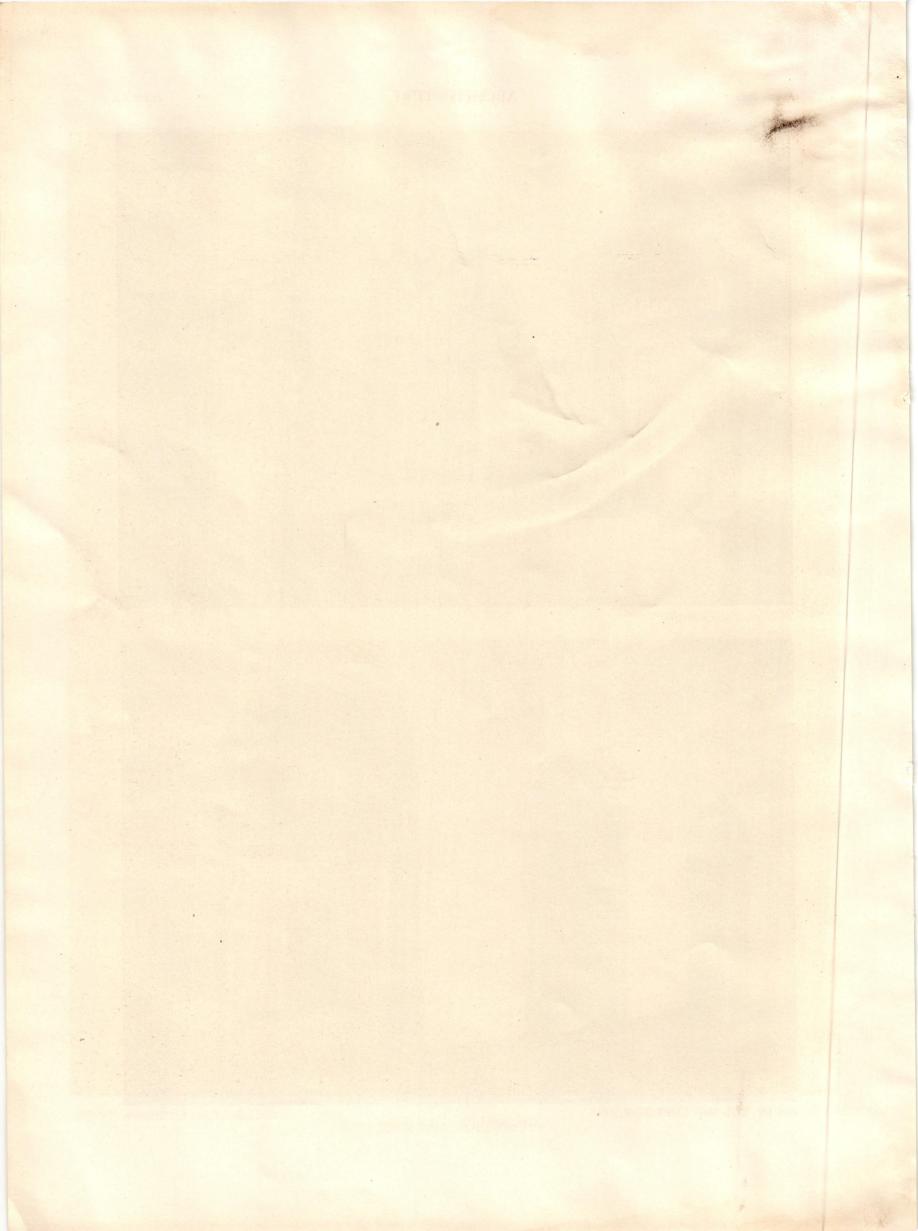
TOWARD ENTRANCE.



LOBBY, TOWARD CORRIDOR.

THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.

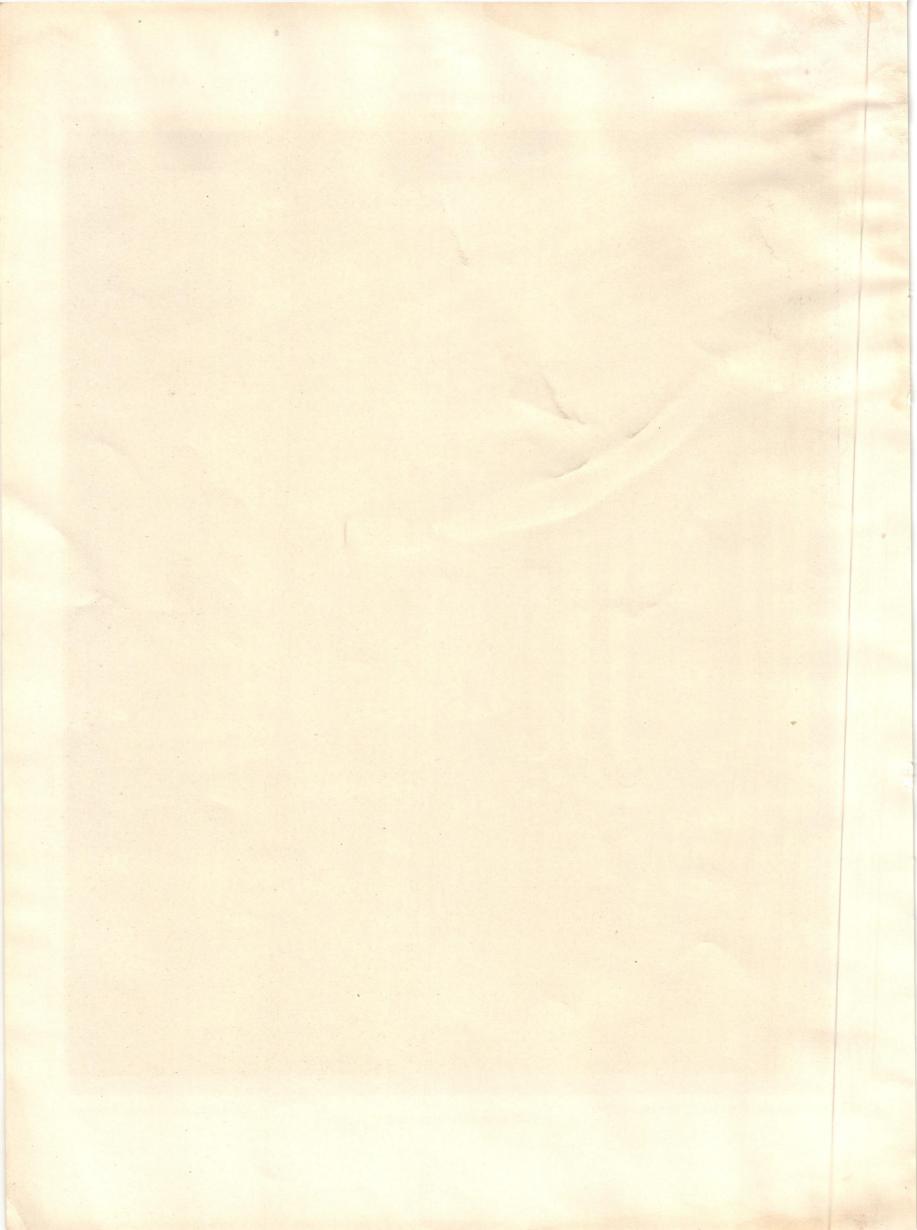


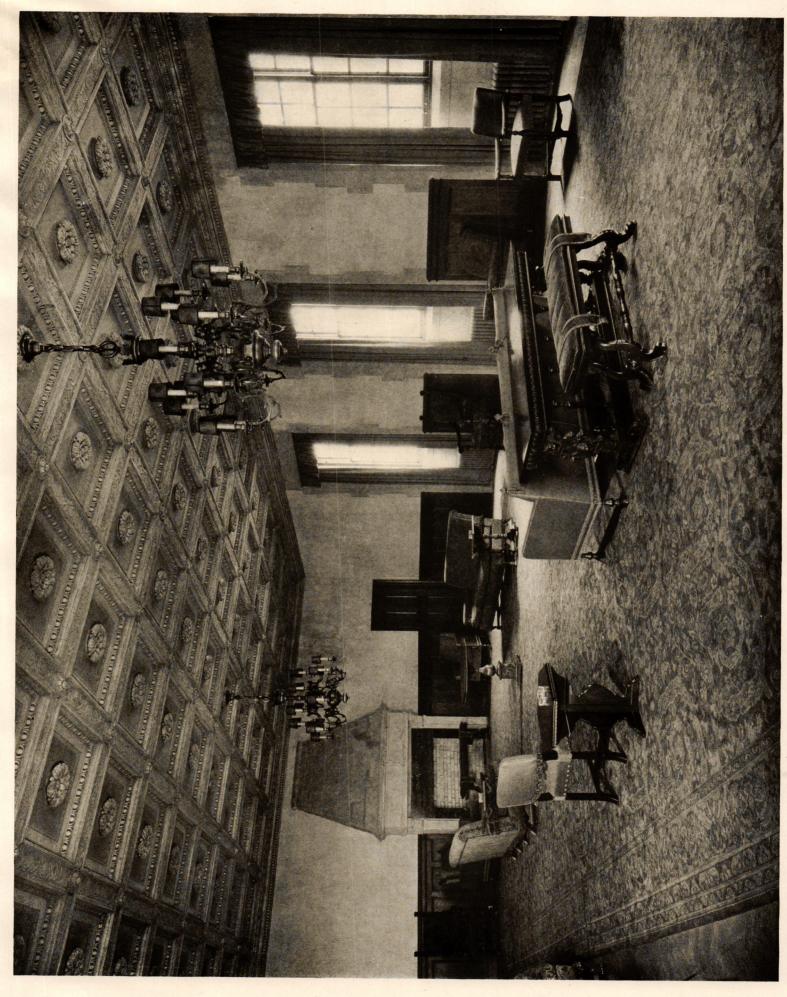


A CORNER OF THE MAIN DINING-ROOM.

THE SHELTON, NEW YORK.

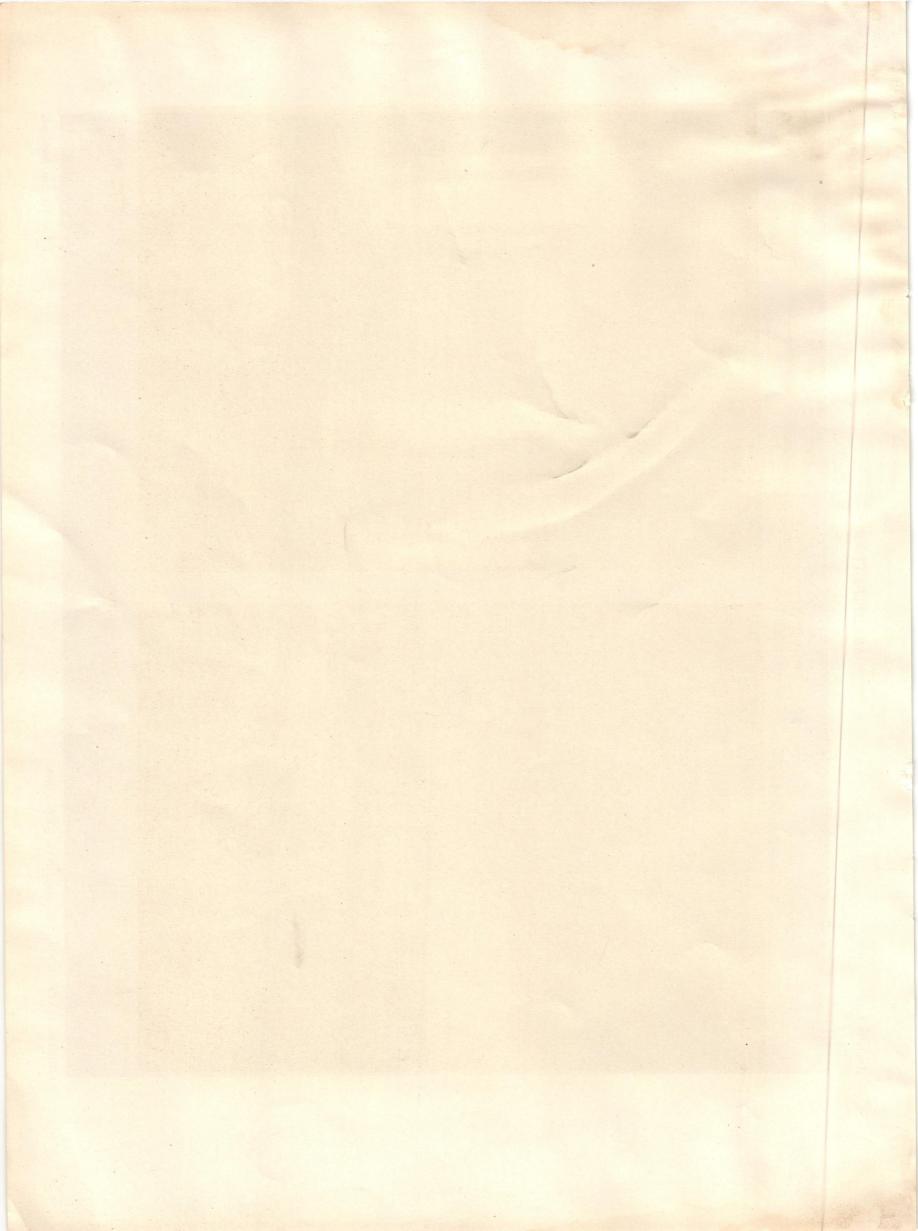
Arthur Loomis Harmon, Architect.



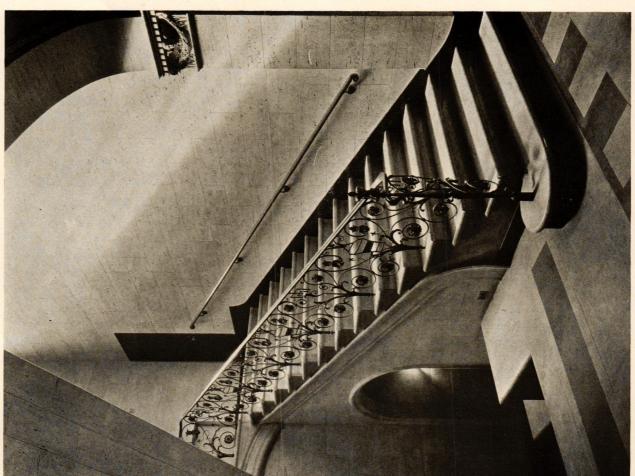


LOUNGE, FIRST FLOOR, THE SHELTON, NEW YORK,

Arthur Loomis Harmon, Architect,



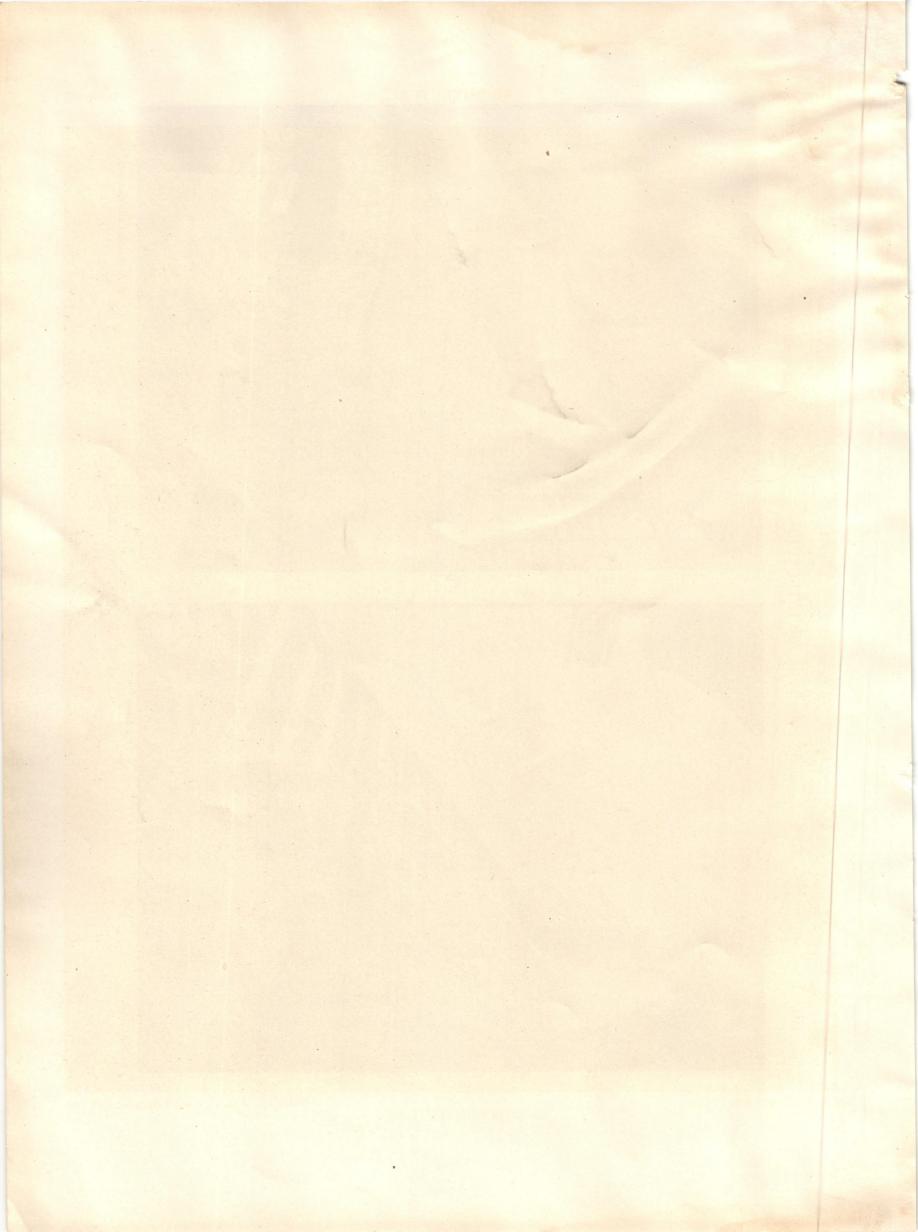




STAIRCASE.

THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.

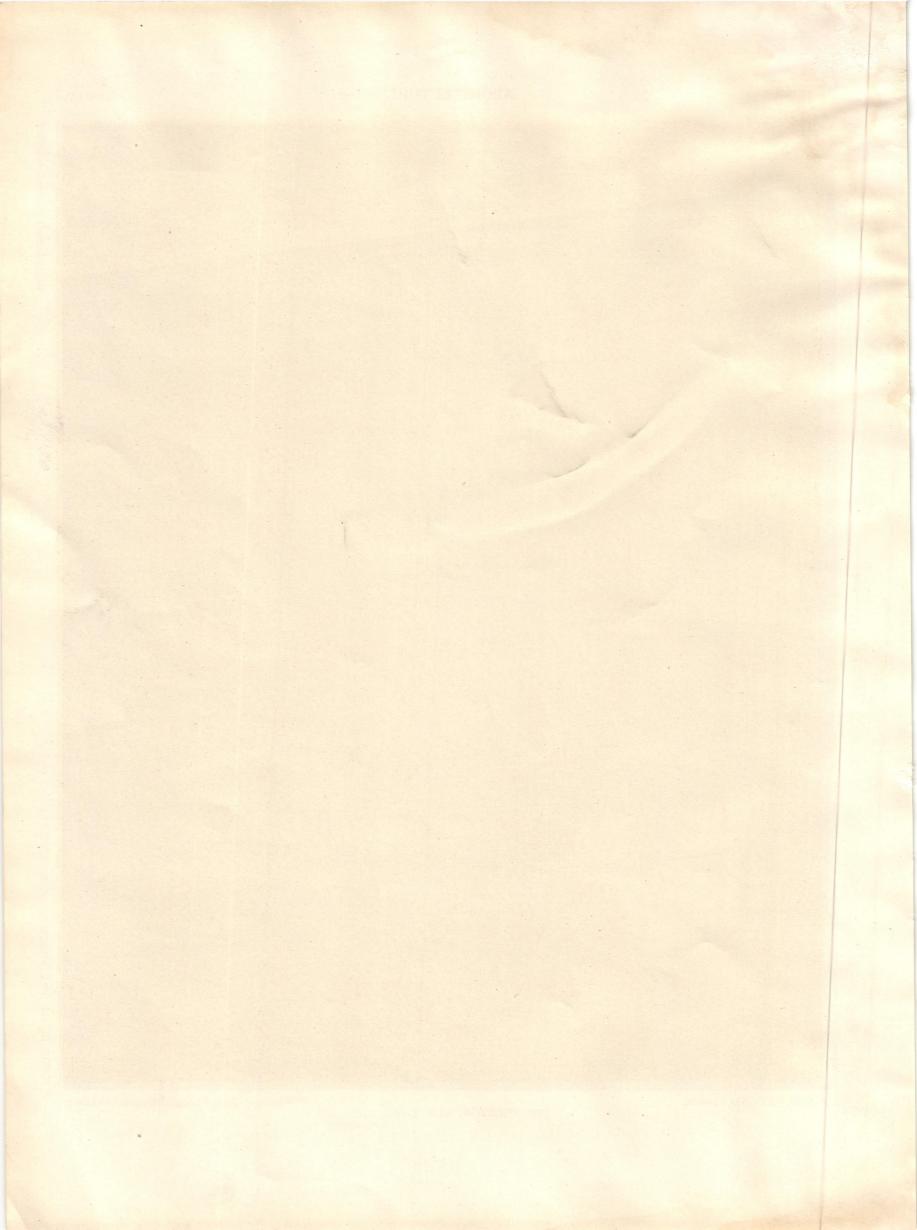




LOUNGE, SECOND FLOOR.

THE SHELTON, NEW YORK.

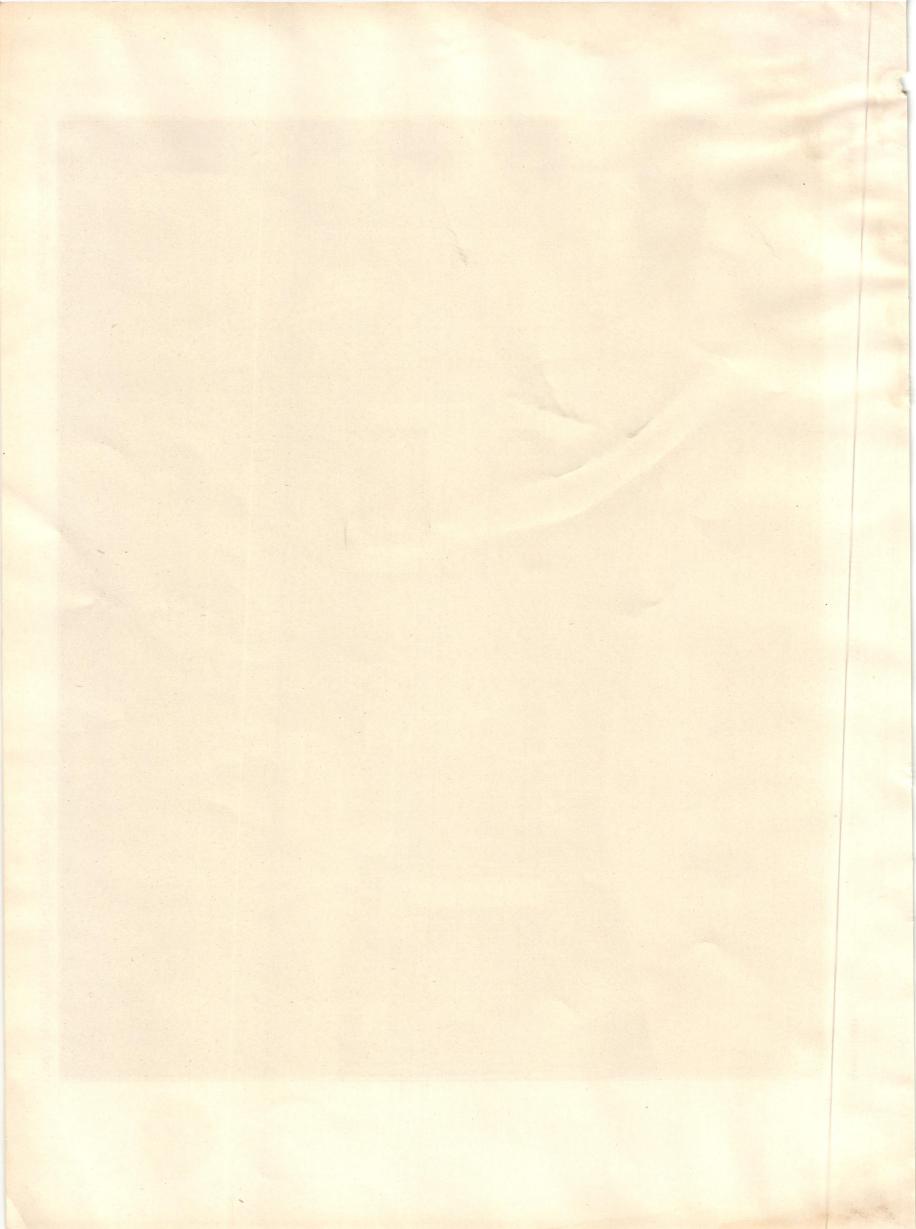
Arthur Loomis Harmon, Architect.

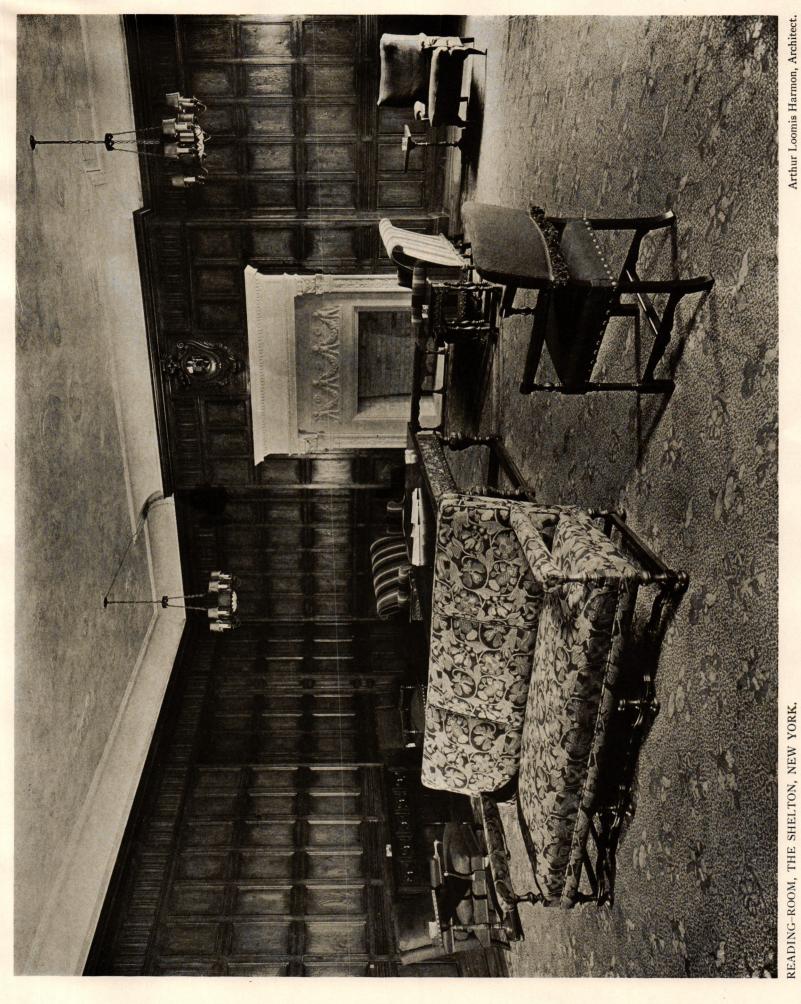




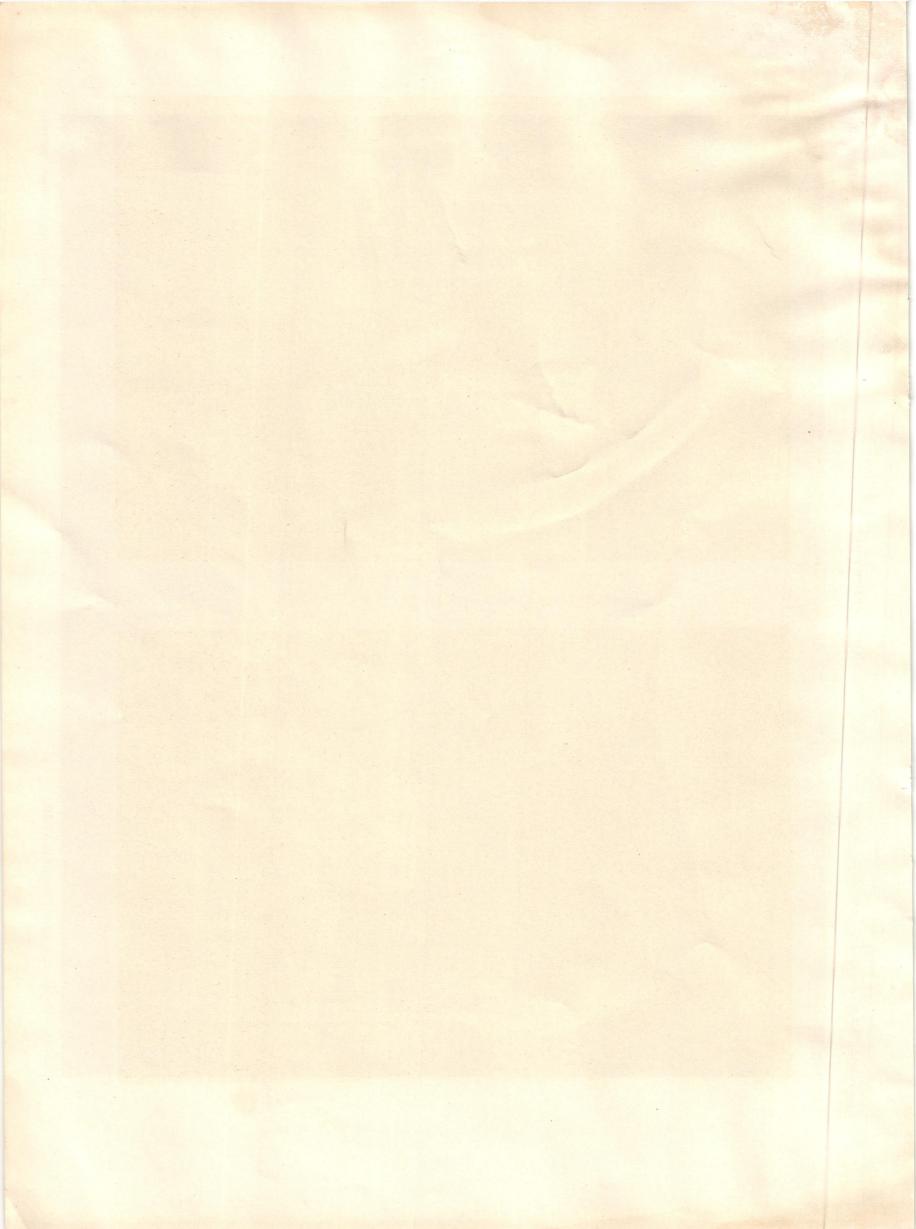
GAME ROOM, THE SHELTON, NEW YORK.

Arthur Loomis Harmon, Architect.

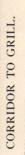




READING-ROOM, THE SHELTON, NEW YORK.



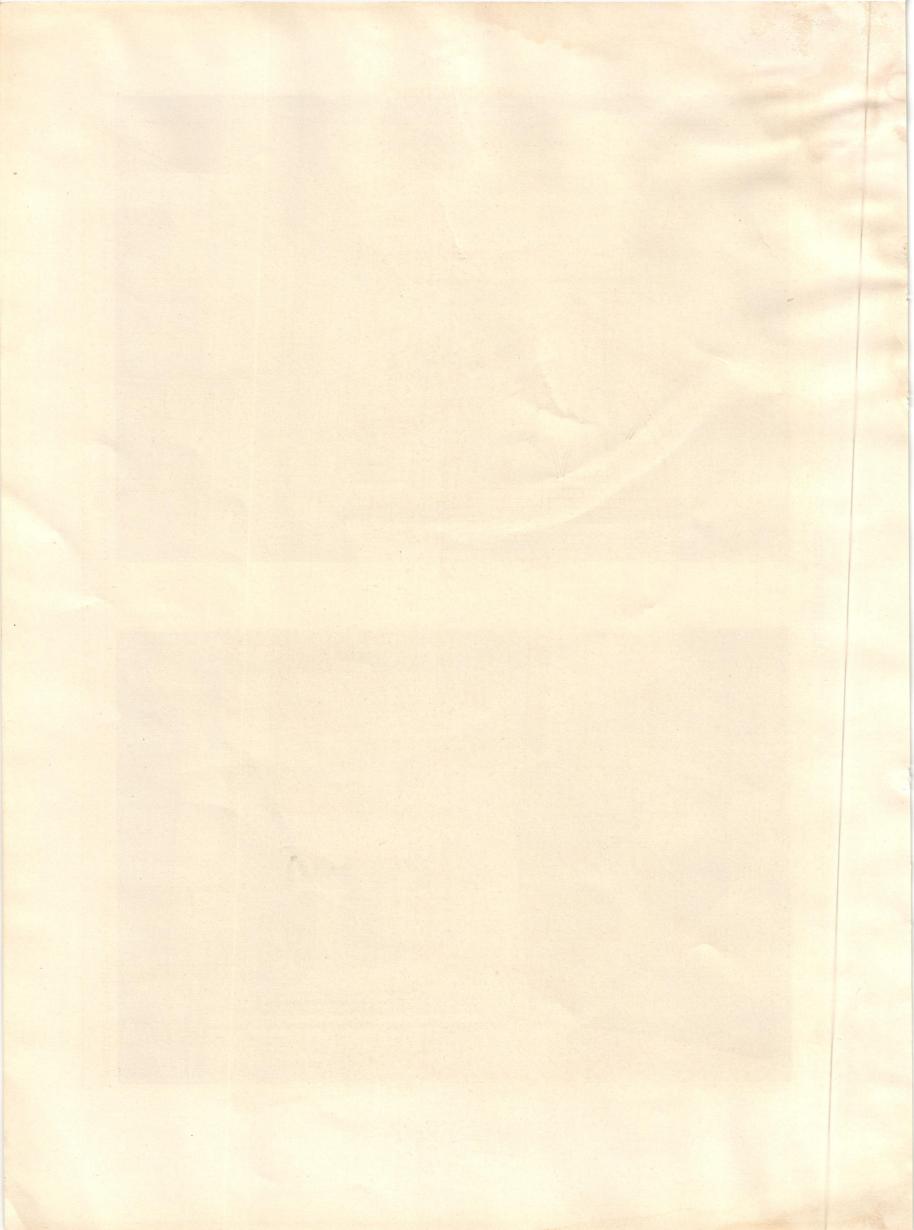
APRIL, 1924.

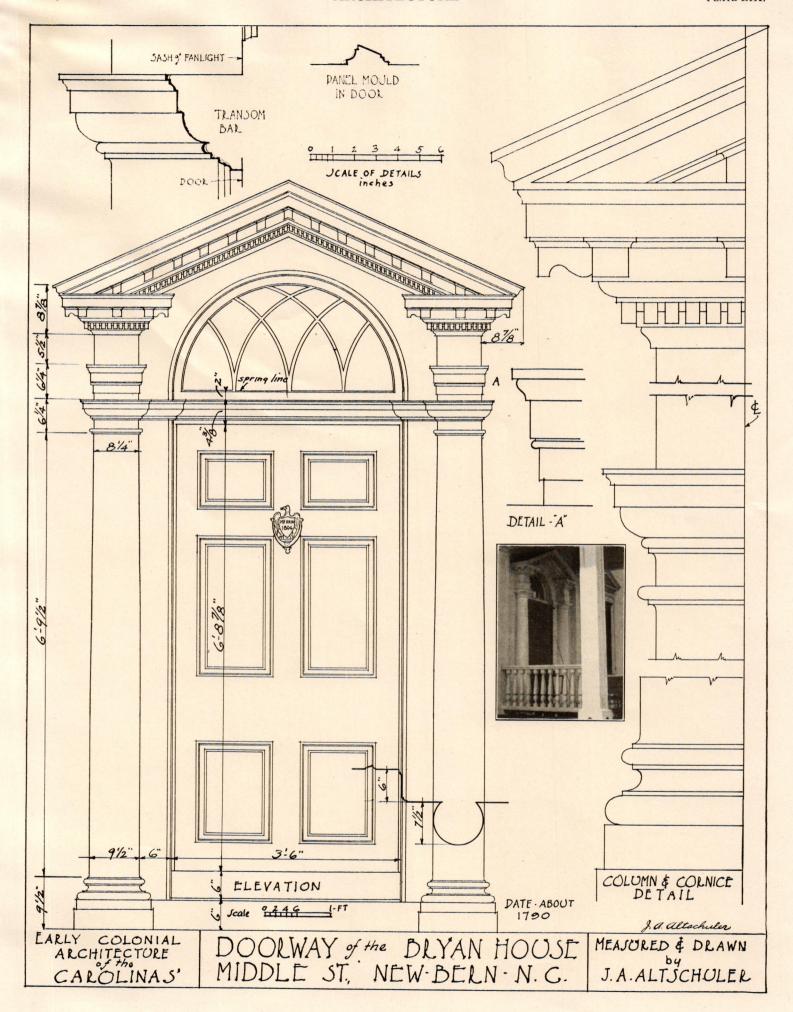


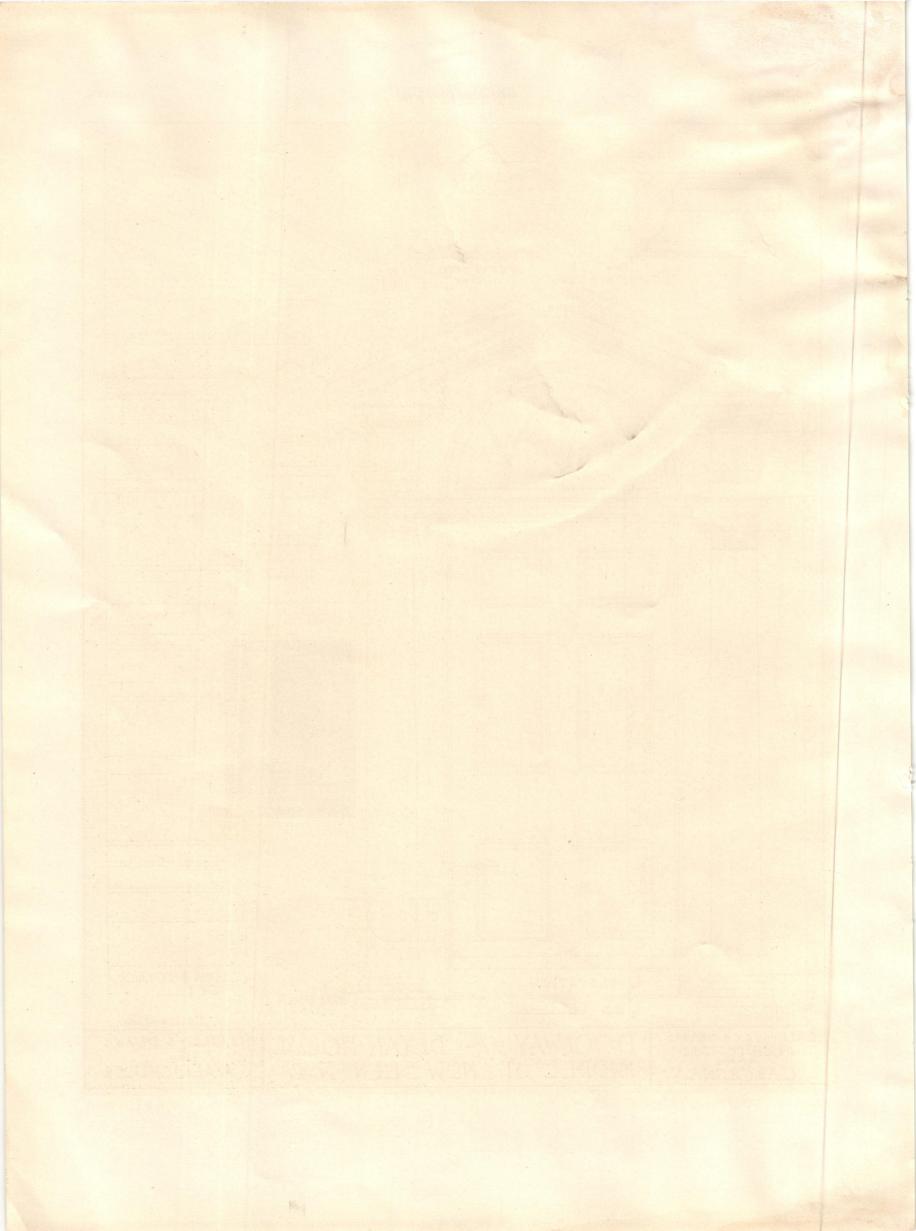
Arthur Loomis Harmon, Architect.

THE SHELTON, NEW YORK.

CORRIDOR TO DINING-ROOM.



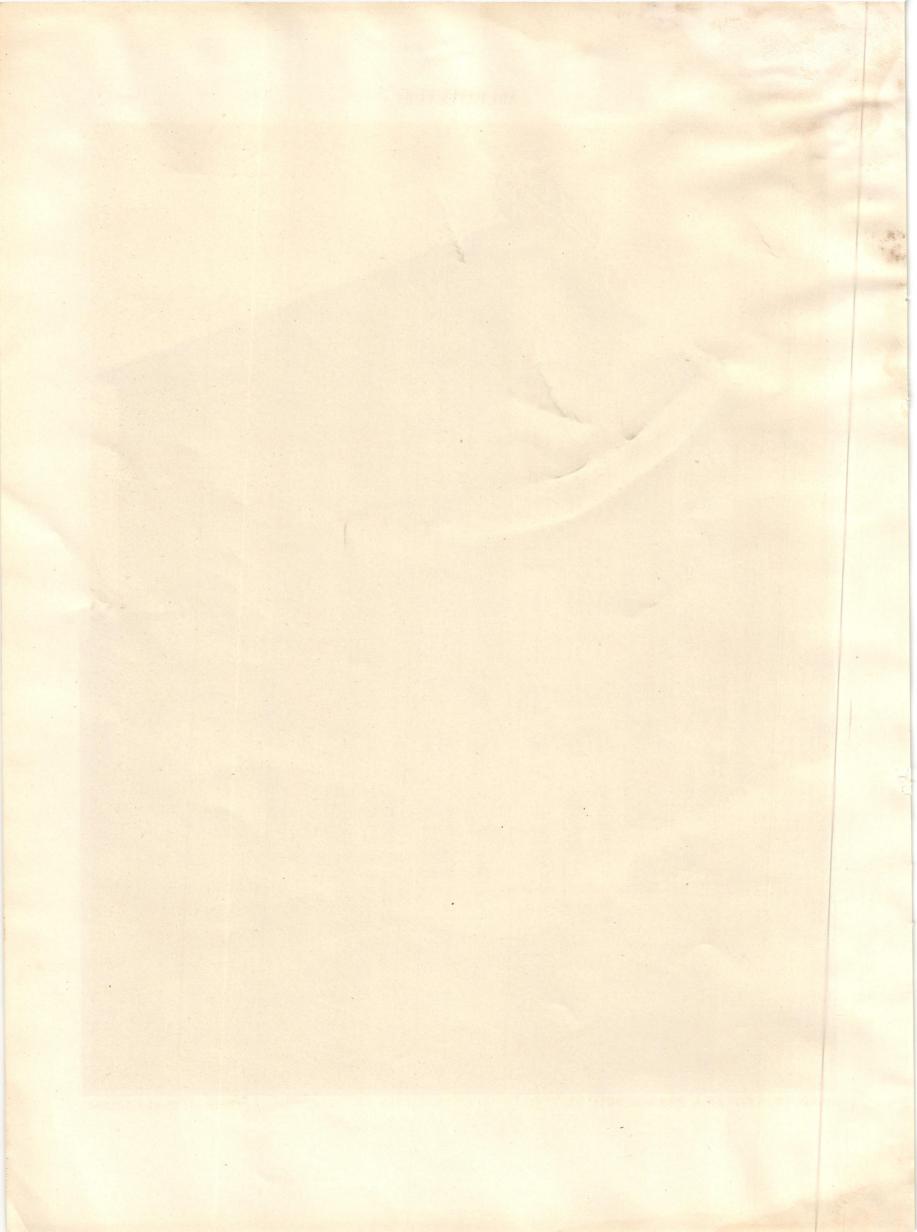


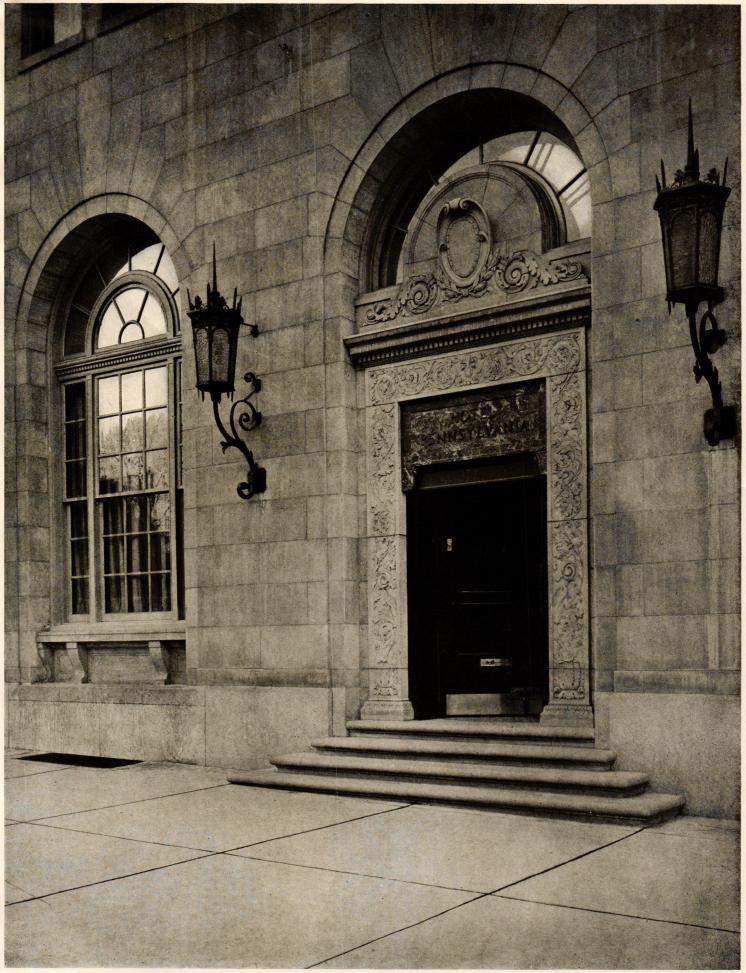




HOTEL PENNSYLVANIA, PHILADELPHIA, PA.

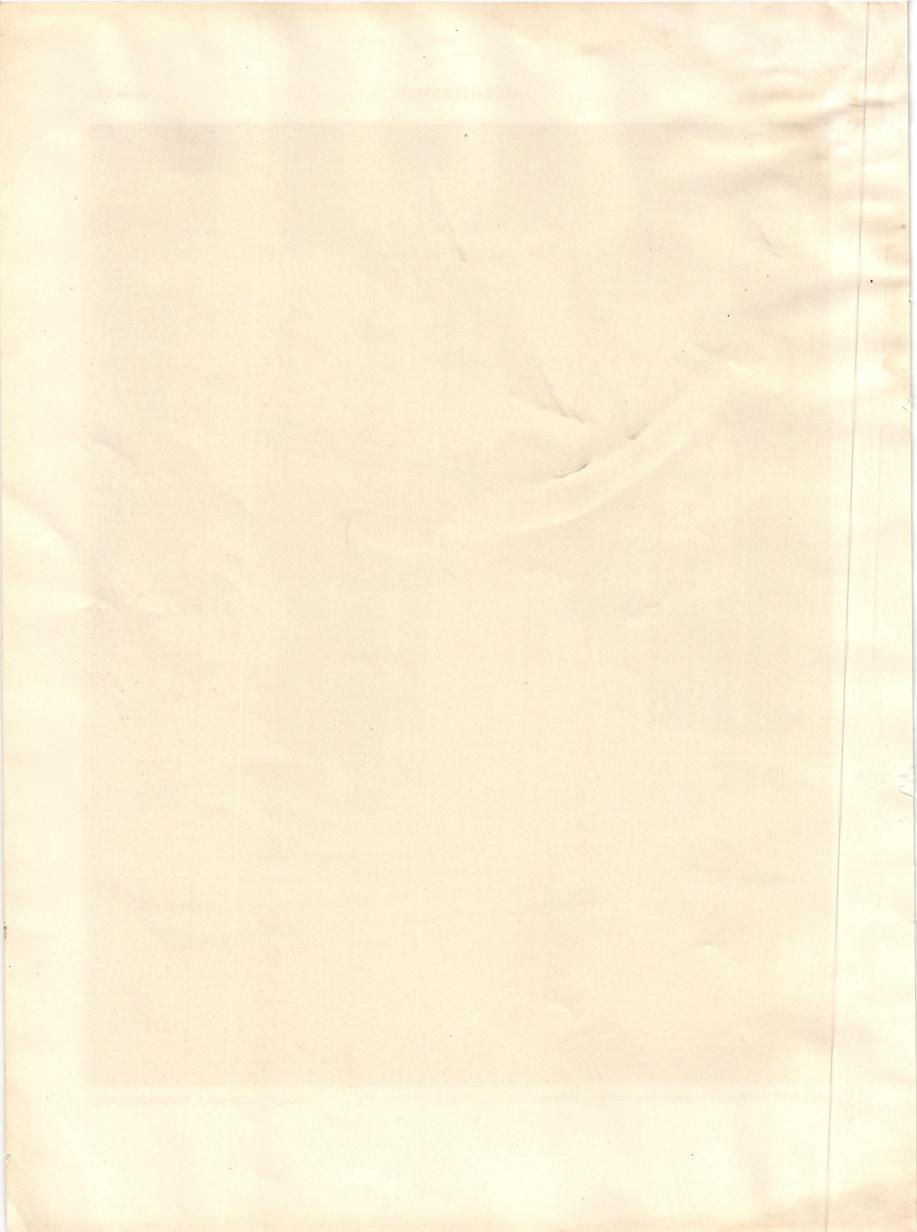
Clarence E. Wunder, Architect.





CHESTNUT STREET ENTRANCE, HOTEL PENNSYLVANIA, PHILADELPHIA, PA.

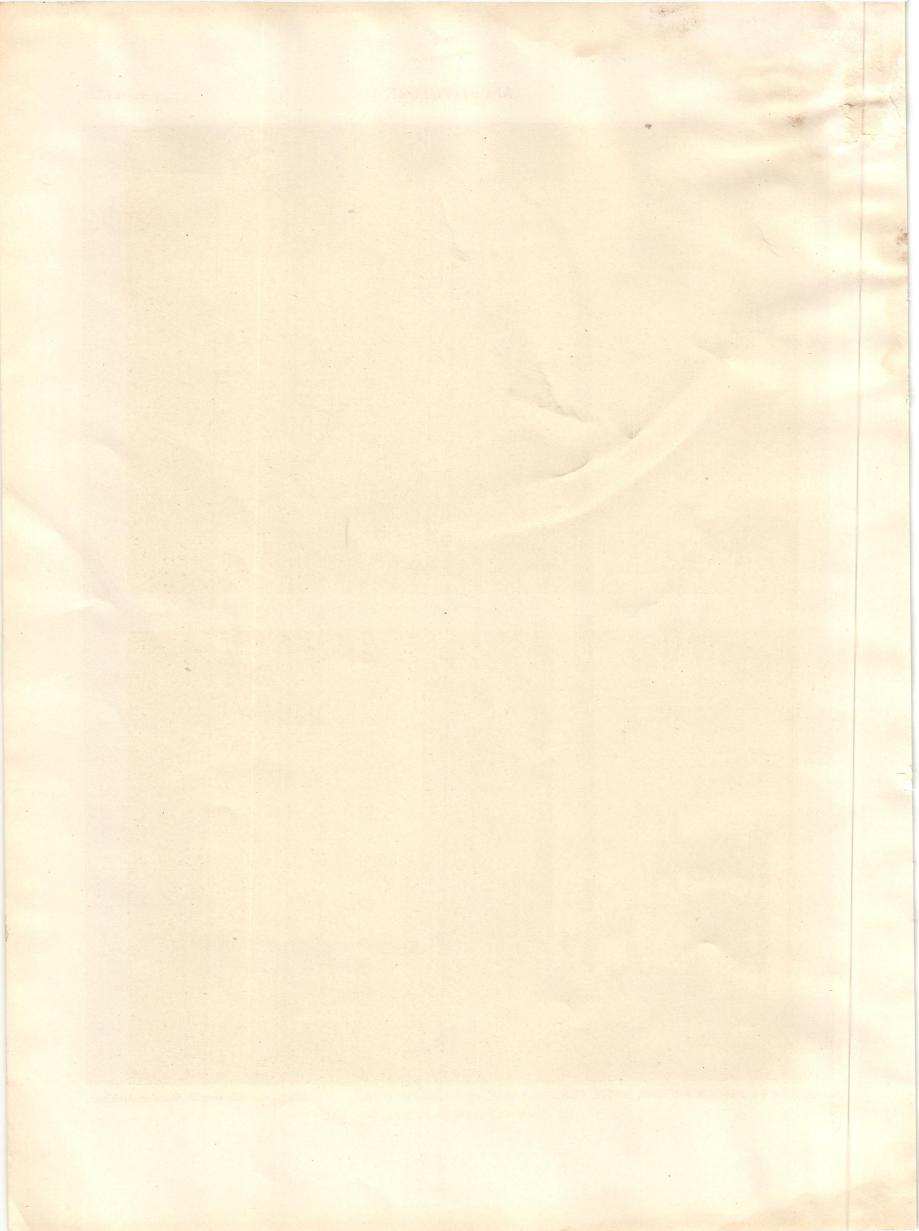
Clarence E. Wunder, Architect.





DOORWAY TO PARLOR ARCADE, HOTEL PENNSYLVANIA, PHILADELPHIA, PA.

Clarence E. Wunder, Architect.





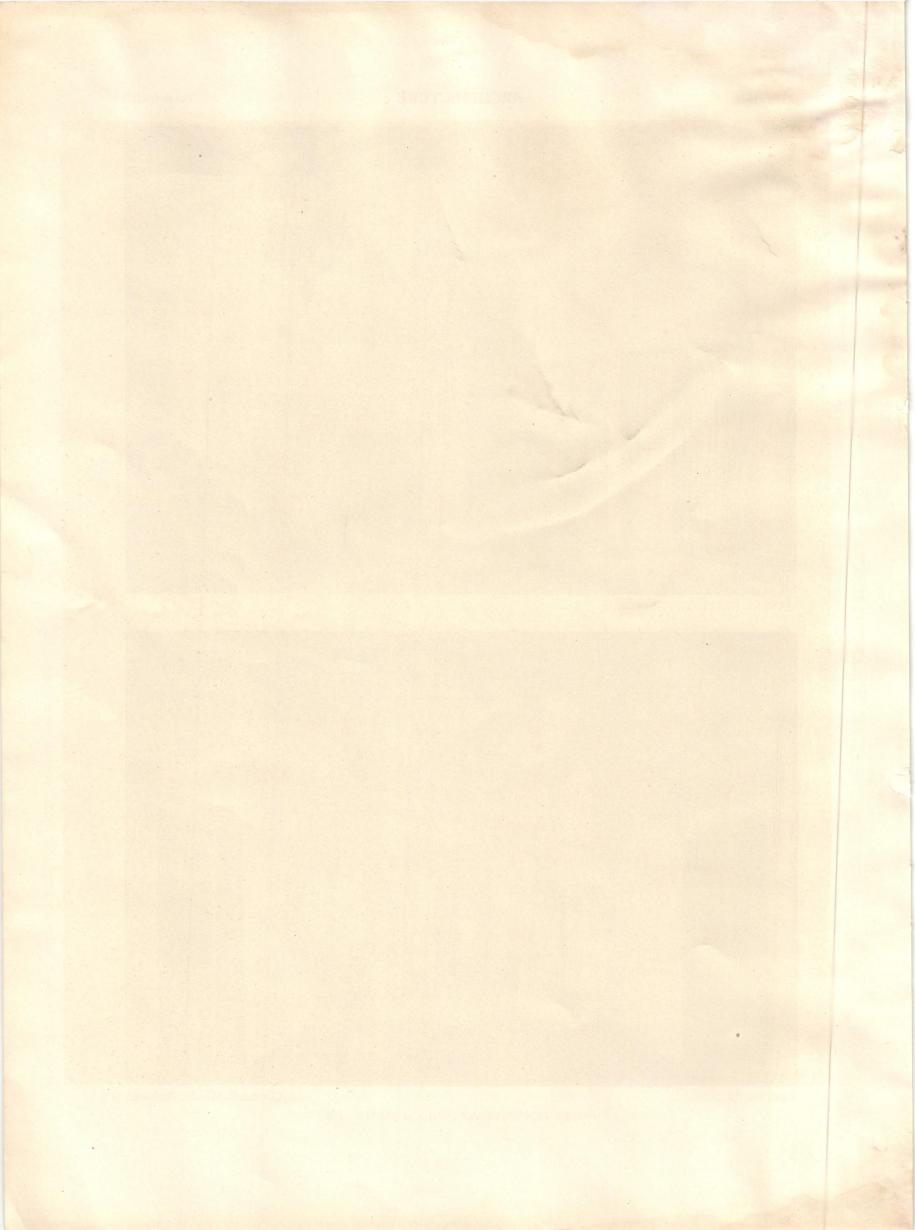
MANTEL IN SMOKING-ROOM.



PARLOR ARCADE.

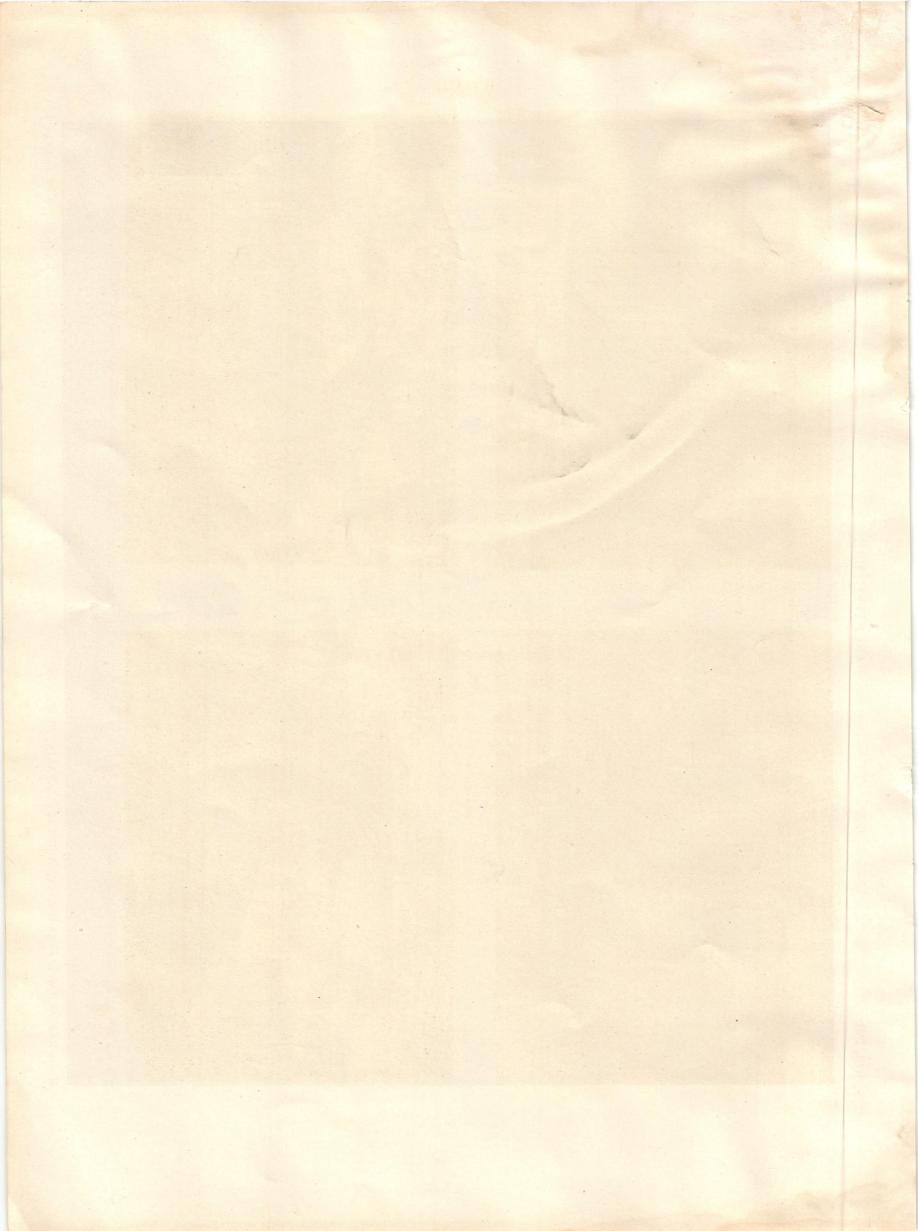
Clarence E. Wunder, Architect.

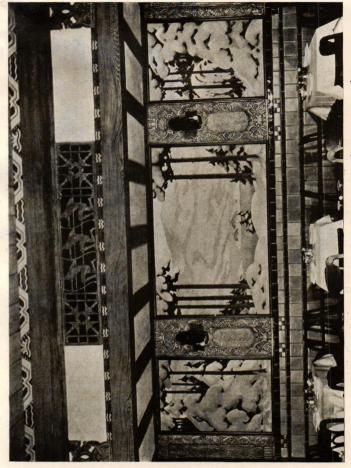
HOTEL PENNSYLVANIA, PHILADELPHIA, PA.



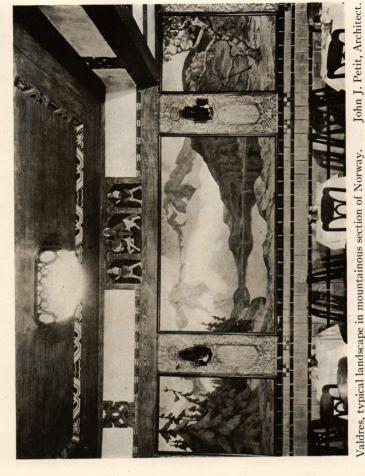


MAIN RESTAURANT, PERSHING SQUARE CAFÉ SAVARIN, NEW YORK.





Hardanger, snow scene, mountain section near Bergen, prominent seaport city.



Valdres, typical landscape in mountainous section of Norway. THE PERSHING SQUARE CAFE SAVARIN.



Olden Nordfjord, high mountain landscape showing Olden Lake.

New Influence in American Architectural Decoration

By Edgar H. Cahill



Odin, the great god.

NE of the most significant developments in recent American art is the increasingly high quality of architectural decoration in our leading buildings. There is a new leaven working in American architecture and architectural decoration. This is a healthy sign for art on our side of the Atlantic. Architecture has always been the first of the arts to

feel the upward surge of new and vital forces, and with it have been associated many of the noblest expressions of sculpture and painting in Egypt, in Greece, and in mediæval and Renaissance Europe. Among those who have been working to improve the standards of American architectural decoration, no man was more successful than the late John J. Petit, an architect who achieved remarkably fine results in such buildings as the Waldorf-Astoria and the recently established Pershing Square Savarin in New York City. Mr. Petit had associated with him for a number of years the well-known Norwegian sculptor and decorative painter, Trygve Hammer. Mr. Hammer, who has lived in America

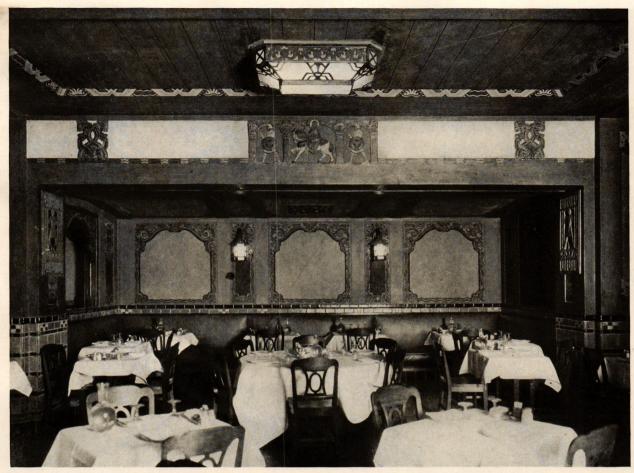
for twenty years, is closely in touch with the movement of architects and artists that has given Scandinavia a new northern style in the past two or three decades. He has introduced many of the best elements of this work in America. But his greatest contribution has been in the direction of working out a type of decoration in sculpture and in painting suited to our modern construction.

The finest example of this work is in the Pershing Square Savarin, at 42d street and Park Avenue, New York, where Mr. Hammer worked under the direction of John J. Petit, and carried it to completion under Oscar P. Cadmus, representing the estate of John J. Petit. The problem here was to turn the steel and concrete interiors of a modern building into a series of rooms that would express dignity, hospitality, and an intimate and colorful charm. The solution, worked out by Mr. Petit and Mr. Hammer, was found in old Norwegian decoration, especially in the woodcarvings and metal-work in Norse houses and church portals. The sharp, clear line, the powerful and yet restrained fancy, in the work of the early Scandinavian craftsmen fitted their designs beautifully to steel and concrete structures. Mr. Hammer selected, adopted, and created forms in the spirit of this fine old school with excellent results.

The main room of the Savarin is in the style of the stately banquet-halls of the Viking chieftains, with massive girders carrying a ceiling treated as a decorative timber construc-



The tea-room



A RECESSED ALCOVE IN MAIN ROOM IN STYLE OF THE PRESENT NORWEGIAN HOMES.



PRIVATE DINING-ROOM (UPPER-CLASS EIGHTEENTH CENTURY).

THE PERSHING SQUARE CAFÉ SAVARIN.

John J. Petit, Architect.



Siegfried Grille (of Wagner).

tion resting on boldly and colorfully painted wooden pillars and pilasters. The walls are divided into a series of panels by ornamental pillars, and in these panels are paintings of the mountains and fiords of Norway. These paintings, lovely in color and refined in technic, were executed by the Danish painter, Frank Helving, collaborating with Mr. Hammer. All of the twenty-three mural paintings in this room were executed directly on a rough-plastered surface of Morene. The wainscoting is in tiles of black and warm gray, with gaily colored insets. The radiator and ventilator monized into the general decoration scheme. The electric fixtures are of hammered antique lead. The recessed alcoves of this room are in the manner of Norwegian homes of the seventeenth century, with varicolored ornament in relief and in flat.

The private dining-room, with its vaulted ceiling, wall panels in floral design with quaint family portraits, and wainscoting tiled in yellow and black, is reminiscent of the homes of Norway's aristocracy in the eighteenth century. The walls in the room are treated with Morene applied with a trowel or broad-knife and the decorative ornament then applied thereon in the method of old fresco or al secca. The men's restaurant follows the same general scheme, with a wainscoting of Royal Delft Faience and ship-formed electric chandeliers and ventilator grilles. The ladies' restaurant is a fine adaptation of the characteristic and delightful peasant interiors of Norway, with richly designed ornaments in polychrome.

The whole decorative scheme of the Pershing Square Savarin is splendidly unified with a series of rhythmic variations which continually interest and stimulate the beholder. It is a monument to the genius of John J. Petit, and to the spirit of artistic co-operation among artists and

craftsmen.



Sculptured decoration over painted panels, King Olaf the Saint.

grills and the lighting fixtures have been interestingly har-

Water-Tight Walls

BRICK walls, when properly constructed of well-burned brick, laid in correctly proportioned mortar are practically impermeable, or water-tight. This is extremely important where foundation-walls are laid up in brick, and is also highly desirable for exterior walls, particularly when they are not furred before plastering. When a wall is constantly damp, as may be the case with foundation-walls, lime should always be added to the cement mortar, but a straight lime mortar is not advocated as it does not harden satisfactorily if kept damp. The only safe way to insure water-tightness is to mix a permanent material integrally with the mortar. The most satisfactory substance for such use is lime, for it confers many other valuable characteristics upon the mortar in addition to the property of water-tightness.

On page 156 of Mills's "Materials of Construction" we

"Aside from the effect of lime additions upon the

strength of cement mortars, the practice of making such additions is often justified by the advantages derived from the standpoint of permeability. Lime is an excellent water-proofing substance for incorporation in mortars and concrete. Such additions also produce mortar and concrete which shows less expansion and contraction with alternate increase and decrease of moisture content."

The U. S. Bureau of Standards in 1911 conducted an elaborate series of tests covering practically all compounds then available which were recommended for water-proofing. These tests are reported in Technologic Paper No. 3. On page 59 the following statement appears, which refers to hydrated lime:

"This is the most efficient medium employed and resulted in an almost impermeable mortar at the two-week test. Its value is probably due to its void-filling properties, and the same results could be expected from any other finely ground inert material, such as sand, clay, etc."



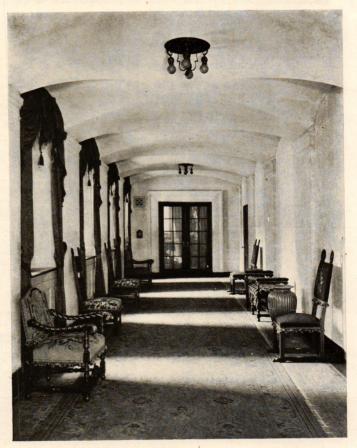
MANTEL IN LOUNGE.



LOBBY LOOKING TOWARD LOUNGE.



ARCADE FROM 39TH STREET.

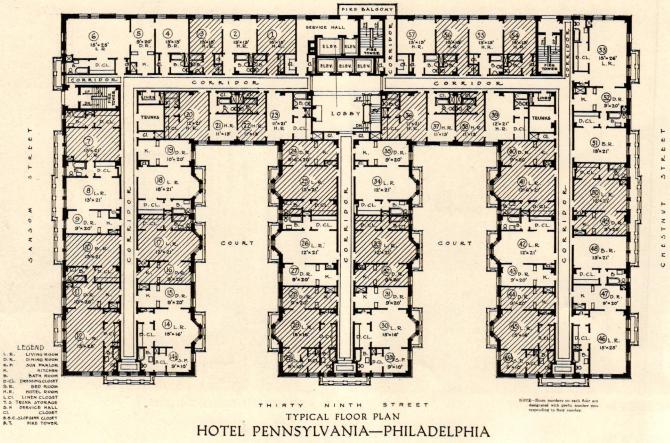


ARCADE TO DINING-ROOM.

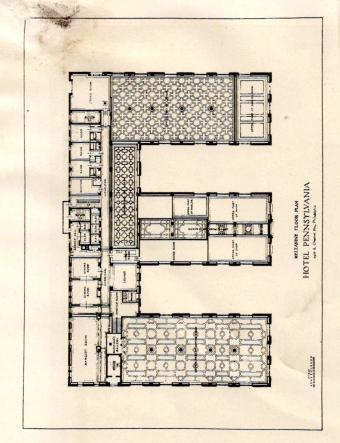
HOTEL PENNSYLVANIA, PHILADELPHIA, PA. Clarence E. Wunder, Architect.

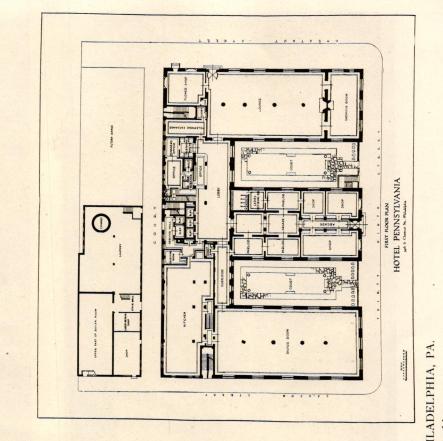


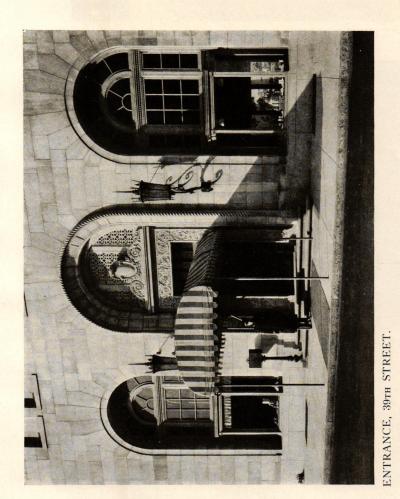
LOBBY.



Clarence E. Wunder, Architect.









HOTEL PENNSYLVANIA, PHILADELPHIA, PA. Clarence E. Wunder, Architect.



FIXTURE IN DINING-ROOM.



FIXTURE IN SMOKING-ROOM.



FIXTURE IN LOUNGE.



FIXTURE IN LOBBY.
HOTEL PENNSYLVANIA, PHILADELPHIA, PA.
Clarence E. Wunder, Architect.

Housing for Industrial Workers, Bayonne, New Jersey

Andrew J. Thomas, Architect

BIG business is now interesting itself in the housing problem. In the city of Bayonne a group composed of some of the largest industrial interests in the United States—the oil refineries and manufacturing plants—are proposing to co-operate under the leadership of the Bayonne Chamber of Commerce in establishing an ideal demonstration of wage-earners' housing. The interests who are undertaking the work, under the name of the Bayonne Housing Corporation, with George E. Kennen as president, include the Standard Oil Company, Tide Water Oil Company, Vacuum Oil Company, Babcock & Wilcox Company, Pacific Borax

Company, International Nickel Company, American Radiator Company, and the estate of J. H. Mahnken. Both Mr. John D. Rockefeller, Sr., and his son Mr. John D. Rockefeller, Jr., Mr. E. S. Harkness, and several public-spirited citizens of Bayonne are actively interested in the work, and have subscribed as individuals for stock in the Bayonne

Housing Corporation.

This housing will provide the working men with a far better type of home than has been thought possible at present construction costs, and one in which the architect wishes to emphasize the point that it can be rented within the means of the average wageearner. The sponsors of the project expect that it will bring a reasonable return on the investment, with no thought of any speculative profit. We also should influence the speculative builder to improve his product. The example set by the housing should have a far-reaching effect in bettering the living standards of workers in industry throughout

the country. This aspect should appeal to labor in the building trades, since their hearty co-operation is necessary for the complete success of the undertaking which will ben-

efit labor more than any one.

The Bayonne Housing Corporation has adopted the apartment-house as the most suitable type for Bayonne. The choice was made after careful deliberation, because the two-family house is characteristic of the workers' housing in New Jersey cities. But the lack of available land, brought about by the rapid growth of the city of Bayonne, together with the high cost of construction and the high cost of operating a home—these were the considerations which caused the adoption of the garden apartment type.

Architecturally, the group of buildings mark the highest achievement in industrial housing which is possible at low rentals. Even the design for the Metropolitan Life Insurance Company's model tenements in New York City, which was hailed as setting a far finer standard of city housing

on Avenue E and extending we where will be erected five apart for 150 families in 5 and 6 room room and shower-bath. Only on the wind so of points and the wind so of points are also as ing of with the wind so of the

Playground space.

than any previous models, has been improved on in some respects in this Bayonne group. As regards openness and sunshine, circulation of air, and garden and lawn, these wage-earners at Bayonne will be as well situated as if they lived in the luxurious garden apartments at Jackson Heights. The site chosen for the group in Bayonne is a large plot of land covering nearly three-quarters of a city block, fronting on Avenue E and extending west along 11th and 12th Streets, where will be erected five apartment-houses containing homes for 150 families in 5 and 6 room apartments, each with bathroom and shower-bath. Only one-third of the area of the site

has been taken for the buildings, leaving the other two-thirds open for gardens and lawns. This arrangement creates a huge interior garden, 340 feet long and 51 feet 10 inches wide, into which open the courts of the buildings. These courts, forced by the H-plan of the apartment-houses, are 66 feet wide, and they increase the width of the garden in the rear at these points to 105 feet. Each unit building stands free, making veritable lawns, 24 feet wide, of the passageways between the buildings into the garden. The effect of the side lawns, in conjunction with the garden, is to flood the homes with sunshine, and to cause a flow of air all through the group—the principle of "block circulation," as Mr. Thomas calls it.

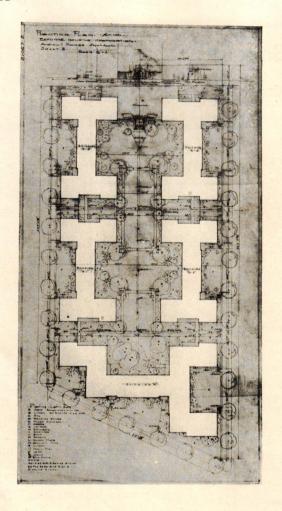
On the street the usual forbidding appearance of model tenements will be absent. Forecourts similar to those in the rear, added to a 5-foot setback, will provide ample opportunity for lawns and landscaping along the street. The buildings are four stories on the wings and are

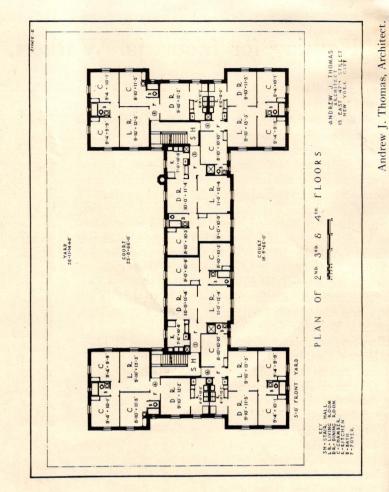
stories on the wings and are stepped up a story higher in the centre. This interesting outline is an improvement on the monotonous barrack-like appearance characteristic of the American city street in the tenement districts.

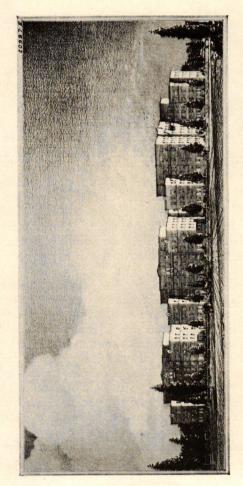
This openness makes the individual homes extremely livable. Four out of the six apartments on a floor have three exposures, and the others have two. The rear apartments jut out into the great garden much like a private house. The gardens and side lawns and forecourts will be beautifully planted with trees, shrubbery, and flowers. A striking feature is a completely equipped little playground located at one end of the big garden, with comfort station, to be used by the smaller children. Each apartment is a model in itself, and is perfectly planned for ease and economy of operation and for privacy.

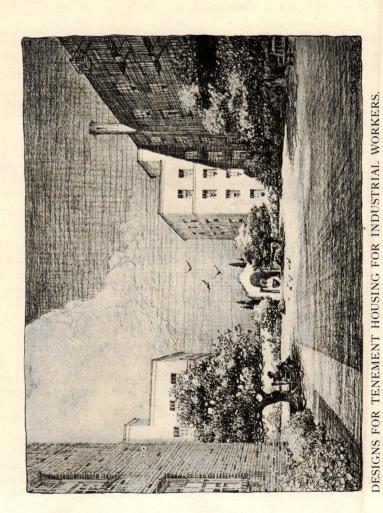
In this housing Bayonne is setting an example for New York to follow. Notwithstanding all the discussion of the problem of low-priced housing, little is being done, if one

ARCHITECTURE









BAYONNE HOUSING CORPORATION, BAYONNE, N. J.

excepts the project of the Metropolitan Life Insurance Company. But in Bayonne, all interests—capital, labor, and public-spirited citizens—are co-operating to provide the wage-earner with a new standard of livable homes with all modern improvements in garden apartments. This is the ideal for which the Bayonne Housing Corporation was formed in 1917, and Mr. Thomas has urged it in New York since the war, demonstrating how the plan could be carried out according to efficient principles of architecture.

Revision of New Jersey Tenement House Law

AT the very close of the last session of the Legislature of the State of New Jersey an act was passed amending the existing Tenement House Law of 1904. As the act has been approved by the governor, the State now takes its place in the line of industrial housing improvement that marks a change in the vast metropolitan areas adjacent to the cities of New York and Philadelphia as well as centres of population within the State itself.

It will give opportunity for a logical development of communal dwellings and groups of sanitary, sightly homes that can be constructed at low cost and will gradually eliminate the old types.

Various sections of the original law have been amended and changed to conform with the most advanced ideals for decent and attractive housing within reasonable standards of construction. The original law failed to protect tenants against fire risk, and was extremely lax in permitting narrow courts which shut out daylight from homes. It allowed non-fireproof stairways, which experience has shown to be the chief cause of loss of life in tenement-house fires.

At the same time, it contained restrictive clauses and handicaps on construction costs that precluded investment by reliable corporations and defeated attempts to finance projects of this character because they could not be carried through with credit to the investors or with expectation of even fair financial return.

As is always the case in forwarding any reform measures, opposition was organized to defeat the changes in the law. Real-estate operators, speculative builders, money lenders, and all other classes who contribute to makeshift construction combined with lawmakers who too zealously represent these interests. Substitute bills were proposed to allow discretionary powers to the Tenement House Commissioner in granting special privilege and exceptions. But against this, it was justly argued that the personnel of the department was subject to change and that officials could not be held strictly accountable for errors of judgment in administering a loosely written law, permitting any discrimination. Against the opposing interests, there was a Joint Committee of the New Jersey Chapter, A. I. A. and the New Jersey Society of Architects, supported by Andrew J. Thomas and other housing experts, who finally succeeded in getting the bill through the Legislature.

"The general purpose of these amendments is to eliminate dangers to tenants from fire perils and to remove restrictions and requirements which increase cost of construction without any corresponding benefits to tenants."

Zoning Has Proved a Great Benefit

THE opponents of zoning—and their number is extremely limited I am glad to say—talk of zoning as if it were some novel thing. What is it after all? A zoning law is nothing more or less than a building law, a fire-prevention law, a housing law, and a health law; but instead of being applied arbitrarily and without discretion to all sections of the city, irrespective of the varying conditions which exist in different sections, it is adjusted with a fine discrimination after the most careful study to the varying needs of those different parts of the city.

"One thing is certain: either we are to continue to have zoning laws carefully and delicately adjusted to the varying conditions in the different parts of the city, or we must have the old type of building law, applying in the same way to every part of the city and working in many cases untold hardship and in other cases proving so inadequate to the city's real needs as to afford no real protection to the com-

munity for whose protection it was enacted.

"You all remember the old Greek myth of Procrustes. He was a distinguished bandit who flourished many centuries ago—if he ever existed—who stationed himself at a convenient place on the highway and seized the passer-by who happened to travel in those wild districts. Each captive was promptly stretched upon a peculiar bed which was the joy of its owner, and if he fitted it, he was let go on his way unmolested; but if he was too long, his legs were cut off until he fitted the bed, and if he was too short, his legs were pulled out by great engines and stretched until he did fit it.

"I, for one, am sure that the realtors of the United States have no desire to return to the old Procrustean method of our antiquated building laws under which every parcel of realty must fit the Procrustean bed, no matter how much it may be damaged by the application of that antiquated

method of measurement.

"For that is the situation we face. It is not a question of having no laws. No civilized community is going to tolerate a situation by which there shall be no laws safeguarding the community against the evils of dangerous building; the time is long past when a man can do what he likes with his own. That is not liberty, but anarchy."

Our Dwindling Forests

If the food consumed by each man, woman, and child were reduced by one-third, the pinch of hunger would soon be felt and the cry of famine undoubtedly raised.

felt and the cry of famine undoubtedly raised.

Yet substitute the word "wood" for "food" and you have exactly what has happened in the use of lumber. The per capita consumption has dropped from 500 board feet in 1906 to 316 board feet in 1920, says the Forest Service,

United States Department of Agriculture.

This decreasing use of a fundamental commodity, according to forest experts, is not a result of decreasing needs but a result of forest exhaustion. It is not being accomplished without economic hardship or without curtailment of industrial expansion. It is not a temporary condition that will automatically adjust itself, for even at this reduced rate of consumption we are still cutting our forests more than four times as fast as they grow. The situation proclaims, according to the Forest Service, that if we are to remain a nation of timber-users, we must become a nation of timber-growers.

Construction of the Apartment-House

By H. Vandervoort Walsh

Professor of Construction, School of Architecture, Columbia University, New York

ARTICLE XV

Notes on the Planning and Preparation of Working Drawings for Fire-Proof Apartments

THE usual treatise on the theory of planning apartments deals with the general principles to be followed, such as the need for separating the apartments into living, sleeping, and service portions, the proper placing of the rooms for good light and air, and similar matters. It is not our purpose here to deal with those guiding principles which all designers learn after years of training. What we do wish to discuss are those little details of planning, closely related to the construction, the knowledge of which is essential if working drawings are to be prepared.

What we have to say here about these small matters has to do only with the high-class fire-proof apartment. We summarized the details for the non-fire-proof apartment in a previous article. Let us consider first, then, the problem of circulation, the entrance-hall, the elevators, the service stairs, and the like.

Theoretically every fire-proof apartment should have two means of escape, not dependent upon mechanical devices, as in an elevator. There should be a main stairway and a secondary stairway or fire-tower. Even though the building is fire-proof, every tenant should have the chance to escape if an unusual fire developed. In studying over the best plans we find that this basic principle is followed. (Figure A.) A main stairway is provided and the secondary escape takes the form of a service stairway. Both of these stairs are of fire-proof construction, having steel stringers, risers, and treads, the latter being covered with 2 inches of concrete or composition. The platforms are of concrete and steel. The partitions around the stair-wells are usually of 4-inch, thick hollow terra-cotta blocks, and the doors are self-closing fire-doors. The windows have frames and sashes of metal and are glazed with wire glass.

On the other hand, though, we find many plans which do not come up to these standards. For example, we can point to quite a number of apartments which have passenger-elevators only for the main circulation, and the secondary circulation is a service elevator and a service stair. (Figure B.) If this one stairway were cut off in a fire, the tenants would have only the elevators down which to escape. A panic might overtake the elevator operator, or the machin-

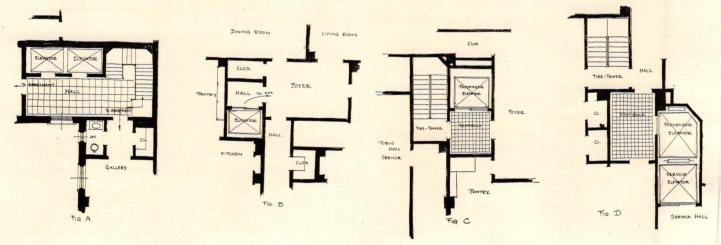
ery might break down at the critical moment, as is the habit of mechanical devices. Then would the tenant be caught, either to suffocate by smoke or jump from the windows or be rescued by the firemen's ladders.

There is prevalent another type of plan which is something of an improvement when compared to the one mentioned above. In this there is a passenger-elevator, a service elevator, a service stairs, and a fire-tower. (Figures C and D.) This fire-tower is really nothing more than a fire-proof stairway which has no window in it. Its great danger lies in the fact that if smoke once gets into it there is not much safety in attempting to go down it. However, it is better than no stairway. If instead of an enclosed fire-tower a smoke-proof tower were used, as described in a previous article, the danger would be reduced to a minimum. However, a smoke-proof tower requires outside wall space, and this is very precious in large cities.

As in the non-fire-proof apartment, the stairways are not permitted to extend down to the cellar, in order to prevent them from acting as possible flues for a fire that might break out in the cellar. The service stairs, however, need communication with the cellar and rear court. To provide this, an entrance door to the stairs at the first floor is planned, and then an open iron stairway in the court is built to connect the cellar and court level with this service stairway. (See drawing 1.)

We can classify the various types of service stairs ordinarily found in fire-proof apartments into about seven groups:

1. The first is the commonest arrangement and is shown in Figure 2. A flight of eight steps go up to a platform in front of a window, and then a flight of eight more steps return back to the landing onto which the doors of pantry or kitchen open and also the doors of the service elevator. The platform of these stairs comes across the middle of the window, so that a guard is necessary. The usual width of these stairs is 3 feet 2 inches, and the total width of the stair-well is 6 feet 8 inches. The platform is made the same width as the stairs, and the landing somewhat wider. The service-elevator shafts vary in size, depending upon the



retrictions of the plan. Here are a few actual sizes taken from plans:

	DEPTH
by	6 feet 8 inches
by	5 feet 8 inches
by	6 feet 8 inches
by	
	by by

The doors opening into the elevator are fire-proof and are usually about 4 feet 6 inches by 7 feet, double-sliding.

2. The second type of stair and service-elevator arrangement is shown in Figure 3 and is a slightly different arrangement of the first type. Windows are introduced, and the stair-well projects beyond the face of the wall. By placing the elevator to one side, three apartments may be served.

3. The third type of service stair, shown in Figure 4, is rather bad. Instead of a real service stair, a fire-tower is used, having no window. From the point of view of economy of space, apartment planners get the dimensions of the fire-tower down to the minimum. The stairs are made 2 feet 8 inches wide, the platform 2 feet 8 inches wide, and the

landing 3 feet, and the doors 2 feet 7 inches by 7 feet. Such a stairway can be fitted into a well 5 feet 8 inches wide and 9 feet 8 inches long. (Figure 5.)

4. The fourth type, shown in Figure 6, consists of a straight flight of stairs without any intermediate platform. Generally extreme crowding of the plan makes such an arrangement necessary. It is avoided wherever possible.

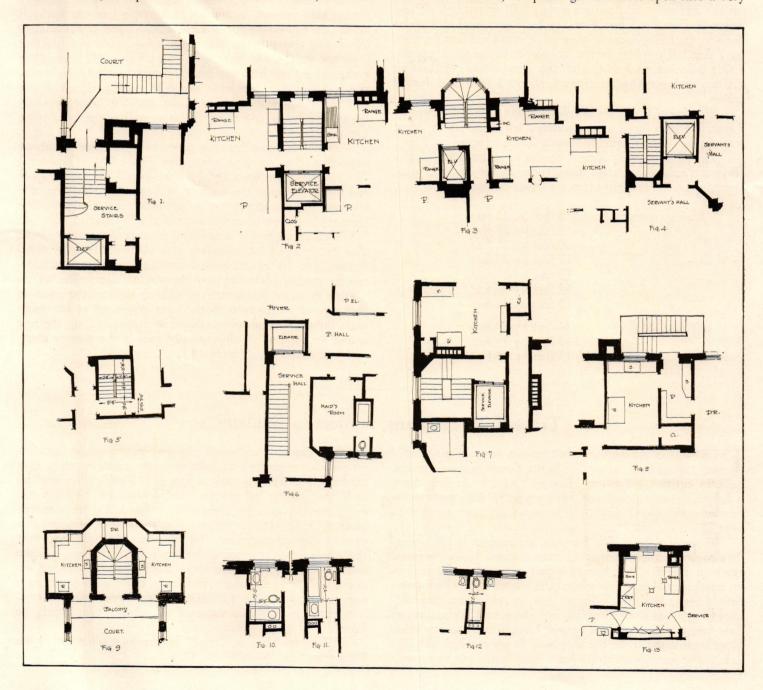
5. The fifth type, shown in Figure 7, is not common. It is a stairway winding down within a square, or nearly

square, well.

6. The sixth type, shown in Figure 8, is the open-air staircase.

7. The seventh type, shown in Figure 9, is based upon the principles of a smoke-proof tower. The stair is accessible only by passing out from the kitchen onto an open-air balcony.

If we consider the circulation from the stairways and elevators into the apartments themselves, we will notice that the most recent designs show clearly the tendency to reduce the amount of public hall to the minimum by adding more elevators. Indeed, the passenger-elevators open into a very



small general vestibule instead of a hall, which serves one or

two, but not more than three, apartments.

Figures B, C, and D. This vestibule is usually finished as a general hall, having a cement or tile floor. The doors opening from it into the apartments are self-closing firedoors, 3 feet by 7 feet. The door of the elevator is also a fire-door, usually 2 feet 8 inches by 7 feet. This vestibule is surrounded by partitions of 4-inch hollow terra-cotta tile, the same as used around stair-wells and elevator-shafts. Of course, when only one apartment opens into the vestibule, it is not finished as a public hall, but the floor is of wood, the door of wood and glass, and the partitions of the same material as the rest of the apartment.

From the vestibule one steps into a foyer, or, in some apartments, a gallery. Whatever it is called, it is a comparatively large private hall, possibly 12 feet by 20 feet, smaller or greater. It really is the floor area that used to be wasted in long public halls, when only one elevator served a half-

dozen or more apartments per floor.

Opening onto this foyer are the doors to the living-room, dining-room, and the library, and door to private hall for the bedrooms and to the service-hall or pantry. These doors are usually 2 feet 8 inches by 7 feet, and if a wider door to the living-room is planned, it is made 4 feet 6 inches by 7 feet. The width of the hall to the bedrooms is usually 4 feet 6 inches to 5 feet, and the service-hall, connecting kitchen and servants' bedrooms, about 3 feet to 3 feet 6 inches.

The size of the doors into bedrooms is 2 feet 6 inches by 7 feet, but into servants' bedrooms 2 feet 2 inches by 7 feet sometimes. Closet doors are made 2 feet 6 inches by 7 feet.

The sizes of the different rooms in apartments of this class are somewhat larger than those in the non-fire-proof apartments. A few examples are listed below:

Living-rooms:	15 feet by 21 feet 15 feet by 24 feet 16 feet by 21 feet 17 feet by 20 feet 17 feet by 27 feet 18 feet by 24 feet 19 feet by 24 feet
Dining-rooms:	14 feet by 20 feet 15 feet by 19 feet 15 feet by 20 feet

	16 feet by 20 feet 16 feet by 21 feet
Library:	11 feet by 20 feet 15 feet by 16 feet
Main bedrooms:	12 feet by 17 feet 13 feet by 20 feet 14 feet by 18 feet 15 feet by 15 feet 15 feet by 16 feet 20 feet by 21 feet
Kitchens:	9½ feet by 14 feet 11 feet by 14 feet 10 feet by 15 feet 13 feet by 16 feet

Servants' bedrooms: 6 feet 2 inches by 12 feet

7 feet 8 inches by 9 feet 9 inches

Bathrooms are quite standardized. They are usually placed between two bedrooms. One type has the bathtub across the end opposite the window, the water-closet adjoining it, and the layatory near the window. The size is 5 feet 7 inches wide by 9 feet deep. (See Figure 10.) Another type has a door into the hall and one from the bedroom, and is 5 feet 4 inches wide and 9 feet deep. The bathtub and toilet are next to the window, and the lavatory away from the window and along the same wall as the tub. (See Figure 11.)

The bathrooms between servants' bedrooms are about as small as they can be made. (See Figure 12.) They are 2 feet 7 inches wide by 8 feet 2 inches deep. The tub is short and set in between the walls at the opposite side from the window. The water-closet is set under the window. The

lavatory is placed in each corner of the bedroom.

Such arrangement is saving floor area with a vengeance. The details in the kitchen are also planned along as close-fitting lines. A gas-range and combined sink and laundry-tub are usually placed as near the window as possible. Ventilating flues and hoods are installed to take off the odors of cooking. A refrigerator with drain is placed as far away from the stove as possible. Kitchen dressers fill up the rest of the wall space. A sink usually goes in the pantry along with the dressers. (Figure 13.)

Trees, Like Humans, Subject to Epidemics

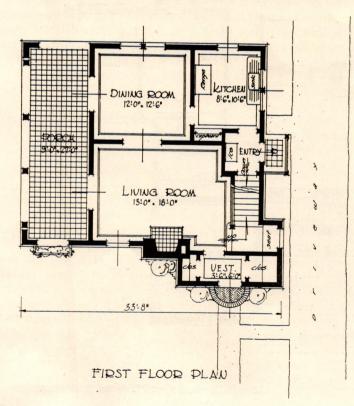
INFANTILE diseases are responsible for a high deathrate among trees, according to the Forest Service's recent bulletin entitled "Timber: Mine or Crop?" Among them a fungous disease, known as "damping-off," kills great numbers of seedlings, although the nurseries are learning how to control it.

Trees at all ages, like humans, are subject to epidemics. The chestnut blight, imported from eastern Asia on nursery stock in the 90's, has almost wiped out this useful tree in its northern range. The white-pine blister rust, which came from Europe less than twenty years ago, threatens the existence of our Eastern white pine, and Western white and sugar pine forests. Quarantines against foreign tree-nursery stock have been found to be the only way of preventing such diseases, and such quarantines have been lately put in force.

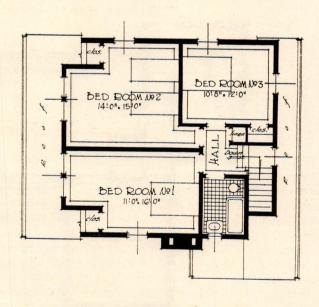
The checking of insects engaged in their enormous forest plunder is possible at comparatively small expense, says the bulletin. Insects cause a loss of \$130,000,000 a year by their war on the living tree and its products. Within ten years the Western pine-beetle alone has killed trees valued at \$3,000,000. It is estimated that the cost of bringing this insect under control would be less than \$150,000, and that the whole amount required by Federal, State, and private owners, who are in some large areas already working cooperatively, to get definite results in fighting all insect ravages need not exceed \$500,000 a year, or less than a two-hundredth part of the value of the timber that would be saved.

"Timber: Mine or Crop?" is free on application to the Forest Service, Washington, D. C.





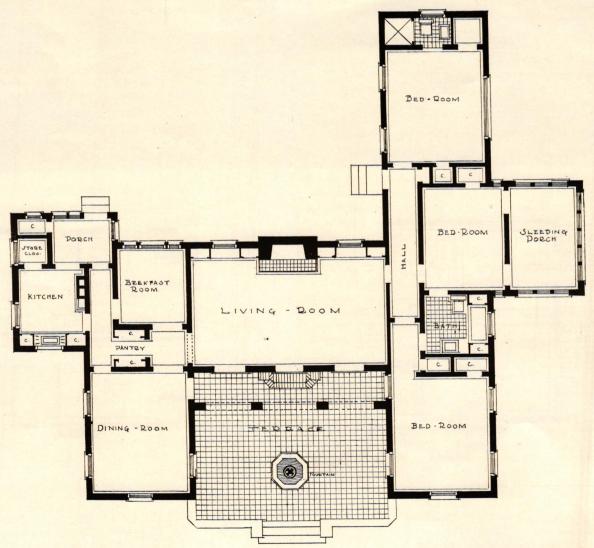
A SMALL HOUSE, HACKENSACK, N. J.



SECOND FLOOR PLAN

Robert C. Hunter & Bro., Architects.





HOUSE AT SAN ANTONIO, TEXAS.

Atlee B. Ayres, Robert M. Ayres, Architects.

Manual of Office Practice

By Frederick J. Adams

INTRODUCTORY

HE work of the modern architect has two principal phases: the exercise of the creative and selective faculties, and the business or routine side. This business, so called, also has two principal phases which can be designated, respectively, as promotion and production. The first business phase covers practically all of the architect's endeavor prior to the approval of a scheme, including any efforts to secure commissions, and also any adventuring into the fields of financial promotion, investment economics, and advising on highly complicated mechanical installations. There is as much variance of opinion regarding the extent to which the architect should delve into and conduct these business developments as there are points of contact with them. There is no variance of opinion as to the conduct of that business which through the years has become inherent in his work. It must be handled to the advantage of, and not merely to avoid prejudice to, the interests of the parties concerned. It is with this phase, which implies the adoption of good business habits, that this article deals.

As the work of the architect increases it becomes necessary for him to maintain the growing number of routine contacts with the elements involved through subordinates or other aids, rather than in person. It can be assumed, without argument, that the architect's reputation will reflect accurately the degree to which he has prepared his personnel and methods to represent him properly. There are two methods available for providing the training necessary: by word of mouth or through the printed word. The first method requires a very considerable personal effort if the subject is adequately treated, and requires repetition as new personnel is acquired. It follows that if the training of the architect himself was faulty or incomplete, the chances favor perpetuation, and even exaggeration, of his own deficiencies. The second method consists of the preparation of a solid foundation of information, permitting additions or subtractions to meet the needs of any particular operation. The first method involves personal intervention as often as any abnormal condition confronts any member of the personnel, while the second method treats of the same matter for the information of all. The "Manual of Office Practice" is a logical and reasonably complete development of the second method.

CHAPTER I

1. The architect is not only obligated to certain things by his contract with his client, but has another obligation through his relation to the contract between the client and contractor. A client has the right to the best possible handling of the interests he commits to his architect.

Practically all building contracts contain provisions making the owner liable for delay or damage caused by himself or his employees. The architect is involved in the action of such clauses through his employment by the owner, and by neglect or carelessness may seriously prejudice the

owner's rights. This responsibility of the architect is included in his contract with the owner, as a part of the services to be rendered, but is so rarely referred to in specific terms that it is apt to be ignored or overlooked entirely.

The contractor has the right to assume, in default of information to the contrary, that the services to be performed by the architect of the owner shall be carried out on proper business lines. He does not assume any liability to absorb damage occasioned by deficiencies in the business methods, or through operation of temperamental idiosyncrasies, of the architect.

2. The following instructions for the carrying on of office business are intended as a guide and incentive to intelligent systematization of the work, to the end that artistic satisfaction in an attained result is not blunted in effect by the certainty of embarrassment and discredit naturally begotten of poor or unbusinesslike administration.

Haphazard ways of doing things can only result in confusion, delay, controversy, and loss, and will increase the danger of incurring the liability referred to in Instruction No. 1. It is obvious that the cost of doing business will be greatly increased, resulting in loss of income, and in addition make a reputation for reliability unattainable.

The efficiency of the architect's work will be in direct ratio to the extent of the foresight with which it is planned, and favorable conditions created or encouraged, rather than adverse conditions suffered.

The element of agency in the relation of architect and owner makes it especially incumbent upon the former to guard against misconstructions of his words or acts, which might result in *inferences* or *implications* being construed as understandings detrimental to any party to a contract.

3. Time is usually the most important single factor in all building operations. It is therefore of the utmost importance that the *architect's* part of the work be handled expeditiously, as well as carefully, so that the responsibility for proper progress will remain at all times with the *contractor*.

Too much stress cannot be placed upon the importance of the time element in the conduct of architectural business. It is very seldom indeed that sufficient time is allowed for both design and construction, including in the term design all the required drafting, models, and so forth. Under such conditions the time required for building takes precedence over that required for design.

It becomes apparent immediately that every moment available for design must be utilized to the utmost, or the time for building will be interfered with. The moment this happens, the contractor's rights are prejudiced, and complaint that he is being delayed by the architect is in prospect. Excuses, no matter how good, cannot salve injury to an owner's pocketbook arising in this connection.

The progress of an operation is predicated primarily upon the work of the architect being planned and performed in the proper relative priority to the various parts of the structure, and on being correctly anticipatory of the conditions affecting the actual structure.

DRAFTING SECTION

ORDINANCES AND BUILDING CODE WORK IN GREATER NEW YORK

4. Zoning Resolution.—The Zoning Resolution controls the kind, shape, and size of all buildings. Discretionary power as to enforcement is vested in the Board of Stand-

ards and Appeals.

5. Building Code.—The Building Code controls methods of construction, and internal arrangement, and where more rigid than the Zoning Resolution in any requirement, takes precedence over same. Discretionary power is vested first in the Superintendent of Buildings to a limited extent, and to a greater degree in the Board of Standards and Appeals upon appeal from his judgment.

6. Tenement House Law.—The Tenement House Law controls the plan of all buildings containing more than three families that do their own cooking, and takes precedence over the Building Code as to arrangement where in conflict. This law is a State statute, and practically no discretion is vested in the various Tenement House commissioners.

7. Factories.—Buildings intended for manufacturing are usually affected by State factory laws, and subject to

approval by department having jurisdiction.

8. Schools.—Schools receiving State or local municipal aid usually come under jurisdiction of State boards of education.

9. Fire Lines.—The Bureau of Fire Prevention of the Fire Department has jurisdiction over fire lines and refrigeration plants, and plans for same must be approved by the bureau.

WORK OUTSIDE GREATER NEW YORK

- 10. (a) Tenement House Law as above where work is in New York State.
- (b) Local building ordinances must be followed; where such are lacking, the New York City Building Code is a safe guide for construction and exit facilities.
- (c) Plans must be filed with, and approved by, the local building department. All changes in plans or construction must be filed as amendments and approved by said department.

Any feature of an operation which is in compliance with legal requirement only (innocently or otherwise), through color of a too friendly or influenced official interpretation, or; through failure of any official to act, or; through a mistaken act or interpretation of an official, becomes a continuing liability, from the possible embarrassment of which there can be no definite relief until there has been strict compliance with the letter and

spirit of the legal requirement.

The regulation by public authority of matters affecting building plan and construction, already very widespread, is constantly increasing in scope and complexity. The architect is under the necessity of acquainting himself with existing regulation and also as to the probable trend of regulation in the future. The effect of rules as to percentage of lot covered, roof heights, occupancies, exits, etc., must be taken into account in the preliminary studies for any operation, and the structural requirements during the preparation of the working drawings. A working knowledge does not imply the memorizing of a lot of rules and regulations, but it does require a knowledge of their existence, of how to find them quickly, and of how to apply them correctly.

It is highly desirable that those rules which are factors in plan problems and the more important structural requirements should be memorized so as to be immediately available at will.

An understanding of the trend of public opinion in matters of building regulation is all the architect has to aid him in visioning the future conditions which might operate to make a particular structure obsolescent from this cause long before it has served its purpose. A reasonable effort to foresee the future in this connection, as well as for change in neighborhood character, is an obligation.

GENERAL

11. Insurance.—Plans and outline construction specifications of all buildings should be submitted to the Board of Fire Underwriters having local jurisdiction, either directly or through the clients' insurance representative, and suitable provision made to secure the lowest practicable insurance rate.

The character of adjoining buildings has a strong influence on the insurance rating of a structure, because of the hazard involved thereby. This influence becomes of greater moment if there are openings in the new building adjacent to or overlooking the adjoining structures. The more important internal hazards are contingent upon the number and nature of communicating openings between floors and areas. Proper planning will always include provision against the spread of fire in addition to guarding against its origin.

There cannot be anything more detrimental to the investment value of a building, and incidentally to the reputation of its architect, than a high insurance rating for other

than occupancy hazards.

A low rating is not only contingent upon compliance with insurance underwriters' rules, but also upon strict compliance with all legal requirements as to construction and

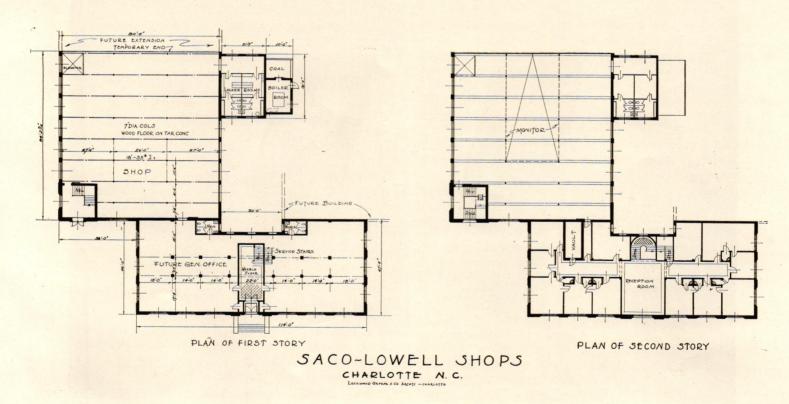
arrangement.

12. Drawing Production Schedule Prior to Estimate or Contract.—Drawing Production Schedule.—Rapid production of working drawings is absolutely dependent upon proper dovetailing of the various parts of the work. Careful and early consideration must be given to mechanical equipment. The more complicated the operation is in this connection, the more serious the effect on planning, particularly as concerns the location of finish.

Preliminary Sketches.—The conditions surrounding the preparation of preliminary sketches, up to the point where approval is had, vary so much that it is impossible to lay down any regular procedure to follow. Certain things are vital, however; the sketches should be prepared with sufficient care to form an adequate basis for approximate estimate of cost, and with sufficient judgment to avoid extensive modification when put into working drawing form.

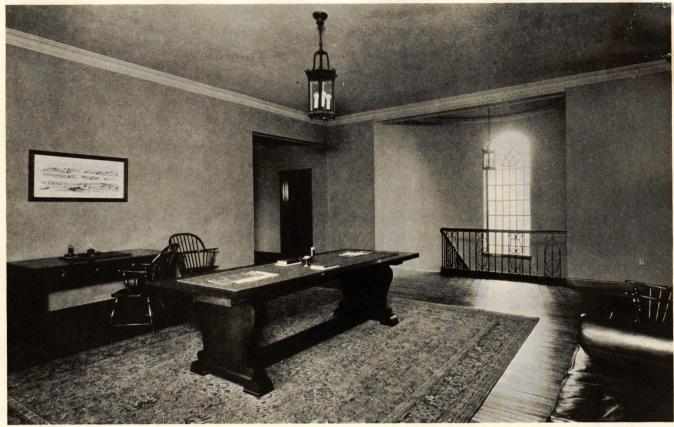
Finish Schedule.—In a schedule of this sort properly prepared will be found a concise record of items of work to be done within all or certain rooms or areas, eliminating the necessity for extensive notations on drawings, duplication of detail, and complicated specifications. It will bring all the trades into immediate juxtapositon as to location and kind of work to be done, and can be used as a quick and accurate record of changes. Such a schedule is equally useful to the owner, architect, contractor, and his workman. For the first, it gives at a glance, and within a reasonable compass, all the particulars with which he is most likely to be concerned. For the second, it materially reduces the work on plans and specifications, and is a ready check on work under way, changes, etc. For the contractor, it provides a simplified estimating basis, a broad survey of the work to be done or under way, and a ready reference to the drawing numbers affecting the parts of the work. The mechanic has



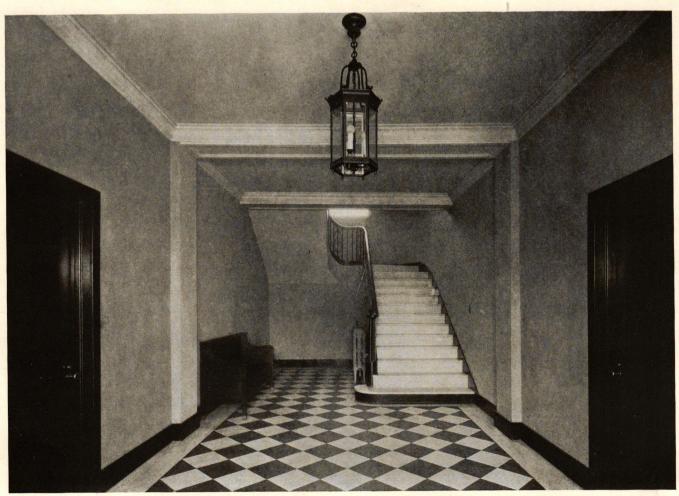


SOUTHERN OFFICE, REPAIR-SHOP, AND SUPPLY-DEPOT FOR TEXTILE MACHINERY.

Lockwood, Greene & Co., Architects and Engineers.



RECEPTION-ROOM.



ENTRANCE-HALL AND STAIRCASE.

SACO-LOWELL SHOPS, CHARLOTTE, N. C. Lockwood, Greene & Co., Architects and Engineers.

Perplexities of Estimating

By DeWitt Clinton Pond, M.A.

THIRD ARTICLE

In the last two articles reasons were given for not putting much faith in preliminary estimates arrived at by determining the number of cubic feet in a building and then by multiplying this by the cost per cubic foot which is assumed for the type of building under consideration. It was also stated that too much confidence should not be placed in preliminary estimates which were arrived at by a more careful method, where outline specifications are supplied to a contractor as well as a fairly complete set of plans and elevations, and trained estimators were instructed to arrive at the cost. Either the contractor would be inclined to "figure safe," and estimate the cost as higher than the final amount, or, owing to incomplete information, will not include all the items that complete specifications and plans will call for, and will furnish a low estimate.

A recent example of this came to the author's attention in which a preliminary estimate came to one hundred thousand dollars more than the cost arrived at by estimates based upon complete plans and specifications. As the building was to cost less than a million dollars, it can be seen that the difference was proportionally large. The firm of contractors that furnished the preliminary estimate were noted for their complete estimating department. Is it any wonder that owners, who are accustomed to seeing pricetags attached to everything that they purchase, are apt to be impatient when confronted with the actual conditions of having a building designed and built?

As cost is one of the items that loom up in large proportions in the eyes of prospective owners, these conditions should be explained as clearly as possible before he is allowed to become enmeshed too deeply in a building programme.

In order to thoroughly understand what these conditions are it may be valuable to investigate the methods by which a contracting firm arrives at an estimate, although such a study must, of necessity, be very brief. This article is not supposed to be a treatise on estimating, but rather a rough outline of a general method.

Every estimator should have certain printed forms to act as reminders as well as to enable him to itemize his work. If he is doing a large amount of work he will probably have such forms printed from lists which he has made up himself, and which will conform closely to the kind of work that he is most apt to figure on. No two estimators arrive at their conclusions in exactly the same manner, and each one will probably devise forms that suit his work best. A contracting firm which figures on doing most of the masonry work itself will have a different set of forms from one which makes a specialty of concrete work alone. However, no matter what the general requirements of the particular estimator may be, he must have some sort of forms at his hand.

One form must be arranged for listing the costs of the various items that are taken up in his estimate. At the top of the form there should be blank spaces left for the name of the building, its location, the date, the name of the estimator, the names of the architects, and other relevant matters.

In spite of all that the author has said about the inac-

curacy of cubic-foot costs, it may be well to note that certain estimators make a practice of checking the cost per cubic foot after the estimate has been completed, and a space is left for this result at the top of the form.

After such general information has been given space at the top of the form, in the first column at the left are listed the various items that must be taken into account in the estimate. This list of items is one of the things that will be different, probably, in each office, but in general it will resemble the list of headings in an architect's specification, and will start with General Conditions, and will go on to list the Demolition Work, Excavation Work, Caissons or Piling, Foundations, Water-Proofing, and other branches of work, until such items as mail-chutes or kitchen equipment are all taken care of.

Each estimator is at liberty to make any list that he feels will apply to the conditions under which he will be called upon to work, but if he is starting out, he will find the list of headings supplied in the specifications a good guide. These items are listed in the first column of his general estimating sheet.

In the second column it is customary to list some kind of explanatory notes. For instance, after General Conditions it may be wise to state some of the items that may be overlooked, such as Bond, Insurance, Damages, Heat, Fences, etc. This list is not absolutely necessary, but acts as a reminder and is useful at times.

A third column is left blank, so that the names of the subbidders may be inserted after the items that are listed in the first column. Almost no general contractor supplies his own mill-work, and so this must be sublet, and the name of the concern which is to supply the material that comes under this item is placed in the third column.

In the last columns there are spaces in which the costs are listed, with vertical lines separating dollars from cents in a manner suggested by account-books.

This form is used as a general summary, and must be supported by other sheets on which the general calculations are worked out. In particular it is customary to have a second sheet, very similar to the one described above, in which the items included in the general conditions are listed separately. On such a sheet are listed such items as the bond required, the various permits, the various kinds of insurance, surveys, blue-prints, temporary offices, fences, sheds, heat and light, and other temporary items which the contractor must supply. The list is continued to include such items as watchmen and lights, removing and replacing water-hydrants, poles, wires, sewers, and drains, the repairing of streets and pavements, removing of rubbish, cleaning floors and windows, protecting work and adjoining buildings, cutting, pumping, tools, and contingencies. There should also be included such other items as the salaries of superintendent, timekeeper, and foremen, and provision for transportation and special municipal licenses.

It can be seen that most of these items are simply the subheads which are found in the general conditions and miscellaneous work as called for in the architect's specifications.

The list, which is made up of the various headings given above, takes up the first column on the secondary sheet. Another column is left open for various remarks, and the remaining columns are used to list the costs of the various items. When the total cost is arrived at it is transferred to the sheet first referred to, placed across from the item "General Conditions."

Such sheets as have been referred to are simply used for totalling the costs of the various kinds of work that are required for the erection of a building. Of course there are kinds of work listed that may not be necessary in the type of structure for which the estimator is called upon to furnish a cost list. However, if this is the case, the estimator should draw a line through such items in order to indicate

that they have not been merely overlooked.

Aside from the sheets on which the totals are recorded there are working sheets on which there is not so much printed matter, but it is on these that the hard work of estimating is carried out. Estimators have different methods of arranging their calculation sheets, but at least there must be some columns devoted to the listing of quantities, against which must be placed the unit cost of such quantities, and a third column for the actual material cost. Then there should also be columns for listing the labor required for placing the material, and the unit cost, as well as the total labor cost. Some estimators carry their forms a little farther and list the cost of insurance. To use an architect's term, the calculation sheets have a "busy-looking" appearance when all the calculations are carried out.

A total set of estimating sheets makes a rather bulky mass of calculations and summaries, for every item must be figured, either by the general contractor himself or by his subcontractors. When the subcontractors do the figuring, then it is only necessary for the estimator to enter the amount of their bids on his summary sheet, with the name of the contractor who has submitted the bid. But if it is the policy of the contractor to do a large amount of the work himself, then many of the costs which are entered upon the final cost sheet must be determined by estimating quantities and labor and determining the cost of both, all of

which is done on the calculation sheets.

Armed with all of the forms, which he finds he needs, the estimator opens the blue-prints and specifications, and proceeds to outline his work. He calls in the subbidders that he wants to take over parts of the work, and determines just what his own firm will do. Generally his firm will specialize in one of three trades: masonry, concrete, or steelwork. Other branches of work will have to be sublet, such as architectural ironwork, mill-work, etc.

It will be impossible to carry through a complete estimate, but one or two kinds of work may be investigated.

With regard to the excavation work the estimator is supplied with plans which give the general excavation level, the depth to which trenches must be carried, the depth of the footings and foundations, and probably a diagram showing the location of the borings and the type of earth, sand, and rock encountered when the borings were made. It is advisable to have a complete excavation plan supplied to give most of this information, but in case the architects do not furnish this, the estimator must obtain his information from the basement plan, the foundation plan as developed by the structural engineers, and the elevations on which the wall footings should be indicated.

The estimator should also have a copy of the survey on which the present grades are indicated. In case there are buildings on the site, it is customary to have these demolished down to a level flush with the sidewalk, and including the first tier of beams. It is therefore necessary for the contractor to remove the present foundation wall and piers, and in order for him to obtain a complete knowledge of the undertaking, he must visit the site and see what the conditions actually are.

Having this information at his disposal, the estimator proceeds to determine the number of cubic yards of earth or rock that are to be removed, and in order to do this he must carry out his calculations on one of his supporting sheets, place the number of cubic yards in the quantity column, place the unit labor cost in its proper column, and by multiplying the two results obtain the cost of removing the

material from the site.

It will be noticed that under this heading it is not necessary to fill in the spaces devoted to material costs, as no materials are to be supplied for this particular work.

In case it is necessary to supply sheat-piling, this should be taken care of separately. The amount of such piling must be estimated, usually on a square-foot basis, and for this work both material and labor cost must be tabulated.

This is only one item, but it shows how quantities are determined from plans and how cost is estimated once these quantities are determined. Although methods differ with regard to other trades, the same principles are used.

As an example, one might observe that when rough carpentry work is estimated a lumber list must be worked out in which are listed the various studs, sills, plates, and beams, with their sizes and lengths all tabulated and prices determined. Then the labor of installing the lumber must be tabulated also.

The reason for describing the various forms that estimators use, and the methods of tabulation, is to demonstrate here how each item must be accounted for in the building and how a complete estimate is a compilation of almost innumerable details. In order to make such a compilation, it is absolutely necessary that the estimator should have at his disposal all the information that an architect can furnish him.

As far as listing all material, estimating labor, and determining costs, this can be done by some one who is more or less experienced at this kind of work in an architect's office. However, after all this is accomplished, the estimator must add two items that pertain to the contracting firm's office alone. These items are the amount to be added for

overhead and for profit.

These two amounts will depend entirely upon the efficiency with which the office is conducted and how badly the contractor wants the work. In a well-managed firm the overhead may be small, and if there is little work in the office it may be good policy to cut down profits in order simply to maintain an organization. Over such conditions no one but the contracting firm can have any direct control, and costs of buildings are sure to vary in accordance with them. Because of this no architect can determine what the cost of a building will be until bids are received.

It is important that one should know how such estimates are arrived at, so that every one can enter upon a building undertaking with all the facts before him.

Some Observations on the Way They Do Things in Europe

By David B. Emerson

DESPITE the fact that a great majority of the present-day architects and draftsmen have been in Europe, either as tourists, students, or members of the A. E. F., there are still a goodly number left who have not been there, who will be interested in some of the points not generally touched upon by those who write on architecture and kindred subjects. Most of the architectural travellers in Europe are either adolescents or recent graduates from that most wonderful period in life when, as Canon Kingsley puts it, "Every goose is a swan, lad"; consequently, only the great things have impressed, and the lesser ones were passed unnoticed.

The writer, having already reached that rather elusive period in life known as middle age before visiting Europe, and having devoted the best years of his life to the practical side of the profession, found it impossible while seeing the old work, and thoroughly enjoying all the beauties of the ancient architecture, not to observe much of the modern methods and materials of construction, and to draw comparisons between the foreign and the home products.

One thing that will probably impress the visitor to England and France is the relatively small amount of building going on, particularly in London and in Paris. Another thing which will impress the American very strongly as he watches English and French building operations is the great lack of hustle and bustle there as compared to what one sees here in the United States. Most of the work that is being done in those countries is of a splendid quality, particularly the masonwork, the cutting and setting of stone being an art with these people, and some of the concrete work which the writer saw while in Paris was exceptionally fine. Most of the work seen in the provincial cities in England was in the nature of repairs and restorations to the cathedrals, abbeys, and churches, and, for the most part, it was being done knowingly and well.

At Lincoln Cathedral a most extensive and very interesting system of repairs to the masonry is in progress. As the result of the disintegration of the mortar which was used in the original construction, the entire fabric was in danger of collapse. To remedy this, the masonwork is being grouted with a very thin cement grout forced into the interstices in the masonry in a manner similar to the "cement-

gun" process used in this country.

Both in England and France one sees a fair amount of structural steelwork being erected, but the general impression gained is that their engineers are not quite as facile in structural design as their American confrères. Either because the mills do not roll as great a variety of small structural shapes as our American mills, or because of the cheapness of labor, the French use a great number of small fabricated beams, built up of plates and angles, which is rather surprising to an American who has been taught for years to count the cost of sharp riveting in structural work. It is almost needless to say that the woodwork which one sees there is excellent, particularly in England, which has for generations produced a race of wonderful joiners and cabinet-makers, and still seems to have a goodly number left.

The one thing above all others which will make a decided impression upon Americans, particularly one who has

been connected with building construction for any length of time, is the vast difference between European and American plumbing, both as to workmanship and materials, the honors easily going to the Americans. Apparently, the low-tank closet and the flush valve are unknown, as all that the writer saw while there were high tanks, and of painted cast iron at that, something similar to what was in vogue in the United States about thirty-five years ago. Most of the bath-tubs seen in England were of a modified coffin shape, and combination cocks and connected wastes and overflows, so common in this country, seem to be as yet unknown there. The cocks on most of the bathtubs which the writer saw were big Fuller-type faucets, most of them the size of the draw-off cock on a hot-water storage-tank. All of the lavatories seen in the hotels were of enamelled iron, and of a rather crude design.

One of the most remarkable things seen in connection with plumbing was in Paris, where all of the soil-stacks in a large building in course of construction were of lead, with all branches wiped on, something which was done in this country many years ago, but was abandoned about the time of the Civil War. Lead supply-pipe is also still used to a great extent, and concealed piping is very rare. One modern improvement which the writer saw while at Oxford was not to be entirely commended, as the results will probably be disastrous. This was the installing of steam-heat in the great hall of New College, using cast-iron column radiators, which looked very much like the product of one of our best-known American manufacturers. No doubt the hall will be much warmer, but one cannot but wonder what steam-heat will do in two or three winters to the beautiful old oak panelling and the priceless old paintings which hang on the walls.

One item which is sure to command the respect of any observant tourist is the builders' hardware, for one cannot but notice the very excellent quality of the major portion of it every time he opens a door or locks a casement, as the locks work smoothly, and the cremone bolts engage accurately. There is also one thing quite novel, which an American cannot but notice, that knob locks are not used on many of the hotel doors in either England or France, the lock being a spring-lock operating only by means of the key, and a fixed knob is placed in the middle of the door for the purpose of closing it from the outside. This is all very well if the absent-minded guest does not leave the key in the room, lock himself out, and then have to hunt for the chambermaid with the pass-key to get back in again, as the writer did several times. In France the rim-lock seems to have a decided preference, and very frequently the lock-case and the butts are painted to match the woodwork.

Perhaps the most unique combination in hardware which the writer observed was at Lincoln Cathedral. The door leading to the stairs which lead up to the Rood Tower is located at the south end of the south transept. This door is a massive oak affair, with heavy wrought-iron strap hinges and pull ring, which, if not the original, is at least a careful reproduction, but inside to keep the door closed is a Yale door-check, made in Stamford, Conn.! Truly, the fourteenth century has joined hands with the twentieth, and at least some American hardware is used in England.

Announcements

Albert Eggerdon Davis, architect, who has been practising his profession in the Borough of the Bronx, New York City, for over a third of a century, and is president of the Chamber of Commerce in that borough, has recently passed the required mental and physical examinations before a board of U. S. Army officers, and has been appointed by President Coolidge a major in the Officers' Reserve Corps, U. S. A. Major Davis was a lieutenant in the Corps of Engineers during the World War, and is a member of the New York Society Military and Naval Officers, World War, and a member of the famous Old Guard of New York.

Lockwood, Greene & Co., Inc., Lockwood, Greene & Co., engineers, Lockwood, Greene & Co., managers, announce the removal of their New York office to the Pershing Square Building, 100 East 42d Street, New York City, February 18, 1924.

Herbert L. Cain, church architect, Richmond, Va., announces the opening of an office on February 1, 1924, at 1709 Arch Street, Philadelphia, Pa., with Albert N. Dobbins as architect in charge. Mr. Dobbins has for five years been in charge of the Philadelphia office of the Bureau of Architecture, Methodist Episcopal Church, and is thoroughly conversant with modern church and Sunday-school requirements.

Ralph Wilson Weirick, architect, announces the removal of his office from 402 Madison Avenue, to 70 Fifth Avenue, New York, where he will continue the practice of architecture.

Clyde M. Hites, designer and builder, announces the opening of his offices at 300 Commercial Building, Louisville, Ky.

Brickey & Brickey, architects, 212 North Lancaster Avenue, Dallas, Texas, announce the opening of new offices at 611-612 State National Bank Building, Houston, Texas. Catalogues requested at Houston office.

Alling S. DeForest, Fellow of the American Society of Landscape Architects, announces the removal of his offices to 16 Fair Place, Rochester, N. Y., February 1, 1924.

H. J. Brumenshenkel, architect, announces that he has opened an office at 105 Mohican Building, Mansfield, Ohio, for the general practice of architecture. Mr. Brumenshenkel has for the past eight years been connected with the office of Vernon Redding, A.I.A., Mansfield, Ohio. Manufacturers are requested to send catalogues and samples.

Robert Peal, architect, announces that he has moved his office to 206 Leonard Building, 2014 East 105th Street, Cleveland, Ohio, where he will continue in the practice of architecture, specializing in residence work.

Felix A. Burton, Richard Arnold Fisher, Charles Lewis Pitkin, and Frederick W. Wead announce the removal of their offices on March 1, 1924, to the Thorndike Building, 234–240 Boylston Street, Boston, where they will continue to conduct their respective practices of architecture.

Henry H. Gutterson, architect, announces the removal of his office from 278 Post Street to 526 Powell Street, San Francisco.

Geo. P. McLane, Reg. Arch., 902 Second National-Bank, Wilkes-Barre, Pa., has a vacancy for a scnior draftsman, thoroughly experienced, to design Gothic grade and high school buildings.

Preventing Accidents

HOW many persons are engaged in preventing accidents and promoting good health in the construction industry? Although it is known that this industry has made great strides in safety work in the past few years and accomplished great things, there is nothing to show how many men and women have been responsible for this work in the industry as a whole. The National Safety Council is now taking a census which, when completed, will reveal how many safety workers there are, who they are, and where they are located. This census will include all the persons engaged in safety and industrial health activities in all industries, and those who are doing public safety work as well. The results of the census will show how the construction industry compares with the other industries in respect to the number of persons it has engaged in safety and health work. It will give a good indication of how extensive the safety and health activities of construction companies all over the country are. This is the first time that any attempt has ever been made to list the thousands of people who are now professionally engaged in the safety movement. The census includes not only members and employees of members of the National Safety Council, but all persons engaged in safety and industrial health activities regardless of whether they are connected with the council in any way

Every reader of this publication who is professionally engaged in industrial or public accident prevention or industrial health work—whether he is devoting all or only part of his time to accident prevention—is urged to assist in the taking of this census by sending to the National Safety Council, 168 North Michigan Avenue, Chicago, his name and the other data requested in the council's census form.

Bureau of Standards Tests Weathering of Limestone

A SERIES of tests to determine the resistance of limestone to frost action is now under way at the Bureau of Standards.

Small samples cut from the stone are soaked in water and are then frozen. After freezing they are put back in the water to thaw.

Of the samples tested many showed serious disintegration after they had been frozen seventy-five times. Others have now been frozen as many as eight hundred times and show as yet no serious disintegration. The samples come from different localities; and when the tests are completed the data will be of value to architects in the selection of building stone.

Limestone is now used extensively as a facing stone. It is less expensive than granite and more easily cut, which makes it quite popular. It is not so durable as granite, however, and is apt to show surface weathering within a hundred years.

Other tests being undertaken at the bureau have to do with water-proofing compounds. The purpose of such compounds is to lengthen the life of the stone and prevent the absorption of unsightly stains.



The American Furniture Mart 666 Lake Shore Drive Chicago Henry Raeder and George C. Nimmons Co., Associate Architects

Kaestner & Hecht Elevators

THE largest building in the world—The American Furniture Mart—has selected K&H Elevators.

The eleven K&H Elevators that serve this huge building are equipped with K&H Variable Voltage Control which provides a maximum of swift, flexible, and efficient elevator service with a minimum of upkeep expense and current consumption.

Because of the unique advantages of K&H Variable Voltage Control and because of the permanent value of K&H Quality, as evidenced in other installations, K&H Elevators were chosen for this new wonder building.

This installation is another tribute to the high standard of performance established and maintained by Kaestner & Hecht Co.—another tribute to the quality product of a responsible organization.

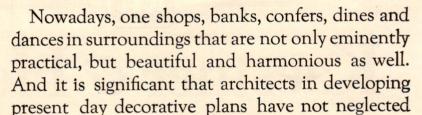
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Ask Your Architect

BIRMINGHAM · CLEVELAND · DALLAS · DETROIT · INDIANAPOLIS · MILWAUKEE MINNEAPOLIS · PITTSBURGH · ST. LOUIS



The illustration shows one of the Weber & Heilbroner stores, at 34th Street and Sixth Avenue, New York. The floor of Gold-Seal Treadlite Tile harmonizes with the decorative plan and insures quiet and comfort under-foot.



with the Architect's Ideals

the floors.

Evidence of this is found in the many retail shops, salesrooms, banks, offices, theatres, restaurants, etc., where Gold-Seal Treadlite Tile has been installed. Aside from its beauty and distinction of design, Gold-Seal Treadlite Tile is resilient under foot, noiseless and comfortable.

A wide variety of colored tile designs is at your disposal. Or if you desire, our designers will be glad to suggest special patterns that will harmonize with any plan of interior finishing.

Booklet showing typical installations, pattern suggestions, specifications, and details will be sent on request.

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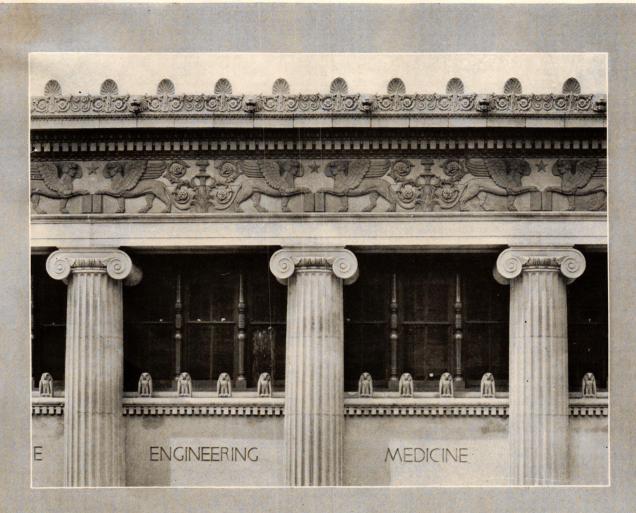
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"A Surety Bond with Every Floor"

To protect your client's floor investment—require the contractor to furnish a five-year guaranty and to back that guaranty with a surety bond.



Detail of Entablature, Wilmington Public Library, Wilmington, Delaware. E. L. Tilton and A. M. Githens, Architects. Frieze and cornice in polychrome Terra Cotta. (Colors, deep yellow buff, gray and blue. Cornice repeats limestone coloring).

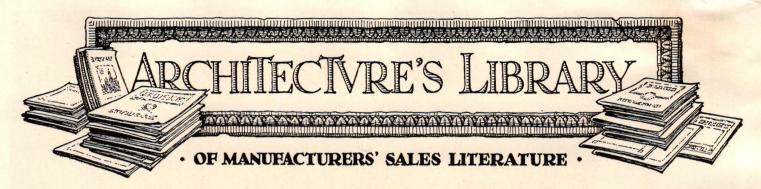
COLOR IN CLASSIC DESIGN

Polychrome treatment of decorative detail lent the final touch of perfection to the matchless conceptions of form in Hellenic architecture.

Colored Terra Cotta used with stone in the same way offers the splendid possibility of giving to the modern adaptation a corresponding virility and meaning.

Note: From the Standard Specifications of this Society prepared with the assistance of the National Bureau of Standards and Structural Service Committee, A. I. A, you can specify polychrome Terra Cotta economically and with every assurance of its lasting durability. For copies address:

NATIONAL TERRA COTTA SOCIETY
19 West 44th Street New York, N.Y.



For the service of every person in every architect's office, ARCHITECTURE announces important publications issued by manufacturers of building material and equipment. These publications may be had by addressing SERVICE DEPARTMENT, ARCHITECTURE, 597 Fifth Avenue, New York, or by addressing the companies listed below, in which case please mention ARCHITECTURE.

THE ASSOCIATED TILE MANUFACTURERS Beaver Falls, Pa.

A handsomely printed book on "Glazed Tiles and Trimmers" has recently been issued by the Associated Tile Manu-

The guiding thought all through the book has been one of simplification. It is the result of several years of co-operative work on the part of the manufacturers, architectural profession, and tile contractors. This has led to the elimination of many obsolete, unnecessary, and uneconomical pat-terns which were thus far carried by each factory.

The real purpose of the standardization work of this book is to make it easier and simpler to select and use tiles and trimmers, so that the architect, draftsman, and specification writer will have available a centralized source of information.

The 80 pages of the book are replete with drawings and explanations of the use of tile, and every architect will find it a real text-book of information. It is to be regretted that the Association was restrained from publishing their tabulations of list prices.

ATLANTIC TERRA COTTA 350 Madison Avenue, New York

In their booklet "Atlantic Terra Cotta," issued in February, the Atlantic Terra Cotta Company have shown a very interesting set of photographs, collected by Mr. Frederic C. Hirons, of Dennison & Hirons, of the work of Giovanni della Robbia.

From a manufacturing point of view the Terra Cotta of Giovanni approaches perfection. It is modelled by hand, as Terra Cotta is made to-day. The regularity of Della Robbia colors indicates unusual precision, remarkable in an age of crude manufacturing.

The Atlantic Terra Cotta Company would be glad to send a copy of this booklet to architects, and they also issue the Standard Specification for Terra Cotta which was prepared by the National Terra Cotta Society.

BUCKEYE BLOWER COMPANY Columbus, Ohio

The "Heatovent System of Unit Heating and Ventilating" is a bulletin issued by the Buckeye Blower Co., tabulating ready reference facts about Heatovent Cabinets.

In explanation the catalogue says:
"When the building is ventilated by the Heatovent

System, a room is ventilated only when occupied.
"With a Heatovent installation, each room has its individual ventilating system always ready for operation and under instant control. When a room is occupied, push the white button, the same kind of a button that lights the electric lights in the room; this starts the motor, and the fans silently deliver the correct amount of fresh air heated uniformly to the desired temperature without any discomforting drafts. When the room is vacated, push the black button. The motor stops, the fans cease to deliver the air, the condensation of steam in the heater stops, and the drain on the boiler is relieved.'

The catalogue goes on to give a full description of the Heatovent, including drawings, tables, specifications, and illustrations of installations.

THE SPENCER TURBINE CO. Hartford, Conn.

As a result of their many installations of Spencer Vacuum Cleaning Apparatus in buildings over the country, also their thorough experience in this field, the Spencer Turbine Co. have issued for the attention of the profession a valuable booklet concerning their manufacture.

The booklet describes the Spencer Central Cleaning Systems from every angle, and shows a number of prominent

Spencer Cleaned buildings.

In introduction the catalogue says that:
"The desirability of a cleaning method that employs air suction to draw dust, dirt, and germs out of their lodging-places into a remote receptacle is so apparent that it is scarcely necessary even to speak of its advantages. It would be difficult to find a more striking contrast between old and new methods than the contrast between broom sweeping and vacuum cleaning. The dust receptacle of the vacuum cleaner tells a story of cleanliness and disease prevention whose appeal is so strong that it has won a whole nation in fifteen years, for it is scarcely longer than that since the first practical vacuum cleaner appeared."

COPPER AND BRASS RESEARCH ASSOCIATION 25 Broadway, New York

A broadside has been sent out to dealers and every one interested concerning the advantages of using copper or

The sales matter sells nothing, but proves that screens should be used that do not rust. It is replete with interesting material concerning this subject.

THE GLIDDEN COMPANY Cleveland, Ohio

Since we announced last month that The Glidden Company would send out a specification booklet, we have received their "Architectural Specifications," and find this of decided value to any one who is interested in specifications for painting.

The introductory note states that:
"We present to you the following specifications—covering practically every operation in painting and allied work.
"The 'Save the Surface' campaign has set many minds thinking of the best methods of preserving the property in



NEW COLONIAL HOTEL, Nassau, Bahamas: Kenneth Murchison, New York City, Architect; C. V. Driggs, Inc., New York City, Jobbers; Gustave Staats, New York City, Plumber

KOHLER

And the NEW COLONIAL HOTEL

Girdled with palms and fronting blue waters where yachts and seaplanes ride at anchor, the beautiful New Colonial Hotel at Nassau has provided another haven for the American fleeing the northern cold.

The visitor there will find handsome plumbing ware marked with the familiar name "Kohler" in the enamel; an exposition, under a foreign flag, of American manufacturing skill. There are 153 Kohler "Viceroy" recess baths and numerous other Kohler fixtures in this installation.

KOHLEROFKOHLER

Kohler Co., Founded 1873, Kohler, Wisconsin Shipping Point, Sheboygan, Wisconsin

BRANCHES IN PRINCIPAL CITIES

MANUFACTURERS OF ENAMELED PLUMBING WARE AND KOHLER AUTOMATIC POWER AND LIGHT 110 VOLT D. C.

ARCHITECTURE'S LIBRARY OF MANUFACTURERS' SALES LITERATURE

their care. The fence on the farm, the palatial city mansion, the factory and its machinery, the pleasure yacht and the freight steamer, in fact the life of practically every manmade article, is dependent on its surface care.

"Paints, varnishes, stains, and enamels accomplish not only this preservation but at the same time enhance the natural beauty of wood and add beauty to many building

materials.

"This pamphlet is one evidence of The Glidden Company co-operation with all who have need of paint materials. In these pages we give carefully prepared suggestions as to the best methods of use—on various surfaces, both new and old work. The specifications are definite and concise for architects' use and yet are sufficiently detailed to give every user all needed information.'

WALLACE & TIERNAN CO., INC. Newark, N. J.

The engineering department of the Wallace & Tiernan Co. are at the service of the architects in offering information on questions concerning chlorination of water-supply. If there is any member of the profession who requires data along this line they can receive a full answer by addressing the above concern.

The following statistics set forth by the Wallace & Tier-

nan Co. are of interest:
"That 75 per cent of the people in North America drink

water that has been sterilized by liquid chlorine.

"That in the fifteen years since the adoption of chlorination for sterilization purposes, the typhoid-fever deathrate in the principal cities of North America dropped from 27 to 5 per 100,000, representing a saving of over 20,000 lives a year."

THE DURIRON COMPANY, INC. Dayton, Ohio

The Duriron Company are preparing for the attention of the profession specification forms for Acid Fume Exhaust Fans. The architect who is contemplating using such equipment will find these specifications of much value.

THE VENTILOUVRE COMPANY Bridgeport, Conn.

A four-page folder issued by the Ventilouvre Company describes the main features concerning the Ventilouvre, including views and names of installations and detail draw-

Just what the Ventilouvre is, is succinctly told in this

paragraph:
"The Ventilouvre is a louvred ventilator for use in doors and transom space. While providing for ventilation it affords absolute privacy, as it excludes vision and the possibility of ingress. It prevents drafts, as it baffles the aircurrents. It presents a handsome appearance. It can be finished to match any door. Operation is effected by a simple turn of a handle conveniently located. It can be adjusted to any degree of opening and stays put without rattling. It is fire-proof. It cannot get out of order; it is practically fool-proof.'

WESTINGHOUSE ELECTRIC & MANUFACTURING CO. East Pittsburgh, Pa.

A new refractor, known as the Bi-Lux Refractor, that will increase the effective illumination from street-lighting units approximately 70 per cent as compared with the most efficient units now in service has been developed by the Westinghouse Electric & Manufacturing Company in cooperation with the Holophane Glass Company.

The refractor is mounted inside the globe of the lighting unit and surrounds the lamp. It consists of two cylindrical pieces of pressed crystal glass nested one within the other and clamped together so as to form a single unit, the

shape of which is a frustum of a hollow cone.

This is only one item of the manufacture of the Westinghouse Company, and demonstrates their progress in this extent. Catalogues concerning their electrical equipment will gladly be sent to any one in the profession.

TIRRILL GAS MACHINE LIGHTING CO. 50 Church Street, New York

A folder, which contains data concerning the Tirrill Gas Machine, is being distributed to every one interested in producing gas where there is no city gas. The Tirrill Machine makes gas for every modern appliance which is as dependable as the gas used in the homes in the city.

Following is the guarantee offered by the company: "We guarantee every machine, when set according to our blue-print and instructions, to deliver a standard uniform supply of non-poisonous, smokeless gas which will burn with a brilliant light or blue flame and without odor. We guarantee every machine to be of perfect construction throughout, simple to operate, with no delicate mechanism, and always available for cooking, lighting, heating, laboratory, and industrial purposes."

AMERICAN BLOWER COMPANY Detroit, Mich.

A new American Blower product with features of economy that are decidedly interesting is the Venturafin Unit Heater. A descriptive folder concerning this heater will

gladly be sent to the architects.

One feature of this new heater is its enormous heating capacity when compared with the price-150,000 B. T. U. per hour for \$240. In addition to this the novelty of its construction will be of interest. The helical fin adds to the surface of each tube, and other features are the extreme light weight and flexibility of adaptation to installations of all kinds.

LORD & BURNHAM CO. Irvington, New York

This concern has issued an attractive piece of sales literature concerning its manufacture of glass gardens of standard sizes. The construction of the greenhouse is fully described along with drawings and illustrations of fine-look-

Materials for the standard widths of greenhouses are constantly in stock. Manufactured in quantity, they can be furnished considerably lower than those for special widths.

THE NEW JERSEY ZINC COMPANY 169 Front St., New York

A combination note-book and hand-book containing a good deal of general painting information, color formulas, etc., is being issued by the New Jersey Zinc Company.

A very interesting piece of news to the architects is the announcement of the use of lace stencils which has been developed by this company. Concerning this, they say:

"Ordinary stencils cut from paper, etc., usually are not of very rugged construction. They are soon spoiled by creasing or tearing. Many are not of sufficient delicacy of line to produce the most pleasing effect.
"We find now that woven lace, such as is used for cur-

tain materials, etc., can be very readily prepared for use as stencils, and the results obtained are much more pleasing

than the ordinary stencil work.

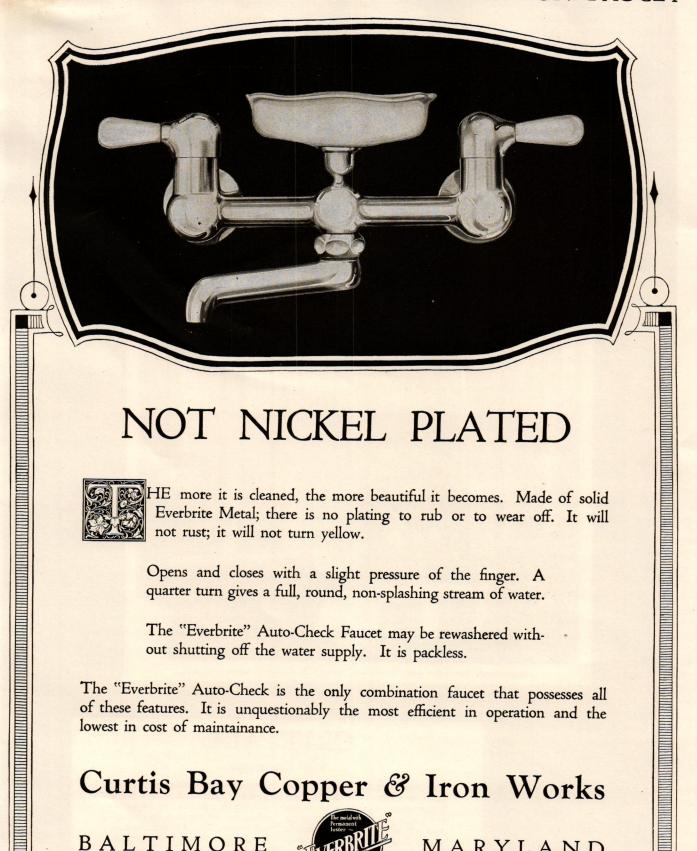
"The dry, untreated net or lace should be carefully and evenly stretched over a light but rigid frame, and tacked securely into place. When so stretched, apply a generous coat of Orange Shellac, care being taken to see that no open spaces have been allowed to remain filled or bridged over

with the shellac.

"The care with which the stretching and shellacking have been done will largely determine the beauty of the

work which can be produced from this stencil.'

"EVERBRITE" AUTO-CHECK COMBINATION FAUCET



NOT NICKEL PLATED



HE more it is cleaned, the more beautiful it becomes. Made of solid Everbrite Metal; there is no plating to rub or to wear off. It will not rust; it will not turn yellow.

Opens and closes with a slight pressure of the finger. A quarter turn gives a full, round, non-splashing stream of water.

The "Everbrite" Auto-Check Faucet may be rewashered without shutting off the water supply. It is packless.

The "Everbrite" Auto-Check is the only combination faucet that possesses all of these features. It is unquestionably the most efficient in operation and the lowest in cost of maintainance.

Curtis Bay Copper & Iron Works

BALTIMORE



MARYLAND



Dining Room, Kansas City Club, Kansas City, Missouri, Smith, Rea & Lovitt, Architects.

CRITTALL

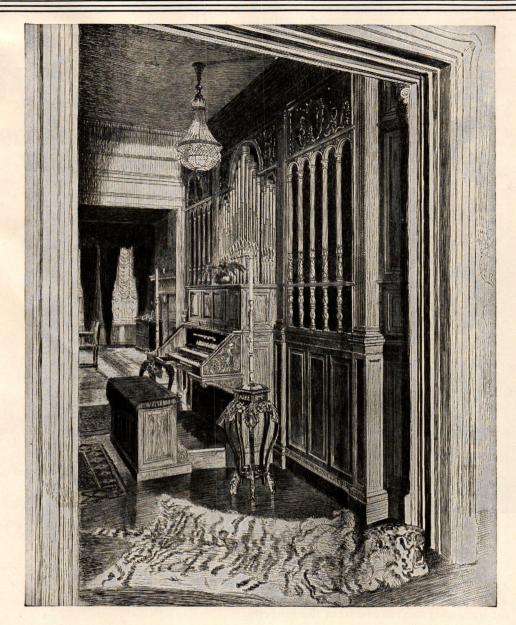
Steel Casements

The beauty and rich appearance, with economy of Crittall Steel Casements in club and home architecture gives them growing preference over many more costly means to the same end.

Properly draped they give a soft, pleasing light to interiors, while they are adaptable to most effective treatment in the exterior plan. We co-operate in solution of unusual window problems.

All Crittall Casements and Windows are made of Crittalloy — The Copper-Bearing Steel.

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An Invitation to Architects

The above is an illustration of a Welte Philharmonic Pipe Organ installed in a town-house built on a conventional, narrow, New York City plot.

Welte Residential Pipe Organ construction accommodates itself to any size, shape or location of space.

Extensive plans and specifications covering every organ building contingency are always accessible to architects, who are also most cordially invited to consult our technicians, freely, pertaining to the installation of pipe organs in private residences.

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665 FIFTH AVENUE at 53rd Street, New York City

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billiards a gentleman's

a gentleman's game

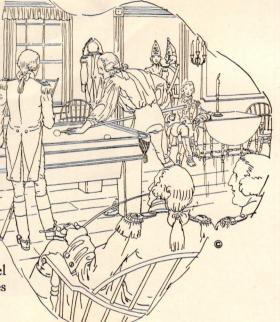
Your shot, Dad"

A BILLIARD room in an apartment house, hotel or similar building offers excellent opportunities for increasing the returns from the property.

It makes the property more attractive to tenants. It insures better rentals. And it also is an additional means of profit to the owner, either through management of the room or through rental of the billiard equipment.

Some owners of such buildings have found that a billiard room operated on a "free-to-tenants" basis often more than pays for itself indirectly in the enhancement of rental values.

As the largest makers of billiard equipment in the world, we are in a position to co-operate with architects and builders who may have the erection of buildings of this character now in contemplation.



"The game of billiards is said to have been introduced first in New York City in the eighteenth century by English officers in garrison."
—Modern Billiards

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623~633 South Wabash Avenue, CHICAGO



A design after Goya, hand-blocked on 60-inch linen, in characteristically Spanish color combinations.

THE work of the great Spaniard, Goya, was the inspiration of this new printed drapery linen.

Not only was Goya one of the greatest etchers the world knows, a famous portrait painter, and renowned for his genre paintings, but he stands first among 18th century Spanish painters as a designer of tapestries.

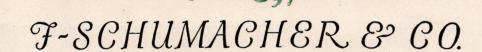
This pattern so full of the Goya spirit, with the charming contrasts of

color, the graceful sweep of scrolls, the extremely interesting motifs of its cartouches, makes an unusually captivating fabric. It is being shown on four backgrounds—Green, Scarlet, Spanish

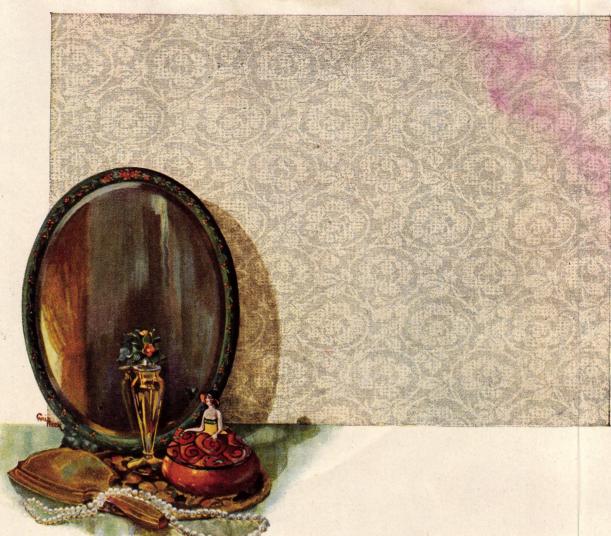
Yellow and Black. With the present interest in things Spanish, this design and other printed linens, all exclusive in this country with F. Schumacher & Co., offer an especially varied and attractive selection.

Your own decorator or upholsterer will arrange for you to see this Goya printed linen and other Schumacher fabrics. He will also arrange their purchase. F. Schumacher & Co., Im-

porters, Manufacturers, Distributors to the trade only, of Decorative Drapery and Upholstery Fabrics, 60 West 40th Street, New York. Offices in Boston, Chicago, and Philadelphia.



Styles for every room in the house



LL COVERING

Ask your decorator to show you the new styles of Sanitas Modern Wall Covering.

Samples of Sanitas, and a booklet telling about Sanitas and illustrated in full color, will be sent on request.



Sanitas covered walls have an adaptable beauty that endures for years.

TO those who are beginning anew the joys of homemaking, the harmonious treatment of the walls is a matter of supreme importance. The wall decoration frames the room and its furnishings, and, when wisely selected, accentuates their characteristics of form and color. At the same time it inevitably stamps upon the room the personality and taste of its owners.

The delightful range of patterns and colorings of Sanitas Modern Wall Covering, and its remarkable adaptability to every style of interior decoration, make this the ideal material for the modern room reflecting truly personal qualities, or as a background for period furnishings.

Sanitas Modern Wall Covering is made on cloth, ready-painted with durable oil colors that can be kept clean and fresh by occasionally wiping with a damp cloth. It does not crack, tear, peel, blister, or fade. and can be applied over any flat surface; old walls in which the cracks are properly filled, wallboards, or new walls as soon as the plaster is dry. Its unique qualities of beauty, cleanliness and durability, obviating the necessity for constant re-decoration, make Sanitas Modern Wall Covering truly an investment, not an expense.

Sanitas Modern Wall Covering comes in styles for every room in the house.

Enamel Finish

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Decorative Patterns

mosaic effects, for kitchens, bathrooms, laundries, etc.

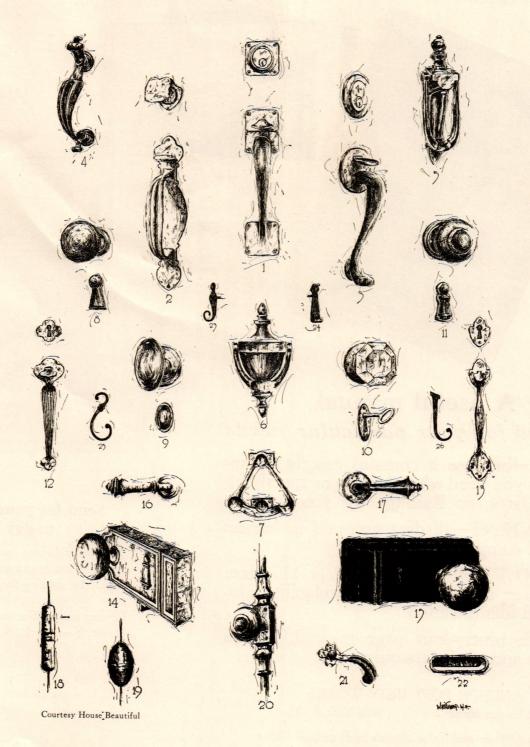
plain colors and tile and plain tints, that can be hung

floral designs and reproducas they come, stenciled, fres-coed, or Tiffany blended. grass-cloth and fabrics

THE STANDARD TEXTILE PRODUCTS Co. 320 BROADWAY, NEW YORK DEPT. 30



Showroom at 25 West 45th St., New York



A GROUP OF COLONIAL DESIGNS EXECUTED BY THE ORGANIZATION

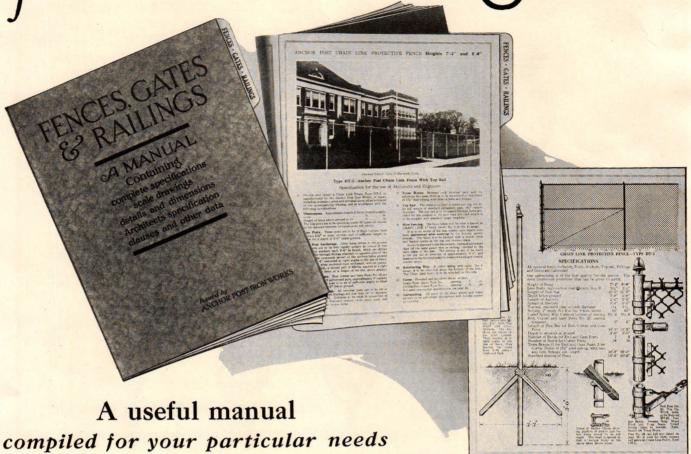
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FACTORY
NEWARK, N. J.

for Architects and Engineers



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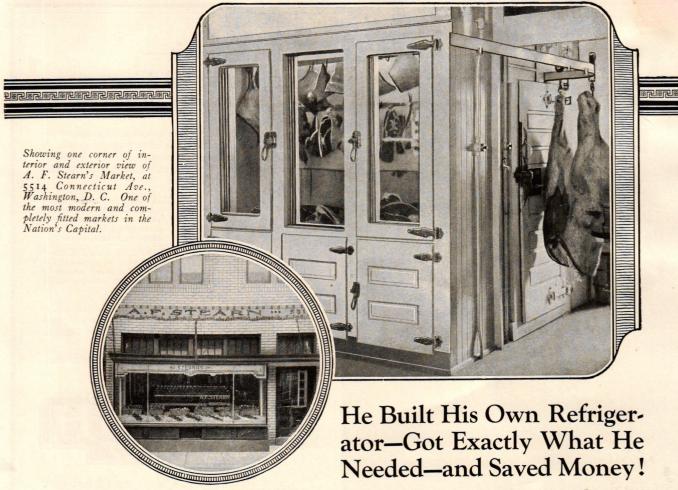


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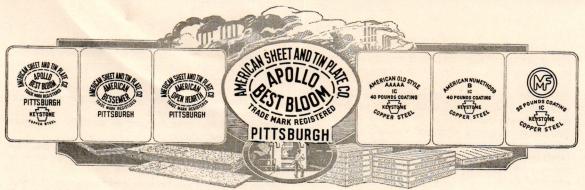
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For the safe keeping of preserves, fruit and the like, a hanging shelf usually ran across the cellar ceiling. Look out for your head when you go "down cellar," unless you light a candle, else you'll bump it on the preserve shelf.

Sixty-six years ago I. P. Frink lived in the country. Someone had smashed the glass in one of his tiny cellar windows.

To keep out the cold and perhaps cats or wild animals he tacked a piece of white cardboard over the window.

That night the wind blew a gale. The next day was a beautiful sunshiny one.

When he went into the cellar, instead of groping blindly around in sepulchral twilight, he found the place flooded with light.

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Frink was amazed. The usually dark cellar was transposed into a sun-

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Suddenly it dawned on him. The gale in the night had blown in the white piece of cardboard, so that it hung, fastened at the bottom but slanting inward from the top.

A ray of sunlight, striking the white surface, reflected the light against the white cellar ceiling and diffused it over the cellar.

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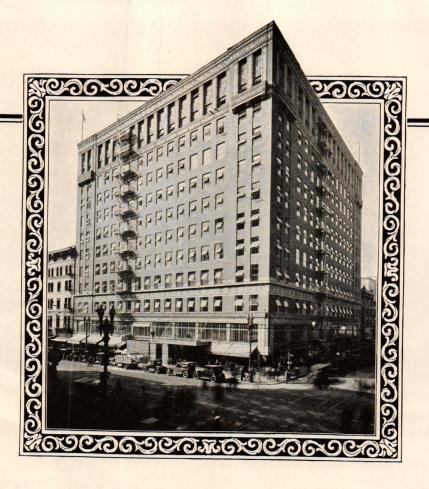
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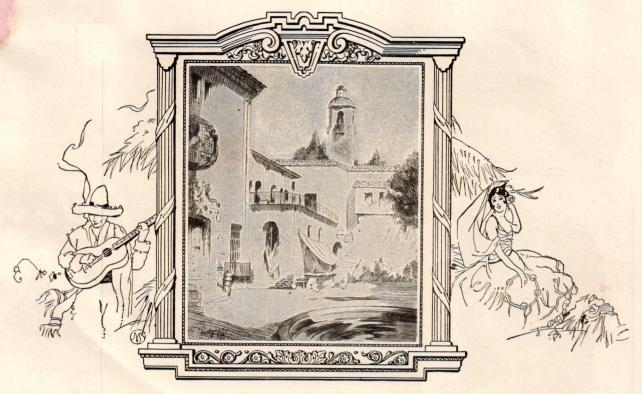
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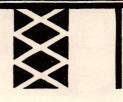
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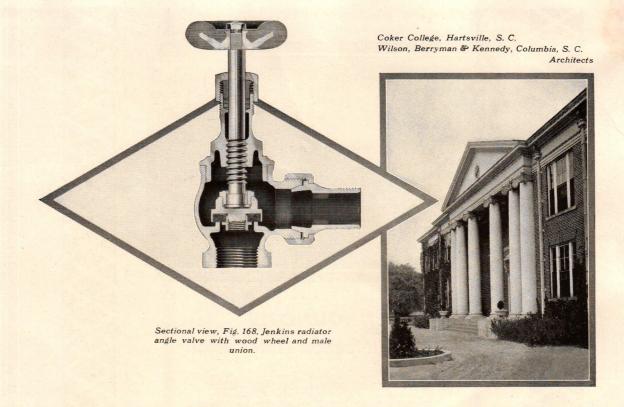
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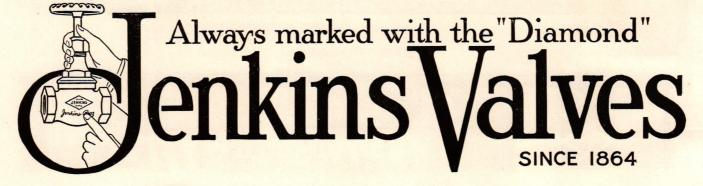
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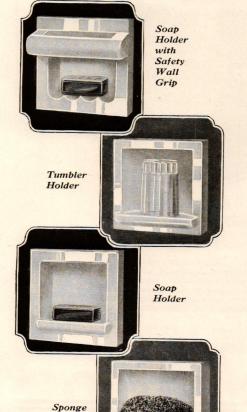
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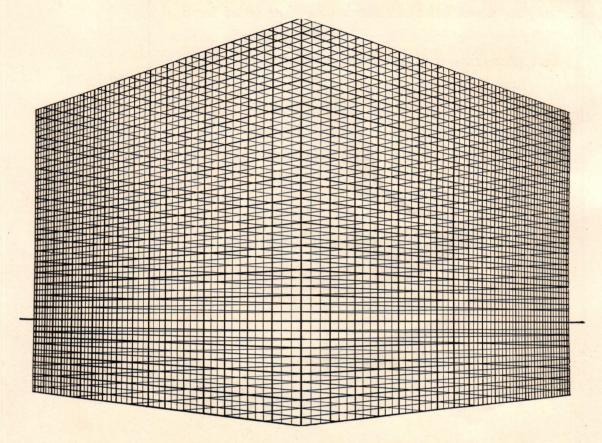


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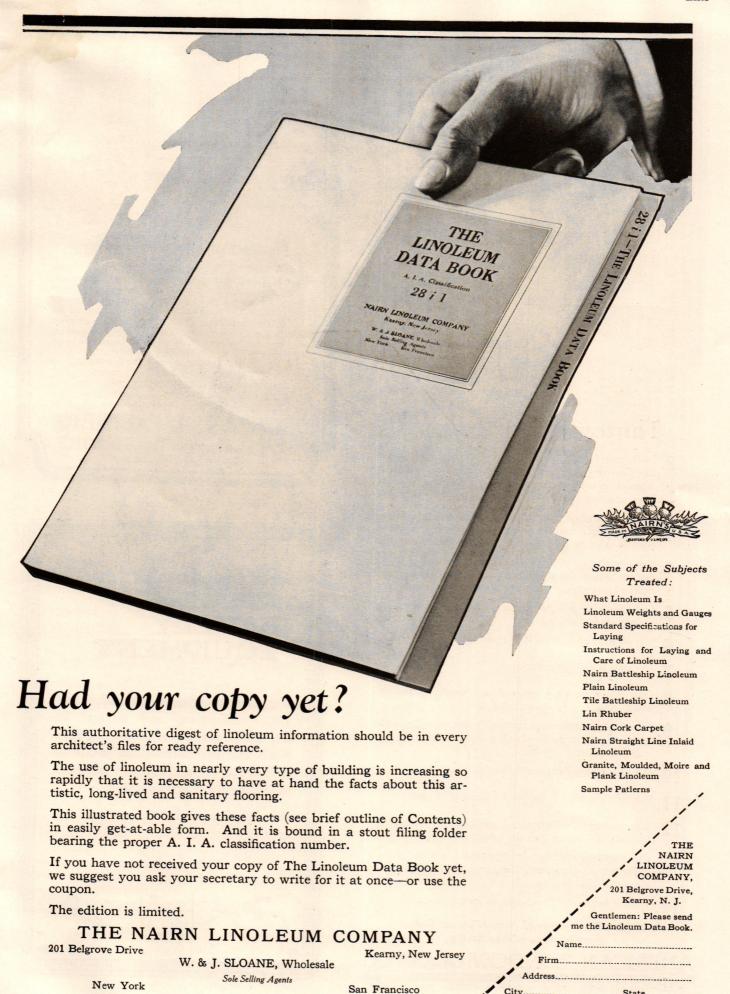
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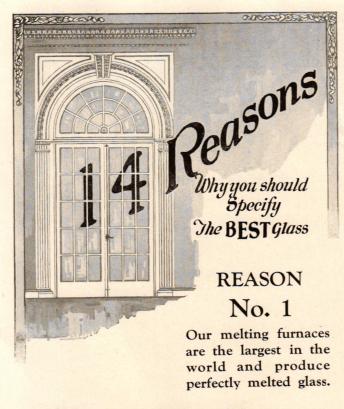
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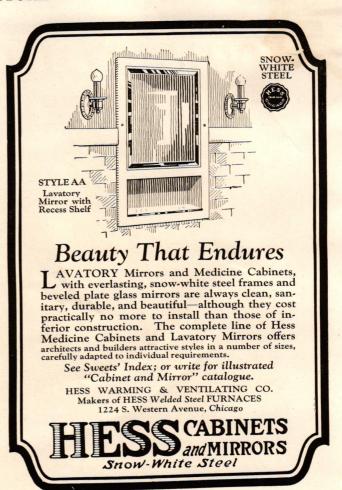


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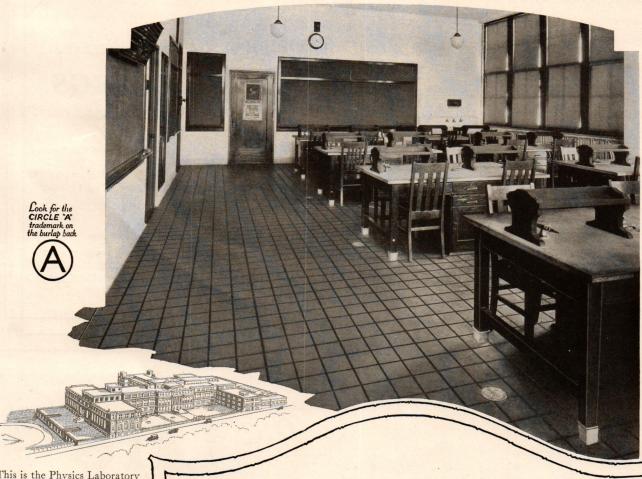
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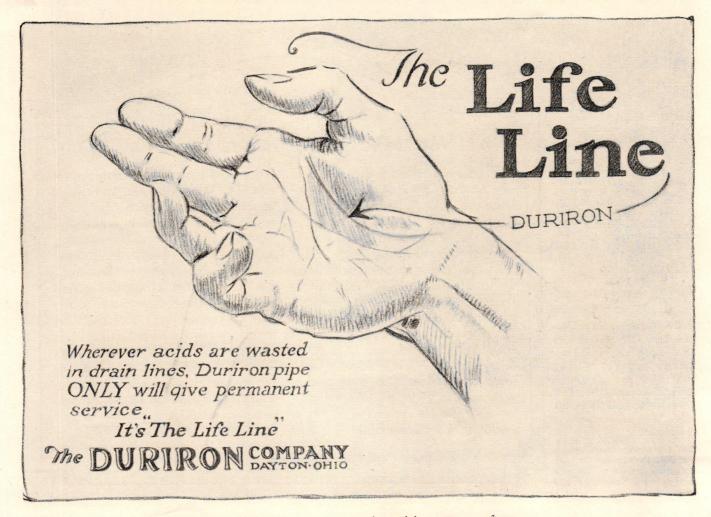
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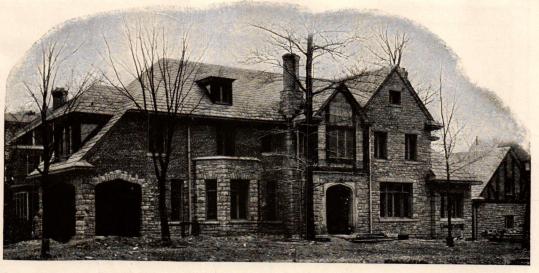
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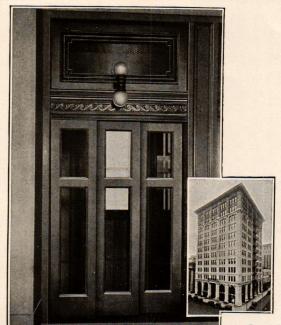
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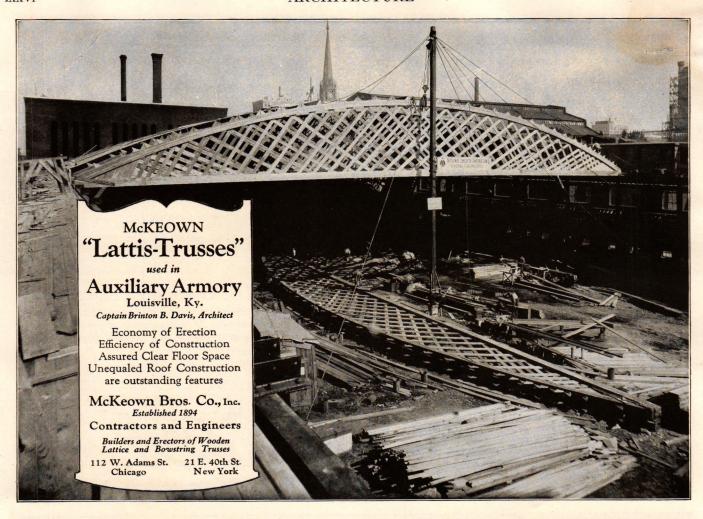
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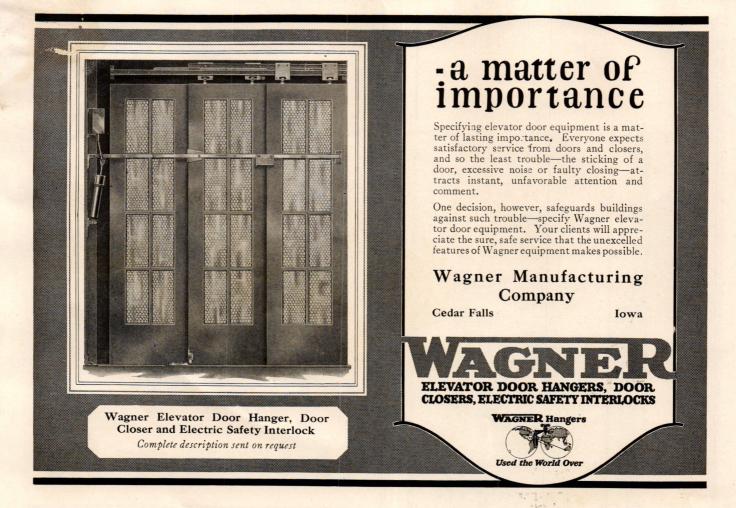
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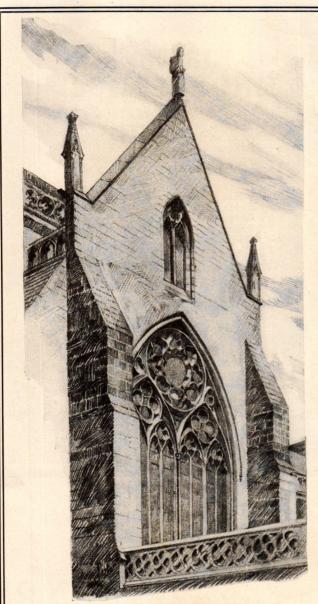
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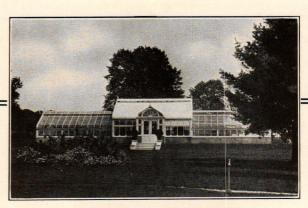
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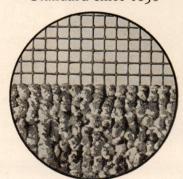
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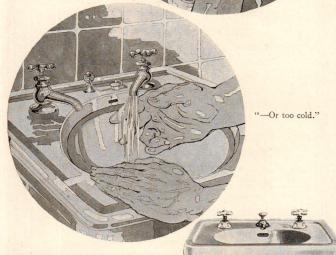


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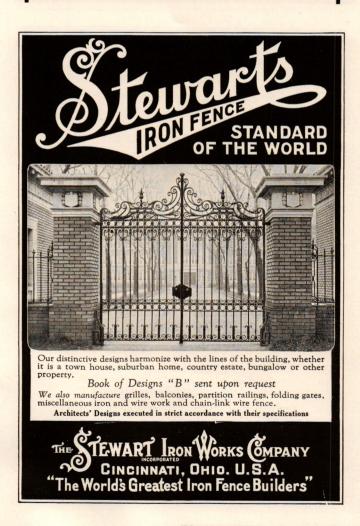
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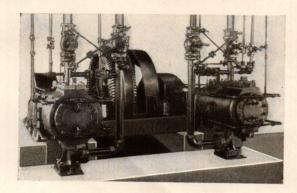
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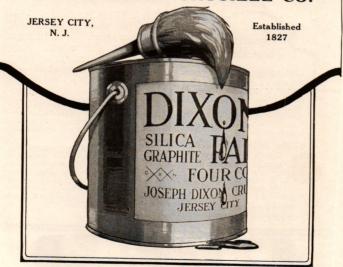
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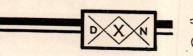
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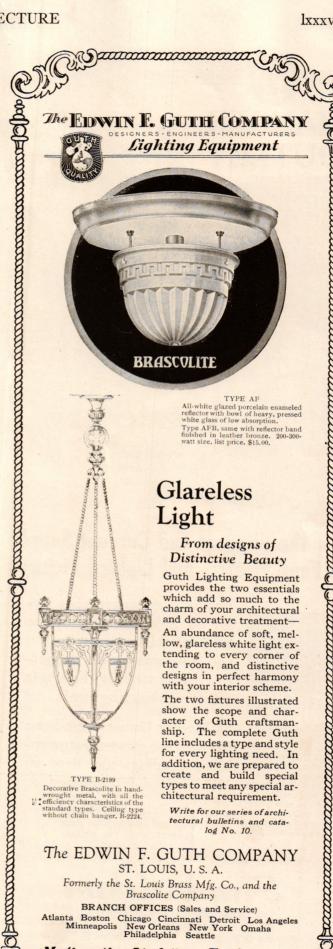
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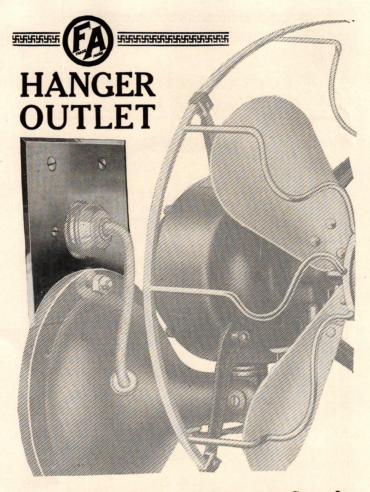
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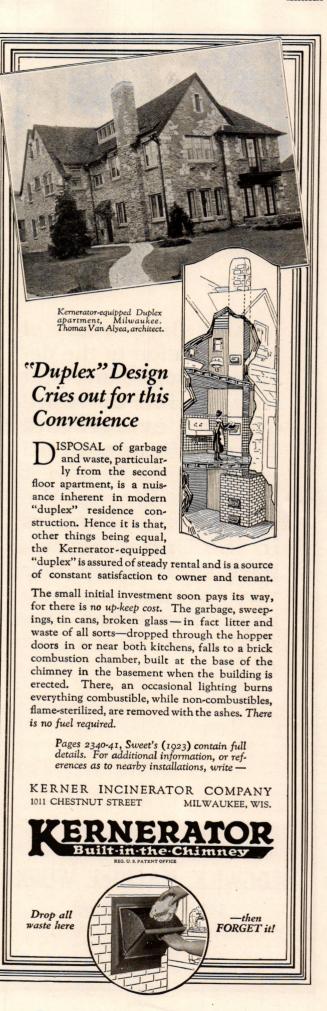
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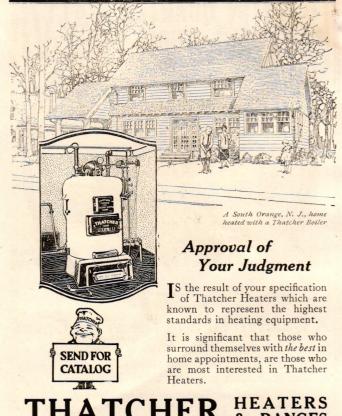
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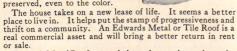
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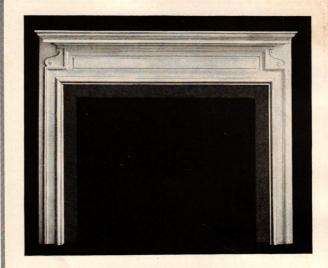


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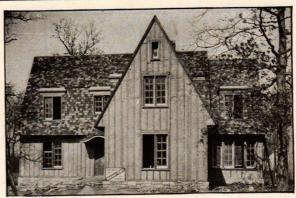
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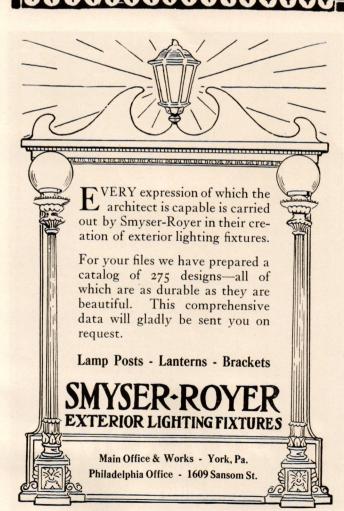
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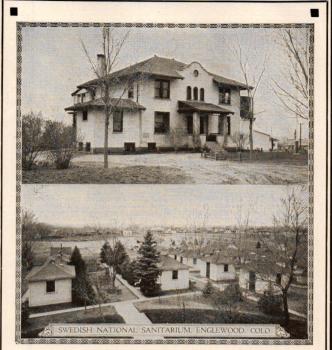
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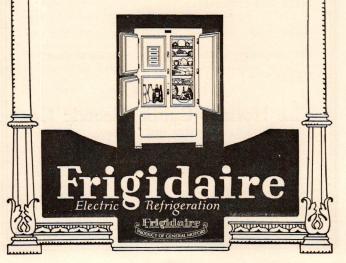
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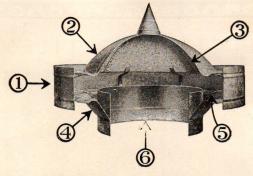
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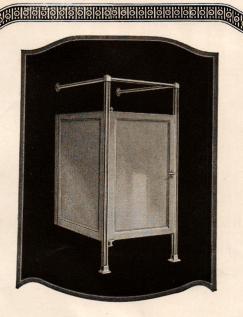
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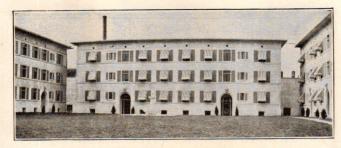
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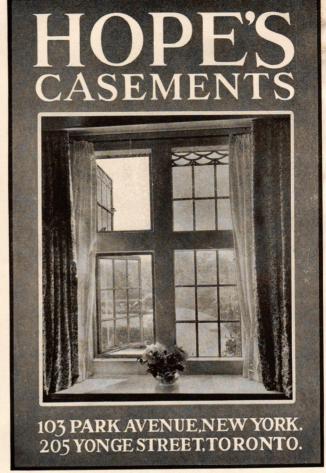
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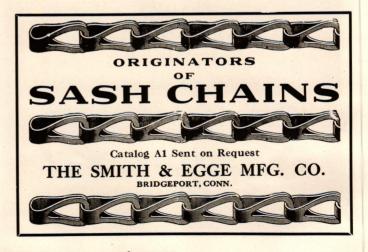
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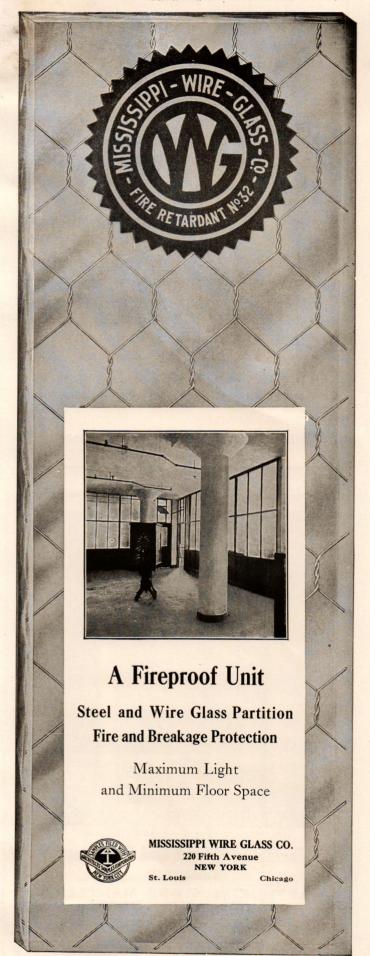






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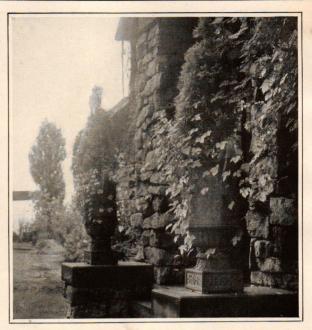
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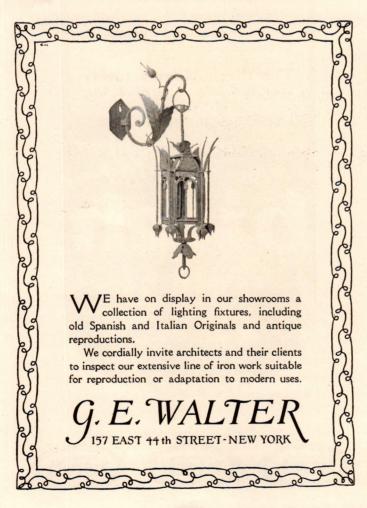


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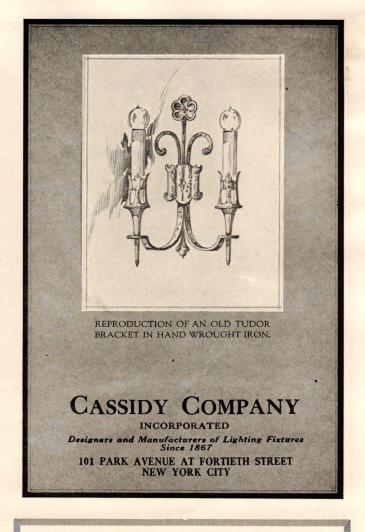
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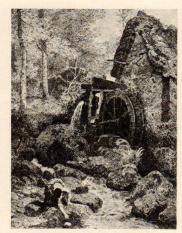
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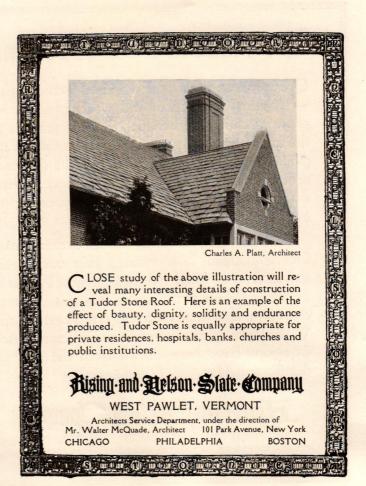


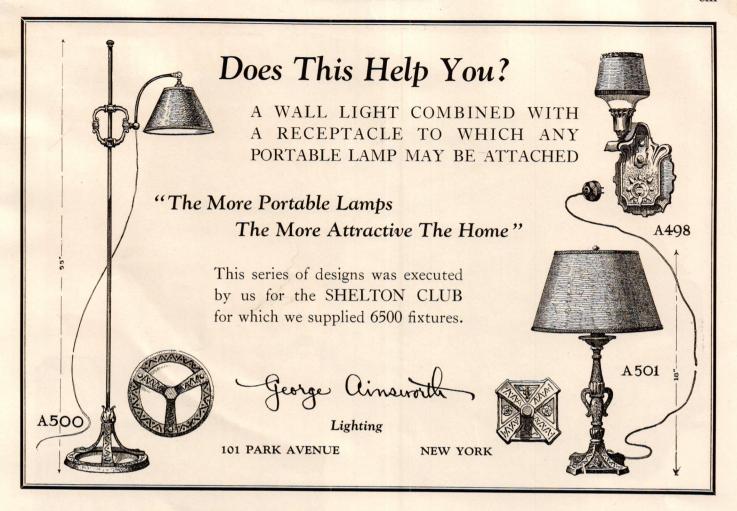
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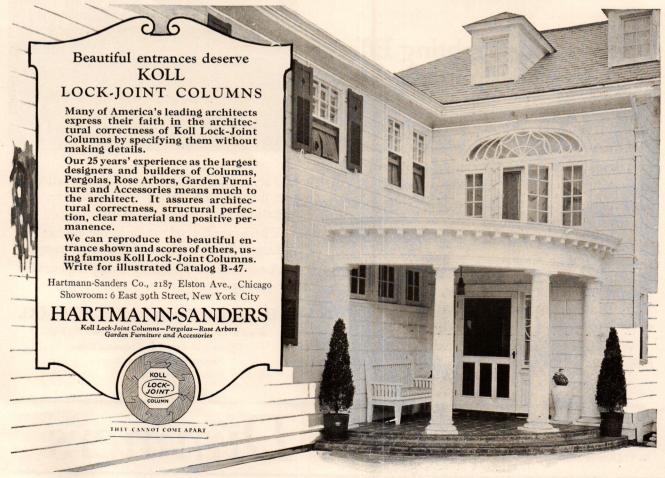
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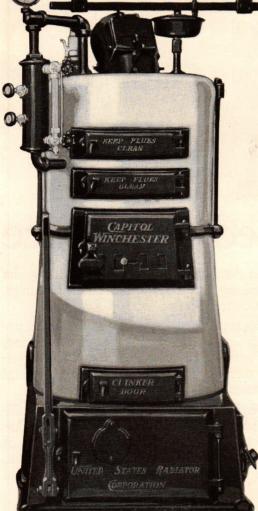
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Atlantic Terra Cotta ornament springs naturally from a brick surface. The two burnt-clay materials have natural harmony and there is no contrast in color or texture.

The Shelton Club Hotel is fully illustrated in this issue of Architecture.

Shelton Club Hotel, Lexington Avenue, New York Arthur Loomis Harmon, Architect Detail of Atlantic Terra Cotta

Atlantic Terra Cotta Company

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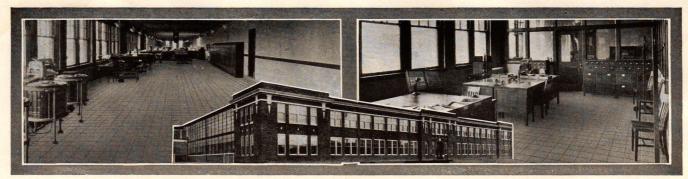
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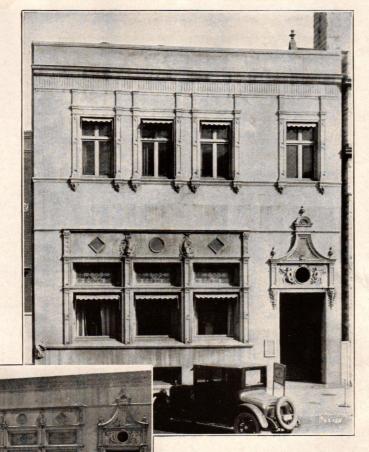
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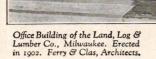
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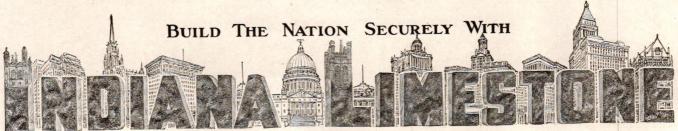
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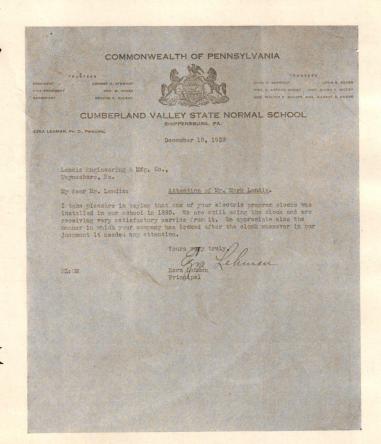
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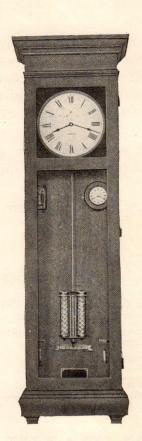
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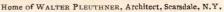
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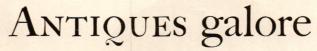
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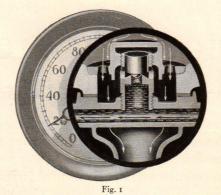
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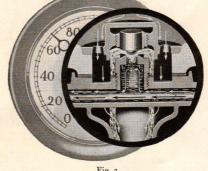


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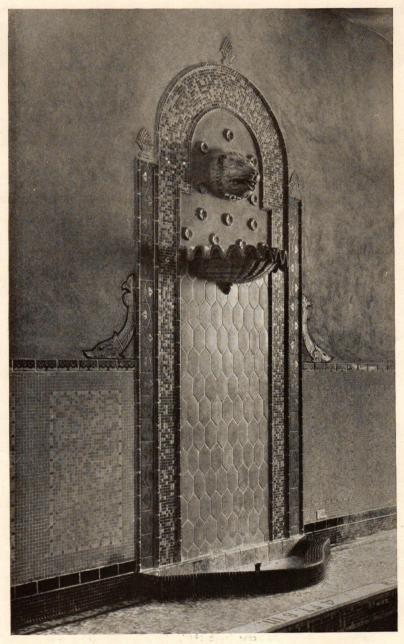
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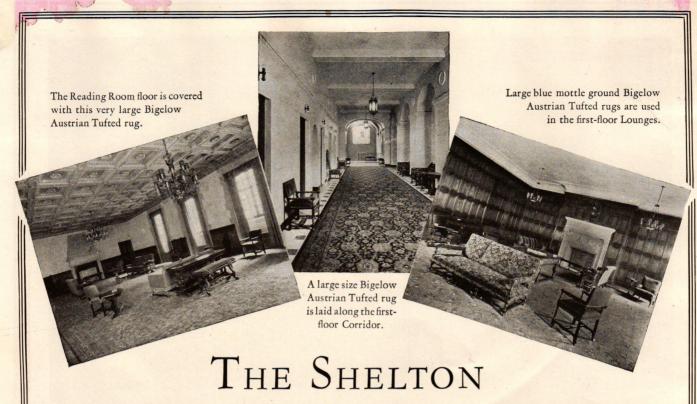
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Approximately thirty-five thousand yards of the finest grades of Bigelow-Hartford carpets and rugs cover the floors. In the Game Room is a Bigelow Austrian Tufted rug 27 ft. by 33 ft. 6 in. Another such rug, 24 ft. by 39 ft. 6 in., is laid in the Reading Room. The first and second-floor Lounges each have a large Bigelow Austrian Tufted rug, the first 21 ft. by 42 ft. 9 in., the

second 21 ft. by 54 ft. The rugs on the first-floor corridor all are Bigelow Austrian Tufted, several being of very large size.

The Main Corridors and Bedroom Corridors are covered with about 6,500 yards of "Hartford-Saxony" stair carpet, in 3-4, 4-4, 6-4 and 8-4 widths. Over 370 yards of "Hartford-Saxony" carpet are used in the Dining Room.

The twelve hundred Living Rooms and Bedrooms are carpeted with about 27,000 yards of Bigelow Burbury Wilton, besides which, five hundred dresser rugs of Bigelow Burbury Wilton, 27 in. by 48 in., are laid in the Bedrooms.

This remarkable furnishing, for an exclusively men's residence hotel, is an outstanding endorsement of the notable reputation Bigelow-Hartford floor coverings have for beauty, luxuriousness and durability. At the same time, their selection marks the high character of the establishment in which they are being used.

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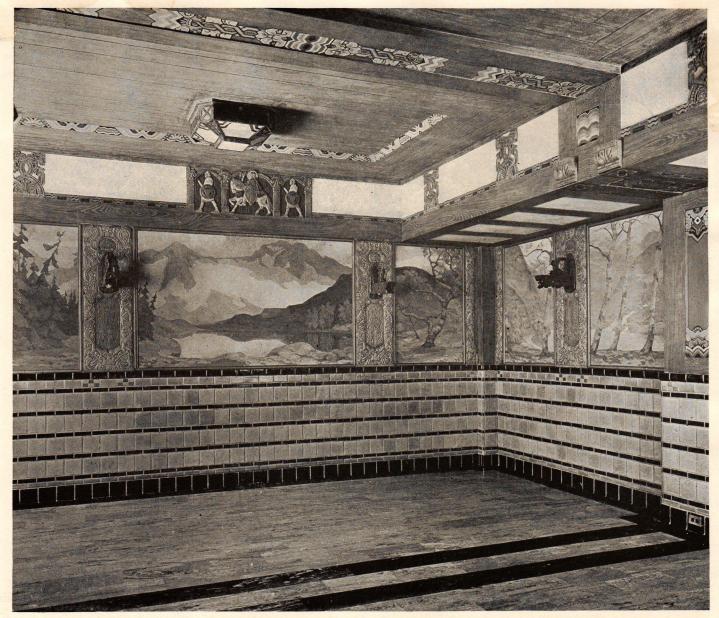
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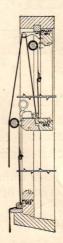
The names and page numbers of those manufacturers in this issue of Architecture are

	"
Page Page	
Adams, James. lxxxiii Adams, James. lxxxiii Ainsworth, George ciii Aldrich Pump Co. lxxxiv American Blower Co. lxii American Brass Co. xxxvii American Bridge Co. lxxiv American Encaustic Tiling Co., Ltd. cxvii	
Ainsworth, George	
Aldrich Pump Co lyvyiy	
American Blower Co lyii	
American Brass Co	
American Bridge Co	
American Encaustic Tiling Co	
T+3	
American Face Prick Co	
American Face Brick CoX	
American Lead Pencil CoXXXV	
American Radiator Co	
American Seating Coci	
American Sheet & Tin Platelv	
American Thermostat Colxvi	
American Window Glass Colxxii	
Anchor Post Iron Workslii	
Appalachian Marble Colxxxiii	
Armstrong Cork Co.	
American Encaustic Tiling Co., Ltd	
Arnold & North, Inc. xcii	
Associated Tile Mfrs3d Cover	
Atlantic Terra Cotta Co	
Atlas Portland Cement	
Austral Window Co	
Automatic Flectric Co	
Automatic Electric Coxvii	
Bachelder-Wilson Co	
Batavia & Now Verk Wood	
marking Co	
Working CoIXXIX	
Berry Bros., Inc	
Bigelow-Hartford Carpet Co. cxviii, cxix	
Bonded Floors Coxl	
Bachelder-Wilson Coxciii Batavia & New York Woodworking Colxxix Berry Bros., Incxiv Bigelow-Hartford Carpet Co. cxviii, cxix Bonded Floors Coxl Boyle, John & Co., Incxci Bridgeport Brass Cocxxii Brunswick-Balke-Collender Coxlviii Brunsmick-Balke-Collender Co4th Cover	
Bridgeport Brass Cocxxii	
Brunswick-Balke-Collender Coxlviii	
Burnham Boiler Co4th Cover	
Cabot, Samuel, Inc. xcii Carbondale New York Co., Inc. lxxvii Carey, Philip, Co. lvii Carney Cement Co. xxviii Cassidy Co	
Cabot, Samuel, Incxcii	
Carbondale New York Co., Inc. lxxxvii	
Carey, Philip, Colvii	
Carney Cement Coxxviii	
Cassidy Coc	
Chain Products Colxxxvi	
Clinton Metallic Paint Cocix	
Compound & Pyrono Door Co xcii	
Connecticut Tel & Electric Co cxv	
Crane, Wm. M. Co cyvi	
Crittall Casement Window Co vlvi	
Curtis Ray Copper & Iron Works why	
Curtis Cos	
Cutler Hammer Mfg Co	
Cutler Mail Chute Co	
Cutier Mail Chute CoXci	
Dahlstrom Metallic Door Co	
Divon Joseph Crusible Co	
(Paint) Crucible Co.	
(Paint)lxxxvii	
Douglas, The John Coxx11	
Durastone Company, Incc	
Duriron Co., Inclxxiv	
Ed-al-E-1-11 W	
Edwards, Frederick Wxcix Edwards Manufacturing Coxc Electro-Light Engraving Cokxxii Elevator Locks Cokvxii	
Edwards Manufacturing Coxc	
Electro-Light Engraving Colxxxii	
Elevator Locks Colxxxi	
Erkins Studioslxxxii	
Elevator Locks Co. lxxxi Erkins Studios. lxxxii Estey Organ Co. 2d Cover	
Faber, Eberhard, Coviii	
Fairfacts Co., Inc., Thelxv	
Faber, Eberhard, Coviii Fairfacts Co., Inc., Thelxv Fischl's, L. S., Sons, Inccii	

this issue of Architecti	ire	an
	Pa	ige
Fitz Water Wheel Co		. C
Frink, I. P., Co		
General Electric Co		vi
Globe Ventilator Co Gold Car Heating and Lighting	xc	civ
Gold Car Heating and Lighting	V(vi
Gorham Co., The	.lxx	cix
Gorton & Lidgerwood Co	lxxx	xix
Greene, Tweed & Co	x	.li
CoGorham Co., TheGorton & Lidgerwood CoGraver CorporationGreene, Tweed & CoGuth, Edwin F., Co	XXX	vii
Hachmeister Lind Co	77.0	
Hampton Shops	.xxx	vi
Hampton Shops Hartmann-Sanders Co. Henderson Bros. Hess Warming & Ventilating Co. Higgins, Charles M., & Co. Holtzer-Cabot Electric Co.	lyvy	ciii
Hess Warming & Ventilating Co.	lx	xii
Higgins, Charles M., & Co	lxxx	ix
Hood, B. Mifflin, Brick Co	XC	iii
Hood, B. Mifflin, Brick Co Hope, Henry, & Sons	xc	vi
Indiana Limestone Quarrymen's		
Association International Casement Co		CX
Jackson, Wm. H., Co Jacobson Mantel and Ornament	. CX	vii
Company	.xcv	iii
Jamison Cold Storage Door Co	1	iv
Jenkins Bros Johns-Manville, H. W., Co.,	IX	lix
Kaestner & Hecht Co		
Kelsey Heating Co		xii
Kelsey Heating Co. Kent-Costikyan Co. Kerner Incinerator Co.	lxx	xii
Kewanee Boiler Co	IXXX	iii
Kewanee Boiler Co. Kimball Bros. Co. King Construction Co.	lx	XX
King Construction Co	lx	XX
Kohler Company	xl	iii
Landis Engineering & Mfg. Co Lehigh Portland Cement Co	1	iii
Lord & Burnham Co	xv	iii
Ludowici-Celadon Co	X	iii
Maddock's, Thomas, Sons Co	IX	V1
Marbleloid Co	cv	iii
McCabe Hanger Mfg Company	.XXX	iii
Maddock's, Thomas, Sons Co. Mahogany Association. Marbleloid Co. Master Builders Co. McCabe Hanger Mfg. Company McKeown Bros. Co., Inc. McKinney Mfg. Co. Mid-Continent Clay Co. Minneapolis Heat Regulator Co. Mississippi Wire Glass Co. Morene Products Co., Inc., cxxiv	lxx	vi
McKinney Mfg. Co	X	vi
Minneapolis Heat Regulator Co.	XX	X1 Xi
Mississippi Wire Glass Co	.xcv	vii
Nairn Linoleum Co National Building Granite Quarri	lx	xi
Association	es	V
Association National Lumber Assn National Terra Cotta Society	.xcv	vii
National Tube Co.	2	kli
Nelson, Herman, Corp	(CV
National Tube Co. Nelson, Herman, Corp. New Jersey Wire Cloth Co. New Jersey Zinc Co.	X	XX
New Jersey Zinc Co	/XI.	/11

anufacturers				
e				
		D		
	Nice, Eugene E., Co	Page		
	Norton Company	IXXXIII		
	Trotton Company			
	Oak Flooring Bureau	xcvi		
	Pardee, C. Works, Inc	xcix		
	Parkhurst Forge, Inc	lxxix		
	Plaudler Co., The	lxxvii		
	Powers Regulator Co	xc1		
	Rackle, Geo., & Sons Co	lxxviii		
	Rackle, Geo., & Sons Co Raymond Concrete Pile Co	vii		
	Read Machinery Co	lxxii		
	Reading Iron Co	lviii		
	Reed Shop, The	xcviii		
	Richardson Company	. xix, xx		
	Rising & Nelson State Co	C11		
	Roches Tulius	XXX1		
	Rookwood Pottery Co	veviii		
	Ritter, W. M., Lumber Co. Roehrs, Julius. Rookwood Pottery Co. Royal Ventilator Co.	lyvyvi		
	Russell, Arthur D	lxxxii		
	Russell & Erwin Mfg. Co	lx		
	Ruud Manufacturing Co	lxviii		
	Samson Cordage Co	lxxxiv		
	Sanymetal Products Co	XCV		
	Schumacher F & Co	IVIII		
	Sedawick Machine Works	TC		
	Simon Ventilighter Co	cii		
	Smith, H. B., Co.	XXXV		
	Simon Ventilighter Co	xcvi		
	Smyser-Rover Co	XC111		
	Somma Shops	lxxviii		
	Somma Shops	xcv		
	Southern Pine Assn	YYIV		
	Speakman Co	lxxxiv		
	Speakman Co Spencer Turbine Co Standard Textile Products Co	CX1		
	Stearns, A. T., Lumber Co	lyvviii		
	Stedman Products Co	CVV		
	Stewart Iron Works	lxxxv		
	Stedman Products Co	lxxxii		
	Tablet & Ticket Co Taylor, Halsey W., Co Teolin Enamel Works, Ltd Thatcher Furnace C.	lxxxiv		
	Taylor, Haisey W., Co	CXIV		
	Thatcher Furnace Co.	IXXXII		
	Thatcher Furnace Co	lyvvii		
	Tirrill Gas Machine Ltg. Co	lxxxi		
	Trenton Potteries Co	lvv		
	Truscon Steel Co	i		
	U. G. I. Contracting Co	XXV1		
	U. S. Gypsum Co	XXXIV		
	U. S. Rubber Co	VVV		
	Vendor Slate Co	lxxv		
	Ventilouvre Co., The	cxxvi		
	Wagner Mfg. Co. Wallace & Tiernan Co., Inc. Walter, G. E. Weis, Henry, Mfg. Co. Western Brick Co.	lyyvii		
	Wallace & Tiernan Co., Inc.	lxxxvi		
	Walter, G. E	xcviii		
	Weis, Henry, Mfg. Co	lxxxviii		
	Welte-Mignon Co	xlvii		
	Western Brick Co Wickwire Spencer Steel Corp Wilson, The J. G., Corporation.	lxxxviii		
	Wilson The I C Comp.	lxxxi		
	wilson, The J. G., Corporation.	C11		





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