Structure in Glass

Naval Hospital

Portfolio of Pediments

Design in Materials

ARCHITECTURE

FEBRUARY, 1936

FIFTY CENTS

CHARLES SCRIBNER'S SONS

A New Sort of Cooperation Offered Architects by a Glass Garden Builder

THERE isn't a doubt that builders of Sun Rooms, Conservatories and Greenhouses have at times bent over backwards a bit. Admittedly, they have been rather inflexible in their attitude on making the designs of glass structures bend a knee to insure the acme of growing conditions for the flowers.

That was all very well, as so many of you architects have pointed out, for those who want to grow top-notch prize winners. But so few really do. By far the greater number want the joy side that a reasonable success of gardening under glass gives, or the friendly closeness of having growing, blooming things about, that a Conservatory makes possible.

As an architect, when a client wishes a Conservatory, a Garden Room or a Sunshine Room, as a direct part of a residence, your first thought is naturally to make a design of your own, using the materials available, so that it becomes an harmonious part, and not a hitched-on something.

You want roof pitches to agree. You do not like to be arbitrarily told it must be the manufacturer's standard, or that the solid portions of the wall or the sides should be a certain height, or that the roof must be a certain pitch, the eaves straight or curved. Nor do you feel overfriendly in the thought that any particular variations from the maker's established design mean a generous penalizing in cost.

As a business man you of course appreciate that the standardized subjects cost less. But you do resent any departure of yours costing excessively more.

Furthermore, you like to have some idea in advance, whether for instance, a greenhouse is going to cost five hundred or five thousand dollars. It seems only reasonable to you that builders should have certain key subjects that are plainly priced and fully described in their printed matter. Such for instance, as could be placed in a client's hands, and all necessary information be there. You are absolutely right in all these counts. To that end Lord & Burnham have several specially priced subjects prepared ready for you, and a number of others soon to be issued.

As for roof pitches, whether the roof is to be straight or curvilinear, or the eaves curved instead of straight, and the walls and sides to be a certain height, Lord & Burnham are not in the least arbitrary. When it comes to your designs be assured of our heartiest cooperation.

We will, at your invitation, be glad to come at any time and lean over the board with you, to the end of securing in the best possible way, at a reasonable cost, the effects you wish, and still have happy homes for your client's flowers.

Lord & Burnham Co.

Builders of Greenhouses and Conservatories

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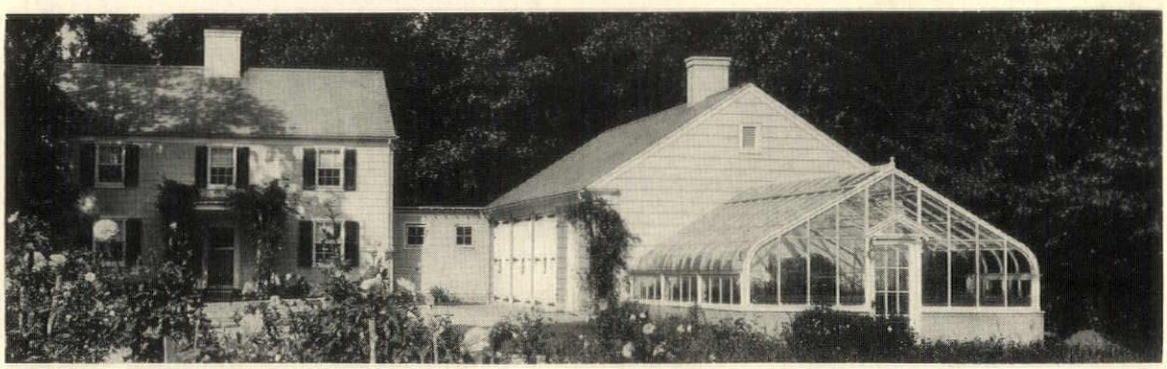

Do you realize that a Lord & Burnham greenhouse like this one can be built and fully equipped for so little as $2,500?

FAIRMOUNT MAUSOLEUM
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So that BEAUTY *may endure*

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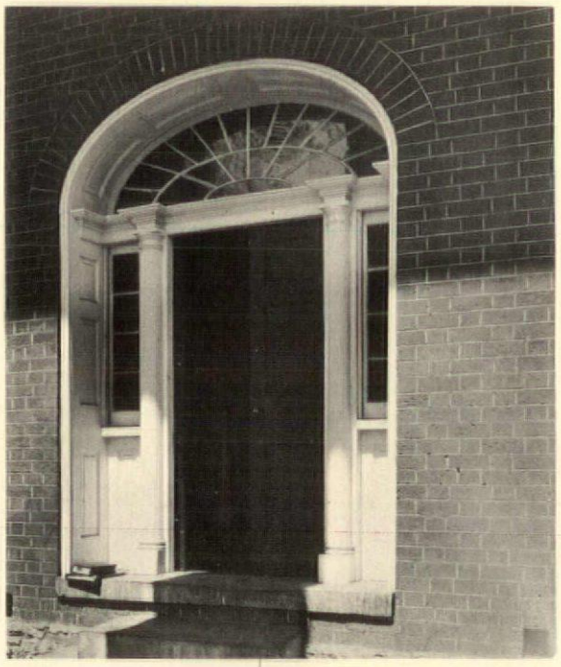
● Buildings such as this are intended as memorials to endure for generations. The fact that Youngstown products play important parts in such a large proportion of them is a tribute to the constantly demonstrated ability of all YOUNGSTOWN products to withstand the wear and tear of time.



Wing entrance at Old Liberty Hall, Lexington, Virginia, built in pre-Revolutionary times. After the Civil War when General Lee became its President, the name was changed to Washington and Lee University. Note that the bricks are true Jefferson size with the squarish headers.

Why All This Brick Size Talk

When It Was Proven So Conclusively A Century And More Ago

Have just been rereading a bundle of letters from you up North architecting gentlemen. Here are twenty-three, twenty-four, yes twenty-seven of you, who seem to be alfired het-up about the half inch over-size of our True Jeffersons. Near as I can make out, some of you think that such a so-called "over-size" brick, can have no place in an under-size (meaning a moderate size, no doubt) building. All upset just because of a wee half an inch on the top of a brick making it a True Jefferson size.

Seems sort of funny to us Virginians, because everywhere over this State you find no end of buildings *of all sizes*, built of nothing but the original Jefferson size. And looking a lot better than those that are not.

Have some of you plumb forgotten the Honeymoon House at Monticello where Jefferson lived while the big house was being built? It's not much bigger than the bathrooms you are designing nowadays, and far as looks are concerned, nobody I ever heard of yet, has thrown any stones at it.

Once I heard a Harvard Professor say a lot of good things about the Parthenon. Among others, was that being based on the golden oblong accounted for its wonderful proportions.

Seems like Mr. Jefferson in his many notable houses for the big-rich and numerous public buildings, found out just the right golden "high-long" for the brick he used.

It may be, that all kinds of bricks don't work out so tolerably well when over-size. Some of you architects have written us just that, and in the next sentence confirmed your views by ordering these True Jeffersons of ours. Which burst of confidence don't mind admitting, is made with a feeling its knowledge might profit us both. You, and the Old Virginia Brick Company down here at Salem, Old Virginy.

Of course, we do make the Standard size Old Virginians as well. Both the hand-made and mould-made.

HENRY GARDEN
Brick Maker for
OLD VIRGINIA BRICK CO.
with Mr. Jefferson as a Guide

OLD VIRGINIA BRICK

Old Virginia Brick Company
Salem, Virginia

THE BULLETIN-BOARD

BUILDING PERMITS

Building Permit Values in 1935 Largest Since 1931

THE building industry, as measured by the value of permits taken out for new buildings, alterations, and repairs, closed the past year with a sharp upward spurt. Instead of a small seasonal decline usually witnessed in December, the permit volume for that month in 215 cities of the United States rose to $62,992,039 from $56,276,588 in November, or an increase of 12 per cent, according to Dun & Bradstreet, Inc. With the exception of the October total of $66,965,705, last month's figure was the highest since October, 1931, and was almost treble the value of permits in December, 1934, which amounted to only $21,125,723.

Scattered throughout the country, such cities as Pittsburgh, Troy, Cincinnati, Detroit, Nashville, Oklahoma, St. Louis, Sioux Falls, Los Angeles and Seattle reported particularly large increases in December building.

The group totals of building permit values for the 215 cities for December, this year and last, together with percentage changes, are shown in the following table:

Groups:	*December, 1935*	*December, 1934*	*Change per cent*
New England	$6,141,161	$2,071,678	+196.4
Middle Atlantic	19,695,764	5,616,841	+250.7
South Atlantic	5,156,032	2,584,371	+100.3
East Central	8,780,658	3,224,391	+172.3
South Central	6,932,767	2,237,449	+209.9
West Central	6,897,402	1,201,549	+474.1
Mountain	643,767	397,625	+ 61.9
Pacific	8,744,488	3,701,819	+130.6
Total U. S.	$62,992,039	$21,125,723	+198.3
New York City	$14,210,205	$ 3,646,663	+289.7
Outside N. Y. C.	$48,781,834	$17,479,060	+179.2

The record for 1935 in the building industry eclipsed all previous years back to 1931. With the upward rush in the final month, the total value of permits for the twelve months just ended reached an aggregate of $596,686,708, against $348,390,747 for the similar period of 1934, or a rise of 71.3 per cent.

The following table presents the estimated totals of building expenditures for December and twelve months of the past nine years:

	December	*Twelve Months*	*Compared Previous Year*
1935	$62,992,039	$596,686,708	+71.3
1934	21,125,723	348,390,747	+11.1
1933	24,915,270	313,676,276	−21.4
1932	23,279,690	399,288,930	−65.5
1931	47,582,316	1,158,963,273	−30.7
1930	109,105,240	1,671,403,078	−42.6
1929	123,498,929	2,913,131,600	−11.8
1928	217,436,810	3,304,507,091	− 3.4
1927	253,607,296	3,419,479,046	.....

PLYM FOREIGN SCHOLARSHIP IN ARCHITECTURAL ENGINEERING

BY authority of the Board of Trustees of the University of Illinois, the committee in charge announces the thirteenth competition for the award of the Plym Foreign Scholarship in Architectural Engineering. The value of the scholarship is seven hundred dollars, to be used toward the defraying of expenses for six months abroad for the study of architecture and engineering.

There will be one competition which will be open to all graduates of the Department of Architecture in the curriculum in Architectural Engineering of the University of Illinois who are American citizens, of good moral character and who are under thirty years of age on the first day of June, 1936.

Persons wishing to take part in the competition must notify Professor L. H. Provine, Department of Architecture, University of Illinois, Urbana, Ill., not later than March 1, 1936.

ARCHITECTS' EMERGENCY COMMITTEE OF NEW YORK

A SHORTAGE of technical assistants threatens building and construction, Lucian E. Smith, chairman of the Architects' Emergency Committee of New York, declares in a report to the American Institute of Architects.

"The increasing number of calls for technical men from architects in normal private practice indicates that the long-delayed revival of building activity has come," Mr. Smith says.

"Many men have left the ranks of the architectural profession and have gone into other lines of business instead of clinging to their ideals and training, which seemed of little practical help to them during the depression. The profession faces a lack of technical assistants during the near future of building activity."

The committee at present occupies a unique position in the profession, Mr. Smith points out, because it possesses a classified registry of architects, draftsmen, and technical men allied with the building industry, which enables it to put the right men and jobs together without loss of time.

Over 4,500 architects and draftsmen have registered with the committee, 5,300 temporary positions have been obtained through its efforts. Private industry has provided 1,200 jobs, federal and municipal relief agencies 2,800 jobs, and the committee, over 1,200 positions on "made work" projects.

It would be an excellent scheme for the profession generally, if the work of the committee could be conducted as a technical registration body. A similar practice has been of great value in certain other cities where a central bureau of this kind maintains a complete card file of all architectural assistants in the community. When a man is unemployed, his card is taken out of the general file, and put into a special one from which inquiries for men may be satisfied. Obviously, it is vital to the success of the scheme that all men keep card records in the bureau up to date as to addresses, past employment, and the like.

A BELATED CREDIT

THROUGH an unfortunate oversight, our December issue failed to give proper credit to Wurts Brothers, New York City, who made the particularly fine photographs of the new Supreme Court Building in Washington. Wurts Brothers were credited only for the few photographs that had been copyrighted. All photographs of the building and of the preliminary studies, not otherwise credited, were the work of Wurts Brothers.

PURDUE RESEARCH HOUSES

CONTRACTS have been let for the construction of three houses, each costing less than $5000, to be erected in the first unit of the Purdue University Housing Research Project, according to Frank Watson, director. Construction will be started immediately in an effort to enclose the houses before cold weather. One house, designed by Burnham Bros. & Hammond of Chicago, will be constructed of reinforced concrete at a cost of $4997. A second house, designed by J. André Fouilhoux of New York, which is cellarless, is of wood frame and stucco construction to be erected at a cost of $4681. The third home, also without a basement and designed by Howard T. Fisher of Chicago, is of prefabricated plywood units which will be built by General Houses, Inc., Chicago, at a

(*Continued on page 12*)

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TWO SIMULTANEOUS ARCHITECTURAL COMPETITIONS

for designs of

FIRESAFE CONCRETE HOUSES

AUTHORIZED BY PENCIL POINTS **SPONSORED BY THE PORTLAND CEMENT ASSOCIATION**

This Competition closes at 8 P. M., Standard Time, Monday, March 9, 1936. For complete details write to Russell F. Whitehead, A. I. A., Professional Advisor, 330 West 42nd Street, New York, N. Y.

THE Portland Cement Association believes that the trend toward permanent firesafe houses will continue because of its economic soundness. True low costs are obtainable only through permanence.

Growing acceptance of this idea offers the architectural profession the greatest opportunity it has ever had in the housing field. When people think of their new home as something that will last for generations, problems of lay-out, style and detail take on new importance. The permanent house needs the touch of the architect if its beauty is to survive current modes and last with the physical structure.

For these reasons, the Portland Cement Association welcomes the opportunity of sponsoring the 1936 Pencil Points competitions for designs of firesafe concrete houses. It believes that the trend

toward better construction will be lasting if strongly influenced by the architectural profession.

There have been numerous recent developments in the use of concrete for houses. The competitor need not confine himself to more familiar types of construction, but is welcome to use any sound design for concrete floors, walls or roofs. An extra stimulus is thus provided for refreshing the knowledge of this important building material.

It is hoped that the results of this competition will show the home buyer in modest circumstances that the architecturally trained man can solve his small house problem from the practical as well as the esthetic point of view.

The Portland Cement Association is emphatically not in the business of selling or furnishing plans. While the Association intends to publicize the designs widely, those who inquire for detailed plans will be referred to the architects who furnished the designs.

Designers who do not have a complete file of literature are invited to write for any of the following free booklets or data sheets:

IT PAYS TO OWN A FIRESAFE HOME—
HERE'S HOW IT'S BUILT

•

CONCRETE MASONRY CONSTRUCTION

•

CONCRETE ASHLAR WALLS

•

PORTLAND CEMENT STUCCO

•

KEY TO FIRESAFE HOMES (FLOORS)

•

HOME GARAGES

•

CONCRETE FLOORS FOR RESIDENCES

•

PRECAST JOIST CONCRETE FLOOR CONSTRUCTION DETAILS

•

REINFORCED CONCRETE HOUSES—CONSTRUCTION DETAILS

•

WALLS THAT WHISPER HAPPY LIVING (ASHLAR)

•

BUILDING WATERTIGHT MASONRY WALLS

•

PAINTING EXPOSED CONCRETE ASHLAR MASONRY WALLS

PORTLAND CEMENT ASSOCIATION

Dept. A2-6, 33 West Grand Avenue, Chicago, Illinois

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ARCHITECTURE

REG. U. S. PAT. OFFICE

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VOL. LXXIII
No. 2

FEBRUARY
1936

CONTENTS

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THE BUILDING TREND

By E. L. Gilbert

DECEMBER, which rounded out the record of steady gains in all three main divisions of building construction, as regards comparative statistics covering the last three years, revealed a healthy consolidation of these gains for the entire year 1935. Residential Building for 1935 totalled $5.08 per capita compared with $3.53 per capita average for the three years 1933–1935 inclusive. Commercial, Industrial, etc., recorded a total of $5.78 per capita in 1935, as against $4.86 per person average for the three years given. Other Work, which includes some federally financed construction as well as closely figured estimates for alterations and maintenance work, totalled $10.37 per capita for 1935, contrasted with $9.29 per capita average during 1933–1935 inclusive. Comparing the 1935 total construction average per capita ($21.23) with the three-year average ($17.68), shows clearly that all construction established a gain of approximately 20 per cent in 1935, above the period 1933–1935 inclusive.

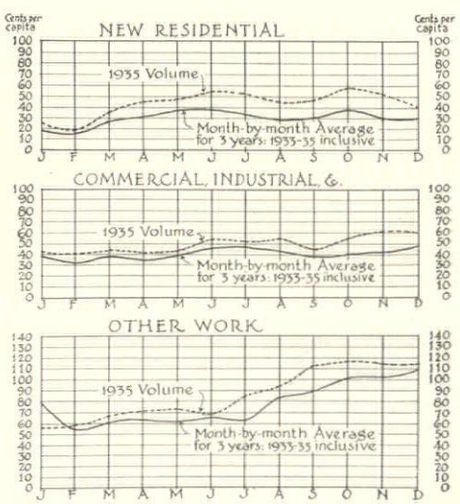
MONTH OF DECEMBER
(DOLLARS PER CAPITA, ENTIRE U. S.)

CLASSIFICATION	1933	1934	1935
New Residential . .	$.26	$.24	$.40
Commercial, Industrial, etc.	.45	.39	.60
Other Work	1.41	.75	1.15
Totals . . .	$2.12	$1.38	$2.15

Building Material Prices, U. S. Dept. of Labor, end of December, 1935*	85.4	84.9	85.1

* Index numbers based on 1926 = 100.

THE YEAR



HOME OF MR. AND MRS. THEO. KAUTZKY
Designed and rendered by Theo. Kautzky

ARCHITECTURE
VOLUME LXXIII NUMBER 2
FEBRUARY, 1936

STRUCTURE *in* GLASS

*By Gerald K. Geerlings**

One of the unquestioned advantages that the march of science has given the architect, is the possibility of a form of structure that possesses both lightness and the function of preserving light. The wall, heretofore accompanied necessarily by weight and by darkness, may now be built lightly to provide light in itself rather than merely through its limited openings. As yet we are unskilled in our use of the new tool. Too many inherited traditions and inhibitions lay their heavy hands on our pencils. The author of this article strives to lift these and leave us more nearly free to design enclosed space which is inherently light.—EDITOR.

LIGHT is more vital than style. Glass is more essential than steel.

Clients always realize this. Often architects do not. No building, whatever its purpose, and however perfect according to the combined opinions of masters past and present, is justifiable if there is not sufficient light to make the structure useful. Moreover, what was deemed ample and efficient lighting a decade ago may not be considered so now. And on the second count—the relative importance of structural materials *vs.* glass: a single, small, one-room *glass* house can be used for living quarters, for growing plants, or for industrial pursuits. Yet a structure countless square feet in area and extending upward a fabulous distance would be worthless without glass.

The average architect knows more about style niceties than he does about light requirements. It is not unusual for him to have certain pet formulas, reference books, or precedents. They may be ancient, or they may date from the 1925 Paris Exposition. Yet practically all architectural problems vary in their solutions according to the requirements of daylight admitted. On being given a department store to design, an architect enamoured of the Cotswold style had an unhappy succession of arguments with his client because American show windows could not be reconciled with his favorite formula. On the other hand a specialist in the ultra-modern is apt to find it difficult to achieve the mystery and subdued lighting for a chapel. Fight the issue as one will, glass areas and their shapes determine how a building will look. Whether one prefers chevrons to dentils as ornament is relatively unimportant.

Every architect is impressed by the necessity of masonry and steel. Such structural materials seem the piers on which the very law of gravity is supported. An architect's academic training is either concerned chiefly with the exterior expression of these materials (design), or with their cross-section shapes and sizes (construction). But nothing by way of instruction even considers *en passant* the qualities of glass on which its design depends. Yet all the while the skirmishes between Precedent Architecture and Antiprecedent Architecture have been raising dust, the forces for increasing the proportion of transparent wall to opaque areas have silently marched on to a sweeping victory on another front. Doctors decreeing that more sun vitamins were needed, realtors deciding that tenants preferred bright rooms, school authorities increasing the proportion of window area to floor area—these, rather than architectural genius have determined our latest architecture.

The recognition of the importance of the heavy materials has directly affected all design. From the earliest principles of the lintel and arch, architectural treatments have striven to appease the eye with forms which made the superimposing of units seem logical and secure. This use of weight units may be said to comprise the "law-of-gravity design," or, in an abbreviated and lighter vein, "gravity design."

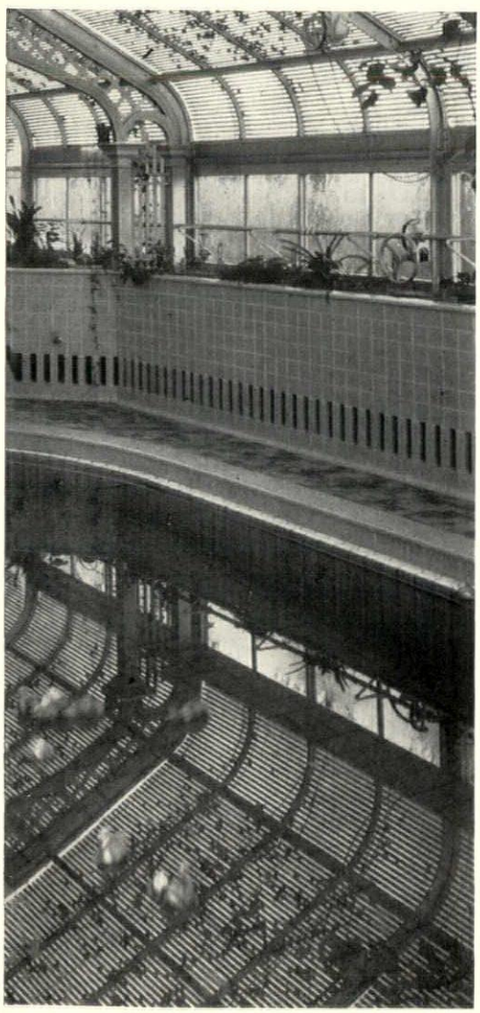
Glass introduces a lighter note. Yet it has not always been appreciated as such. It allows more latitude, yet it has certain limitations not inherent in other materials. It

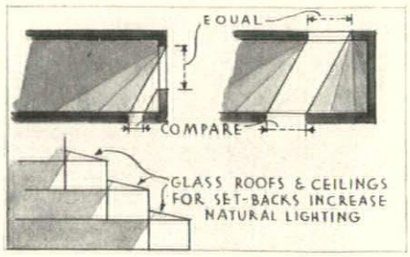
*The author acknowledges with gratitude the aid in construction details, and in the knowledge of means to overcome the difficulties of condensation gained through many years of greenhouse and conservatory building by the officers and engineering staff of Lord & Burnham Company.

has a number of indisputable advantages, but it also causes problems which must be thoughtfully solved. The usage of glass has, for the most part (aside from the obvious in windows and doors), been confined to greenhouses and their related brethren (palm houses, conservatories and sun rooms), skylights, studio windows vertical and at an angle, and occasional solariums on roofs. But the additional possibilities are numerous, and in the architectural developments which are bound to come in the near future the rôle played by glass is likely to be of prime importance.

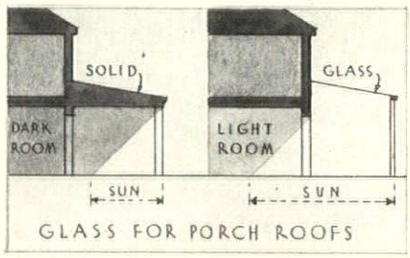
It is a curious phenomenon that for many years the value of glass roofs has been appreciated for almost every kind of human activity, from the growing of plants to working in factories, *except that of living*. Take for example the common porch roof, being adjacent a living-room and successfully shutting off the light from that room. This porch roof might far better be of glass. In winter it would protect the porch

An enclosed swimming-pool on the estate of Mrs. Edward Baldwin, Indianapolis, Ind.



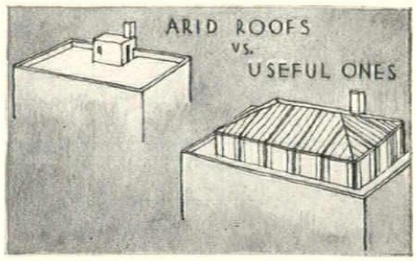


as consistently as a roof of shingles. On sunny summer days it could be shaded with standard slat shades, while on dreary days it would admit whatever light there was. It is readily demonstrable that more light can enter a room for every square foot of glass positioned horizontally than vertically, and it is conceivable that some architect working on a setback housing scheme will suddenly utilize glass roofs and ceilings for increasing the natural lighting of rooms below. At-



tics which for generations have struggled along with inefficient dormer windows may within a generation find glass panels in roofs which will supply light more abundantly at lower cost. Glass has been used in walls for centuries—glass for roofs of all kinds may be hailed as the current contribution to architecture.

But to enlarge on the opportunities for glass enclosures, aside from the residential field: From a point of vantage look down on the roofs of apartments, offices, factories, and as a rule you will see desolate wastes. Yet in cities the highest floor commands the highest value, and what could exceed that of the roof if enclosed with glass? Tenants in apartments could have their own solariums. Office-buildings could have glass game-rooms for employees where in winter there could be ping-pong tables, shuffle boards, etc., along with basking-in-the-sun rooms. The tendency in modern business has been to do more and more for the employee during his noon-hour, not only so that he will be more useful during the afternoon, but to make him realize that the employer is doing his utmost to make business surroundings agreeable. Both hospitals and schools



could put roofs to work, and that without reinforcing the floor, because the weight of a glass enclosure is practically negligible.

As the architect considers the possibilities of glass structures, quite naturally he might be skeptical about the practicability of glass roofs if it were not for their long and successful performance in greenhouses, conservatories, palm houses, and the like. If he would embark on sketches to show the client how the latter could convert existing waste space into income-producing area by means of glass, there is a fund of data available to solve every conceivable construction problem. If the project resolves itself into direct usage of greenhouse material and units, it can be accomplished very readily. If it is a question of adapting existing materials, or even having a custom job made for unusual conditions, there are glass specialists glad to be of service in helping solve problems.

Some of the information which has been compiled through several generations of greenhouse experience may be of use to the architect, even in his preliminary sketches for glass structures, whatever their nature. It is given in condensed form here to convey some idea of the problems peculiar to glass, as well as to state the advantages which accompany its usage. It is quite possible that the architect may not have to adapt greenhouse materials and data. He may have a client whose house and household will be greatly benefited by a lean-to sun room or conservatory, or by a free-standing greenhouse. Many the house which can look twice its size and seem twice its former value, when garage and service wing are balanced by a greenhouse structure.

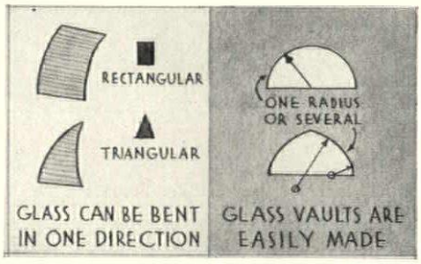
LATITUDE

There is more latitude in the use of glass than practically any other material. That may sound extravagant. But consider that it can be had transparent or opaque; it can be thin and fragile, or thick and structural; it can be used flat or curved; it can be transparent, or chosen for a variety of effects to be seen against the light; it can be used in small pieces or in exceedingly large ones. In a word, it can do practically everything which any other material can do, and in addition it is transparent. True, it is not a good insulator when used as a single sheet, but it may be employed as a double sheet having an air space between. There are extensive research activities now under way which may perfect a double-thickness sheet of glass with a slight air space between and perfectly sealed against the admission of dirt, yet thin enough overall to be used for glazing in a sash of ordinary thickness.

At some time in his career the architect may have consulted an engineer in greenhouse structural methods relative to constructing a lean-to or a free-standing greenhouse. It may be that the impression given was that there are only a few overall widths possible, that bays (*i.e.*, sectional units) of a definite length should be used, and that the roof pitch is uniform, or nearly so. Perhaps after several studies the architect has come to the conclusion that it is practically impossible to make a glass structure harmonize with the more solid house itself. Or it may be that the predominance of photographs showing glass structures were those of buildings for the growing of plants, firmly implanting in the architect's mind the feeling that glass was suitable only when so used, and thus obscuring the hundred and one employments of glass when used overhead. Basically what the architect has only begun to realize is that glass can be used not only vertically, but installed at an angle or curve to serve as a roof.

A hint of the possibilities in combining curved and straight glass

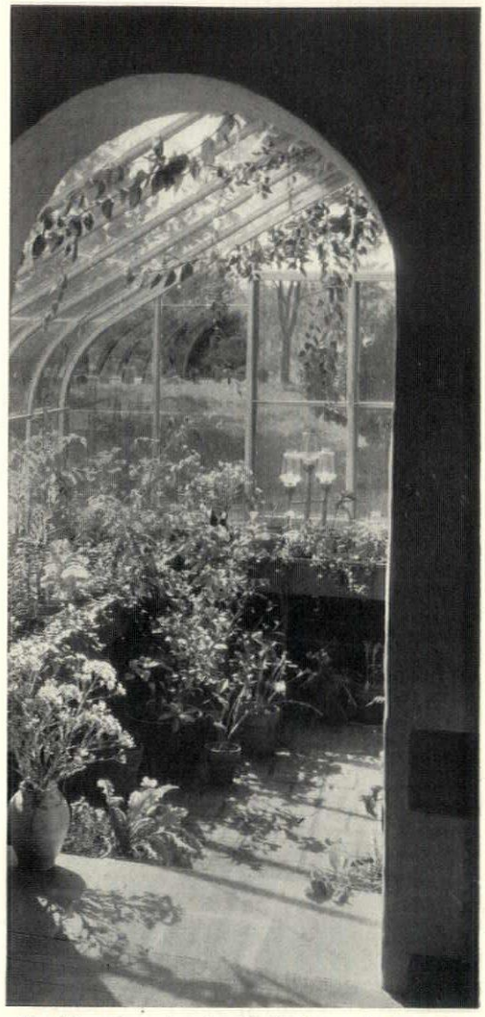
In the use of glass as a roofing material there is actually as much variation possible as with any other substance. With shingles there is a minimum pitch, and so too with glass. Otherwise there are not many limitations. On the contrary, glass



permits wide latitude. It can easily be bent in one direction, with the result that vaults, domes, and complicated intersections of hips of curved forms can be built of glass and assembled more readily than with other materials. If all glass units are bent with only one radius it can form a barrel vault; if each horizontal tier of glass varies its radius, Gothic vaults can be simulated. In this connection it is obvious that when vaults are formed with practically any other material there is a thrust which must be overcome, whereas in glass it is almost negligible.

GLASS—SIZES AND GRADES

As is true for any material, glass is less expensive when used in stock sizes. If the need demanded, large sheets of special make and size could be obtained, but as a rule roof bars should not be more than 3 or 4 feet apart, because ¼-inch plate glass can be used up to 4-foot spans. Used vertically, $\frac{3}{16}$- or ¼-inch plate glass is highly desirable for sun rooms, because it may be had without flaws. For greenhouse

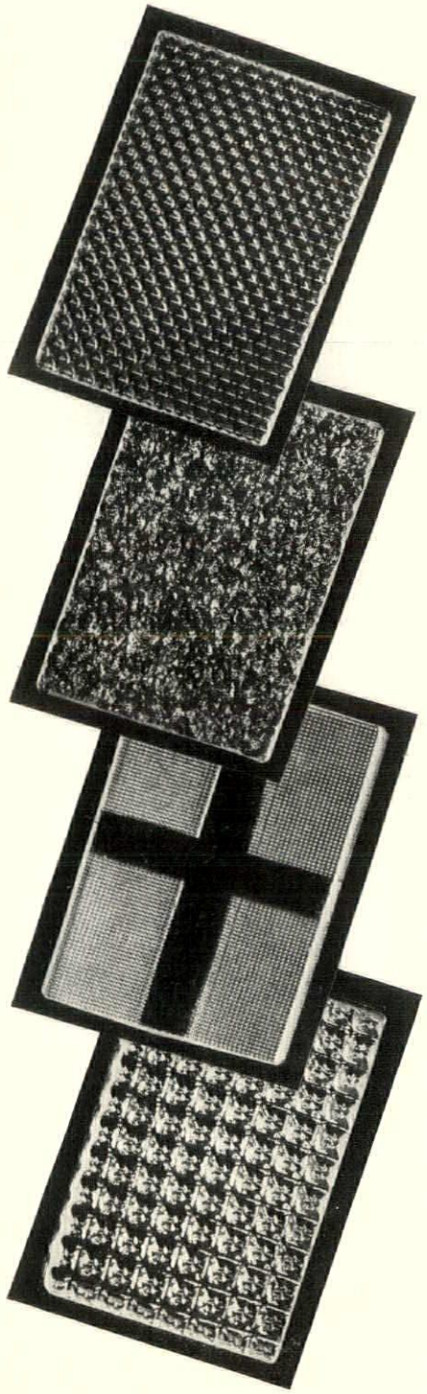


Looking from enclosed darkness into enclosed light—a possibility not merely for the traditional conservatory, but for the living-room

roofs it is quite common to use 16-inch spacing, and for many types of structures it is an advantage to have muntins this distance apart. A 20-inch spacing is also standard. Recently the most usual span has been 24 inches between roof bars (those at right angles to the ridge), with double-strength glass used.

Three grades of glass are used for greenhouse glazing with lapped glass. "Double Strength A Quality" glass was formerly used for all the best work. Today "B Quality" is so nearly perfect that it is rarely justifiable to use "A Quality" for any purpose except unusually large lights in the sides of a greenhouse; in those locations sometimes plate or crystal sheet glass is required. There is a special grade of glass used almost exclusively for commercial greenhouses, known as

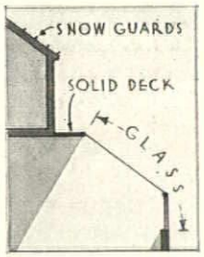
"Greenhouse Quality," and made in a limited number of sizes: 16 x 24", 16 x 18", and 18 x 20". Modern processes of glass manufacture make it difficult to distinguish between "A," "B," and "Greenhouse Quality" glass. It is often advisable to use the least expensive grade wherever possible in the roof of a glass structure.



Some of the things that are being done in glass today—an almost unused palette

As every architect knows, there are several types of special glass. Vita and quartz glass permit the transmission of the violet rays of the sun; they are more expensive than ordinary glass, and while they are advantageous in sun rooms for health reasons, it is said that they are not of value for the growing of plants, and in fact, may even be harmful. Opaque glass can be obtained in various forms, either in plain glass or violet ray.

Wire glass is often required by building codes. Until recently, little seems to have been done by the designers of this material beyond the traditional use of twisted mesh. There are now available, however, a number of new forms: straight parallel wires, a mesh in which the wires are neatly spot-welded instead of being twisted where they cross, and other forms in which the surface of the glass itself is such as to obscure the wire reinforcement. Sometimes wire glass has been used to try to prevent ice breakage. This, however, is asking too much of the material. If there is likelihood of snow and ice falling on a glass roof the latter should be protected by a solid deck skirting to take the full force of the fall; or else snow guards should be placed on the upper roof from which the ice may fall.



RELATION BETWEEN ROOF SPACING AND CASEMENTS

Whenever possible muntins in side casements should align with the roof bars. This is seldom possible unless special sash are made, or unless the panes used for the roof are cut a special width. If the panes in the casements are considerably smaller than the spacing between roof bars, and if there will not be good reason to compare glass divisions below and above the eaves, no special units need be made. If however, it is advisable to make muntins below the eaves align with roof bars above the eaves, in the case of steel casement sash these should govern, and the glass of the roof be cut accordingly. But if the sash are wood casements it will be less expensive to let the roof bars with standard glass panes govern the manufacture of the sash.

For the purpose of calculating special casement sizes, it may be of value to know that the allowance between panes of glass in the standard roof glazing bars is 5/8ths of an inch. This distance suffices for the tongue of the roof bar and allows a reasonable tolerance for putty. Where very heavy glazing bars are used, 3/4-inch clearance is sometimes used. Except when composite wood and glazing bars are used, it is common practice to place a heavy rafter cap over the steel truss or rafters; when this is done the distance between panes of glass is usually 1 to 1 3/8 inch.

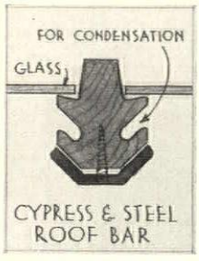
CONDENSATION

The force of gravity has affected all forms and elements of architecture as their primary *raison d'etre*. In glass this is not true. The force in nature which determines glass construction is condensation. A great many other materials can be used horizontally as roofs, but in the case of glass this would result in moisture condensing and then dripping. As a result, long experience has shown that a glass roof should have a pitch of 6 in 12, when the panes are of flat glass. If curved glass is used the permissible pitch of the roof can be lowered to a minimum of 2 in 12. This is achieved by designing the roof as a series of flat curves between the supporting bars. This curvature will encourage the

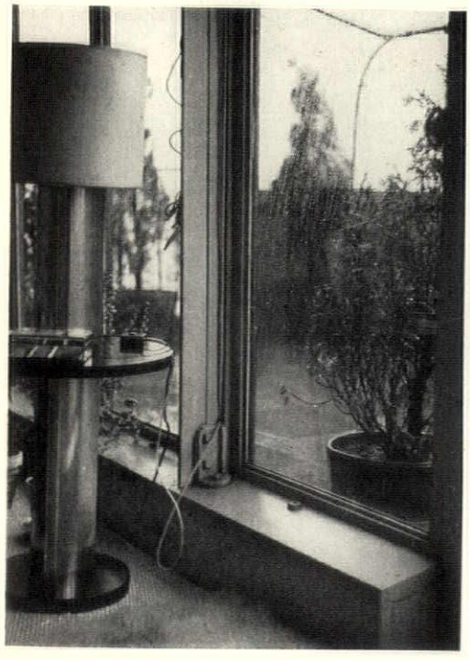
A corner of Elizabeth Arden's solarium overlooking Central Park in New York City. The end walls are of opaque glass

moisture to run down channels in the roof bars provided for that purpose. In case an absolutely flat glass ceiling is desired, the only satisfactory solution is the one generally used for skylights in town houses, where there is a second glass roof above the first. The former could either be flat and pitched, or it could consist of a series of low, segmental barrel-vaulted glass roofs over the flat glass ceiling. Double glazing will prevent condensation and reduce heat loss, but it is self-evident that it is expensive. The degree of its permanency is still to be determined.

Where glass roofs having single glazing are used in such structures as greenhouses, the glass overlaps (top and bottom edges) from ¼ to ⅜ths of an inch. This construction is practically waterproof, but if water is to be prevented absolutely from entering or dripping, such as would be required in a sun room having furnishings which would be damaged by water, the use of special copper cames and gutters can be made to obviate the difficulty, providing of course, that the pitch is 6 in 12. The bars which receive and support the glass—those running at right angles to the ridge—have received painstaking thought on the part of the glass structure companies. These vary in construction, cross-section area, material and price. The architect may not be intimately concerned with the technicalities of the various bars, but it will interest him to see the manner in which each roof bar has means on both its sides for conducting the condensation downward. And it will behoove him to investigate the appearance of the several bars submitted for his approval, or those on which competing estimates are submitted. The manner in which condensation is to be taken care of is one best left to trained experts, for unless special drip gutters under cames are provided for glass living-rooms, the cost of the damage done to the furnishings may be far more than the expense of such special members as may be necessary.



A detail of Elizabeth Arden's solarium. There is rain on the window pane, but even then, there is a feeling almost of sunlight indoors



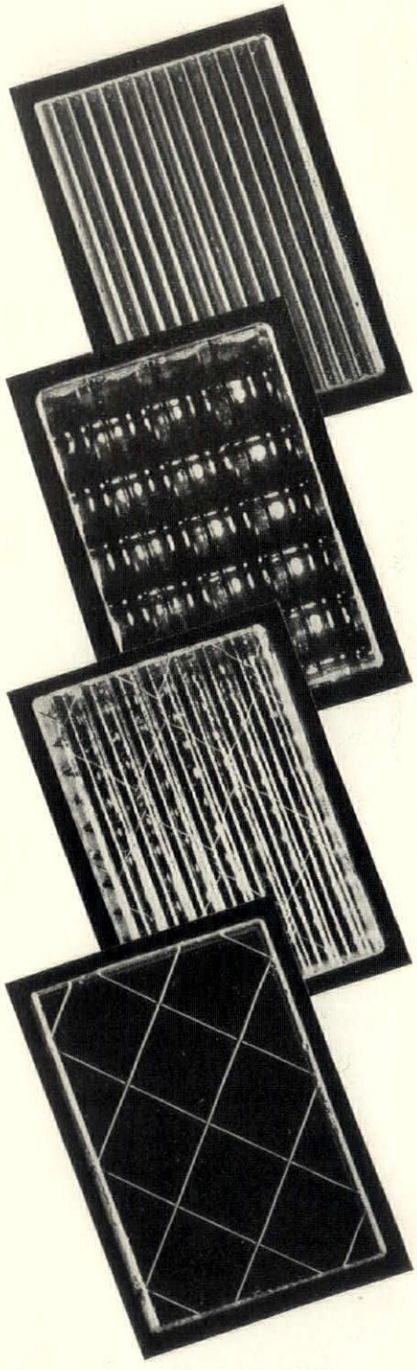
EXPANSION AND CONTRACTION

Most successful glass structures are built with the glass glazed in wood rather than steel. When glass comes directly in contact with steel any expansion, contraction or vibration of the latter is apt to break the glass. Where an all-steel bar is used, some form of cushion must be provided, although sometimes an exception is made in the case of small lights set in steel sash. The glass is therefore generally set in wood, the latter being supported by means of a steel frame. A cypress core successfully offers the advantage of a durable material having a life of many decades, and permits the expansion of the glass when used with the proper glazing putty.

Elasticity is a prime requisite in a glazing compound, particularly if an all-steel bar is used. It can be appreciated what a difficult problem is its composition, for the sun beating down in hot weather tends to dry it out in no time, while the pitch of the roof would tend to make any mastic run downward. White lead and putty dries out so hard that its use is out of the question. It is common practice in glazing glass structures with wood bars to use pure linseed oil and whiting putty, because it makes a seal between glass and wood. If preserved by an occasional coat of paint it will last for years. Moreover, this combination is not subject to the disintegration characteristic of most of the so-called non-setting putties. It is also less troublesome to remove the whiting and linseed oil putty when replacing a broken pane of glass, than some of the glazing putties which vary in consistency with the temperature.

MASONRY WALLS

Glass walls, such as one meets in greenhouse construction, are of two general types. The first consists of masonry walls on which the glass structure rests. It usually has a cast



More new forms of glass, including two of the new types of wire glass

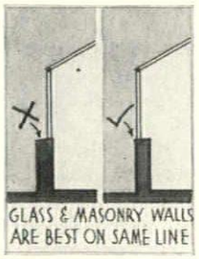
The problems of shading and easily controlled ventilation have all been solved. Home of Louis Backrack, Newton, Mass.

iron sill (10 or 14 inches wide), a special shape of galvanized steel, or a galvanized channel to cap the wall. The entire weight of the glass superstructure rests on the sill. The second type of wall construction consists of load-bearing steel foot pieces which run from eaves to footing, and a curtain wall between. The walls are thinner than in the first type, the sills are usually narrower, and may consist of galvanized rolled steel, or smaller cast iron sills, or even galvanized structural angles. Wood sills are sometimes employed in special cases.

Structure of glass is not merely for the great house or the expensive conservatory; it is equally adaptable to modest requirements

As viewed from the exterior the walls of the glass structure below the sill may be of practically any durable material. The least expensive construction is to use a thin, wallboard type of composition material; it can be had in attractive textures and colors. Also inexpensive is a 4-inch concrete curtain wall. More expensive are masonry walls of brick or stone. Needless to point out perhaps, is that the wall should be harmonious with those existing nearby, if not of the same material. As a rule not much of the wall is exposed between grade and sill line of the glass, so that it is all the more important that what does show should be well done. Good taste is much more important than expensive materials, as is usually the case in all matters architectural. The architect can select at will.

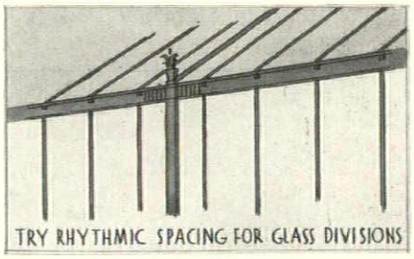
In the design of any building it is pleasing to the eye to observe a base, the latter projecting beyond the face of the wall above. But this projection should not be excessive, nor out of proportion with the wall from eaves to grade. Too often the masonry of a glass house structure has an enormous projecting base, far beyond the glass line and far in excess of the parent buildings, which may be several times as high. A greenhouse, for example, is likely to be excessively long for its height, and needs emphasis on the height from eaves to grade. Consequently if this can be made to seem a continuous surface, or nearly so, instead of being sharply broken at sill height, it will improve the general effect.



GLASS WALLS

The designer accustomed to studying elevations with pencil lines representing openings, cornices, etc., and white paper representing solid masonry, must never lose sight of how different a study will be of a glass structure. Lines on paper will represent muntins and cross bars, but the white paper in between will be transparent—not solid as with any other material. It must be remembered that in looking at a glass structure the roof bars and steel members on the opposite side will be more apparent than the glass surfaces right in front of the observer.

It has been customary to design many glass structures as though there were an edict against using anything but muntins, glazing bars, or slightly heavier members at the junction of 8-foot bays. The English, with considerably less sun for the growing of plants, but with considerably more architectural feeling for glass structures, have made good use of pilasters, cornices, and various common architectural forms which relate the glass portion of the composition to the balance of the building. Limit glass structures merely to glazing bars, and the result may be acceptable enough for a factory, but it may not commend itself to your cultured clients. Perhaps one reason why the number of glass sun rooms and lean-to greenhouses in this country is negligible compared to the total number of houses, is that there has not been sufficient study to make them look integral and not mere afterthoughts. Yet actually the glass walls of a glass structure should be an incentive to an architect to evolve a new, refreshing type of façade, unhampered by classic precedent. If the structure is to be used for horticultural purposes, as a rule there is only about 3 feet of glass from sill to eaves, so that the opportunity is somewhat restricted, although even there the facile designer should be able to evolve an arresting solution.



In any form of art there is nothing more paralyzing than monotony. The repetition of uniform glass spacing, extending fifty or more feet, needs something to relieve the tiresome effect. Obviously this brings into play the designer's ingenuity—and the use of *rhythmic spacing*.

EAVES

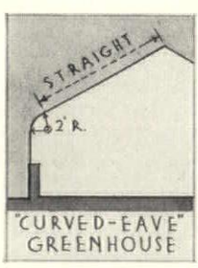
The eaves of glass structures divide themselves simply into two

classes: those with gutters and those without. The latter group either has an eave plate which lets the water drip from it, clear of the sill, or it may have curved eaves and so conduct the water down. Standard gutters are 3½ inches, 6, and even wider. They are substantially constructed, long-lived, and usually joined, one section to another, by means of brackets. The iron gutters are usually imbedded in mastic cement to permit expansion and contraction of each section.

Specially designed gutters may be built of wood and covered with sheet metal. Or they may be of bronze, extruded aluminum, copper, lead, or copper-covered lead. Whatever the material, it is necessary that it be strong enough to carry itself between supports (usually about 8 feet), and it should, quite naturally, have sufficient capacity to manage the amount of roof surface water without overflowing. Metal gutters should preferably have one of their sides exposed to the inside temperature in order to avoid freezing. In any case it is desirable to avoid square sides, which might be fractured by freezing should it occur. Commercial greenhouses usually have an angle so tilted and positioned that one leg extends outside the structure, thus inducing icicles and water to fall free of the sill. Where an eave plate is used on a glass structure attached to a residence, it is usually desirable to provide a drip gutter of concrete or something of the sort to carry away the roof water.

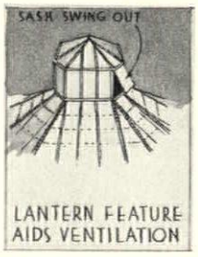
GLASS ROOFS

The character of a glass structure depends to a considerable extent on the type of roof. One of the most common types, and one of the most difficult to reconcile with any known style of architecture, is known as the "curved eave" type. It derives its name from the curved panes of glass immediately above the eaves. From the top of these curved panes, however, the roof takes a straight line to the ridge, usually at an angle of about 30 degrees to the horizontal. Older types of greenhouses had glass bent to longer radii, sometimes using only one radius from eave to ridge.



The pitch of most commercial greenhouses is usually 6 inches in 12, because this is a compromise between construction economies and a reasonably watertight roof. The end of a glass structure is often a flat gable treatment. If there is sufficient height under the eaves for a door it often looks better in free-standing structures to hip the ends. The fact that there is transparency, and the roof members form a more fascinating pattern than an endless roof with a flat gable end, may have something to do with it. So-called "circular domes" are never perfectly circular, because they are made up of panes bent from top to bottom, but not bent from side to side. If there are twelve or more sides the effect is that of a true circular dome, but even this requires considerable engineering calculation because of circular purlins.

One of the most admired features of Gothic and Renaissance architecture is the lantern motif. In present-day architecture it is usually too expensive and too unnecessary. But in glass architecture it serves a most useful function, and may even make a structure less expensive with it than without. The one word "ventilation" explains the whole matter. If there is a lantern, or clerestory, not only is it a simple matter to afford an exit for hot air, but the admission of rain is much reduced, compared to opening any ventilating sash on an inclined roof. Not only from a practical standpoint is the clerestory an advantage, but from an æsthetic one. The Egyptians and Greeks understood that to vary the play of light on plain surfaces comprised one of the most valuable forms of decoration. Thus, to change a roof from 30 degrees to the vertical and again back to the pitch, gives infinitely more variety than almost any other inducement which could be offered glass.

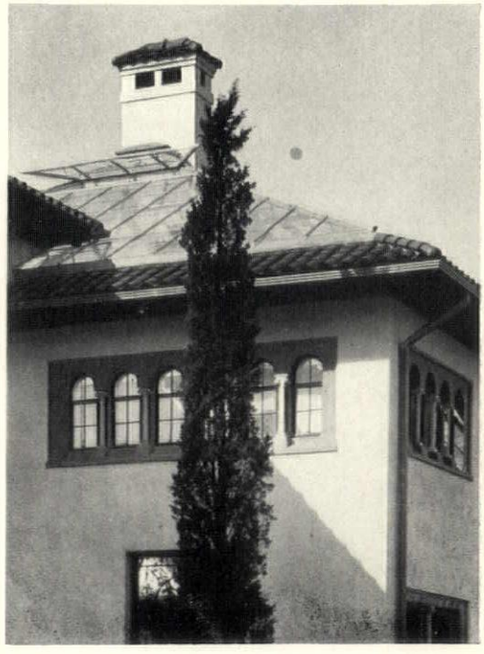


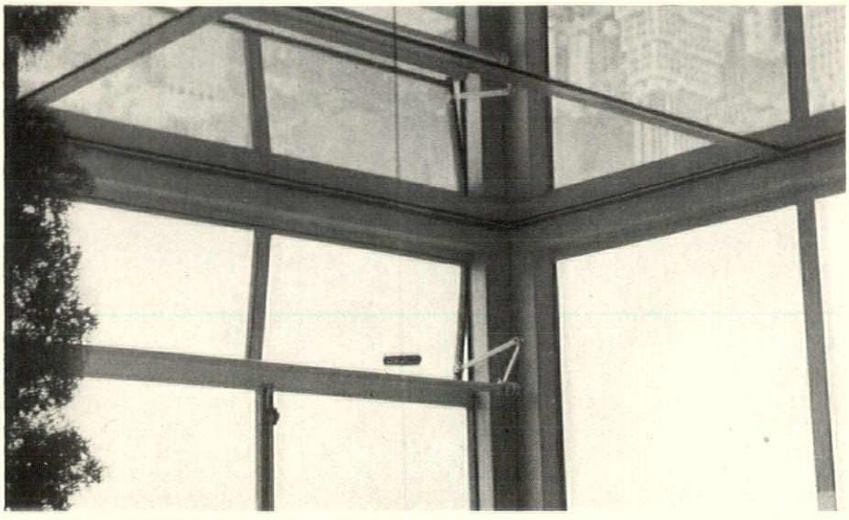
A maze of glass in walls, curved bays, and mirror ceiling at the Rockefeller Center Luncheon Club. Reinhard & Hofmeister; Corbett, Harrison & McMurray; Hood & Fouilhoux, architects

STRUCTURAL STEEL MEMBERS

It is readily understandable that any one habitually accustomed to designing steel for solid roofs would have a tendency to make the steel far too heavy for glass. The engineer accustomed to rolled sections may be surprised at the use of flat, rectangular sections — perfectly satisfactory for spans up to 30 feet.

The glass roof can be, and has been, adapted to residential construction with the aid of a little ingenuity



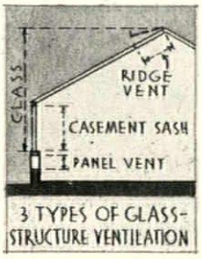


In the ceiling of the Rockefeller Center Luncheon Club, the maze of New York reflected from hundreds of feet below

Some of the advantages of flat rafters are that they cast a minimum of shade; they can be painted and cleaned very easily; they are less subject to corrosion (from constant condensation) than such structural shapes as I-beams and channels; and most important, they make neat, strong connections for hips, valleys and lanterns. The explanation for the strength of a flat rafter when used in a glass structure lies in the rigid connection possible between glass and the rafter cap. With a truss of more than 30 feet span, it is advisable to reinforce the flat rafter with angle stiffeners, or to use flanged steel shapes.

VENTILATION

While the heating of a glass structure is of prime importance when the weather is cold, the cooling of the building at midday (even in cold weather) is equally essential. It has been estimated that from 75 to 80 per cent of the sunlight falling on the ground may be trapped in a greenhouse or similar structure. Unless there is an efficient method for disposing of this uninvited heat the inside temperature may rise to 160 degrees.



3 TYPES OF GLASS-STRUCTURE VENTILATION

There are various means of ventilating a glass structure, both in the position of the sash and the means of operating them. Beginning at the top, there may be ridge vents, a series of top-hung sash on each side (or one side) of the ridge. At a lower level there may be casement sash just above the sill and extending to the eave line. And last and lowest, there may be panel vents, which are nothing more than openings below the sill. With adequate side ventilation (below the eaves) and ridge sash, it is possible to get one or more changes of air per minute even on days when the sun is doing well. It is highly important, when glass roofs are considered above living-rooms, that this matter of ventilation be carefully considered and studied with actual experimentation, rather than make assumptions and later find the rooms unbearably hot in summer.

Large sun porches having a glass roof are often closed in front with removable or sliding glass doors or panels. The removable doors may be of wood, but they are fairly expensive—and heavy. The best but most expensive type is made of bronze and plate glass. Because the doors roll in tracks, they can readily be moved to close the room in case of sudden coolness or rain.

Hand operation of the side ventilation casements is usually entirely acceptable and satisfactory. Roof or ridge vents in conservatories and sun rooms are preferably operated by automatic machinery. The latter is unquestionably expensive, but it makes the glass room no more of a care than any other in the house. Hand operation of ridge ventilating sash presupposes that some one will be on hand during the morning when the outside temperature rises, and again in the late afternoon when the sun sets.

SHADING

During the winter, ventilation is sufficient to keep the air cool in a glass structure. But in the summer it requires additional manœuvring, at least for living-rooms. The best remedy to date is to employ slat shading on the exterior of the glass and raised above it about 6 inches —ideally, or, as it is more commonly used for economy's sake, directly on the roof bars. These slat coverings are so constructed that they may be rolled up on the roof, yet the slats are far enough apart so that the wind will blow through them and not blow them off, as might happen if the slats were close together and acted like a sail. Slat shading is more expensive than interior cloth shades but is probably four or five times more effective.

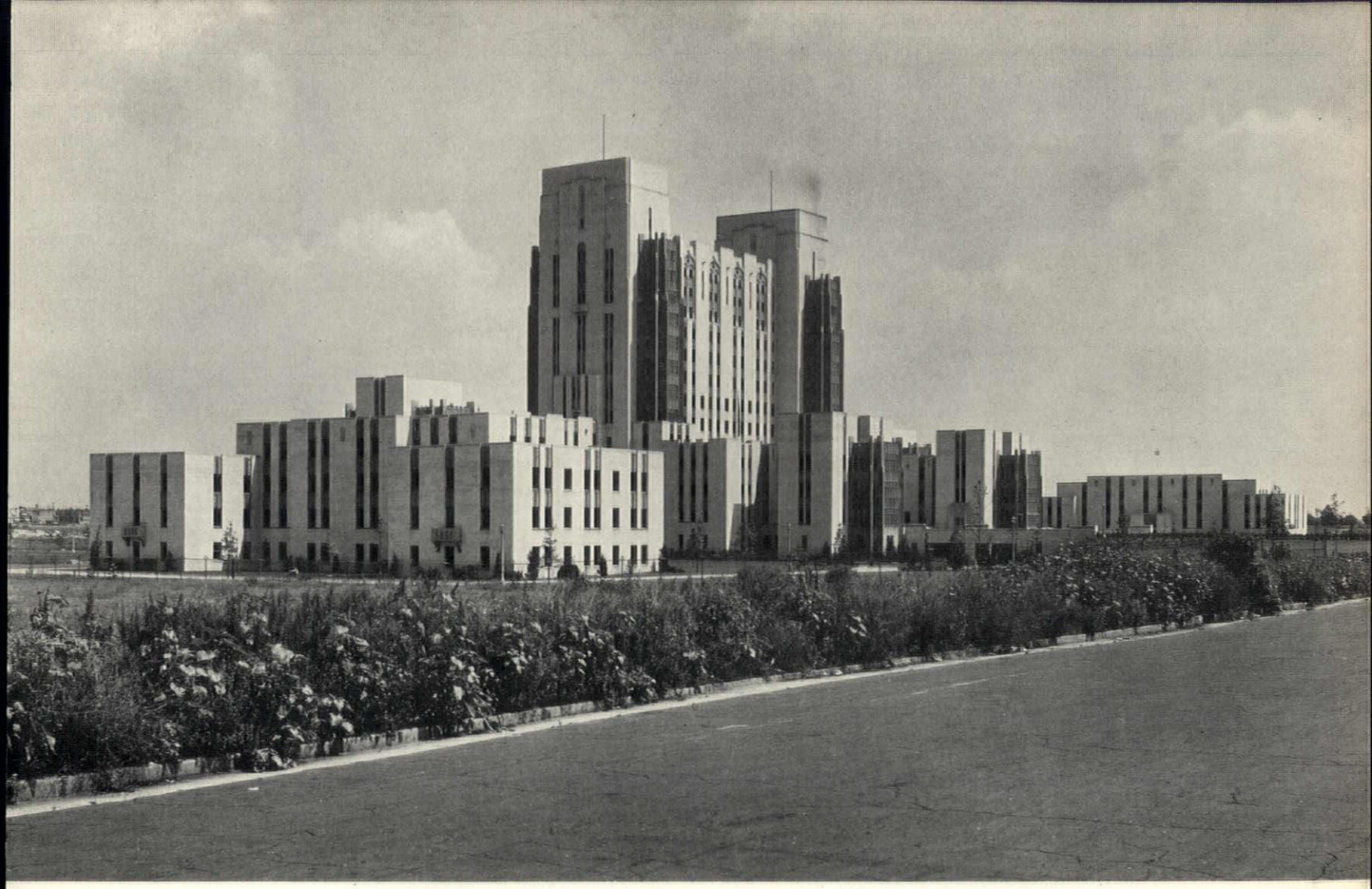
If a glass enclosure is to be used as a sitting-room, it will be advisable, in addition to the slats on the exterior, to have interior cloth shades, so that no direct rays will enter. Another precaution which can be taken for a living-room is to use a certain type of new glass which excludes about 50 per cent of the heat of the sun. This product is expensive, and if plants are to be considered their growth will be retarded.

SCREENS

If a glass structure is to be comfortable in the summer it must be screened. This is not as simple as it sounds, for unless the problem is carefully considered the screens may interfere with the operation of the ventilating system.

HEATING

The heating system of a glass structure must function when the sun does not. Unlike the system of a residence, which is allowed to be its coolest at night, that of a glass house must be its warmest. On the coldest of days, if the sun be shining the heating requirements can drop to almost nothing. To avoid drafts the radiation must be distributed around the walls, and in case a structure is 15 feet or more in width, if drafts are to be entirely prevented, there should be some radiation near the eaves or ridge. There should be heat at the ground level, or below it, in a trench having a grille on the top. The heating coils or radiators may also be just above the floor, and located in recesses or covered with grilles.



Photographs by E. V. Wenzell

Through the entire group of buildings—see block plan on page 71—there is carried a consistent color scheme. All the walls are of brick, and the major color is a warm cream. As the vertical lines are stressed in the voids and solids of the design, this same emphasis was given in the color by window spandrels of buff brick in which the small vertical lines are again emphasized. This color combination prevails throughout in varying proportions. In the main building, for instance, buff is used entirely in all the vertical lines of the solids

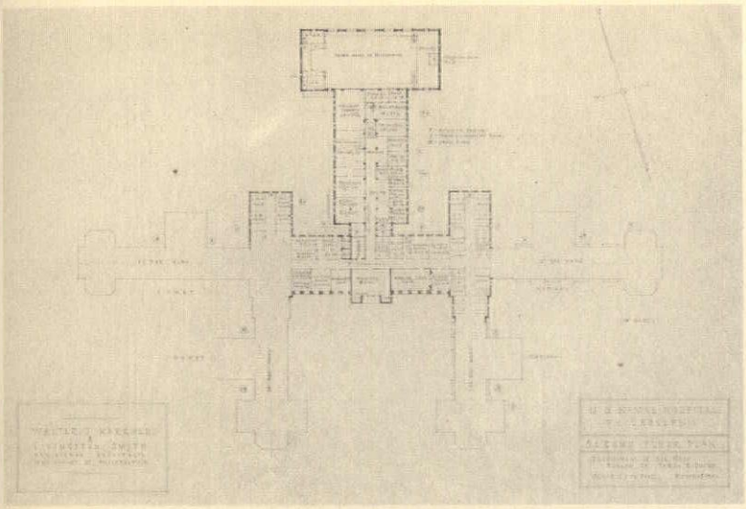
WALTER T. KARCHER & LIVINGSTON SMITH, ARCHITECTS

FOR THE BUREAU OF YARDS AND DOCKS, U. S. NAVY DEPARTMENT

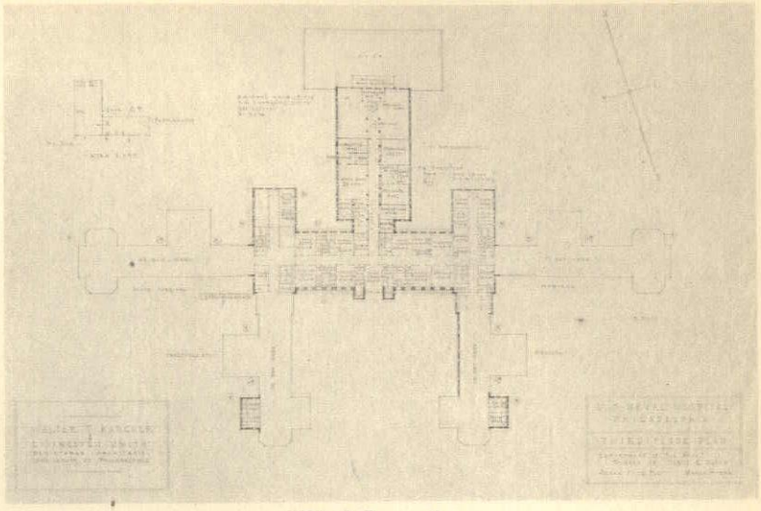
UNITED STATES NAVAL HOSPITAL

Philadelphia, Pa.

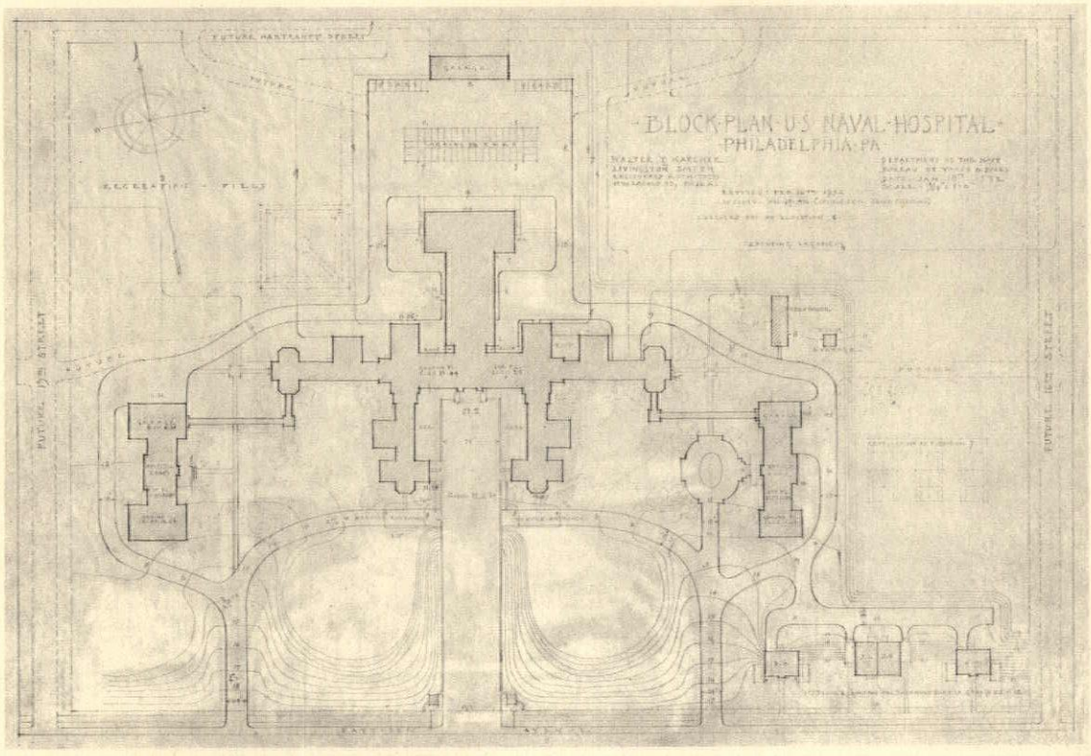
The main group from the northwest



Second-floor plan

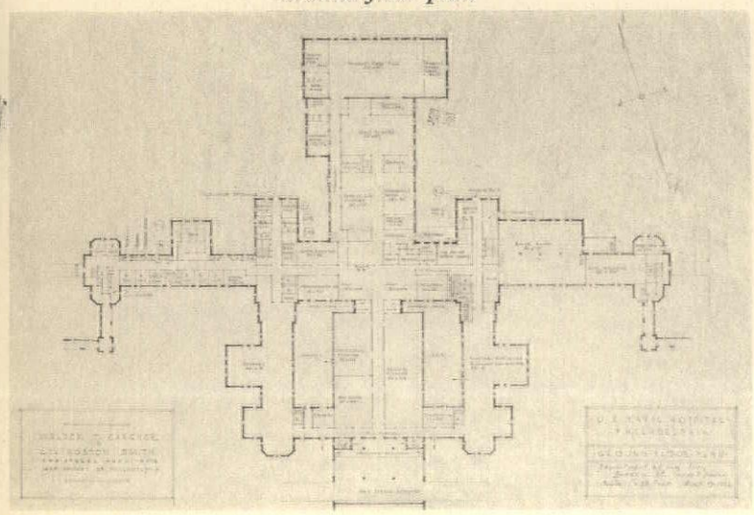


Third-floor plan

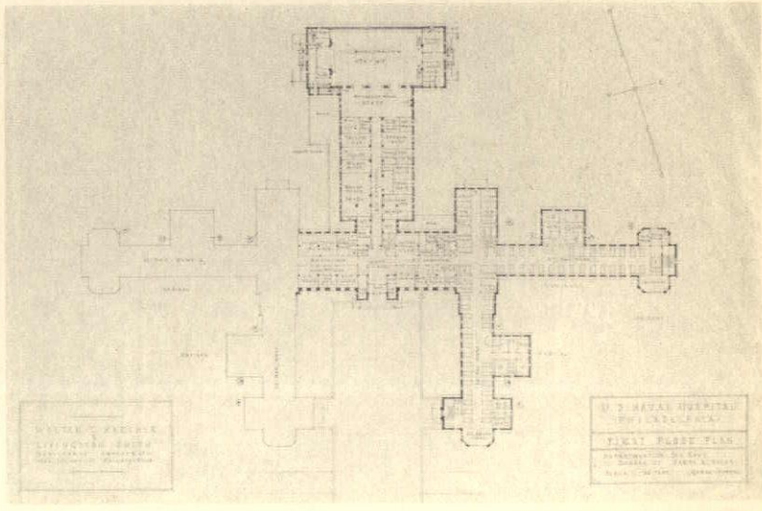


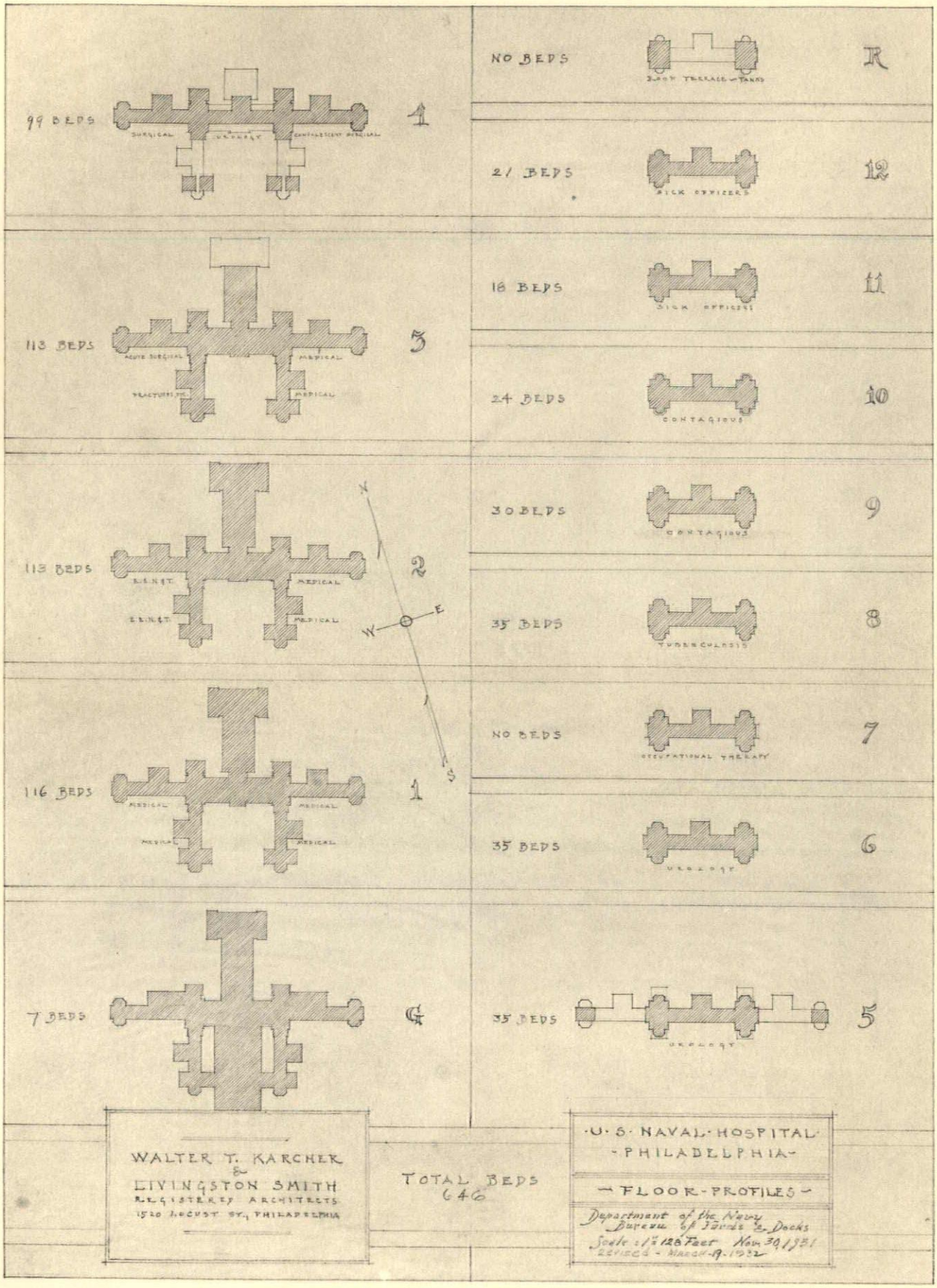
Block plan of the entire group

Ground-floor plan

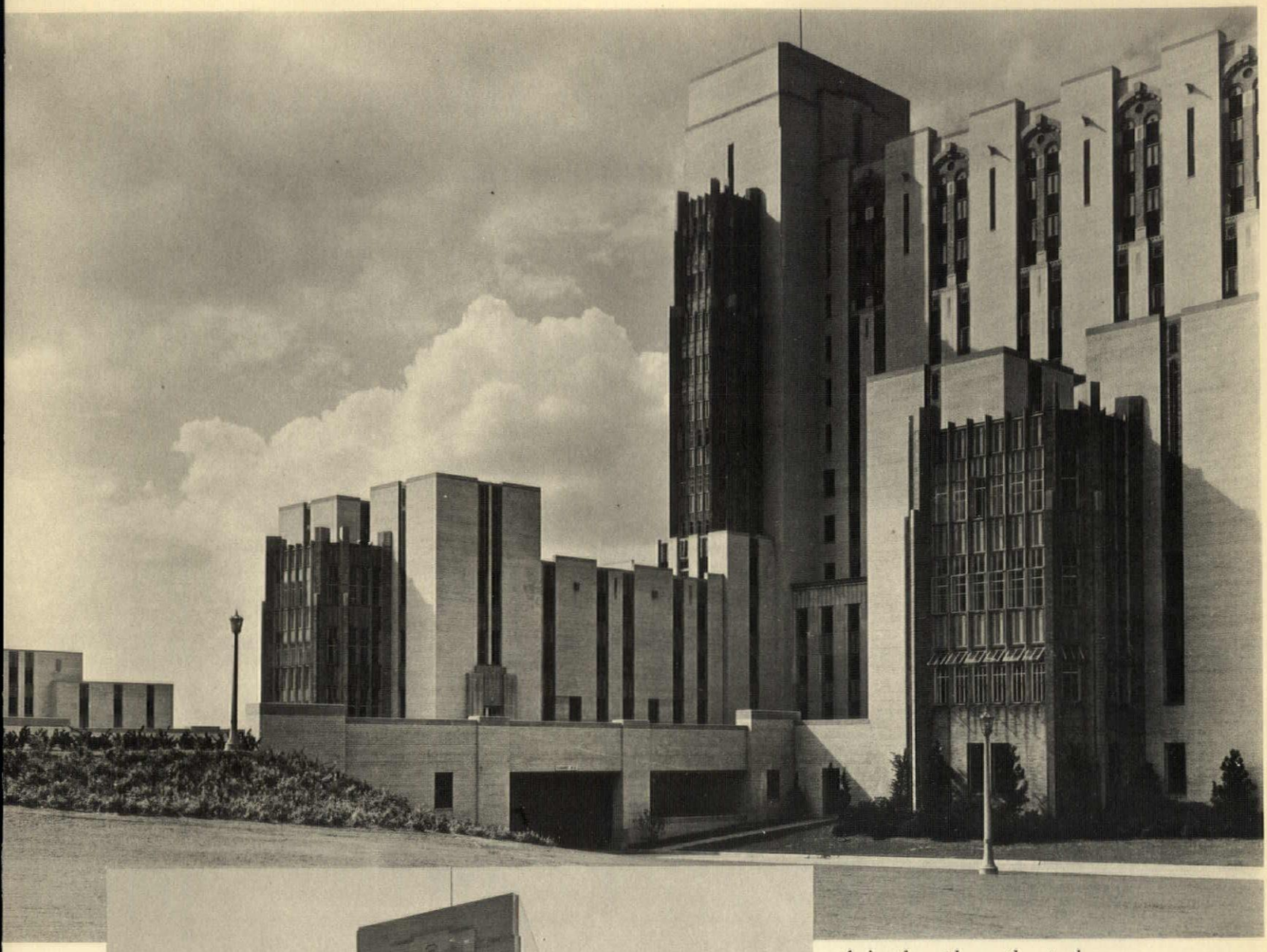


First-floor plan





Floor profiles showing the progressive set-backs and the number of beds provided



A view from the southeast, showing the main service entrance at the lower level under the main approach

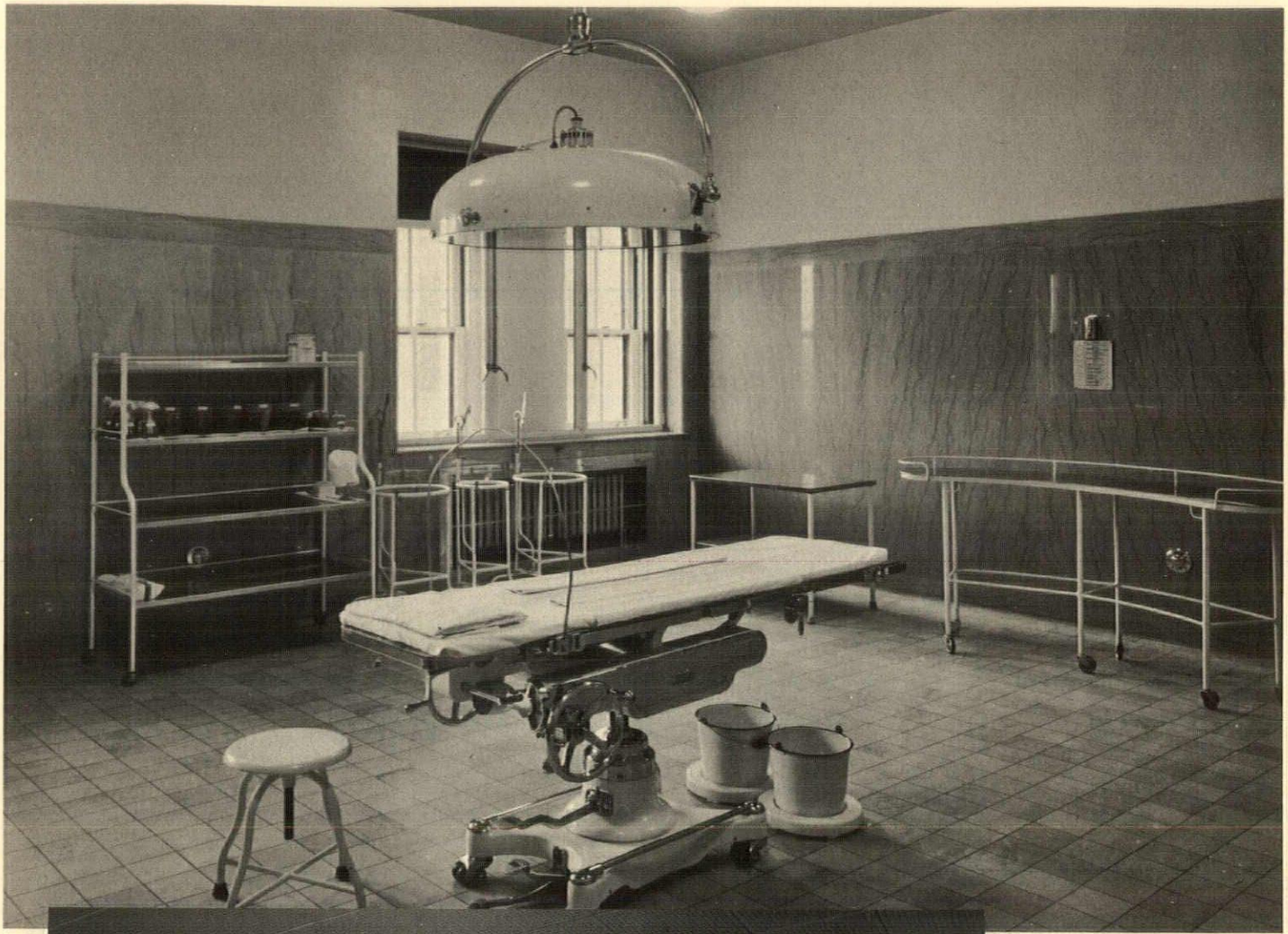
A view from the Hospital Corps Building, looking almost directly east. The system of floors in the wards provides a middle aisle of asphalt tile with terrazzo on either side for the bed space. In the main building there is an abundance of roof space available for sun treatment, not only on the upper floors, but at various heights throughout

The front east corner of the main group, with the east wing showing beyond

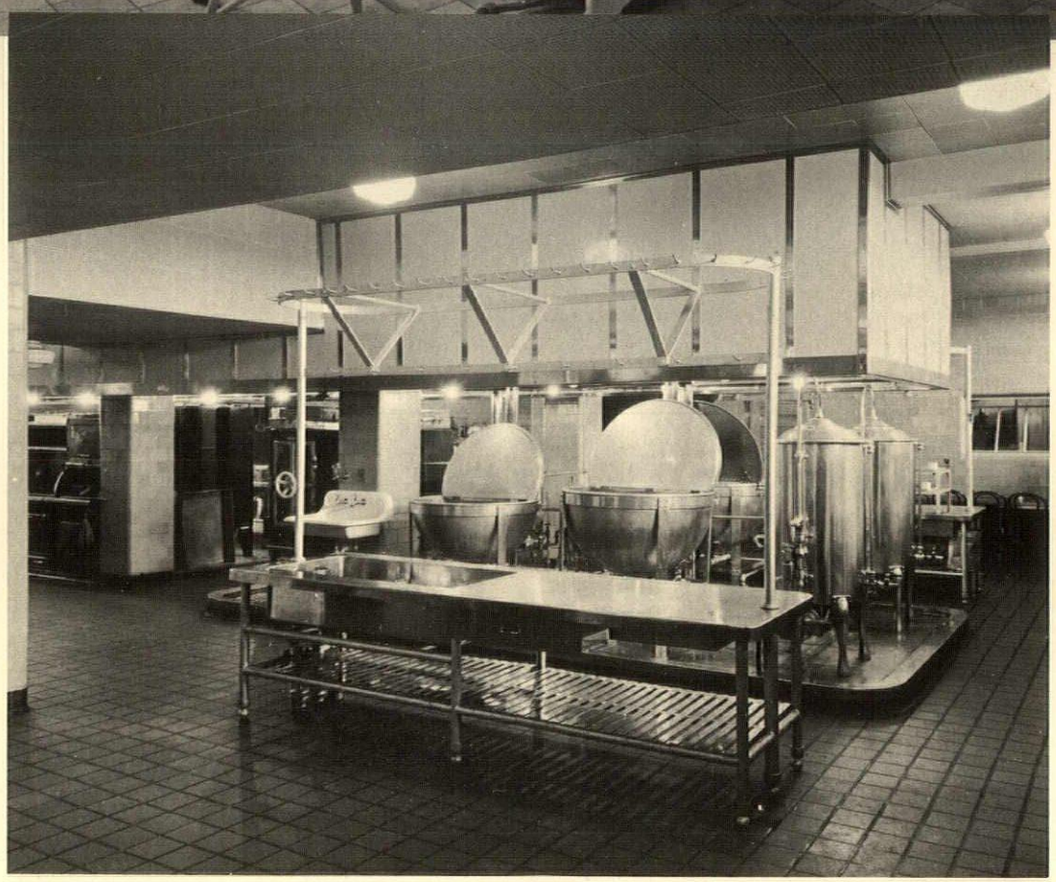
One of the front wings flanking the main approach. Against the background of cream and buff, the architects have introduced minor color notes such as the limestone copings and inserts, aluminum spandrels in the solaria, aluminum frames and doors at the entrances, lead spandrels in the porches of the officers' houses, and window sash of light green

A view north-northeast on the main axis looking toward the main entrance

A close-up view of the main south entrance, with the limestone and the aluminum of door and window frames in pleasing contrast with the cream and buff of the brickwork

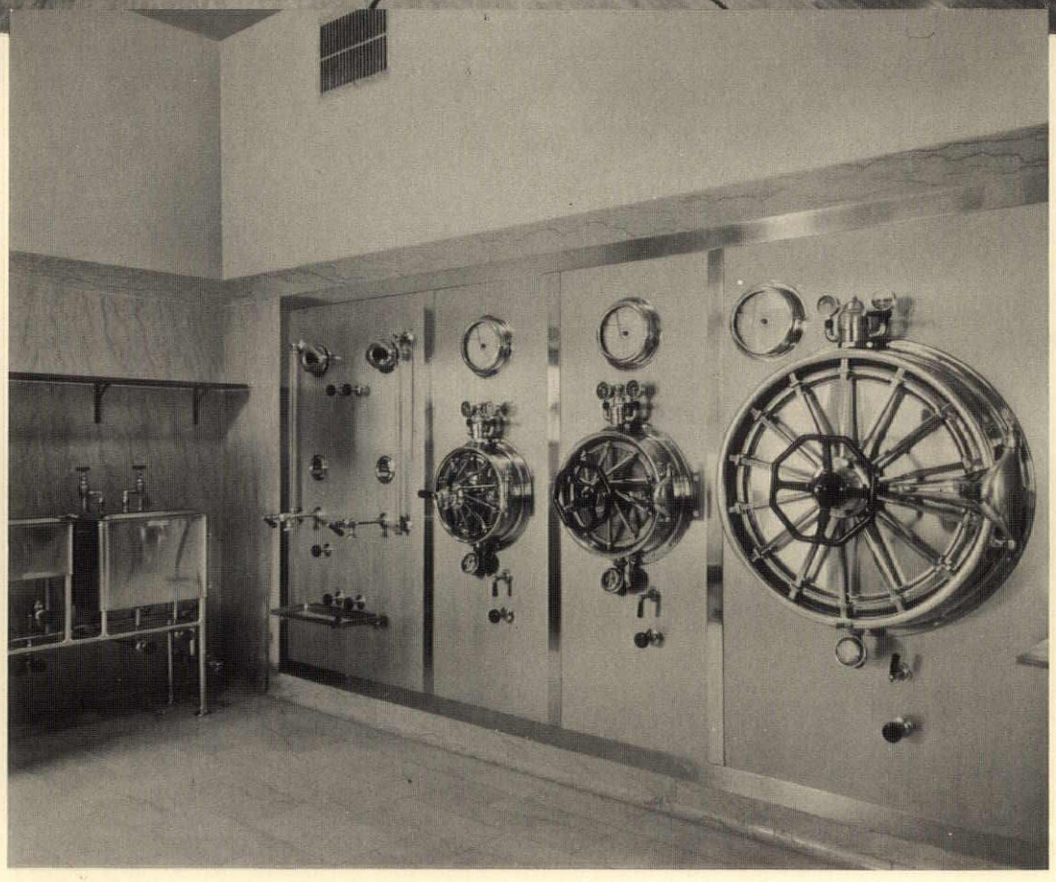


An operating-room. Light pink marble faces the lower part of the walls in these operating-rooms. There is no attempt, by the way, to use white paint anywhere in the buildings



A corner of the kitchen. Washable acoustic tile is used here, as on all corridor ceilings, mess halls, dining-rooms, auditorium, and many other locations where sound deadening is required

The auditorium is a room 48 ft. 4 in. by 74 ft. 8 in., with a fully equipped stage at one end, and a kitchen at the other under a gallery which, in a narrow form, extends along both sides of the room



Part of the sterilizing equipment, which, like the operating-rooms, has a wall facing of pink marble and a floor of the same, with cream buff plaster above

A view of the south front from the east

How Can We Function for the Small-house Client?

By Harrison Gill

THERE may be examples on record of a profession becoming established in a specific field of service by using the services of advertising copywriters, propagandists and public relations experts, but I have not been able to find them. It seems to me that, if a profession fails to function, there is some more fundamental fault than mere popular ignorance. And yet we are asked to believe that the primary cause for the failure of architects to control small-house building is only a question of popular education. In fact, it has been proposed that we institute a general propaganda campaign for all architects.

Let us consider for a moment such buildings as public libraries, railroad stations, hospitals, banks, state buildings, schools, monuments, churches, and the country homes of the very wealthy. Does any one imagine that the people who control such projects need to be taught that competent and complete architectural services are desirable? It is practically impossible to build any of them without an architect; he is an economic and technical necessity. The mere fact that most small houses have been and still are being built without genuine architectural control, certainly indicates that in this field he is not essential from any standpoint.

Obviously the only type of practice which could expect any great benefit from an educational advertising campaign would be small-house work. The basic problem in planning such a campaign is not the simple one of carefully explaining, in elementary language, that the houses we build are beautiful, well constructed and efficiently managed; the real problem is to discover why the work is not being done by architects now. It is rather easy to demonstrate that architects can design, know good materials and workmanship, are familiar with the business side of building procedure. These facts are so elementary that nearly every one already knows them, and no matter how effectively they are told, the popular answer would probably be: "So what?" Those who think that we can change the whole present setup in small-house building, by telling people how good we are, are scheduled for an expensive disillusionment. As long as we try to maintain the attitude that we, as architects, have failed to control the minor residential work because we are not appreciated, the home-building industry will continue merrily on its way without us.

Historically, architecture—as a profession distinct from the business of building construction—never did play any important part in the execution of small homes. During our colonial period the well-trained carpenter and builder did a creditable job with small houses. The best of their work still holds a high place in both design and construction. Until the 'nineties the well-trained architects had their hands full designing important structures. Since the days when our ancestors emerged from log-cabins into carpenter-and-mason-built houses, the contracting builder has had control of this work. He has not usurped our sphere; in one sense it is we who are trying to take his.

The builder who goes to the prospective home owner has three arguments to persuade his prospect that an architect should not have control of the job. These are:

1. "Architects are all right for office buildings and churches, but they do not understand small houses; they make them cost too much.
2. "The architect's fee is very high and is an avoidable extra to the cost of construction.
3. "The architect does not know what the house will cost, and you will have to pay him even if he designs a house which you cannot afford to build."

If the prospect counters with the statement that he must have a well-designed and beautiful house, the answer is simple: "All the best houses designed by architects are published in magazines; we can choose what we want."

Unless we can build up adequate answers to all of the builder's arguments in the mind of the prospective home owner, no advertising of services can succeed. A flat denial of all the charges and the presentation of counter charges will not work.

Let us start out by admitting that years of experience in large-scale construction does not necessarily qualify an architect to produce an adequate inexpensive home. Without mentioning any names, I recall three recent examples. In one case a well-known architect of semi-monumental work attempted a four-thousand-dollar house; the lowest bid was eight thousand. In another an internationally known firm undertook a remodelling job on a residence, which, on completion, cost at least 50 per cent more than

had been anticipated, and then looked as if it had been done in 1890. The third type was more difficult to disclose and was never known to the owner; only the builder and the craftsmen realized how unnecessarily expensive the house had been made by details and specified procedure which were not adaptable to residential work. It is easy to tell people to "see an architect first!" It is going to be much more difficult to tell them to select the right architect.

The general belief that architect's fees are an avoidable extra is the most difficult argument to meet in any general advertising campaign, not because it is necessarily true, but because architects are not agreed among themselves on the answer. A large group of very competent and skillful designers wish to accept this challenge with the statement that, of course, people will have to pay more for fine design. Another group, realizing that they are not practising in a luxury field, but are producing a necessity, believe that it is possible to produce a well-designed and soundly built house by a procedure in which their fees are absorbed by careful planning, simplified practice, and detailed control of construction. Until we can decide which attitude is to be presented to the public, we are not ready to start any concerted program for education.

My own sympathies are entirely with the second group, because I believe that clients who are sufficiently cultured and are in a position to make the extra expenditure for art's sake, already have selected their architects and do not need any enlightenment. People who do not use an architect because they believe he is too expensive will not be persuaded by telling them that he is an artist and worth his hire. As our campaign stands now, we shall have to tell them, first, to choose an architect who is intimately familiar with small-house work, and then they must decide whether they want a man who will approach their problems primarily as æsthetic, or functional and economic.

The third argument of the builder seems to me to be the strongest. The client is asked to sign a binding contract which will force him to pay about 60 per cent of the total fee, without any contractural assurance that a design will be produced within his means. The builder, with his lumber-yard plan book, can tell just what each house will cost before he starts, before any contract is signed. All the well-founded arguments based on the professional functions of an architect in securing bids and enforcing specifications will not answer the primary question of the owner: "What assurance have I that you, as an architect, will be able to design me a house for what I have to spend?"

When we find the answer to this problem we shall have control of the small-house field. Our standard contract form and codes of practice offer no solution. The difficulties from our standpoint as architects are apparent. We cannot guarantee a price, or find any builder who would do so, for a house which has not been designed, unless the price quoted is obviously exorbitant. Without long conferences and study we do not know just what kind of a house will meet the client's full requirements. This condition is real, and forms the greatest handicap in our attempt to gain control of small-house building. If it were simple to overcome we should probably have done it long ago. If we are going to stand pat on our method of charging and practising, we might just as well accept, now, the builder as the controlling element in home building, and make our arrangements with him rather than with the client. Many architects have done so already, accepting fees from the builder for a partial service. Others have virtually become builders themselves in trying to meet this phase of competition.

Rather than capitulating to the builder because he can guarantee a price and we cannot, let us see what other ways there may be to attack the dilemma. Our schedule of charges, our standard forms, standards of practice, and codes of ethics have been built up and developed for large projects. It is not a question of being unable to use them on small commissions, because they are being used daily, but rather that the theory behind their form is a theory developed from large projects.

Develop a contract form in which the cost of the house is mentioned, but not guaranteed; in which the owner agrees to pay a predetermined lump-sum amount which approximates the cost to the architect of drafting and blue prints; then if bids are secured within the cost mentioned, the full fee for drawings and specifications would become payable at that time. Under such an arrangement the architect would be gambling his overhead and profit on a small project against his own ability to do what he tells his client he thinks he can do. A method similar to this has been tried with reasonable success by some architects. It does not seem to me as fundamentally unethical or dangerous from a business standpoint. It may be a solution for one of the most difficult problems in selling an architect's full services on small homes.

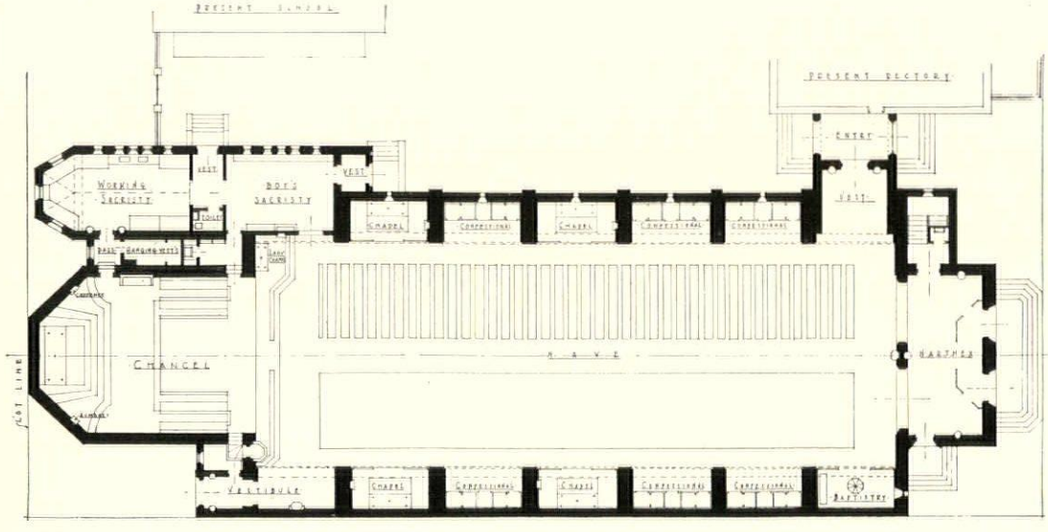
Photographs by Paul J. Weber

In keeping with a broad modern interpretation of traditional architecture, Mr. Anthony has employed the disposition of masses, wall surfaces, and voids to secure character, rather than depending upon ornament. The spire is sheathed with lead-coated copper

WILFRID E. ANTHONY, ARCHITECT

Church of St. Catharine of Sienna, New York City

In these broad masses of wall a brick has been used that varies in color from salmon to light buff. Trim and the sparingly used ornament are of limestone

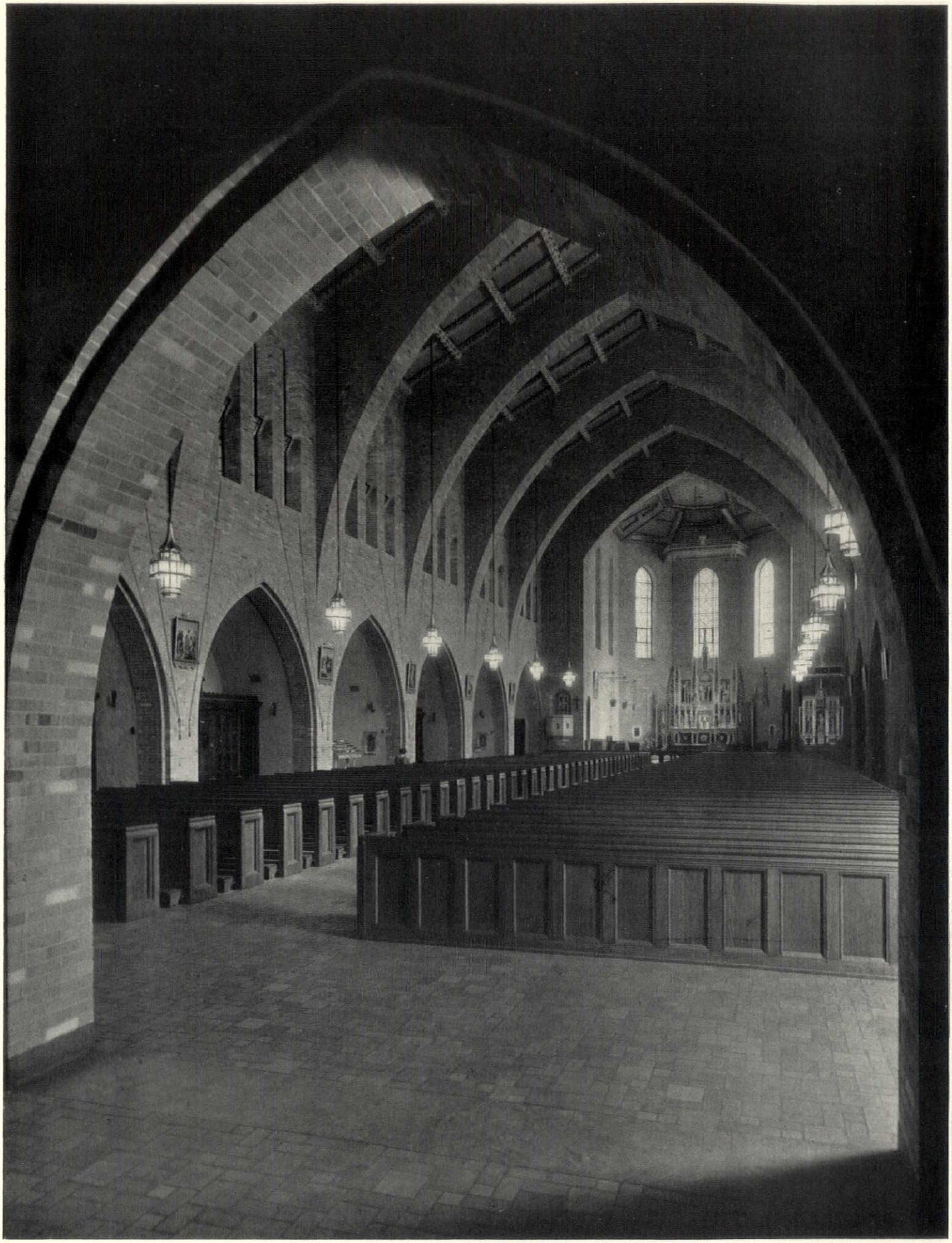


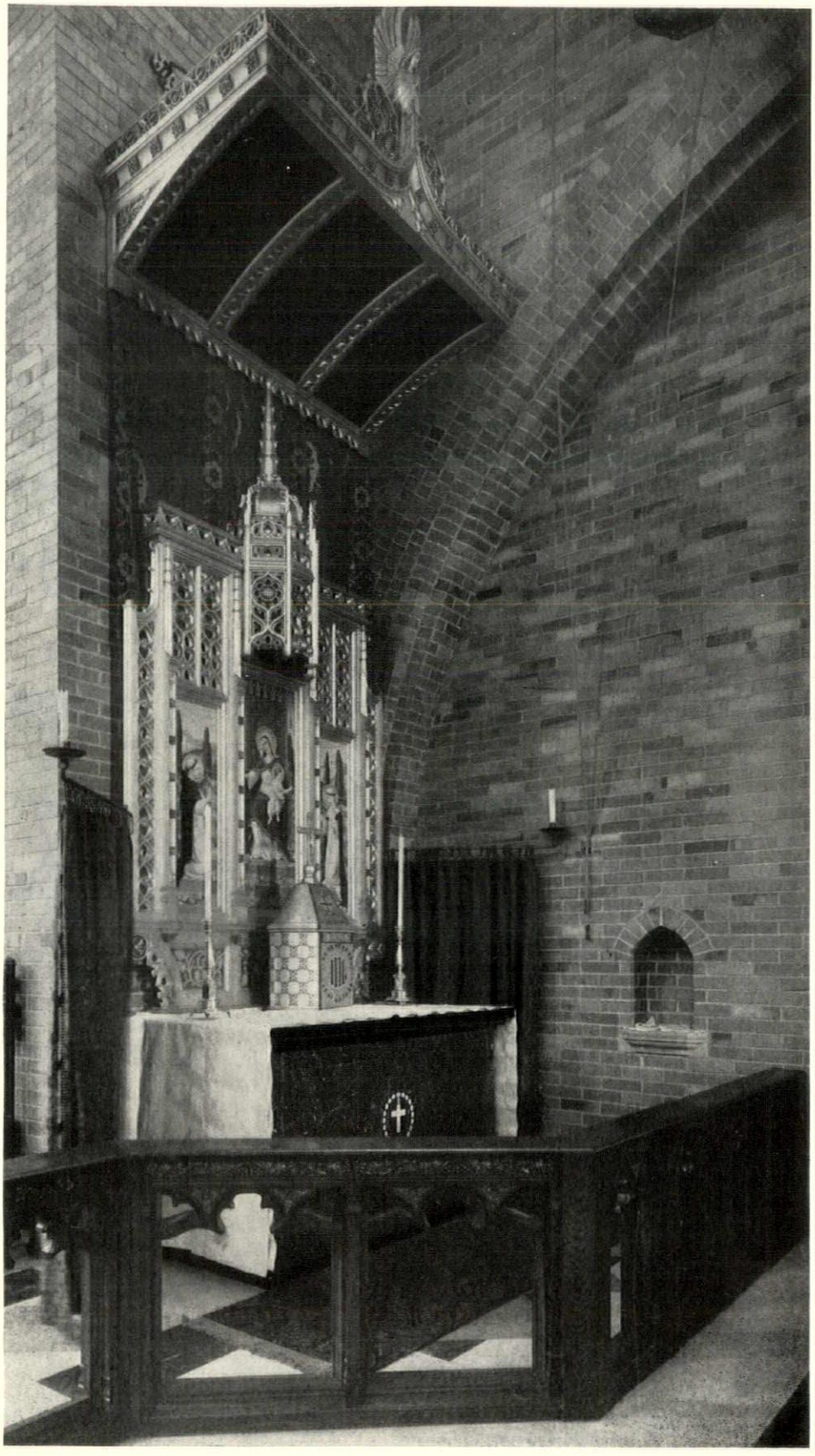
The plan gains the utmost in length on its main axis and is particularly interesting in the utilization of the buttresses inside the wall as divisions below the clerestory

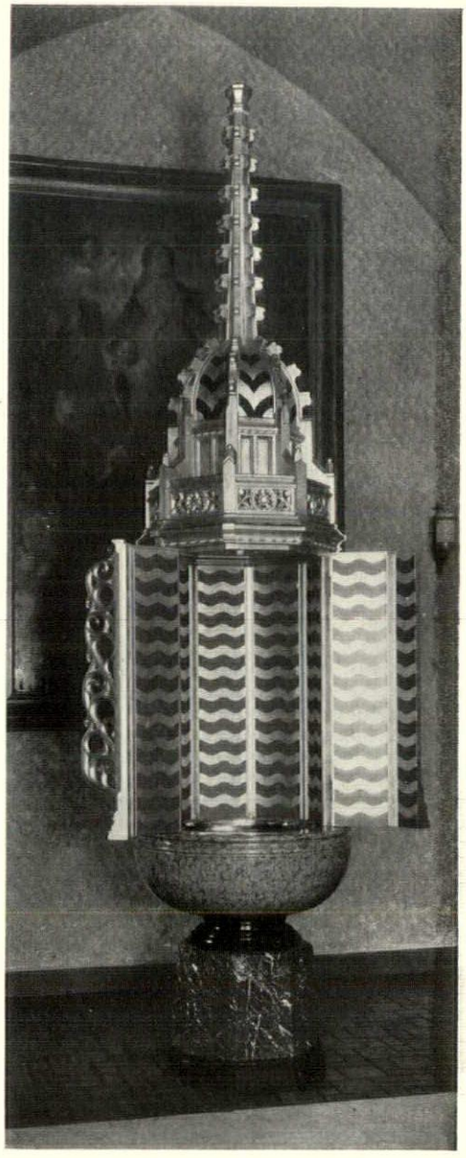
Detail of the main entrance. The variation of color in the brickwork is evident even in the monochrome reproduction

There is a satisfying sense of masonry craftsmanship when, as here, the same brickwork as that used outside is found throughout the interior

On the facing page, the nave and chancel as seen from one of the narthex arches. Woodwork is dark oak, with subdued color and gold on the purlins and rafters; over the latter, what appears to be bevelled roof boarding is an acoustically absorbent material







The baptismal font has a cover of carved oak finished in gold leaf and to this overlay the vigor of carving in oak, as well as the grain of the wood, gives vibrant strength

The Lady Altar, behind the chancel rail at the right of the main altar, is also a gem of craftsmanship in carved oak overlaid with gold leaf

BETTER PRACTICE

By W. F. Bartels

ELEVATORS

1—BIDS

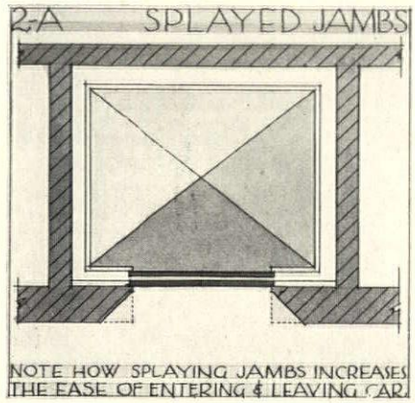
IF the architect were to go far into the details of elevator construction, he would, because of the vast and intricate problems arising in this field, soon lose sight of his own work. Nevertheless there are some things which he should know in order to best serve his client. The first of these is the process by which he eventually gets his bids. The first step lies in the office manager of the elevator company sending a salesman to obtain all information and data available, so that his sales engineer may work out the equipment in conformity with the specifications, if there are any, or if there are not, so that he may prepare a recommendation for the best equipment to suit the conditions. The estimate then goes to the sales manager for final pricing. As in every other field, there are wide variations in elevator grades, and the architect must clarify the type of equipment that he wishes to obtain, so that the manufacturer may be sure that his competitors are bidding on the same class of work. It is definitely the architect's responsibility.

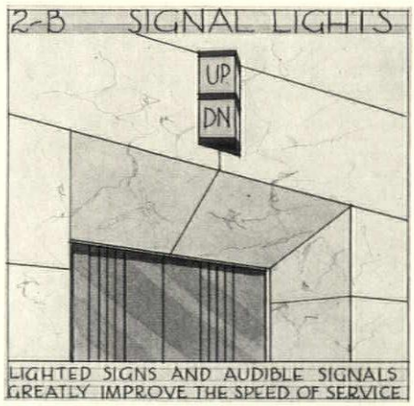
In the case of very tall buildings, the producers who bid are very limited, but in the smaller buildings there are many companies which may prove entirely satisfactory. Some architects feel that when they have given the size, speed, and number of cars to an elevator bidder, they have done their duty. This may not always be the case. Elevators are manufactured for every type of service and operation, and there should be no compromise with price when it comes to safety or mechanical efficiency.

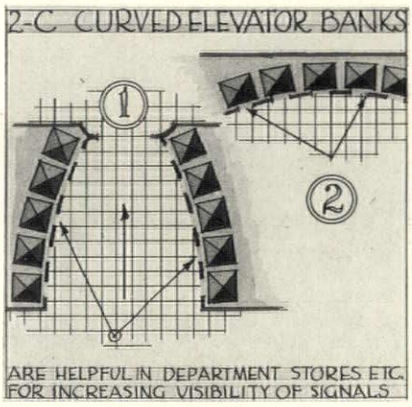
There is an intimate relationship between good elevator transportation and the success of a building. Just as the "best people" will patronize the railroad which gives them the best service, so the best tenants will patronize those buildings which give the best elevator service. Not so long ago only the better type of *six*-story building afforded an elevator, but today a builder would not get far were he to erect a *five*-story building without an elevator. Tenants today can demand more in a building—and get it.

2—LAYOUT

Many factors influence the laying out of elevator space in a building. Height of building, building code regulations, and character of tenants, all wield an influence. Too often an architect in laying out floor space will sacrifice an elevator to conserve space. This is short-sighted on his part and all too often will result in a decreased income to the building.







The main elevator lobby should be arranged so as to be directly accessible to the street. Too many elevators should not be placed in any one bank, it being generally acknowledged that six in one bank is the limit in good practice. Side jambs at the entrance to the cars should be splayed wherever possible so that loading and unloading may be facilitated (Fig. 2A). A splayed head is also advantageous for the signal light. Lighted signs, together with audible signals, should be provided so that there is less delay caused by traffic jams in front of the proper door (Fig. 2B). Where more than one bank of elevators is used, careful study must be given to the locations so that one bank will not be used to the exclusion of others. It is true that very often different banks will be used for different floors, but all banks must be equally accessible. As a general rule it is held that isolated elevators should never be used, but this rule, along with many others, may have its exceptions. In buildings which are apt to be congested at certain times, such as department stores, rapid loading is so vitally important that it may even be advisable to accept a loss of certain floor space by facing the elevator doors on a curve to facilitate the handling of the customers. In this case it is much easier for the people waiting to see which car they are to board (Fig. 2C). Where escalators are used, they should be placed in such a position that they will be seen and used first and in preference to the elevators. Apropos of escalators, it might be mentioned that they possess many possibilities of advertising, which if properly used by the architect would endear him to the heart of any business manager.

Quietness of operation is an essential feature of elevator installation, particularly in apartment houses. Hence, machine rooms must be located as far from sleeping quarters as possible. Wherever the shafts pass through areas in which the noise would be objectionable, these places should be insulated against sound by being covered with

sound-deadening material, such as mineral wool, over which the lath and plaster may be applied (Fig. 2D). The machine rooms themselves should be so arranged that the machines will be accessible to the mechanics who will have to work around them. The rooms should be properly ventilated so that they will not become overheated and consequently affect the mechanism. No water or steam pipes should be allowed to run in or over the elevator machine room. A leak or break could cause untold damage. Proper facilities should be provided for changing, moving or repairing the machines. This is generally done by providing an overhead trolley beam which may be used in hoisting and conveying the machines in and out of the room.

The number and speed of elevators is a problem for the architect to consider carefully. Far better there should be an excess of elevators rather than a lack of them. It is a simple matter to shut an elevator down, but it is almost impossible to install a new one. In figuring the speed of elevators it must be remembered that the height of a building does not afford an accurate method of computing the required speed. It should also be remembered that high speed does not necessarily expedite service in a building. There are other factors, such as size of corridors, width of elevator entrances, and proper directional signs and buzzers. The elevators must not have such excess speed that they have a bad effect physically on the passengers. If any one believes that high speed of an elevator is not bothersome, it might be well to refer him to a foreman on one of New York's largest buildings, who wanted to get downstairs from one of the top floors in a hurry. He seated himself in the concrete bucket and ordered the engineer to lower him. The latter did not have any too much love for the foreman, and exultantly obeyed orders. The engineer practically dropped the bucket for the first forty stories, then brought it to a stop in the next fifteen. The foreman was covered with perspiration and so weak he had to be lifted out of the bucket.

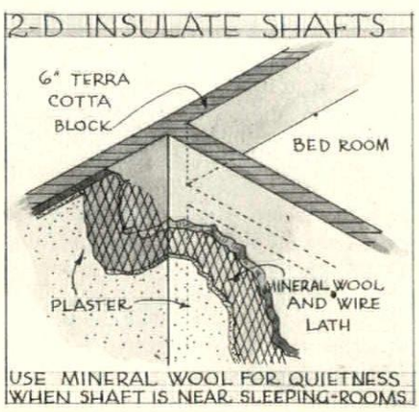
The average size of elevators in apartments is about 5′ 6″ x 7′. Those for hotels are generally in the neighborhood of 5′ x 5′ 6″. Commercial cars are of course larger. It might be borne in mind, in laying out car sizes, that large cars increase the time required per trip. Hatchway sizes should be clearly stated, so that there will be no question of the elevator fitting in it and having the proper clearance when it is installed. While the live load seldom enters into computations for the apartment elevator, it is a factor in commercial cars, such as in department stores, where it is often necessary to change from the usual seventy-five pounds per square foot, to one hundred pounds per square foot.

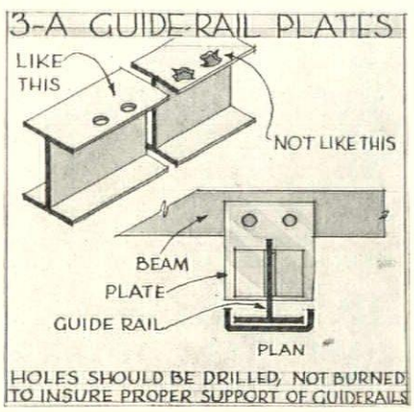
It seems a long time back to the old rope-pull type of elevator, and further yet to the steam or hydraulic elevator, yet this only serves to emphasize the progress made in elevators. There are so many types and variations today that it will be difficult for the architect to decide which one will best suit his purpose. The architect must remember that he will create a favorable impression upon his client if he chooses those features which make for safety and reduce the upkeep cost. In this connection should be mentioned the automatic pushbutton elevator, which in these days of increased wages may effect a real saving for the hard-pressed apartment owner.

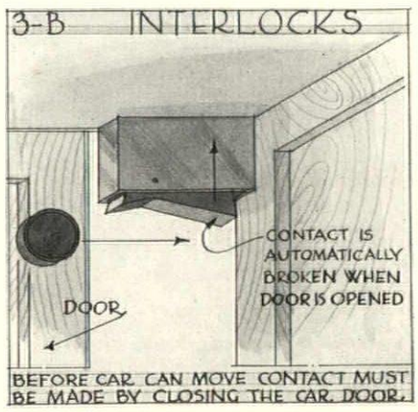
The architect should make sure that all the allied trades entering into the successful completion of an elevator job are properly taken care of. This will necessitate checking to see that doors, door-closers, saddles, shaft painting, facias, etc., are included in their proper trades, and that the latter are informed about co-operating with the elevator erectors.

3—CONSTRUCTION

One of the first steps in getting the elevator ready is to see that the shaft and its many appurtenances are in place. The elevator shaft should contain nothing but the necessary adjuncts of the elevator. The depth of the pit and the overhead clearances must be ascertained, but these in most cases will be covered by local building codes. The steel guide rails should be fastened by plates attached to the structural work. The holes made in the structural steel to which these plates are attached should be accurate and should not be burned with a torch, lest the holes be irregular and the plates not give the proper support to the rails (Fig. 3A). The distance apart that these plates are set will be governed by the speeds at which the elevators are scheduled to run. Speeds up to 800 feet per minute generally have the plates 10′ apart, but this again will be governed by local building regulations. Proper clearance must be allowed between the cabs and the sills projecting into the shaft. The maximum is 1¼″. No fireproofing on beams or other parts of the shaft should be allowed to project so that they in any way touch any of the cables. After all work is completed in the shafts, these should be painted so that there will be less dust and so that practically no particles of cement, sand or plaster will find their way into the machines or cables.







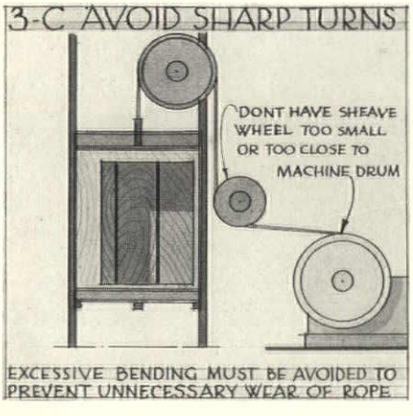
The architect should determine beforehand the weight of machines and equipment that he intends using, so that he may figure his loads, including impact. The machines should be set on sound-deadening devices, such as wooden plates set in the concrete floor. It should be remembered that a thick concrete arch is one of the best sound-deadeners obtainable. The architect should see to it that the machine is powerful enough to do the work laid out for it without being overtaxed. It is well also to call for the machine to have a rise of not over 40° Cent. when running over a period of an hour. It can be appreciated that further details as to the qualities of the machine are better left to the designers of the machine, and then have them checked by a competent specialist.

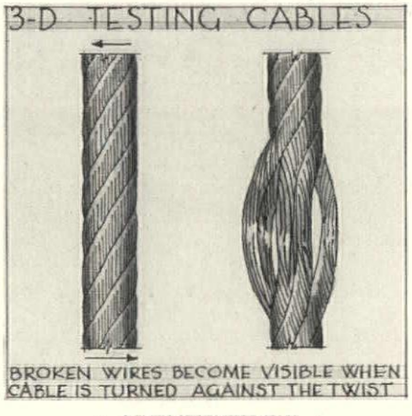
The advisability of automatic devices on elevators is soon evident where one has entered a building in which the elevator starter is also the information clerk. There is no doubt that in these cases the regularity of the service varies. Then too, some starters have the faculty of keeping their cars in proper order, while others seem to have the cars bunched continually. Automatic devices can easily regulate the timing of the cars and so give more efficient service. Manual operation of cars under the high speeds now obtained could not be had efficiently nor without too much wear and tear on the apparatus. Automatic self-levelling devices are a necessity, as any one could observe in a motor room by watching the contacts. Besides, these devices serve to reduce the severe braking and make the levelling movement more smooth. Coupled with this, mechanical starting and stopping devices do make quicker stops and starts, and also have the psychological effect of making people move faster and hence enables the round-trip time to be cut down. Interlocks may cut down the time of a trip somewhat, but safety demands them. These interlocks prevent the elevator from starting until contact has been made by the door being shut (Fig. 3B). When solid doors were introduced it was necessary to find some way to close them safely and completely. This was done by means of the automatic door closer and opener, which has found considerable favor because of its efficiency. And it might also be said that the solid door was necessitated because of danger of clothing or fingers getting caught in the fast moving doors.

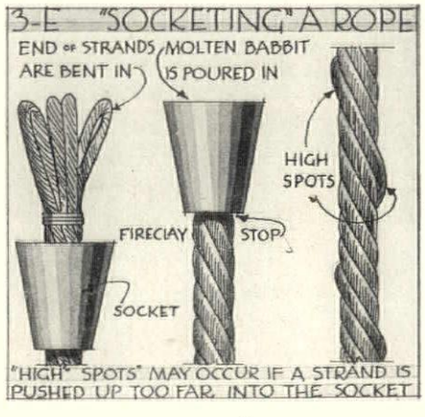
The architect who wishes the repair bills of his client kept low should go very carefully into the subject of elevator cables, or "ropes" as they are called in the trade. One of the most common ropes used on elevators today is the 6-19. This means there are six strands making up the rope, each one of these being made up of nineteen wires. The strands are wound around a hemp center. The material in these wires is iron and steel. The hard steel, having the greatest strength, is inclined to be brittle, and the softer material alone will not do because it lacks strength. Thus the architect will readily see that he must beware of any sharp turns the ropes make in order that their wear, due to excessive bending, may be eliminated. This bending might be caused because of the small diameter of the wheels, or having a small sheave wheel too close to the drum of the machine (Fig. 3C). Above all, any condition which would cause the rope to bend back on itself must be avoided.

If the cables are renewed the architect must make sure that the grooves in the drum of the machine are uniform. Any uneven wear on these parts would cause the cable to wedge, an action extremely detrimental to the life of the cable. There are on the market composition wheels which are said to add to the life of the cable by wearing more evenly. Another item not generally thought of as affecting the life of the cable is "ragged" or uneven starting or stopping. Stopping suddenly puts entirely too much strain on the cable and shortens its life. When the car slides past a floor, another strain is imposed in starting. These two factors stress the need for automatic starting and stopping devices.

Should it be necessary for the architect to test any cables, such as might be the case in alteration work, this can be easily be done. The car is stopped and the cables taken hold of and turned against the twist. The slight amount of play will allow the rope to open and disclose the broken wires (Fig. 3D). Various inspectors will allow different numbers of wires to be broken, but as a rough rule, it is best to condemn them if from four to six wires are defective. This may seem rather arbitrary in view of the tremendous safety factor in the cable, but it is always better to be on the safe side. Very often cables are unduly worn by having high spots, due to poor socketing. While the architect may be willing to leave this feature to the elevator constructors' judgment, a knowledge of it may not be amiss. This is done in one of two ways. The first method is one which should be intrusted only to good mechanics. The wires are fastened together at a distance equal to the length of the socket. They are then spread out and the hemp center cut out. After being cleaned they are cast in the socket

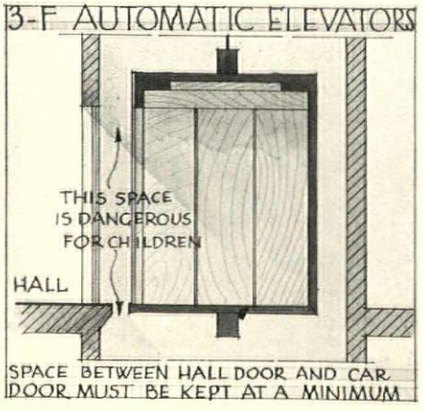






by means of hot zinc. The other method is performed in practically the same way except that the ends of the wires are twisted, so that even if the zinc did not hold it would be almost impossible to pull the wires through the socket in their bent condition. Great care must be taken in this latter method to see that none of the wires are forced back in the rope to form high spots, and a resulting unequal tension; this would wear the rope out sooner than would ordinarily be expected (Fig. 3E). With all possible care taken in hanging ropes, there will in most cases be some unequal strain due to uneven stretching, slightly different diameter of the grooves in the drum or sheaves, and many other causes. One way to overcome this and increase the life of the ropes is to use equalizers. These devices are used on top of the car, being fastened to the car and to the cables. While their first cost may seem high, they will continue to save money for the owner.

The architect should try to visualize all the equipment that is going into the makeup of his elevator and do all in his power to prevent any possible accidents. Tenants will remember for a long time any accidents either which occur in their own building or which they read about. Some years back there were several accidents to children who had gotten themselves wedged between the door of the elevator and the corridor door. This may have been for any or all of three reasons: too much space between these doors, negligence on the child's part, or in some cases inability to open the door (Fig. 3F). While these faults have long since been remedied, it is not unusual today to find automatic elevators viewed with suspicion by families with children.



Very often, metal facias are desired in elevator shafts. In fact they are sometimes necessary, because if the saddle at the entrance projects into the shaft it must be bevelled down at an angle of at least sixty degrees. This is to prevent any one from catching his foot under the saddle as the car is approaching the floor (Fig. 3G).

The space immediately in front of the elevator should be given some thought, so that proper precautions may be taken to prevent people slipping when leaving the elevator in a hurry. This is done by having a non-slip type of saddle in the doorway, and having the floor immediately in front of the elevator treated in some non-slip manner. If terrazzo is used, this is quite simple, because there are several non-slip aggregates which can be used with very good success. With other materials the surface must be treated according to its nature.

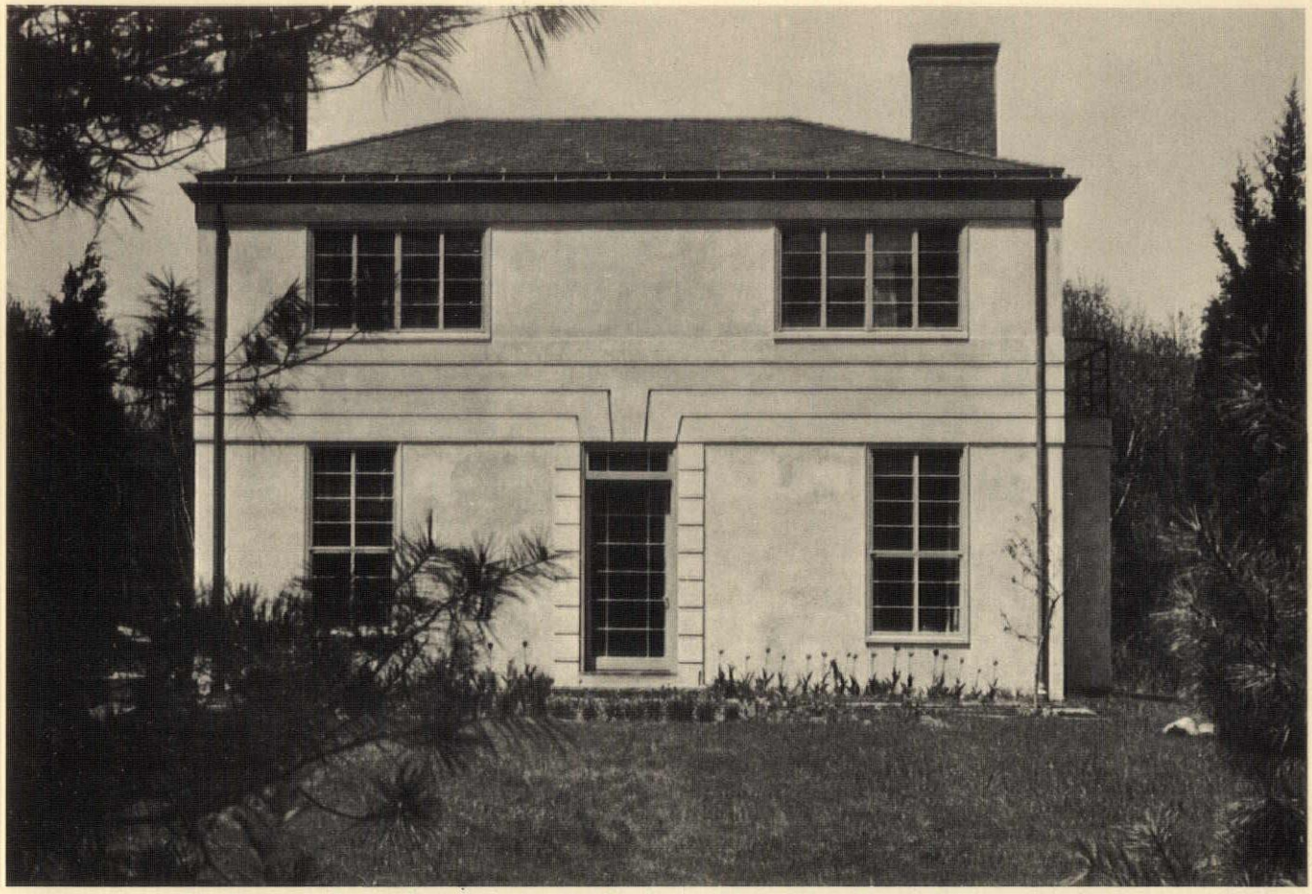
Elevator cabs are finished according to the taste of the owner, but the architect can see to it that they are the best of their kind consistent with the amount spent for them. They should be properly ventilated, that is, mechanically. The lighting is also important and is an item which makes a decided impression upon the passenger. In many buildings the architect has found that the installation of carpet in the elevator not only adds to its attractiveness, but also helps in the maintenance of the building by keeping the dirt out of the upper halls and floors.

In alteration work the architect will find that an investment in a new elevator cab and closed shafts will more than repay the money invested. No matter what type of elevator is installed, it is well for the architect to call for a year's free servicing on the car and all its parts, because even the best installations will need minor adjustments here and there before a year has expired.

Sidewalk elevators and hoists should be given careful consideration in the layout of the building so that there is no danger that they are in the way of ordinary traffic, or will interfere in any manner with the normal operation of the building. They should be provided with proper warning bells and safety gates so that pedestrians may be on the alert.

Often, in alteration work, it may pay the architect to do some sleuthing for his client before he lets the contract for his elevator. An incident will illustrate. A certain owner, intending to remodel his elevator, sent out for bids based on one standard specification. When the bids came in they were all about the same, except one contractor who was considerably lower than the rest. The matter was investigated but nothing could be found which would justify not giving the low company the bid. After the work was started, the architect on visiting the job found employees of the service company moving the motor. Upon asking the workmen why they were taking out the motor they replied, "For rewinding." Upon further investigation it developed that the service company was changing this particular block from two-phase to three-phase, and in order to complete the work was willing to change the motor free of charge. The elevator company who got the job knew of this and was thus able to underbid its competitors.

In another case an owner consulted an architect about changing his old elevator into a modern one, and wanted it done as cheaply as possible. The architect knew that the company supplying the service in this section was changing from one kind of current to another, so he advised his client to await developments. They were not long in coming. The service lines feeding this block were in poor condition and the service company was anxious to get them changed. The owner felt that he did not want his car and machine changed, because he was satisfied with them, but after some persuasion the service company got him to change them on the condition that they would pay for it—thus proving that it pays to employ an architect.



The house is for week-end use for the Professor, his wife, and two children, to use in summer and winter with as little bother as possible about plumbing, heating, and cooking

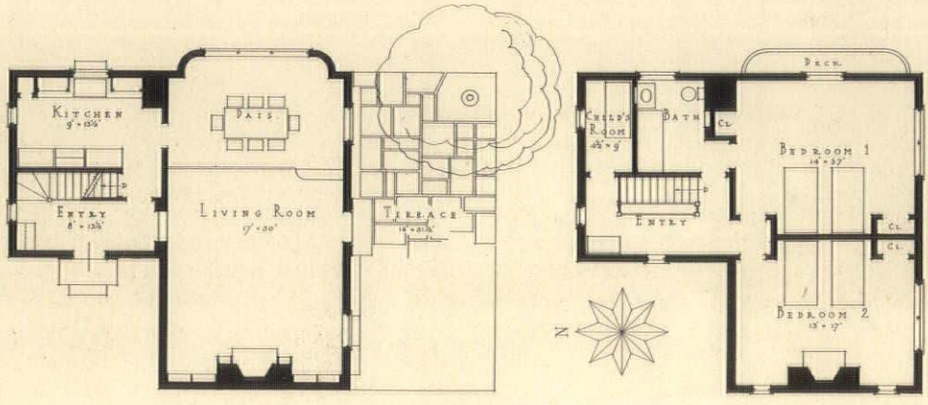
{ IN THE SERIES OF ONE HUNDRED SMALL HOUSES }

House of Prof. Samuel E. Morison, Canton, Mass.

GORDON ALLEN, ARCHITECT

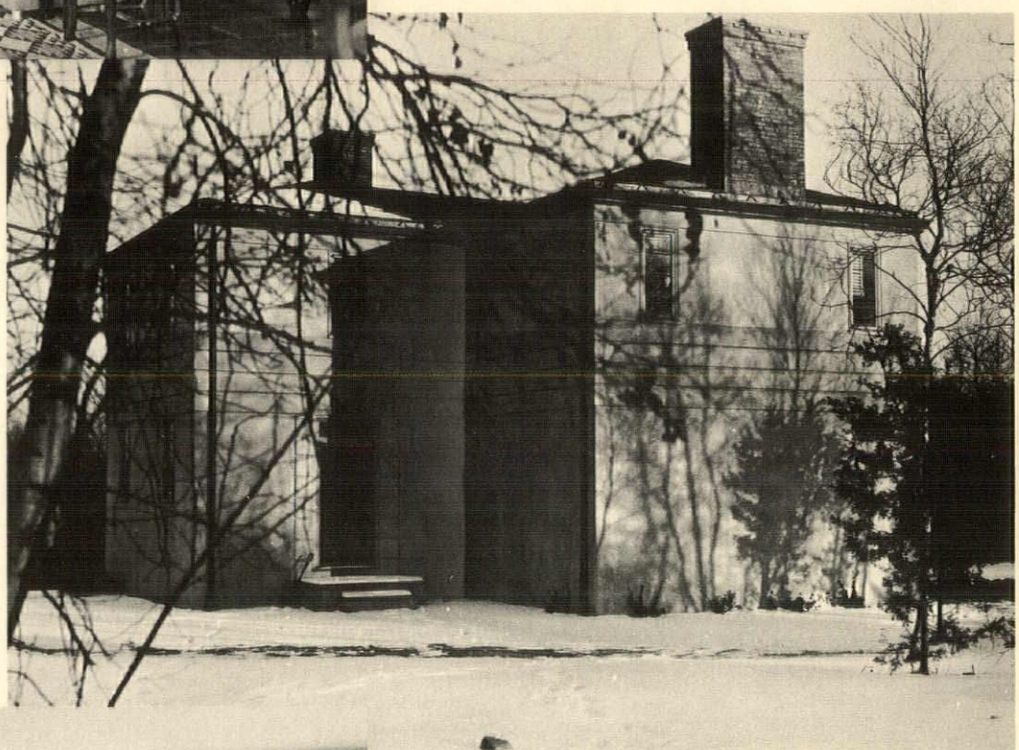
J. HAMPDEN ROBB, ASSOCIATE ARCHITECT

"This little house is the result of working with a sympathetic client to fulfill simple requirements as simply as we could, with no attempt at prettiness. We both like it because it has the essentials and no frills." GORDON ALLEN



1ST FLOOR PLAN 2ND FLOOR PLAN

Fireplace end of the living-room. The floor is of black Zenitherm. At the other end of the room, the floor level is a foot higher for the dining-table. The owner hopes some day to enlarge the house by adding a two-story library at the west end, and perhaps, still further in the future, a group of rooms at the north end of the service wing, upstairs and down



The house is of frame construction, stuccoed outside with a nearly smooth pink plaster. The only cornice is a large leaded copper gutter, which is nearly black, about matching the black slate of the roof, and the chimneys have been painted this same color

The dining end of the living-room. Under the kitchen wing only, there is a cellar just big enough to hold the warm-air heater, oil tank, and the hot-water boiler. Between week ends, the thermostat is set just high enough to prevent freezing of the plumbing

The garden front of the left-hand house as one faces the pair in the street

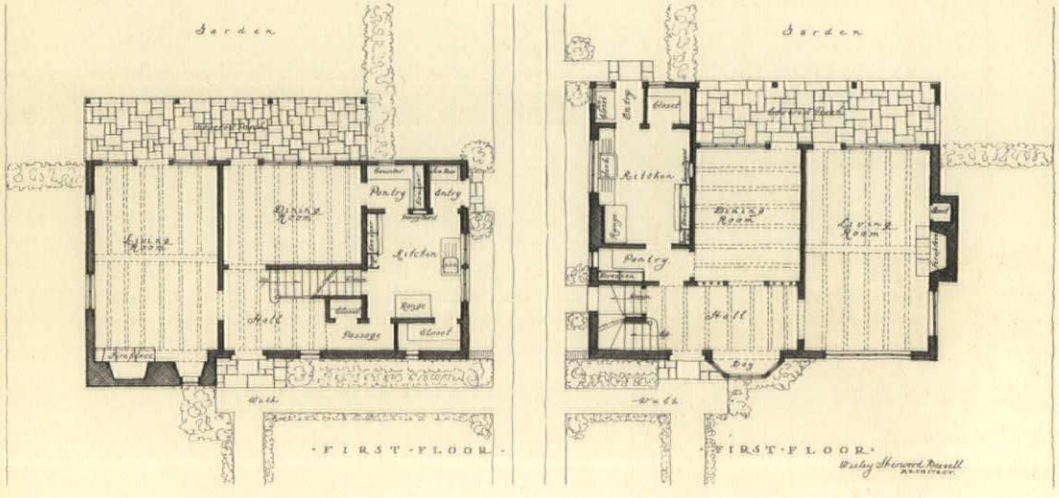
Photographs by Richard Averill Smith

{ IN THE SERIES OF ONE HUNDRED SMALL HOUSES }

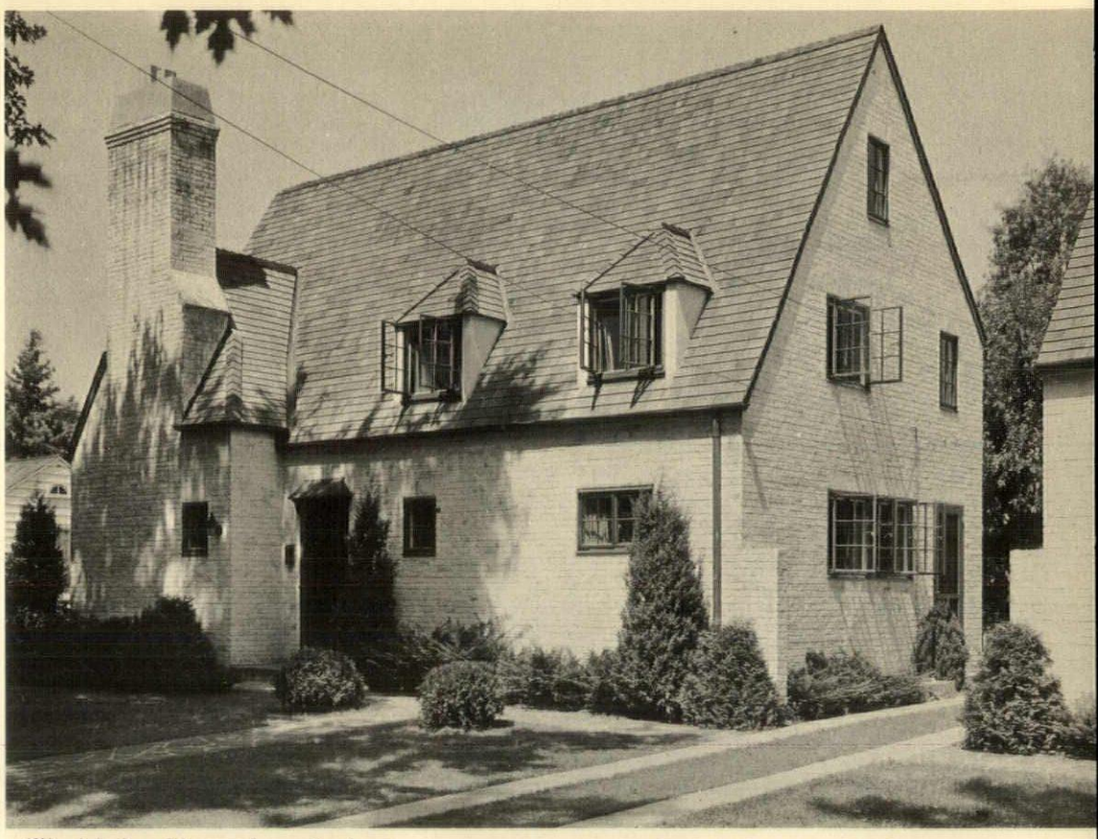
A Pair of Houses Costing $5,300 Apiece

"If more interest were evidenced by the profession in this field, an enlightened and better educated public would result, together with a higher standard set for the architecture of the country. These twins were built for $5,300 each—a probable saving of $400 over building them as single units."

WESLEY SHERWOOD BESSELL



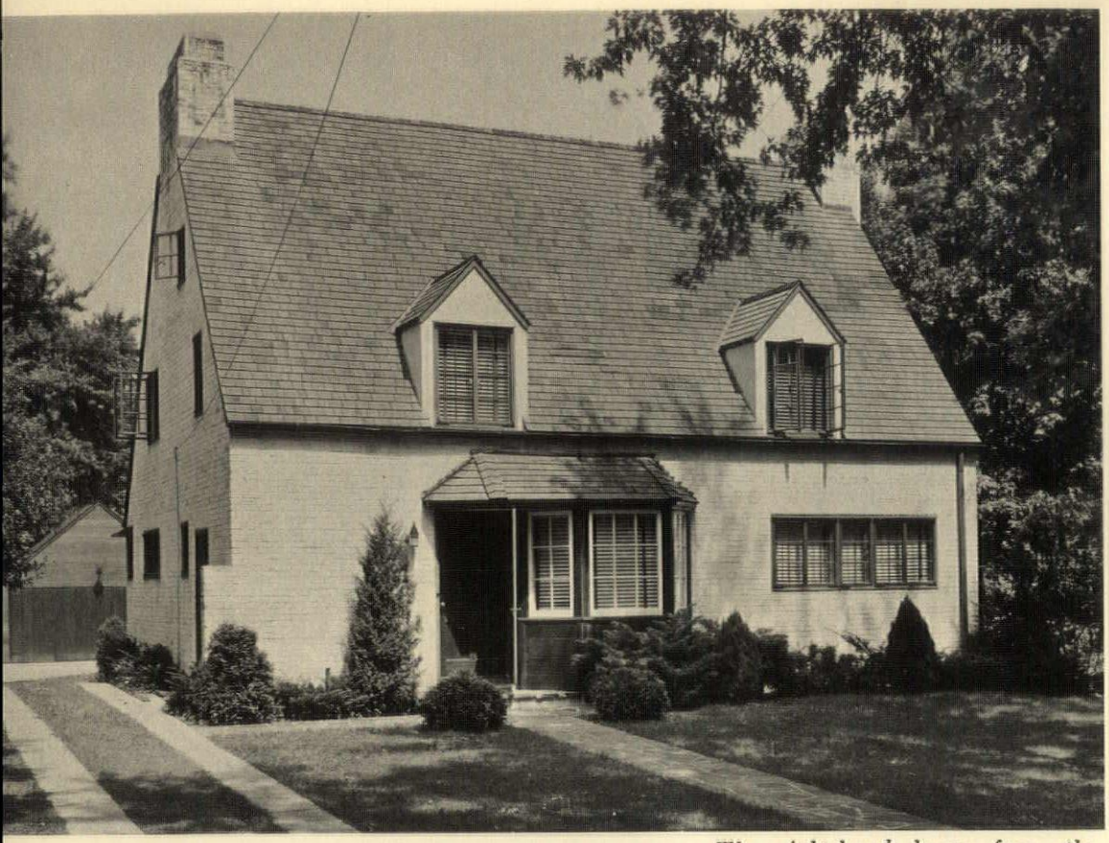
A single driveway is made to suffice for the two garages in the rear of the property. It will be noted that the living quarters have been kept as far apart as possible, and the porches screened from one another by a projecting wing on the right-hand house



The left-hand house from the front. The driveway, it will be noticed, is made less conspicuous by using two narrow concrete runways

Opening from the living-room to hall in the left-hand house. Floor beams for the second floor are 4" by 4", 20" on centers, with the under-flooring dressed and left exposed; deadening quilt was used between this under-flooring and the finished floor above

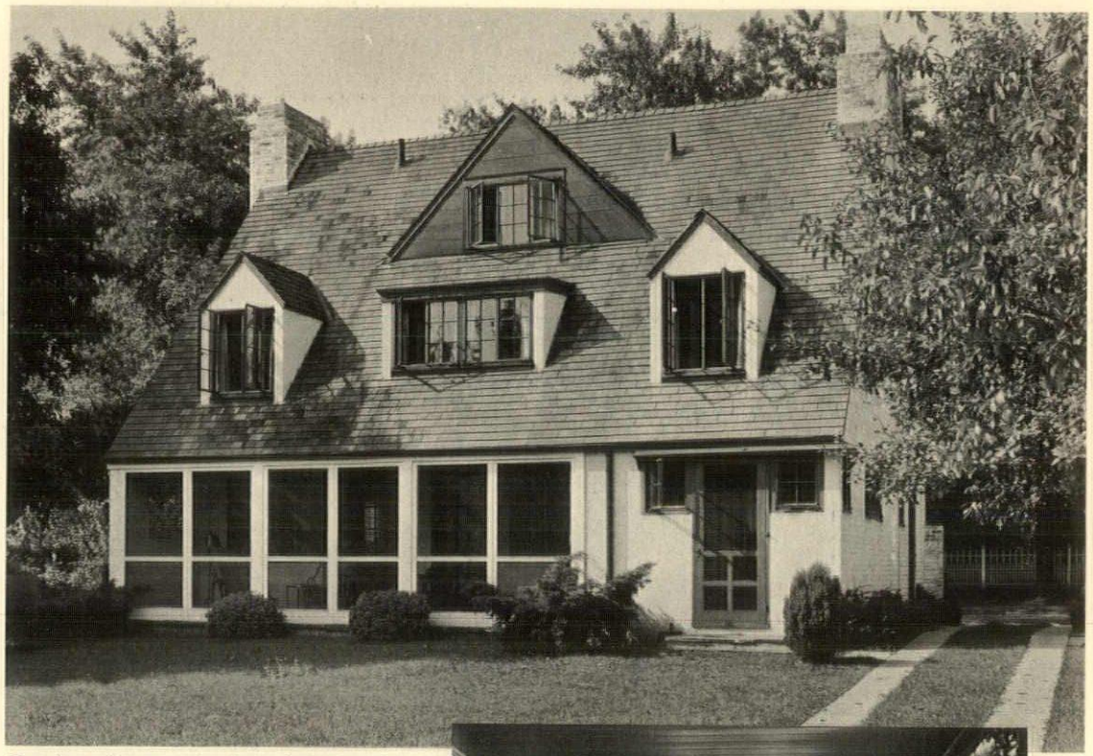
Below, living-room in the left-hand house. All walls are finished with a smooth white plaster and paper, with trim painted to match wall paper



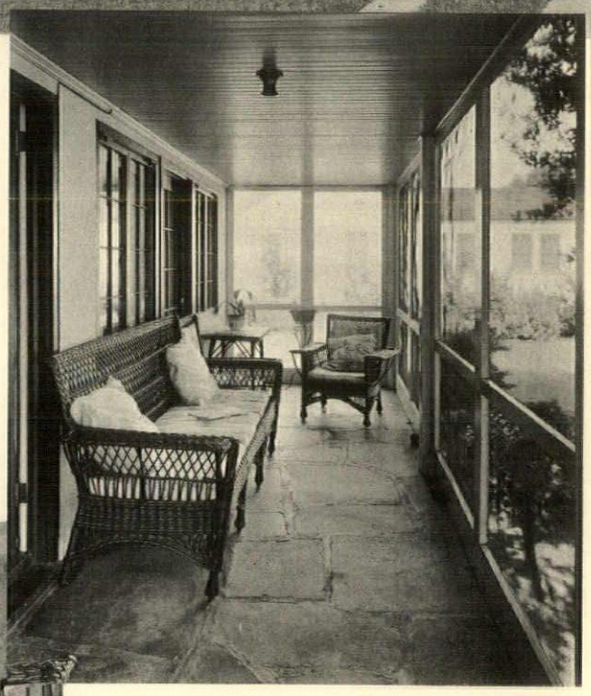
The right-hand house from the front. Second-hand brick is used as a veneer, with cement whitewash. Roof is of cypress shingles; windows, stock steel casements

Hall in the right-hand house, with the opening to the dining-room at left. The houses are heated by steam, using an oil-burner

Living-room in the right-hand house. On the second floor of each house there are three bedrooms and one bath, with an adequate supply of closet space. A maid's room and bath are on the third floor



Garden front of the right-hand house. Here the service ell shelters the porch from the adjoining one. Outside trim is in browns and reds



The porch of the left-hand house, paved with flagstones

Dining-room of the right-hand house. Both dining-rooms and both living-rooms open upon the porches

Monday, December 2.—Henry Wright points out a few of the advantages of large-scale building over the traditional manner of proceeding by individual units. Mass production of small houses can be relieved of monotony not by the previously accepted schemes of changing the color, variegated roofs, or dolling up occasional fronts. Instead, there are two or three very simple devices by which large-scale group planning may be made interesting and attractive even though the unit plan remains practically constant. Staggered frontage, and the use of cul-de-sacs are practically all that the architect needs to avoid monotony and regimentation.

Wednesday, December 4.—John Lowry says that it is probably too late to make New York a planned city in the sense that Washington was a planned city, or Canberra, the new capital of Australia, is a planned city, but it is not too late to start with New York as it is, make a master plan for it, and have it grow into a better city rather than an uninhabitable one. A third of the residential structures in New York are thirty-six years or more old; a quarter of the family dwelling units are without central heat; 16 per cent are without running hot water; 15 per cent, without bathtubs; one-eighth have no private indoor toilets. A third of the loft building space, almost as much of the office building space, and 17 per cent of the store building space, are in buildings forty-one years or more old. It would seem, therefore, that we are surely facing the necessity of rebuilding New York. Are we to go ahead on the same catch-as-catch-can manner, or is there to be some sort of plan and zoning scheme to guide us?

Friday, December 6.—Purdue University has an idea. They are building out there in West Lafayette, Ind., a group of single-family houses for the use of the scientific staff of the University, in which they are going to make a careful study of various forms of construction and their maintenance costs. The houses are to be built in the customary manner—plans, specifications, and supervision by an architect with competitive bidding. No house is to cost over $5000, and is to provide accommodations for a family of two adults, a boy, and a girl, and a garage. Nine houses are to be built as a start. Three are under way:

1. A prefabricated house of steel studs and plywood wall panels; one-story, flat roof, no basement, detached garage. Howard T. Fisher of Chicago is the architect.

2. A wood frame-and-stucco house with plywood on the interior; two-story, flat roof, no basement, attached garage. This is J. André Fouilhoux's prize design in the recent competition conducted by the New York Chapter.

The Editor's Diary

3. A reinforced concrete house with poured foundations and exterior walls, precast concrete floor joists, and concrete floor slabs; two-story, flat roof, basement, built-in garage. The architects are Burnham Brothers & Hammond, Inc., of Chicago.

Monday, December 9.—Wesley Bessell, Harrison Gill, Frederick Woodbridge, Harvey Stevenson, and I met today at luncheon to consider the possibility of doing something about the lost 85 per cent of home builders. There is something like this proportion of the builders of small houses in the United States who proceed without benefit of architectural assistance—and the main trouble is not an æsthetic one. It is rather that these helpless souls are subject to many of the elements of a racket.

Wednesday, December 11.—The Chapter met today at luncheon in the expectation of having as their guest Mayor La Guardia, who, however, did not arrive until well on toward three o'clock. Meanwhile, Arthur Holden outlined a plan for developing the Island of Manhattan in sections. A correlating committee would delegate certain areas which, by reason of later changes in transportation lines or something of the sort, were likely to be entirely rebuilt in the near future. Architects, singly or in groups, would be engaged to study these local problems, and attempt to secure a spirit of co-operation among the owners in one block or a larger section, so that improvements might be made without the delay and difficulty of condemnation proceedings. When the Mayor arrived, he said that he hoped the architects would try to do this, but that meanwhile, he thought it might be advisable to pass laws which would goad those who failed to enter into such a spirit of co-operation. His experience had taught him not to expect very much of such a spirit among a hundred or more owners of adjoining properties.

Friday, December 13.—I cannot recall a more sharply etched picture of how the capitalistic system should work than that sketched recently by Dr. Harold Glenn Moulton, president of the Brookings Institution:

"The general theory underlying the system of capitalistic production and distribution clearly recognizes the necessity of an ever-expanding mass purchasing power in order to absorb the expanding capacity of the productive establishment. Under a system operated for private profit, each business manager naturally seeks to reduce costs by increasing the efficiency of production. He may accomplish this by the construction of a larger and more efficient plant, by improved equipment, superior management, improved methods of marketing, or a combination of these and other methods.

"Now, having reduced costs of production, he is in a position to increase his profits in one of two ways. He may continue to sell at the same price as before, or he may expand the volume of his business by means of price concessions. It is reasoned that since the increase in efficiency, which is responsible for the reduction in costs, commonly involves an expansion of productive capacity, and since the maximum economies can be obtained when operating at full capacity, the greatest profits will result if the output is expanded by means of a reduction of prices.

"In short, increased efficiency makes possible lower prices, while the profit incentive insures the actual reduction of prices. Business enterprise gains its greatest profit by giving to the masses the most for their money. The interest of the profit maker, therefore, coincides with the welfare of the community.

"The process naturally involves the continuous elimination of obsolescent or otherwise inefficient establishments. The fit, as gauged by ability to sell at a minimum price, alone survive.

"Note, however, that this theory of progress requires the maintenance of money wages, for if they are not maintained, the real purchasing power will not be expanded with increased production."

In a word, the system depends for its success upon a steadily lowering price level, and upon a maintained or increasing wage level. The attempt on a wide scale to increase profits by cutting wages rather than through increased technological or managerial efficiency puts a spoke in the wheels of progress.

Monday, December 16.—California, like some of the rest of the States, became seriously concerned, a few years ago, about a pest of termites. There followed in the trail of the termites, a host of exterminators, many of them self-taught on a very hazy basis of scientific fact. The exterminators became almost as prevalent as the termites, and now the State has gone after the exterminators, and is putting into effect a license law. If something does not now have to be done about the license bureaus, everything will be all right.

Wednesday, December 18.—A capacity gathering of the Building Congress and guests filled the ballroom of the Commodore today at luncheon when Eugene Meyer spoke on the promising possibilities that lie in the building of small houses, provided we can discover better and less expensive methods of fabrication and erection.

Thursday, December 19.—Dropped in at the Grand Central Galleries to see Paul Jennewein's show, and was lucky enough to find the sculptor there. Twenty-five of his recent works, many of them for the Department of Justice Building in Washington, were shown in a room upon the walls of which were no distracting elements. It emphasized the fact that sculpture may be seen at its best when thus isolated, rather than, as we have been doing for years at the League Shows, standing it in the midst of walls filled with drawings and photographs.

Friday, December 20.—Had, as an additional sign of home building activity, a call from the Associated Press today, asking for a series of well-designed small houses to be published in newspapers throughout the United States.

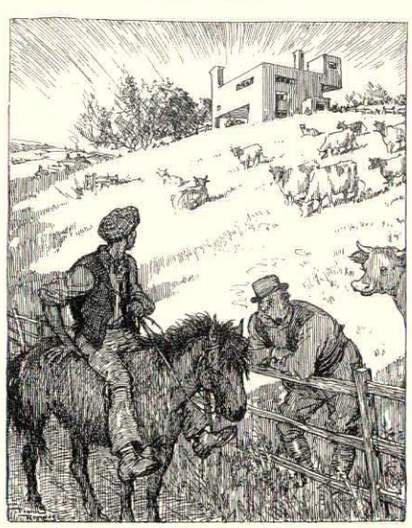
Monday, December 23.—Accounts keep coming in that indicate the imminence of a labor shortage in the building trades. This is not surprising when one realizes that many skilled mechanics have probably abandoned the uncertainties of the building industry for what they hope will be more stable employment. Moreover, the trades have not been training apprentices. From thirty-four cities comes the report, "All skilled building trades workers regularly employed." From thirty-one cities comes the report, "All workers in special trades employed (painters, carpenters, plumbers, steam fitters, and others)." From eighteen other cities comes the report, "An actual labor shortage exists here." A construction company operating throughout the southeastern states says that their greatest difficulty now lies in obtaining skilled workmen. Fourteen months ago they were employing 100 men; at the present time 550 men are on the payroll, and more are needed, but are hard to find.

Tuesday, December 24.—Edward M. Bassett, Philadelphia's doughty champion of better housing, thinks that we are talking entirely too much about multiple housing, and not enough about detached houses. He comes to the aid of the status quo, claiming that it is not nearly so bad as we try to make it out. Closely huddled frame dwellings, which we point to as fire traps, have not, according to Mr. Bassett, shown a single fire during the last quarter century which consumed more than twenty of them. He points out that, as a rule, these small detached homes have more sunlight and air circulation than have apartment houses. Mr. Bassett says that it will be a sorry day when, like Vienna, the people prefer apartment houses to one-family detached homes.

Friday, December 27.—The editors of the architectural journals gathered this morning in Julian Levi's office to discuss ways and means of best acquainting the profession with the Paris Exposition of 1937. Julian Levi happened to be over there last summer when they were experimenting with all kinds of lighting, to find the advantages and faults of each. One might, for example, light the Seine rather too well—for the Seine is no clear mountain brook at times. They tried water-level lighting, sub-surface lighting, top lighting. They wanted to find the best way to light the heavens above, and experimented with the lighting of vapor clouds. The dry air of Paris, however, absorbed the vapor too quickly. Another experiment promised better results, using some artificially produced smoke screen of a substance which would not be unpleasant to nose and throat, but would be dense enough to stay in place long enough to reflect colored light. All of this is an indication of the thoroughness with which the French are proceeding with their plans for this exposition. Fortunately, it comes two years ahead of New York City's, so that we can take a leaf or two out of their book, and try to improve upon them in 1939.

Saturday, December 28.—I see that the Common Brick Manufacturers are to meet next month in Cleveland to discuss ways to sell more brick in 1936. I should think that one of the best ways of accomplishing this end, indirectly, is to make brick more usable by adopting Frederick Heath's scheme for establishing a module for brick work; this would of necessity govern the corresponding size of steel and wood windows, backing material, and other elements for which brick work has had always to be cut and tailored on the job. The scheme neatly utilizes a module that includes not only the brick but the joint, the latter varying as may be required by smooth brick or rough-textured brick. In this scheme one stretcher, two headers, or three courses, center to center of joint, measure eight inches, and the dimensioning of brickwork is kept out of the realm of complex fractions of an inch.

From *Punch*



"Noo varm'ouse do zeem to make cows look turble old-fashioned, Jan."

Monday, December 30.—A group of ten or a dozen architects gathered in the offices of William and Geoffrey Platt this afternoon to tackle what I should say is the largest responsibility facing the profession: What is to be the architect's answer to the American public's obvious need for technical aid in building its small homes? If the medical profession were to ignore, as we have done, all practice excepting major operations and major illnesses, I should imagine that the care of the nation's health would now be in the hands of the druggists. That the building of the small house is in many hands other than those of the architect is a true parallel. At the meeting this afternoon, an outline of organization and procedure was developed providing for a sort of clinical architectural service. The service is necessarily limited in some phases, for economic reasons. It, however, is the rendering of a service, and not the mere selling of stock plans. There was a fine spirit evidenced in the meeting in the realization that no one could possibly expect to make any money out of this practice, but that it is a responsibility of the profession and must be undertaken. America has trained architects as her technical advisers in building. To allow her to build possibly 85 per cent of her homes without such technical advice cannot go on indefinitely, for America will find some other way of having the job done.

Tuesday, December 31.—Lunched today with K. P. Billner, the engineer who originated the principle of aerating concrete with the aid of aluminum salts. He has just added to his list of inventions one that is probably going to mark a new epoch in concrete—a means of compressing the mass and forcing the excess water out of it to produce denser concrete and quicker setting. And the force he uses to accomplish this end is one of which we seldom are conscious excepting when it gives us a pain in the ear—atmospheric pressure. The results of some of the recent tests at Yale are to be set forth in some detail in a forthcoming issue.

NEW HOUSEBUILDING TECHNIQUES

Introduced by the technical survey made and reported by the FHA, which was printed in ARCHITECTURE'S *November and December issues, we purpose reviewing in detail these new methods and materials. Invention and quantity production are storming the citadel of dwelling construction, a citadel unmarked by radical change in many generations. Tomorrow the small house may be quite different from those of our fathers and grandfathers. Already it is different in its equipment and accessories; changes in the structure itself may be imminent. Throughout America hundreds of inventors are pressing forward toward this goal, each one confident, probably, that he holds the key to next year's universal method of building the dwelling. A snap judgment among them is impossible. There are many hurdles on the course, all of which must be cleared by the winner: durability, low cost, ease of erection, weather-tightness, ready adaptation to the slow but sure progress of the public in architectural taste, wide geographical distribution without undue cost on account of weight or isolation of raw materials—to mention some of the higher hurdles. For the present, all we can do is to present the new systems. Their ultimate acceptance or rejection will depend largely upon your faith in their merits and your willingness to submit them to the test of use—"the proof of the pudding . . ."*—EDITOR.

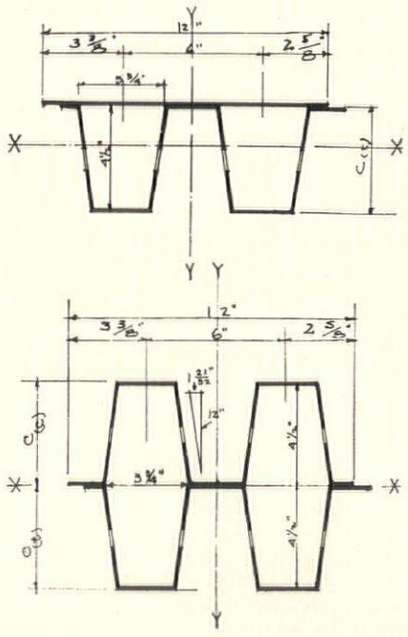
The Palmer System

BY GERALD F. DINGMAN

AFTER a period of apparently complete stagnation in residence construction, there are emerging evidences of the fact that both men and nations have been concerned vitally for some years with the problem of improving homes. With the renascence of the construction industry, experimental developments that vary widely in character are coming to light. The governments have delved deeply into the provision of large-scale, low-cost group housing. And individuals and corporations have devised various new methods for the provision of single houses. While one of these fields can hardly be said to be of greater importance than the other, it is chiefly with the latter that these articles will be concerned, since it is in the development of single houses that the sharper divergences from established practice are appearing.

Among the new forms there are the so-called completely pre-fabricated houses, factory-made structural enclosures, and pre-fabricated structural members. The materials vary from the customary wood and brick to steel, concrete, and specially prepared new compositions. And not the least important phase of the experimentation is the development of new sales and promotion methods that are peculiarly adapted to the various construction systems. For it may well be that these methods will be the important factor in determining which of the new systems shall live to become familiar to us, and which shall die before fruition.

The system treated in this article is that developed by Palmer Steel Buildings, Inc., Los Angeles, Calif., and demonstrated in a residence built for them at Wilshire and Windsor Boulevards in Los Angeles. Since this corporation neither designs nor builds houses—leaving those functions to individual architects and contractors as in conventional systems—an effort was made to embody in this demonstration house features that will show clearly the adaptability of this system to varying exigencies of design.

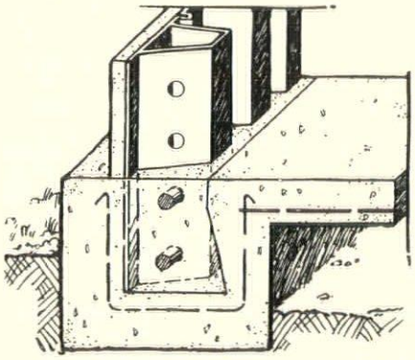


The flat keystone (F. K.) and the double keystone (D. K.) sections are typical designs for the steel load-bearing walls in the Palmer system. These copper-steel cellular sections are manufactured by the H. H. Robertson Co., of Pittsburgh, who have spent six years in the development of similar sections for floor use

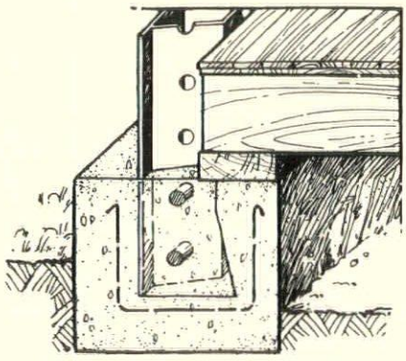
The latitude allowed the designer in exterior treatment, for instance, is shown by the use of five different finishes, including a painted steel panel exterior which is possible only with the use of the cellular steel wall members. While the exposed steel represents a new departure in residence treatment, the other four finishes—plaster, stucco, wood siding, and brick veneer—are quite familiar.

Comparable freedom from restrictions of design is shown in all other parts of the structure. In fact, this system demands no deviation at all from accustomed procedure. The architect may lay out the building and determine his treatment of the various parts in accordance with the wishes of his client and without regard to the structural material to be used. Palmer Steel Buildings then designs its steel work to conform to the architect's plans, and the construction is handled by a contractor chosen by the owner or architect.

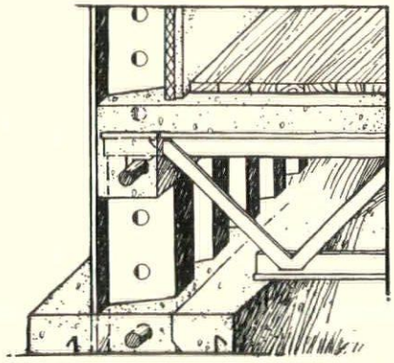
The salient feature of this system



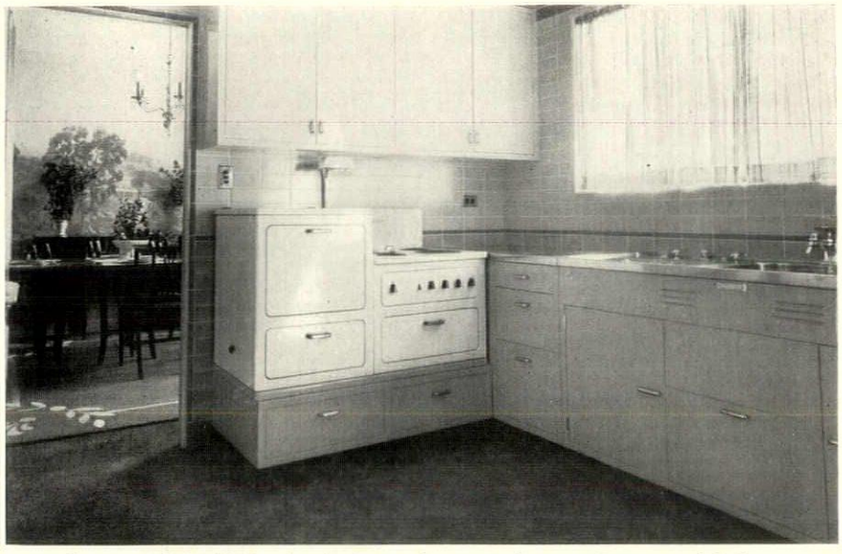
A perspective section showing a floor slab integral with footing for use at the first floor where there is no cellar



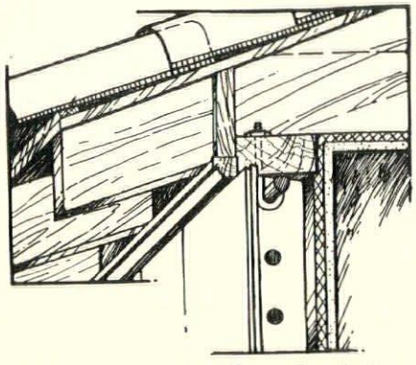
The F. K. unit for walls used in conjunction with wood floor joists and wood flooring. Note dowel bars and anchor slot into which steel is grouted



Standard construction of the single unit for walls with steel floor joists, concrete floor slab, and wood floor on mastic



A corner of the kitchen in the house shown on the opposite page, with the dining-room beyond



A perspective section illustrating the junction of wood rafters, ceiling joists, and plate over the Palmer cellular steel wall

is the adaptation of cellular steel members to residence construction. These members were originally developed as a result of research work in finding a suitable protective sheet metal for the Goodyear Zeppelin Airship Dock at Akron. As now manufactured for Palmer steel houses by the H. H. Robertson Company, the members are of fourteen, sixteen, and eighteen gauge cold-rolled, copper-bearing, steel sheets, formed to a W shape and spot-welded to flat plates by a continuous welding process. Both the single, or flat keystone shape thus formed, and the double keystone section, which is made up of two of the single forms welded face to face, have male and female locking joints along their vertical edges, providing weathertight connections between members, so that when assembled in place they form an unbroken steel sheathing.

The members are finished with a thorough cleaning and application of a weather-resistant baked enamel finish at the factory. Both the single and the double sections are of sufficient strength for two- and three-story construction, and both are provided with holes every four inches of their length for the insertion of horizontal bars as reinforcing or as dowels, so that floors may be hung at any desired level.

In building a residence, these members are set in a dovetail-shaped groove in a concrete footing or foundation slab, and after insertion of the horizontal reinforcing at the base, are grouted solid with concrete. The lower floor may be laid on a concrete slab poured integrally with the footing, or on wood or steel joists hung from the dowel bars. The flooring may of course be applied in conventional manner, wood flooring being nailed to nailing strips set in the concrete slab, or laid in an asphaltum mastic. Application of tile and of rubber flooring is the same as in other houses.

As noted before, the exterior surface of the cellular wall may be merely painted and left exposed to view, or may be treated in any manner in which the exterior wall of a wood frame building may be treated. The interior walls likewise permit a wide variety in treatment. Barbed nails that are case-hardened have been developed so that they can be driven through the steel with an ordinary hammer. Plasterboard, lath, or insulating material may thus be applied directly to the steel, and plaster or other interior finish applied over it.

As is the case with walls and floors, neither the roof nor the ceiling design is governed by the use of the cellular steel walls. Wood roof

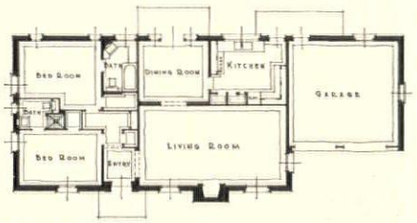
construction may be employed by running a wooden sill or plate along the top of the cellular wall and fastening it with hook-bolts to a dowel bar. The ceiling joists and roof frame may then be built up in the orthodox way. Steel joists likewise may be attached to the tops of the walls by use of the dowel bars. Tile, wood shingle, slate, or composition roofing may be applied, and the roof may be either flat or pitched, according to the desires of the architect and his client.

It is in the treatment of windows and doors that the choice between the flat-keystone and double-keystone sections becomes important. The flat or F. K. section is 4½" deep, and provides for a finished wall thickness of from 5½" up to about 10" when brick veneer is used for the exterior finish. The double or D. K. section is twice as thick as the single, and therefore provides for comparatively deep window and door reveals. Since both the single and double sections are fitted with the same type joints, and since either is structurally sufficient for bearing-wall use, both types may be used in the same structure to obtain a desired effect. This wall construction is equally adapted to the use of either wood or steel windows and doors.

A noteworthy feature of the cellular wall members is their provision of air space to serve as insulation. This air space compares with that allowed in wood-frame wall construction, except that the holes through the cells permit free circulation of air within the wall. Thus, with all the insulating material placed on the inner side of the wall, the structural members tend to remain at outside temperature, and sweating and condensation are thereby avoided. Figures of the American Society of Heating and Ventilating Engineers indicate that wall sections using cellular steel compare favorably in resistivity to heat transmission with similar sections using wood studs.

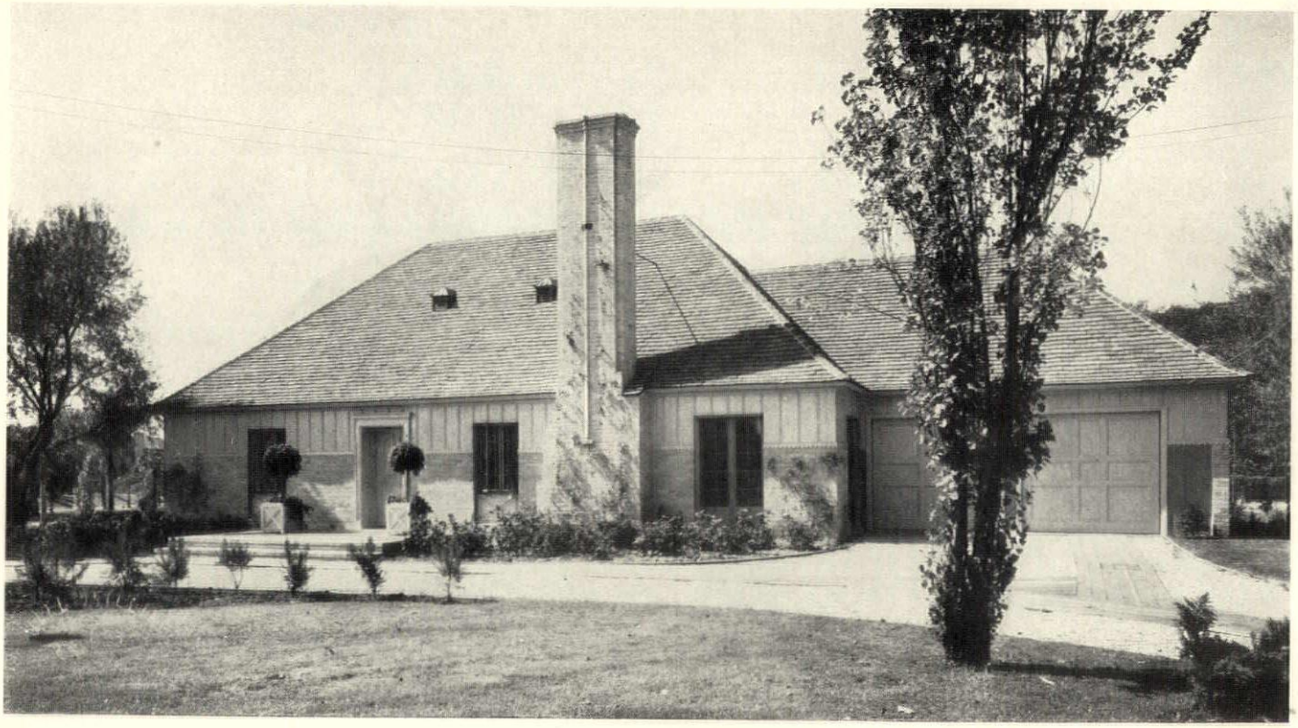
This type of building offers no greater obstacles to the work of the various trades than does the usual type of frame construction. In the house at Los Angeles, electric fan-type wall heating units are employed. However, any other type of heating may be used with the same facility as in wood construction. Likewise, plumbers and electricians may run their work into and through the building with no greater difficulty than they have where orthodox methods of construction are used.

The distributors of the cellular steel members do not at present quote either unit prices or general costs except as their estimates on work actually designed for construction. The unit costs vary with the requirements of each individual building, and of course the general costs vary with the unit costs as well as with the size and design of the building. However, the distributing organization does state that it has demonstrated that the cost of a residence built according to this system may be kept within 10 per cent more than the cost of a comparable house built through the use of orthodox materials and methods.



Plan of the Wilshire Boulevard demonstration house pictured below. Vincent Palmer, an architect, retired from active practice after inventing the Palmer system, in order to devote all his time to the development of a more durable construction

Below, a house at Wilshire and Windsor Boulevards, Los Angeles, in which stucco, brick veneer, wood siding, and exposed steel are all used with the Palmer system of construction to demonstrate its adaptability



The Reflecting Pool

Edwin Bateman Morris

THERE is a comedy motif in our recent American murals that should not pass without comment. It is perhaps not considerate to be amused at works of art which obviously represent such hard, gruelling work and the conscientious exercise of the utmost ability possessed by the artist—or, to make a more precise selection of words—the painter.

Still there is a definite bid for laughter, a conscious seeking of the malapropos.

A while ago I had to spend the best part of an hour in the new Cincinnati Union Station, most of which time I used in looking over the muralized walls. The murals have an easy simplicity of line, scheme, and conception, which is pleasantly reminiscent of those exact drawings with which we used to decorate our precious high-school year books, where every composition appeared as a precise mathematical result, showing the inspirational agony that had been gone through in deciding whether the man should have a derby hat or a soft one, a bow tie or an ascot.

At Cincinnati, as I waited—perhaps hoped—for the train, I was impressed with clothes. I like and approve of clothes, as a mark of civilization and even of decency, but as a subject of conversation and conjecture, I regard them as a little on the boring side.

Therefore, I disapprove of having a whole quarter mile of mural devoted to clothes—and when I say clothes, I mean buttons, buttonholes, patch pockets, shoes freshly half-soled, mathematically drawn lapels. I have no doubt had I the courage to look I should have discovered Masonic emblems on watch chains, Red Cross buttons, moth holes, soup spots, and all the minutiæ of exact realism.

There was naturally the suit of overalls, which is the focal motive of all modern murals. At first it appeared that the effect had been obtained by actually pasting striped denim on the wall, and then it became apparent that it was just a clever painting device to make it look as if denim had been pasted on the wall.

Overalls have, by some mental quirk of the mural painters, become a theme of all contemporary murals. Perhaps there is a vague ambition to crystallize a national American costume. Focally placed in the Cincinnati mural stands a man emblazoned in what was unquestionably meant as the symbol of the republic—striped overalls, every stripe determinedly delineated.

It is apparent that all murals now must center around overalls. Where once there used to be the allegorical figure of Aphrodite, smooth and round of body, you now have the decent overall.

What a beautiful commentary on the tide of American life. No longer the mildly suggestive breasts of the goddesses, but the sexless cheer of denim. No golden hair bright in the sunshine, but rather the classic profile of the engineman's cap, with such poetic symbols of American life as the oil can, the hammer, the pick, the shovel, and the tin lunch box.

With this glorification of the overall goes usually, though it was not so apparent at Cincinnati, the typical American mural face—forehead low and sloping sharply back, nose flat, lips thick, chin massive, and neck the same diameter as the head.

Hands go with this face. Great grappling-iron hands of steam-shovel capacity, behind which the man might hide himself, his wife and his full litter of children.

There is a mental leadership there, a shaping of American thought, a harking back to genesis and origin. One may construct a lesson and moral from these murals. Is it that no actual America and no actual Americans exist? Is it that America is the offshoot of Europe, built up of the European discard; that Americans are sprung from Swedes, Lithuanians, Czechs, Poles, Slavs, and therefore the symbolic American should have the thick neck, the flat nose, the receding forehead?

Perhaps the drawing and the theme of these, our national murals, is scaled down to be readily understandable by the descendants of Swedes, Lithuanians, Czechs, Poles, and Slavs and by all others engaged in the non-mental and non-speculative professions. Perhaps this is reason for the glorification of the overall. Perhaps this is the reason, when it is necessary to draw other clothes, they are painstakingly delineated as Sunday clothes, with shiny shoes, which in the manner of a bricklayer's of a Sunday, appear to squeak. Perhaps the theme is carefully simplified, touching on easy things, such as a man looking at a tree, or a man holding a hammer, so that the descendants of the soil may understand.

Perhaps. But really I believe it is slumming. It is the artist aloofly making excursion into lower social strata, taking great care to delineate his dramatis personæ with the necessary thick necks and flat noses to underline the slumming idea and indicate, either consciously or unconsciously, that the artist himself is of finer clay. It is a pleasant whimsy from the painter's point of view as it tends to raise his self-respect. Yet—we might say with Kipling—"It's lousy but is it art?"

❖ ❖ ❖

I HAD an enjoyable but very short acquaintance with Reginald Johnson of California, who was nice enough to tell me the methods he had used to finish concrete walls. Since we had been enjoined from the use of stucco on concrete, the question of what you did for epidermis naturally arose. Johnson's analysis of the situation showed an artistic mind working carefully and painstakingly in the practical side of his profession.

He is interested in the matter of a style for California. People generally have settled that by saying "Spanish"—and then modifying it to "Mission." There isn't any real Spanish and there isn't very much Mission in California. So Johnson has taken an idea—let us say the idea represented by the elusive touch of Spanish in the word Los Angeles, the smooth walls of the missions, the eternal presence of trees and green things in California—and worked to put that into architecture.

The result is not Moderne, though it has a cousinship to it. It is not Spanish, though it has the same patrician naïveté. It is not the stereotyped Mission of Pasadena and Flint Ridge. It has a flavor, and, presented with Malcolm Cameron's serene touch, it is very sweet to look at.

NUMBER 112

IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS
ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF PEDIMENTS

(EXTERIOR)

Subjects of previous portfolios are listed below at left and right of page

1926
- DORMER WINDOWS
- SHUTTERS AND BLINDS

1927
- ENGLISH PANELLING
- GEORGIAN STAIRWAYS
- STONE MASONRY TEXTURES
- ENGLISH CHIMNEYS
- FANLIGHTS AND OVERDOORS
- TEXTURES OF BRICKWORK
- IRON RAILINGS
- DOOR HARDWARE
- PALLADIAN MOTIVES
- GABLE ENDS
- COLONIAL TOP-RAILINGS
- CIRCULAR AND OVAL WINDOWS

1928
- BUILT-IN BOOKCASES
- CHIMNEY TOPS
- DOOR HOODS
- BAY WINDOWS
- CUPOLAS
- GARDEN GATES
- STAIR ENDS
- BALCONIES
- GARDEN WALLS
- ARCADES
- PLASTER CEILINGS
- CORNICES OF WOOD

1929
- DOORWAY LIGHTING
- ENGLISH FIREPLACES
- GATE-POST TOPS
- GARDEN STEPS
- RAIN LEADER HEADS
- GARDEN POOLS
- QUOINS
- INTERIOR PAVING
- BELT COURSES
- KEYSTONES
- AIDS TO FENESTRATION
- BALUSTRADES

1930
- SPANDRELS
- CHANCEL FURNITURE
- BUSINESS BUILDING ENTRANCES
- GARDEN SHELTERS
- ELEVATOR DOORS
- ENTRANCE PORCHES
- PATIOS
- TREILLAGE
- FLAGPOLE HOLDERS
- CASEMENT WINDOWS
- FENCES OF WOOD
- GOTHIC DOORWAYS

Below are the subjects of forthcoming Portfolios

Balcony Railings
(INTERIOR)
MARCH

Gothic Buttresses
APRIL

Corner Windows
MAY

Self-supporting Stairways
JUNE

Window Heads
(INTERIOR)
JULY

Garden Enclosures
AUGUST

Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication date.

1931
- BANKING-ROOM CHECK DESKS
- SECOND-STORY PORCHES
- TOWER CLOCKS
- ALTARS
- GARAGE DOORS
- MAIL-CHUTE BOXES

1931—*Continued*
- WEATHER-VANES
- BANK ENTRANCES
- URNS
- WINDOW GRILLES
- CHINA CUPBOARDS
- PARAPETS

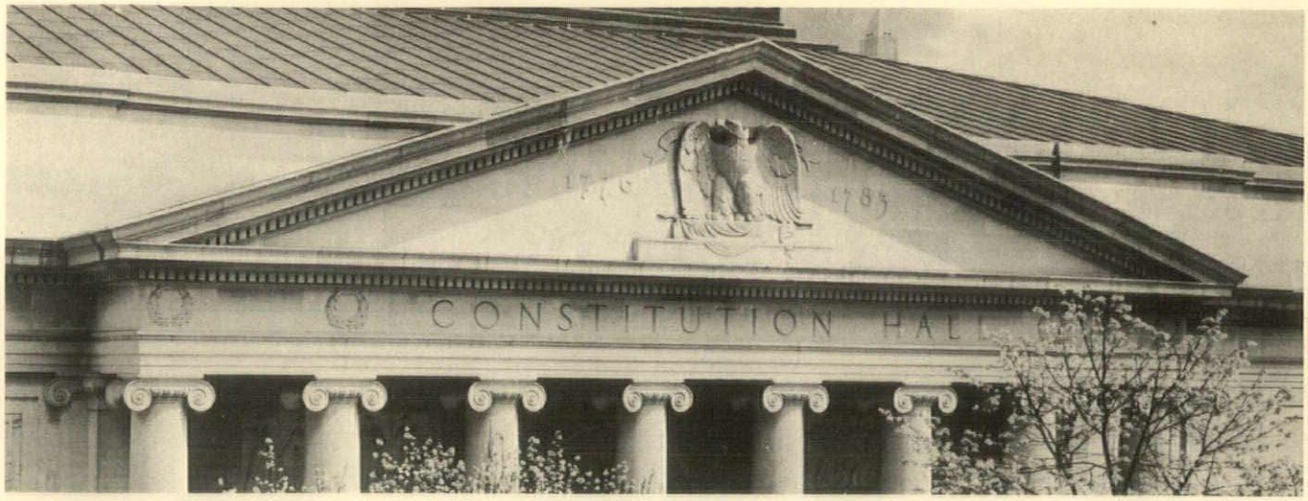
1932
- RADIATOR ENCLOSURES
- INTERIOR CLOCKS
- OUTSIDE STAIRWAYS
- LEADED GLASS MEDALLIONS
- EXTERIOR DOORS OF WOOD
- METAL FENCES
- HANGING SIGNS
- WOOD CEILINGS
- MARQUISES
- WALL SHEATHING
- FRENCH STONEWORK
- OVER-MANTEL TREATMENTS

1933
- BANK SCREENS
- INTERIOR DOORS
- METAL STAIR RAILINGS
- VERANDAS
- THE EAGLE IN SCULPTURE
- EAVES RETURNS ON MASONRY GABLES
- EXTERIOR LETTERING
- ENTRANCE DRIVEWAYS
- CORBELS
- PEW ENDS
- GOTHIC NICHES
- CURTAIN TREATMENT AT WINDOWS

1934
- EXTERIOR PLASTERWORK
- CHURCH DOORS
- FOUNTAINS
- MODERN ORNAMENT
- RUSTICATION
- ORGAN CASES
- GARDEN FURNITURE
- WINDOW HEADS, EXTERIOR
- SPIRES
- BUSINESS BUILDING LOBBIES
- ROOF TRUSSES
- MODERN LIGHTING FIXTURES

1935
- CIRCULAR WINDOWS (GOTHIC AND ROMANESQUE)
- TILE ROOFS
- MOLDED BRICK
- DORMER WINDOWS
- ENTRANCE SEATS
- OVERDOORS, INTERIOR
- BRICK CORNICES
- SIGNS
- CHIMNEY OFFSETS
- WINDOW HEADS (EXTERIOR, ARCHED)
- UNUSUAL BRICKWORK
- SHUTTERS AND BLINDS

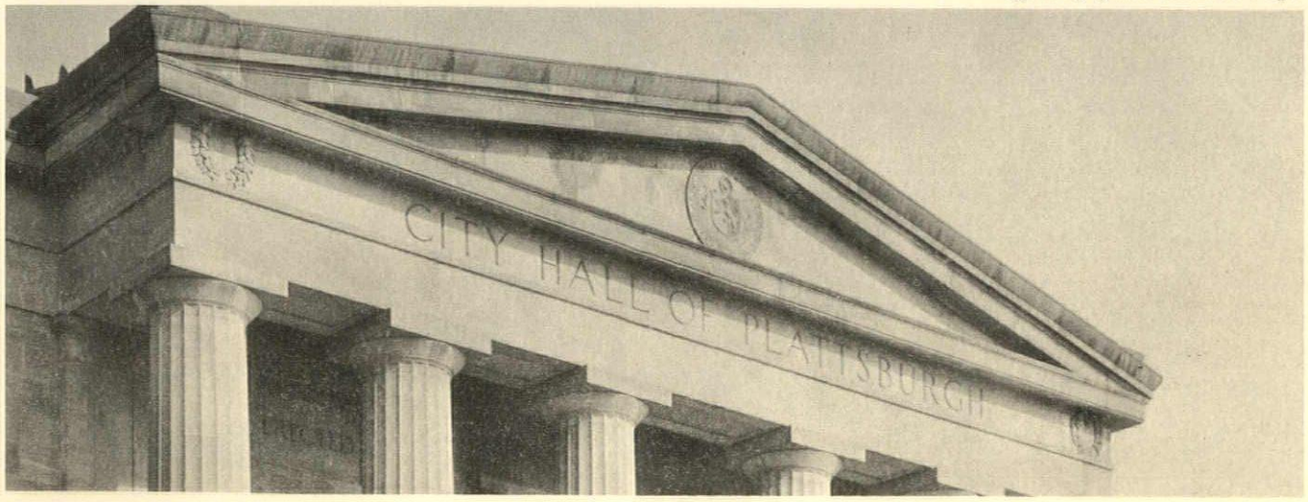
1936
- FIREPLACES (MEDITERRANEAN TYPES)

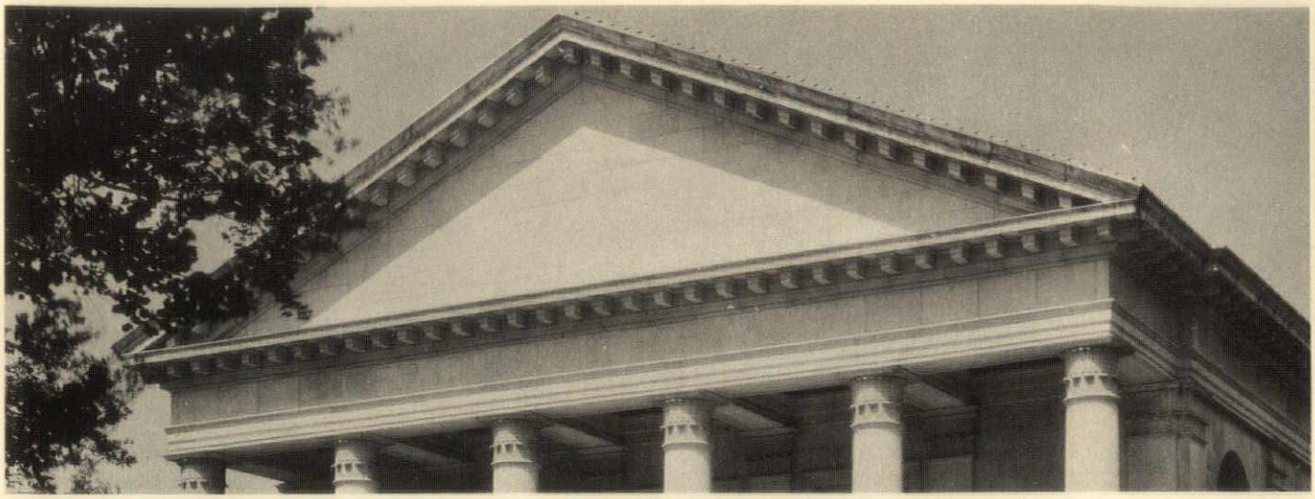


Constitution Hall, Washington, D. C.
Office of John Russell Pope

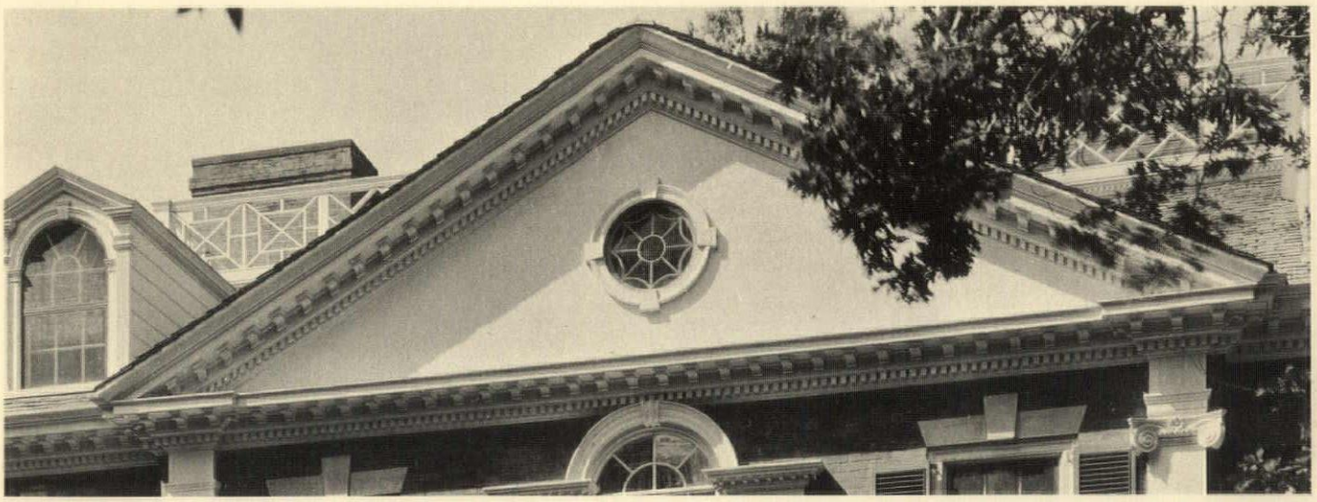
Village Chapel, Pinehurst, N. C.
Hobart Upjohn

City Hall, Plattsburgh, N. Y.
Office of John Russell Pope



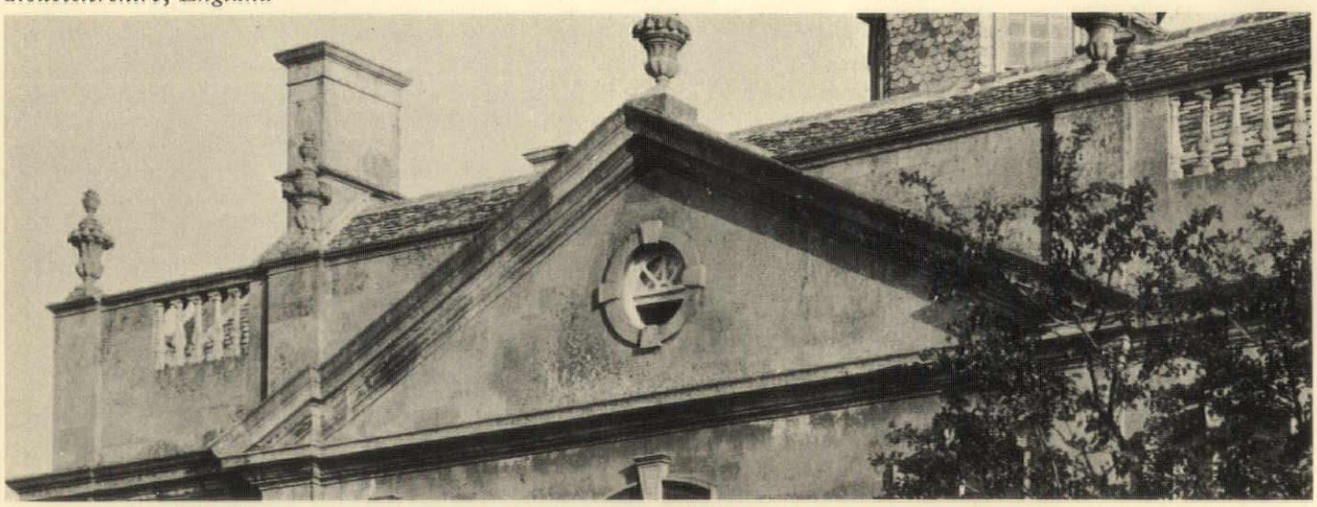


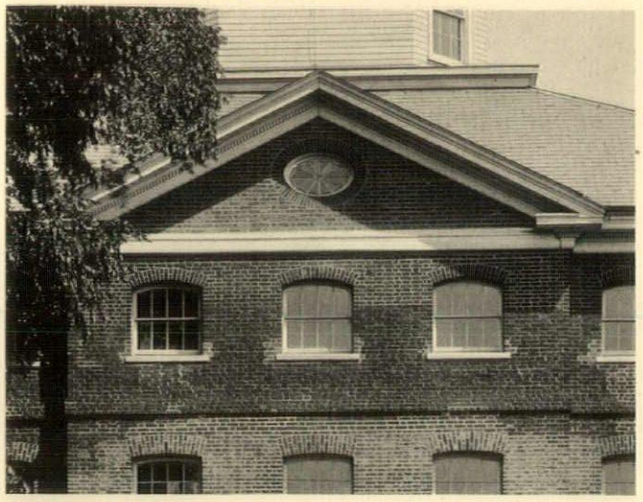
Old Baptist Church
Savannah, Ga.



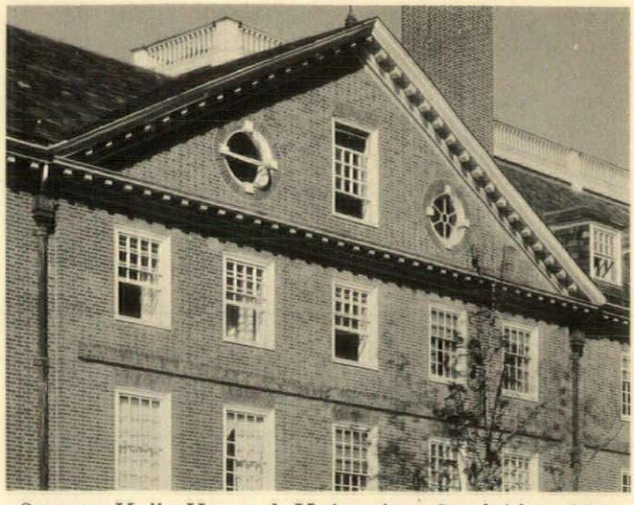
House at Pelham, N. Y.
Pliny Rogers

Harington House
Gloucestershire, England

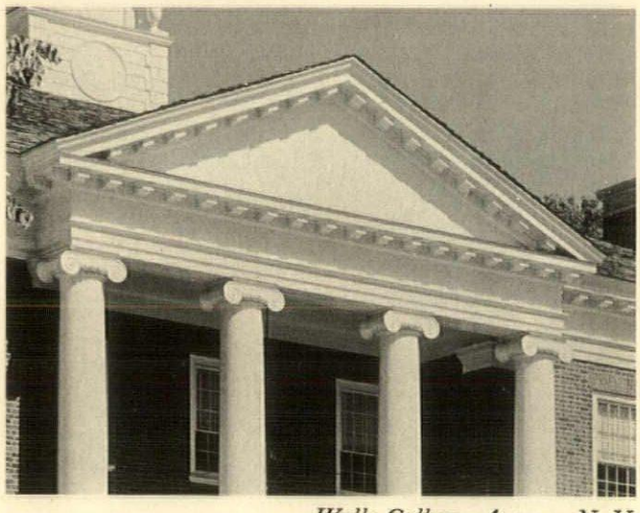




McDowell Hall (1744)
St. John's College, Annapolis, Md.



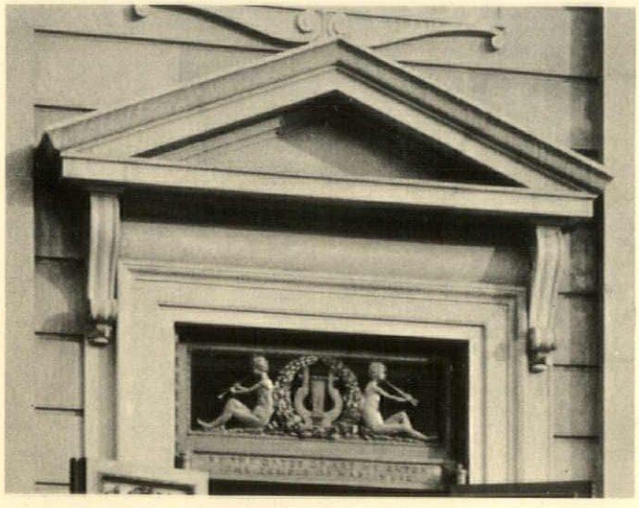
Strauss Hall, Harvard University, Cambridge, Mass.
Coolidge, Shepley, Bulfinch & Abbott



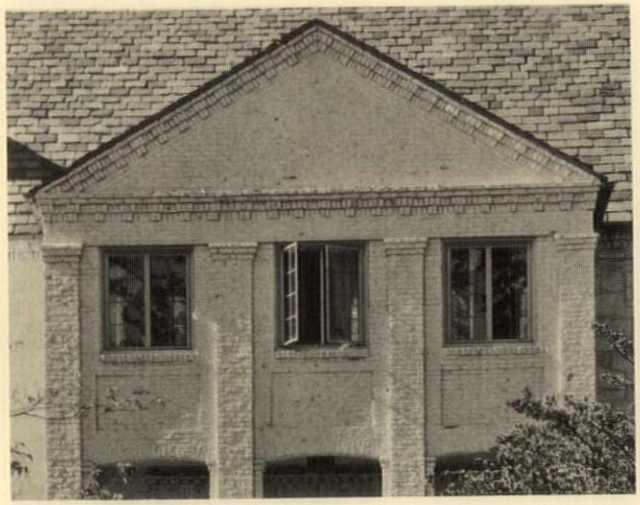
Wells College, Aurora, N. Y.
Dwight James Baum

House at New Canaan, Conn.
Frederick J. Sterner

American Academy of Arts and Letters, New York City
Cass Gilbert

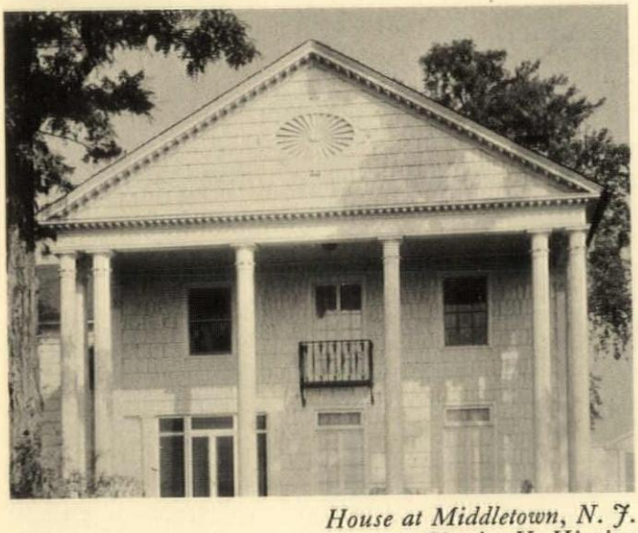


Dunster House, Cambridge, Mass.
Coolidge, Shepley, Bulfinch & Abbott

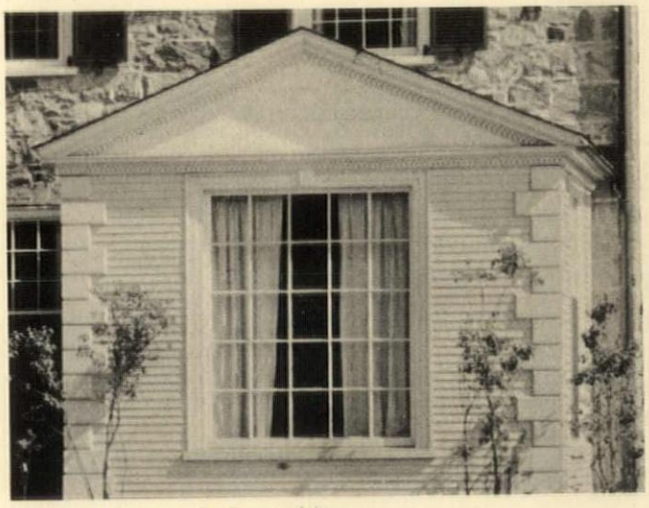


House at New Rochelle, N. Y.
Julius Gregory

Old Almshouse
York, England

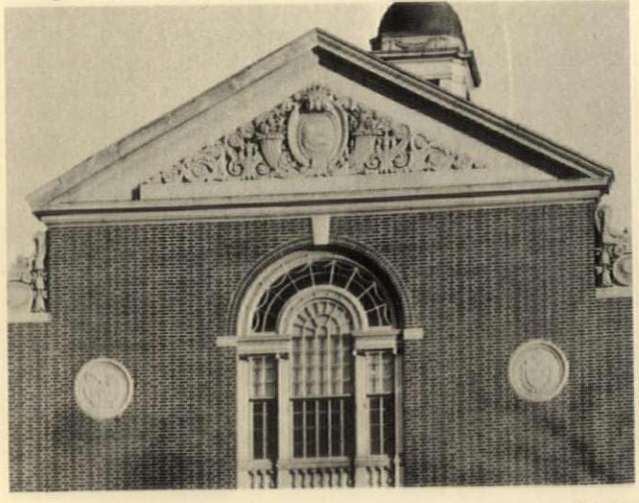


House at Middletown, N. J.
Charles H. Higgins

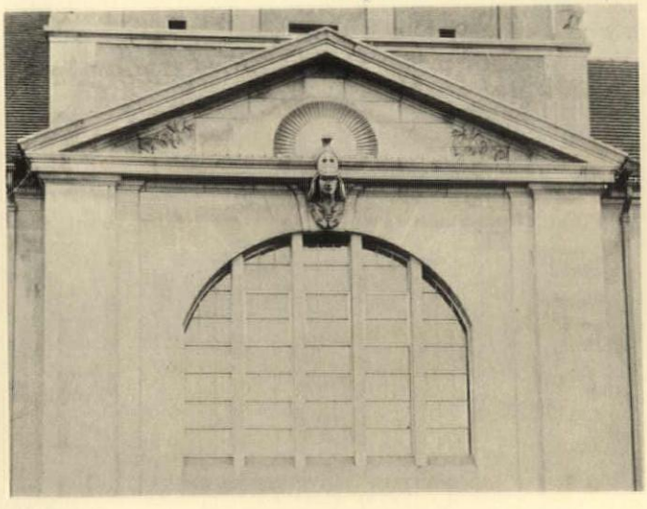


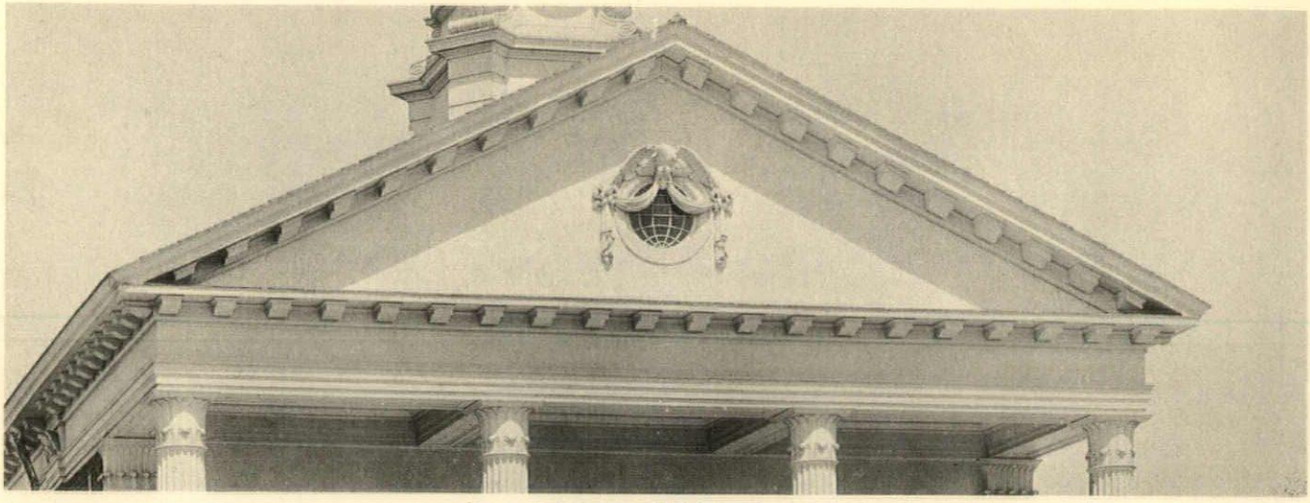
Jones Library, Amherst, Mass.
Putnam & Cox

Fire House, Cambridge, Mass.
Sturgis Associates, Inc.

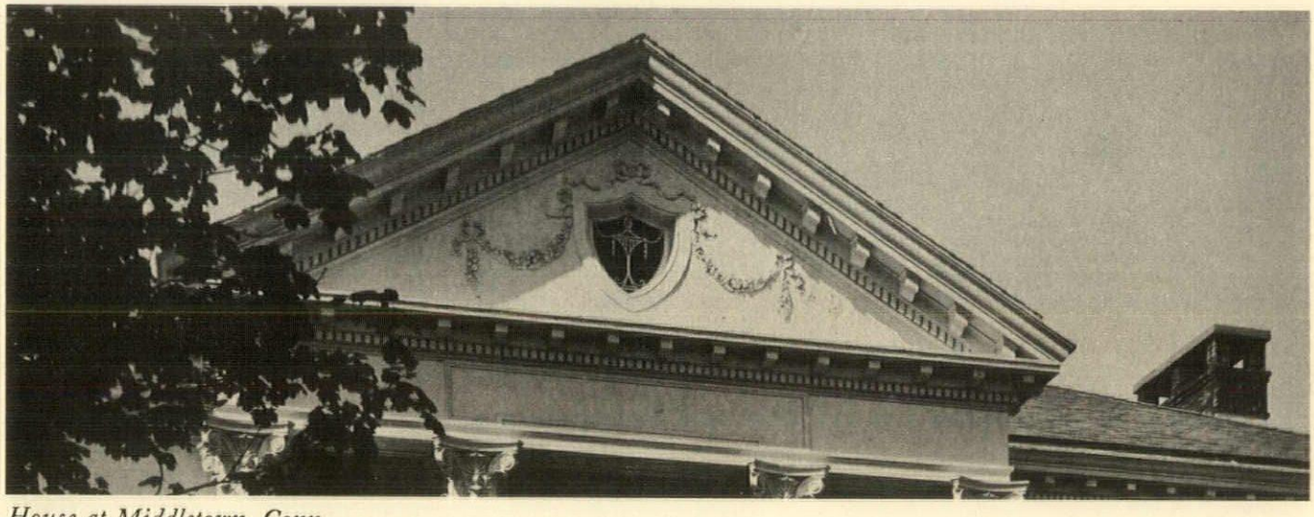


Germanic Museum, Cambridge, Mass.
Professor T. G. Bestelmeyer



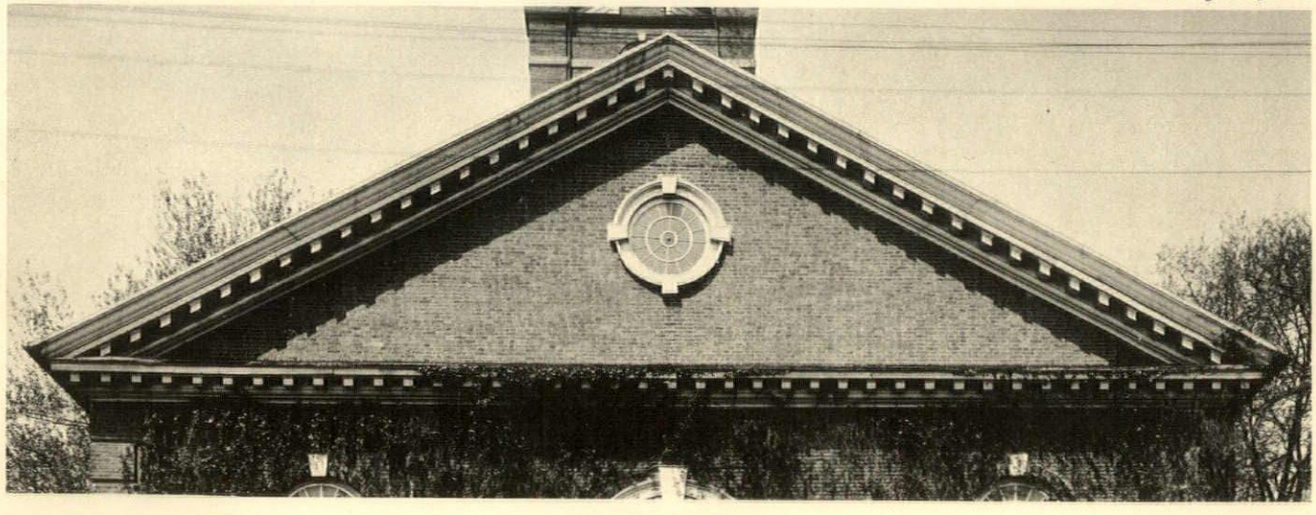


Branch Library, Bridgeport, Conn.
Leonard Asheim

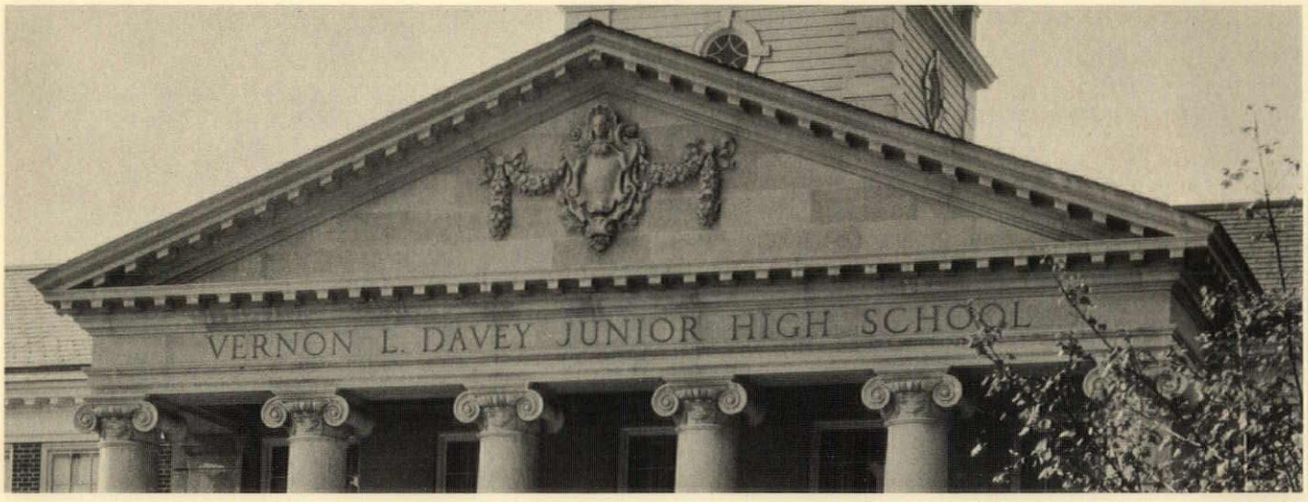


House at Middletown, Conn.
LeRoy P. Ward

St. Peter's Church
Philadelphia, Pa.

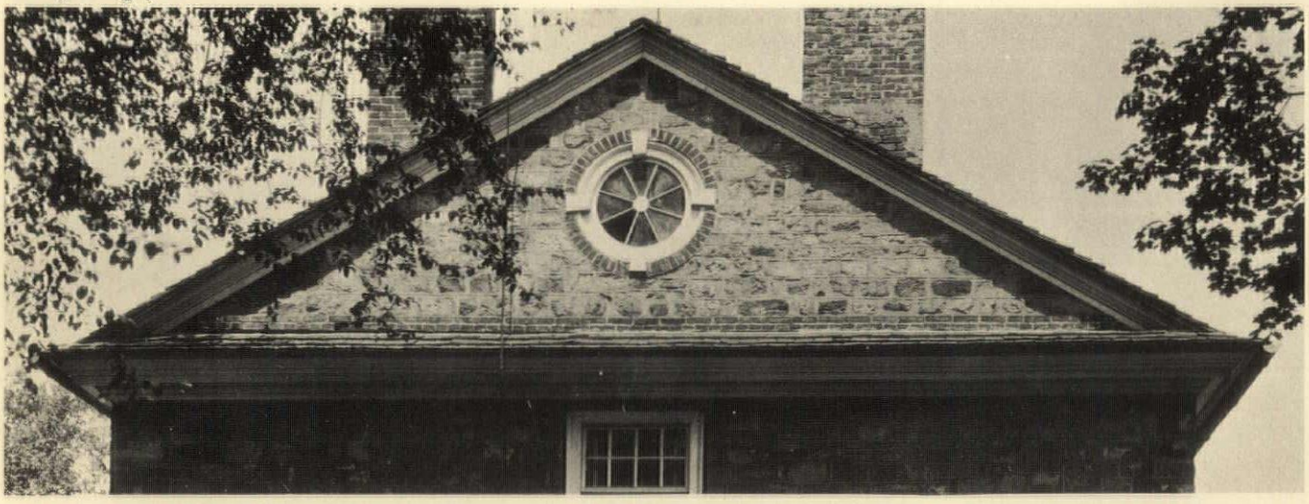


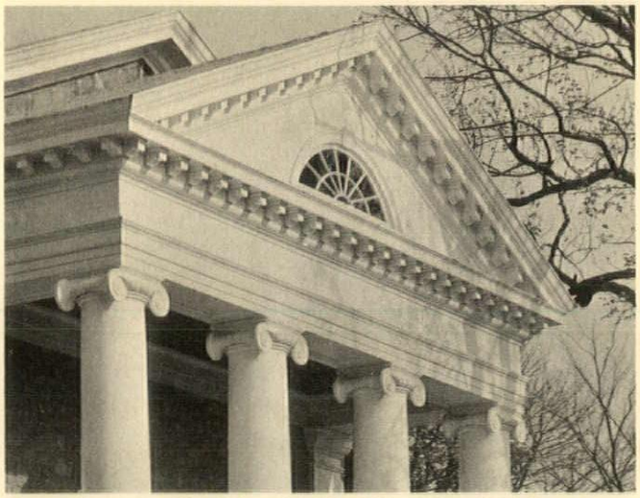
Lincoln School, Lincoln, Mass.
Palmer, Thomas & Rice



Vernon L. Davey Junior High School, East Orange, N. J.
Guilbert & Betelle

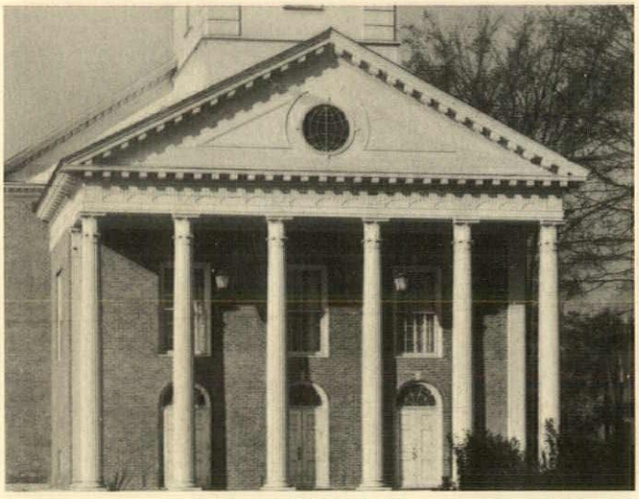
Washington's Headquarters
Valley Forge, Pa.



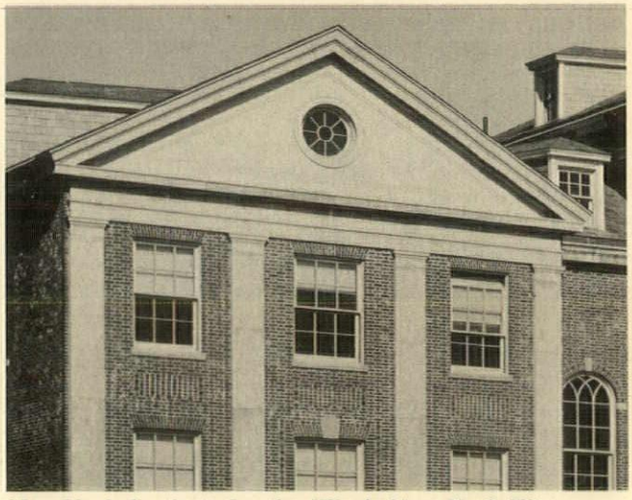


First Presbyterian Church, New Rochelle, N. Y.
Office of John Russell Pope

Independent Presbyterian Church (1755–1922)
Savannah, Ga.

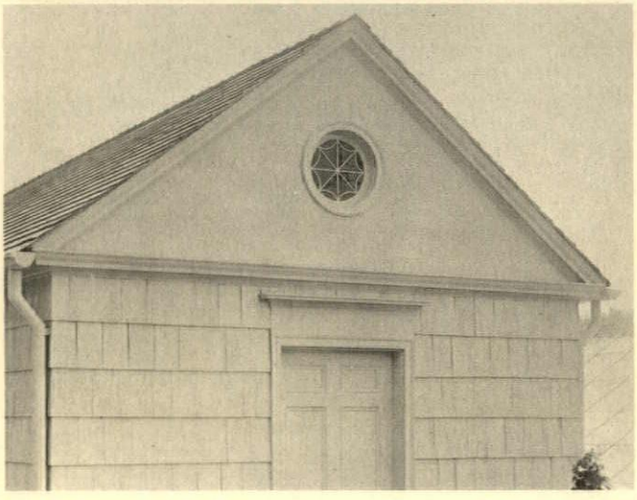


Springfield (Vt.) Congregational Church
Aymar Embury II

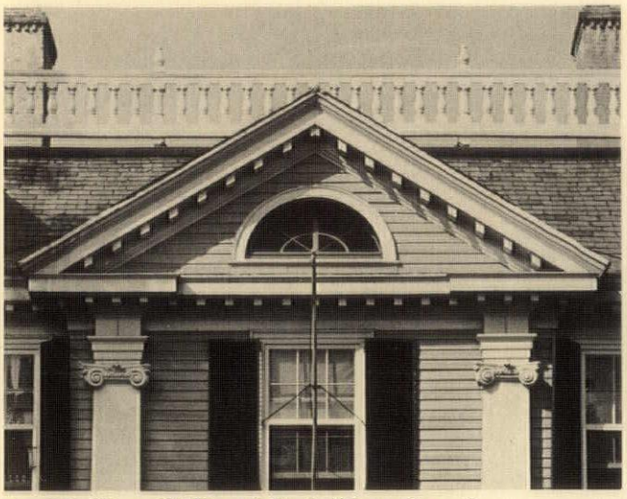


New York Institute for the Blind, New York City
McKim, Mead & White

Garden House, Glen Cove, N. Y.
Charles S. Keefe

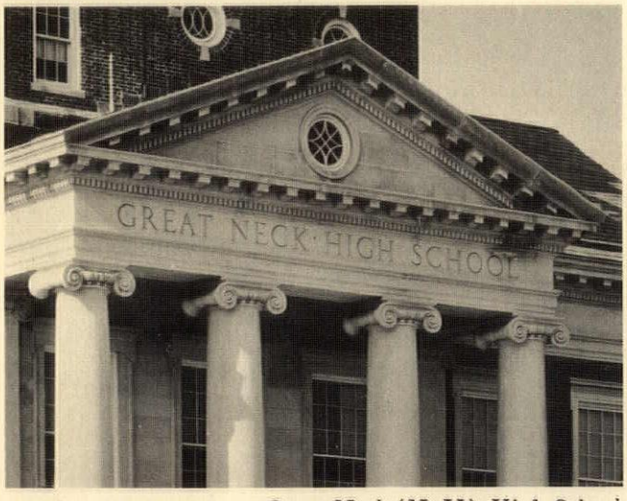


Tammany Hall, New York City
Thompson, Holmes & Converse



Craigie-Vassall (Longfellow) House (1759)
Cambridge, Mass.

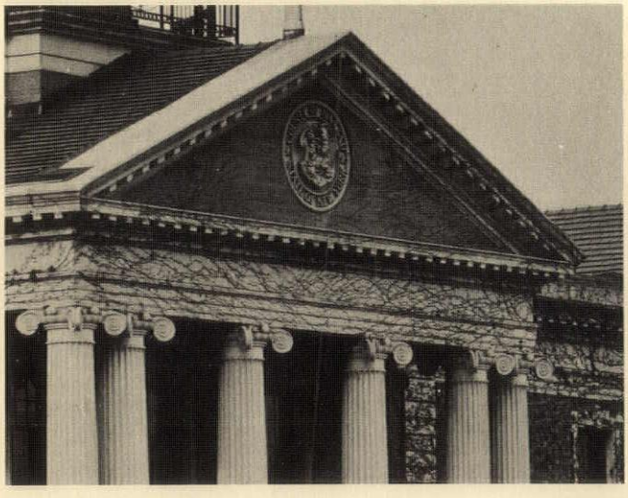
Pierre S. Du Pont High School, Wilmington, Del.
E. William Martin



Great Neck (N. Y.) High School
Guilbert & Betelle

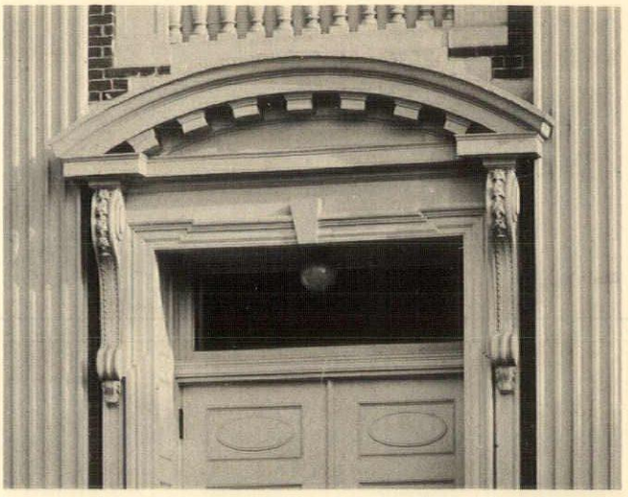
House at Westbury, N. Y.
Rogers & Zogbaum

Nassau County Court House, Mineola, N. Y.
William B. Tubby

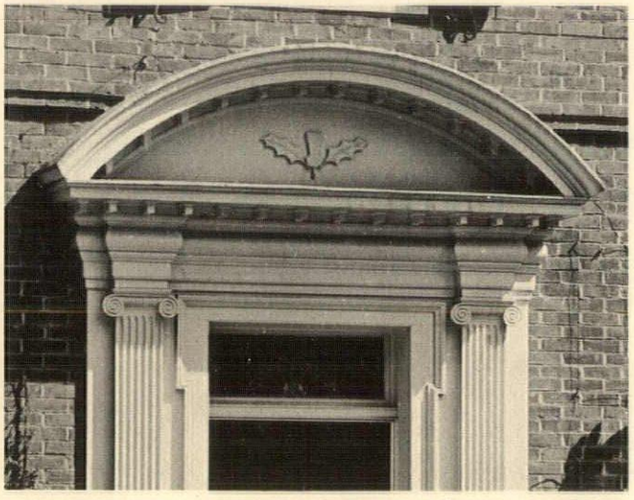


Smith College Dormitory, Northampton, Mass.
J. W. Ames & E. S. Dodge

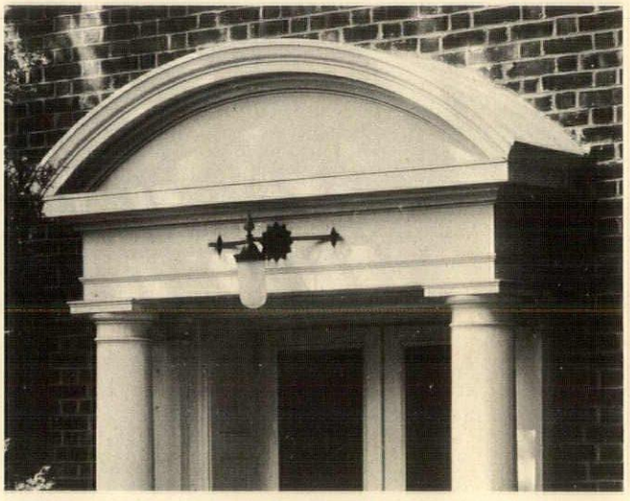
Frick Art Gallery, New York City
Thomas Hastings



Music Department, Harvard University, Cambridge, Mass.
John Mead Howells

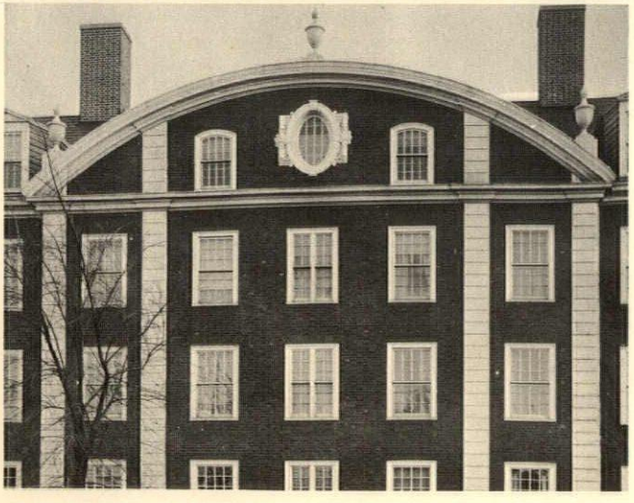


House at Brookville, N. Y.
Bottomley, Wagner & White

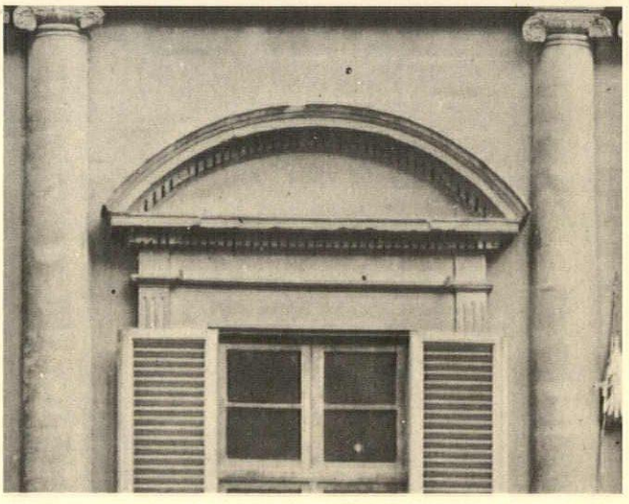


Christian Science Chapel, Glen Cove, N. Y.
Delano & Aldrich

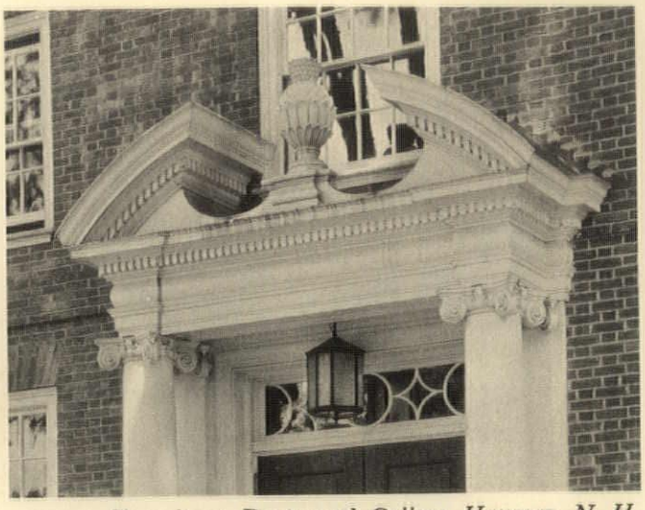
Morris Hall, Cambridge, Mass.
McKim, Mead & White



Palazzo Uguccioni (1550), Florence
Raphael



House at New York City
Frederick J. Sterner



Dormitory, Dartmouth College, Hanover, N. H.
Office of John Russell Pope

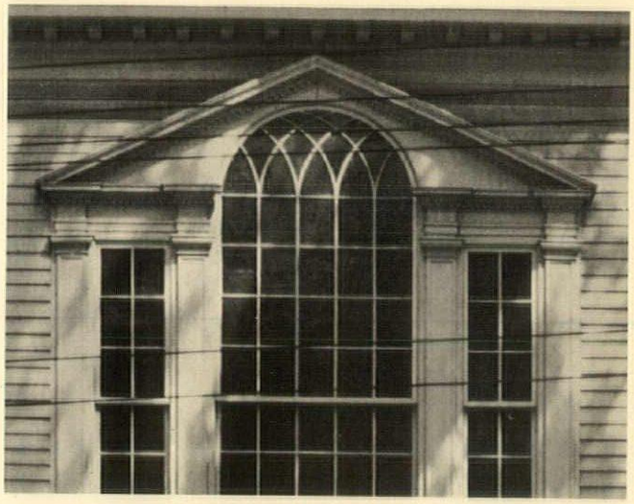
Red Cross Headquarters, Mineola, N. Y.
Delano & Aldrich

Southern New England Telephone Company
Meriden, Conn.
Gray & Lawrence

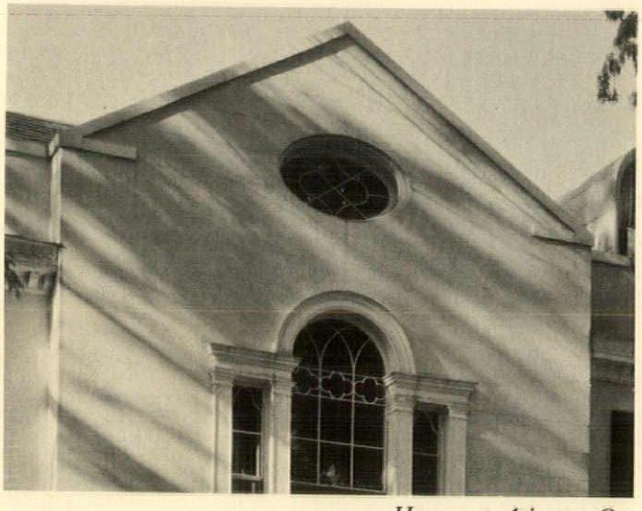
Chapel Front, Berkeley's Hospital
Worcester, England

House at Warrenton, Va.
Bottomley, Wagner & White

International Mercantile Marine Company Building
New York City
Walter B. Chambers



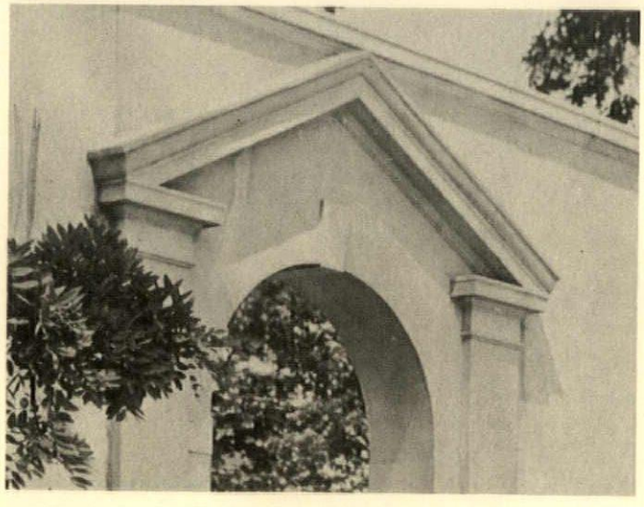
Church (c. 1800)
Middlebury, Vt.



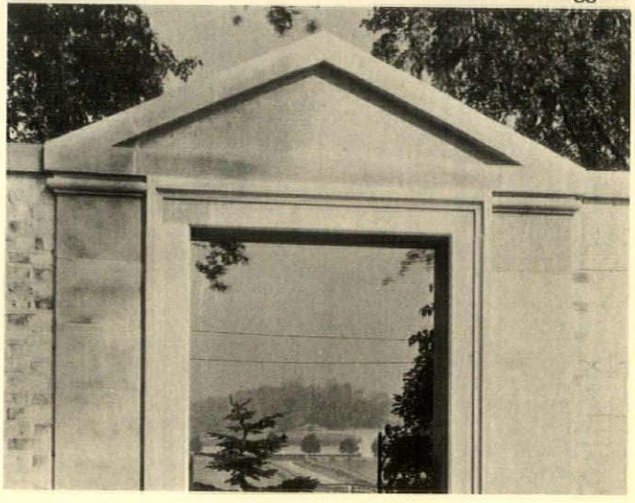
House at Atlanta, Ga.
Hentz, Adler & Shutze

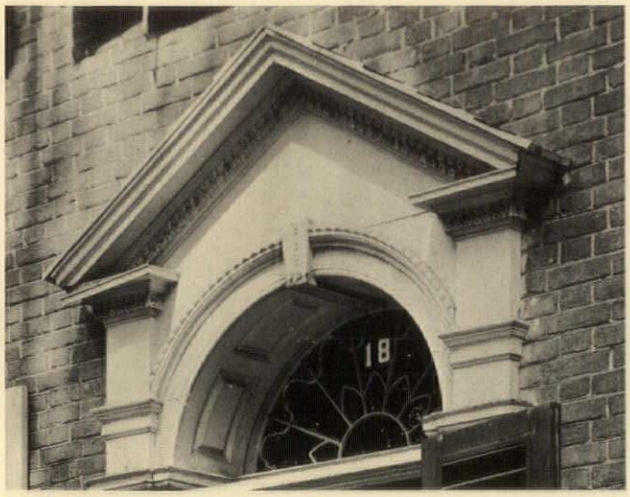
House at New Marlboro, Mass.
Eric Kebbon

Garden Wall, Syosset, N. Y.
Delano & Aldrich



Garden Wall, Middletown, N. J.
Charles H. Higgins





Old House
New Castle, Del.

Kent (Conn.) Public Library
Heathcote M. Woolsey

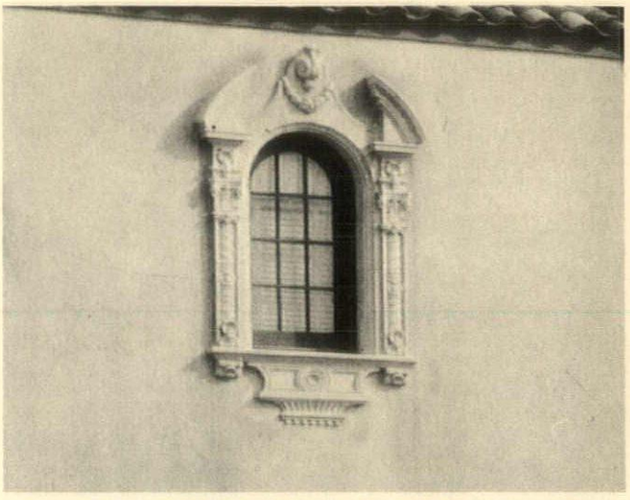
Gadsby's Tavern (1752–92)
Alexandria, Va.

House at Middlebury, Va.
Peabody, Wilson & Brown

House at Springfield, Mass.
Clifton C. West

Warner Memorial Library, Tarrytown, N. Y.
Walter D. Blair

House at Darien, Conn.
Wesley Sherwood Bessell



Highland Park City Hall, Dallas, Texas
Lang & Mitchell

House at Washington, Conn.
Cameron Clark

House at Lexington, Ky.
Lewis C. Albro

Hotel Commodore, New York City
Warren & Wetmore

House at Cold Spring Harbor, N. Y.
Delano & Aldrich

Clinton School, Maplewood, N. J.
Guilbert & Betelle

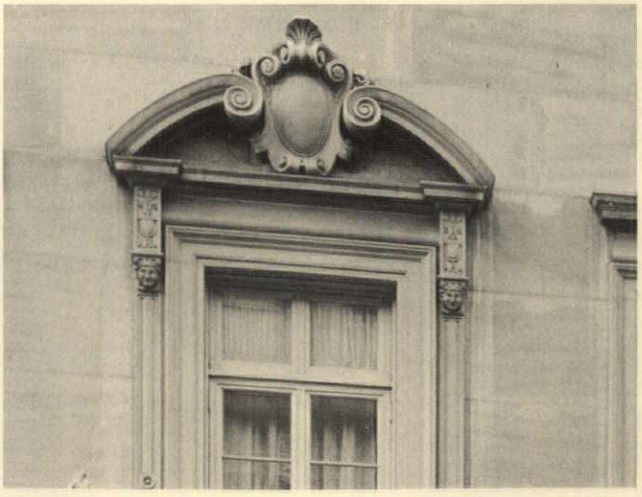
Fogg Art Museum, Cambridge, Mass.
Coolidge, Shepley, Bulfinch & Abbott

Society for Relief of Destitute Blind, New York City
M. L. & H. G. Emery

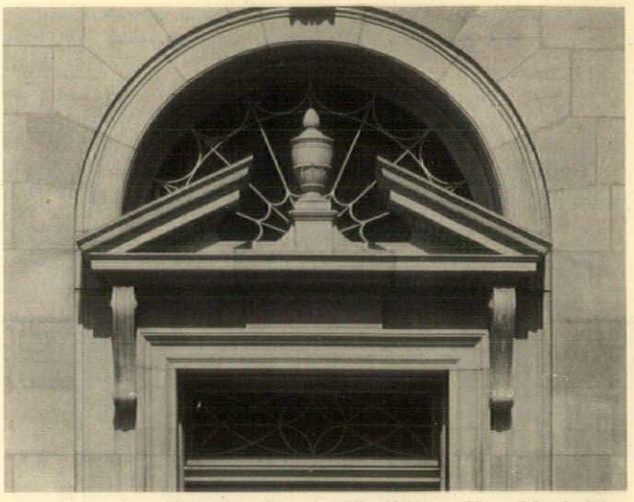
Jones Library, Amherst, Mass.
Putnam & Cox

Public School No. 3, Baldwin, N. Y.
Tooker & Marsh

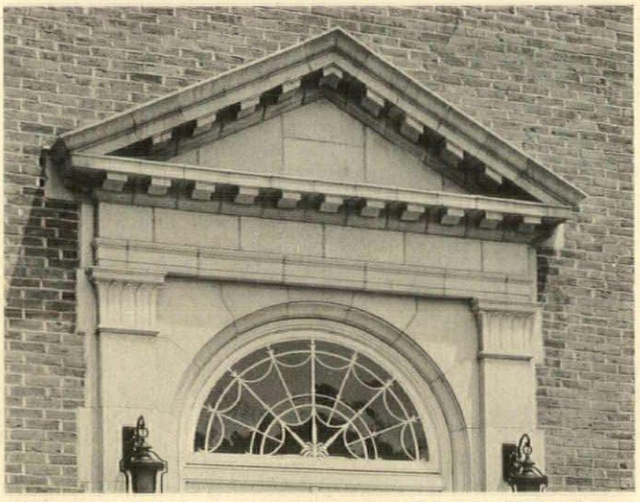
House at New York City
Sterner & Wolfe



First National Bank & Trust Company Building
Mamaroneck, N. Y.
Office of John Russell Pope



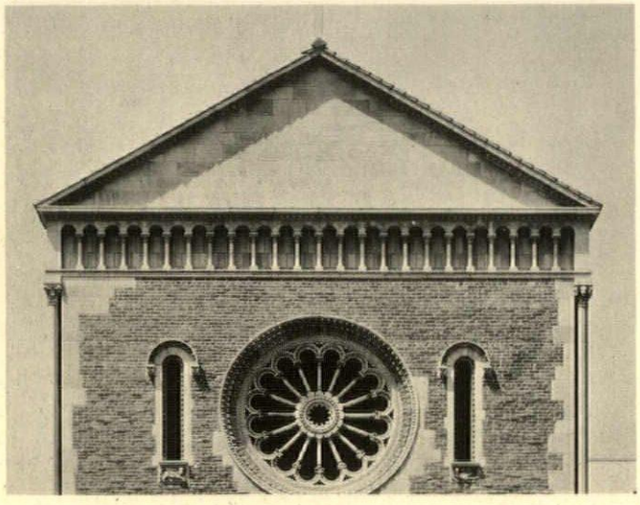
Junior League Building, New York City
Office of John Russell Pope



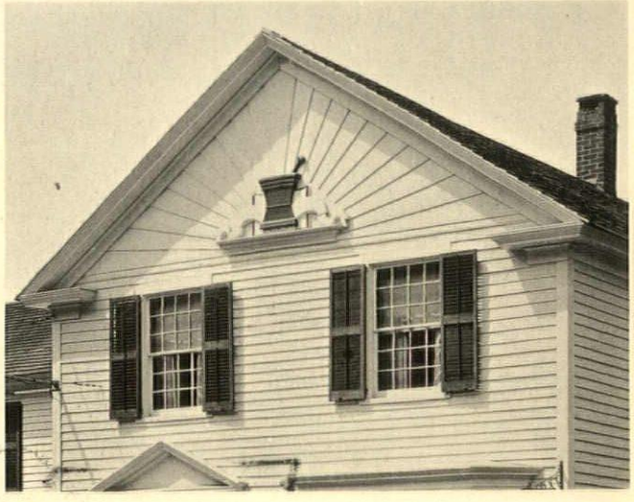
Westbury (N. Y.) High School
Peabody, Wilson & Brown

Bank Building of Lee, Higginson & Company
New York City
Cross & Cross

Church of the Guardian Angels, New York City
John V. Van Pelt



Shop at Saybrook, Conn.
Francis A. Nelson



DESIGN *in* MATERIALS

A DEPARTMENT DEVOTED TO A BETTER LIAISON BETWEEN THOSE WHO ARE DESIGNING THE NEW AMERICA AND THOSE WHO ARE PRODUCING THE MATERIALS WITH WHICH IT IS TO BE REBUILT

—*for instance, in the new* SAVOY ROOM *at the* Savoy Plaza Hotel, New York

Blackstone Studios

By Eugene Schoen

OF EUGENE SCHOEN & SONS
NEW YORK CITY

Photographs by Paul J. Woolf

OUR firm has come to a realization of the fact that the designer who utilizes his imagination in the choice of materials for the decoration of the interior, and takes advantage of new items now on the market, will produce a more satisfying room than either the architect who still thinks only in terms of marble and mirror, or the interior decorator who attempts to soften this background with rich velvets and overcarved chairs in presumptuous good taste.

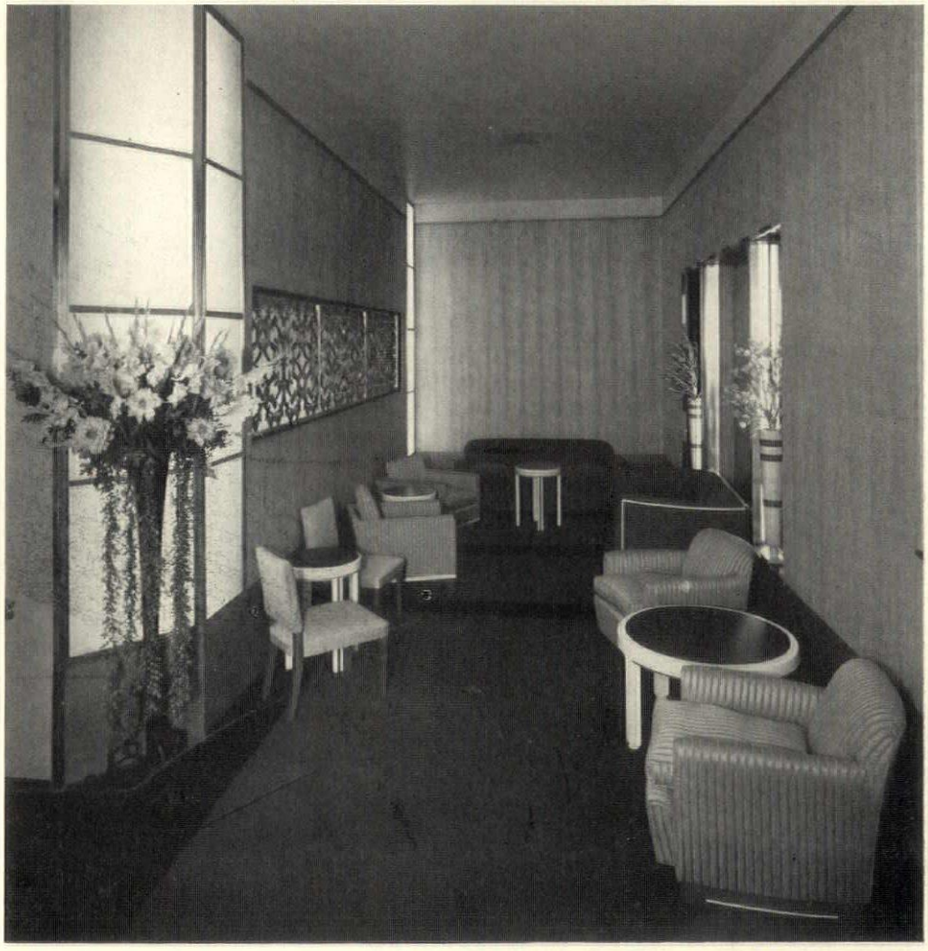
The realization that the average architect made his interiors too stiff and cold and that the interior decorator offended the intelligence of the creative designer by his fulsome accumulations has brought into being a new sort of organization, specializing in the design of the interior, treating each definite problem, practically and æsthetically. In accomplishing this the designers have caused to be utilized many materials not formerly used.

In the Savoy Room of the Savoy Plaza Hotel, we studied the effect of each material for its physical qualities and æsthetic appearance. For instance, Flexwood and Fabrikoid were used on the foyer and waiting-room walls to insure a surface that was intimate and yet elegant. Velvet was used as hangings in the main dining-room, both for the richness it yields and for the sound-absorbing qualities it possesses. A chenille was chosen for the upholstery of the dining chairs, because it could be specially woven at low cost and could be easily replaced at a later date. It would also show less dirt and could be more readily cleaned without ruining the material.

Glass bricks were utilized for decorative purposes, and were softly illuminated from within. A figured carpet was especially designed and produced at no increase in cost over stock patterns.

All of this is in decided contrast to the method usually employed of merely picking out from the local market whatever happened to fit in. Here a field has been opened wherein the architect has worked with the weavers of the upholstery materials and of the carpet as he formerly did with the stone cutters. Here he designed and supervised the casting of aluminum grilles as he formerly worked in bronze. He has

A carefully matched Faux Satinee Flexwood covers the walls of this waiting-room. Cast aluminum grilles perforate the walls between it and the dining-room



In the dining-room the wall surfaces are broken up by introducing a series of decorated niches. The sides and ceilings of these are stencilled in flesh tones, red, and blue, to reduce scale. Benches are covered in brown leather. Niches are separated by low pylons of dully illuminated glass brick, with glass flowers on the tops of each pylon. The main ceiling is painted a dead black

On the opposite page, above, the entrance from the lobby into the dining-room on its lower level. The walls recall one of the peach tones used in the stencilled decoration of the niches. With the indirect lighting sources are combined the cold-air supply vents

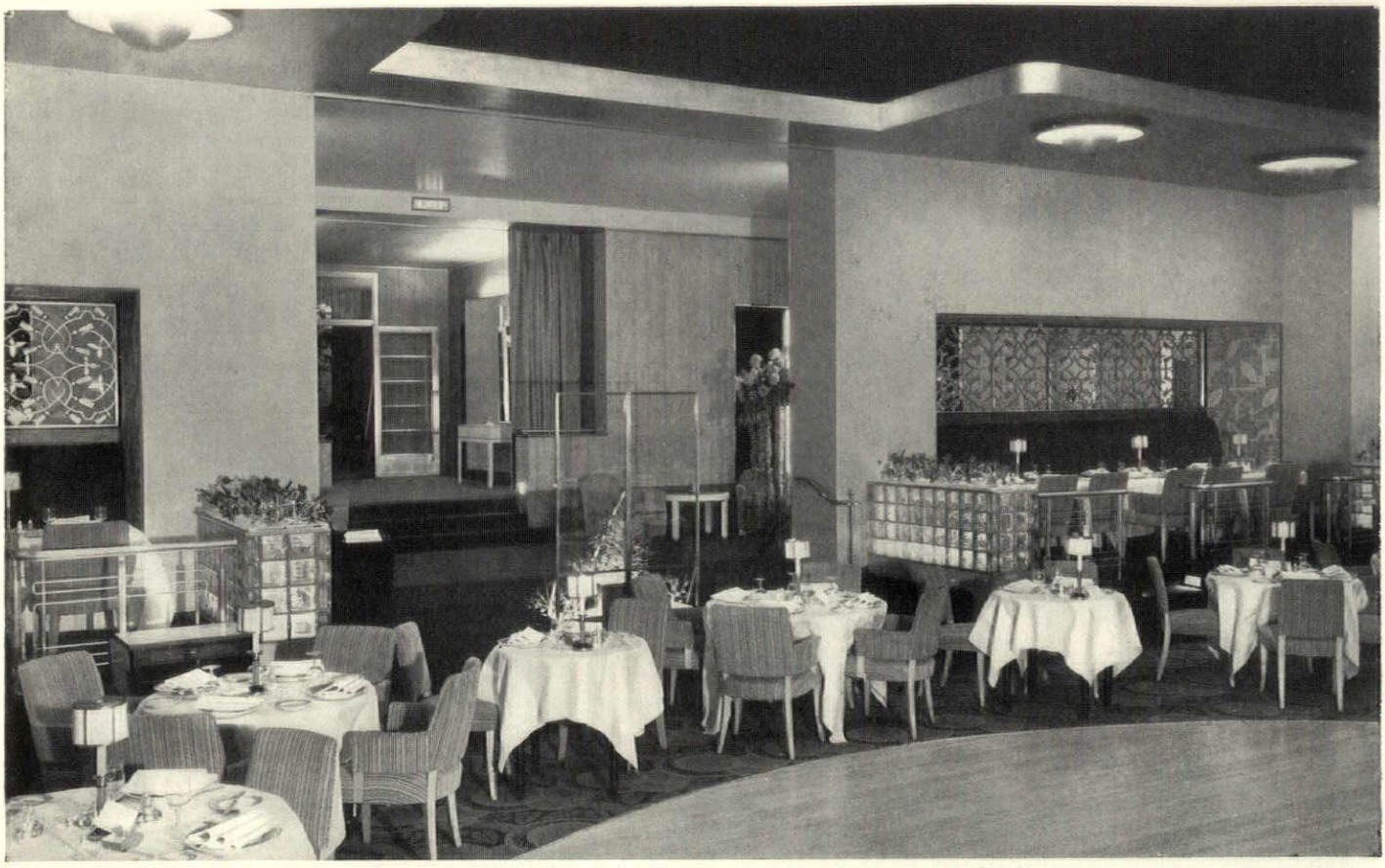
In the lower illustration, facing, there is a close-up view of a niche. The rails are of aluminum, with grips of catalin—a material new in architectural use

learned to paint with lights, having taken his cues from stage designers, as he formerly painted with oils and pigments.

With all these developments he has also had to keep pace with mechanical progress the plans, the air conditioning, and the structural changes necessary in alteration work; and with the best practice of the acoustical engineers.

Rather than attempting to carry the reader through a long description of the Savoy Room, here are the photographs showing the finished result, with rather full captions telling how and with what materials it was produced.

SAVOY ROOM, SAVOY PLAZA HOTEL, NEW YORK CITY—EUGENE SCHOEN & SONS



SAVOY ROOM, SAVOY PLAZA HOTEL, NEW YORK CITY—EUGENE SCHOEN & SONS

In the center of the black ceiling plane is a silver-leafed recess below which are hung five aluminum lighting troughs, each equipped with white, amber, red, and blue bulbs. These are controlled in any combination, making possible complete changes in the tonal character of the room. At the far end are Venetian blinds upon which Arthur Crisp has painted a simple decoration. The floor covering of the entire area has been made more interesting by attempting to lead the field of one room into that of another—a device made possible by the new seamloc carpets now available

SAVOY ROOM, SAVOY PLAZA HOTEL, NEW YORK CITY—EUGENE SCHOEN & SONS

AT THE OUTER GATE

A SHORT STUDY OF A FEW ASSORTED SALESMEN

By George S. Chappell

(Dr. Traprock)

ALL my architectural life my heart has gone out to the salesman, and as often as possible my hand has gone with it. When a card is brought in and is laid on my desk or drafting-table, I sometimes look at it with an air of distraction, or even petulance, at the interruption. But ere the half-formed "Tell him I'm busy" passes my lips my better nature prompts a reconsideration. "Here is a man," I think, "whose job is to travel from door to door, seeking only an audience. He must get many refusals, and life must at times seem very disheartening. It must be discouraging, though healthful, to be kept so much in the open air when his ambition is to get into the inner office."

Consequently, when this charming young man opens a portfolio of Beautiful Interiors, and shows me the gorgeous board-room of the Salamander Insurance Company, or the ballroom of Mrs. Van Dusenberry's house at Lenox, my interest is more æsthetic than anything else. But I listen politely and admire sincerely and profusely, and promise my visitor that the very next palace I build shall contain nothing but his woodwork. I then go back to my drawing-board and try to figure how I can squeeze another seven dollars out of the Jones bungalow estimate. When that imaginary millionaire client comes along and says: "Mr. Chappell, I have seen the two-family house you built in Hackensack, and I want you to do a twenty-story building for the Atlantic Applesauce Co.," well, you can bet I'll be all ready for him.

Then there is another boy I like very much who represents a type. He is the very young salesman who hasn't really learned his "line." He stumbles and flounders through his patter, turning red and sweating violently. The lesson he is supposed to have learned is full of technical words, such as are found only in the most difficult cross-word puzzles, but he hasn't had time to do much home-work on it. The way he tries to sell me his product, which is a water-proofing compound, goes something like this:

"You see, Mr. Chappell, the basis of our compound is a paste in which pure bitumen is mixed with er . . . with horn-stone crystals and . . . er . . . er . . . horn-stone crystals, and er . . . well, it's got something like pyrobium in it, or some damn thing like that. Anyway, it's *the goods*, believe me. I haven't been with the company very long, but they tell me it's all right."

I don't comment on the fact that they naturally would. That would be too heartless, and I am glad to pick up what bits of scientific knowledge I may from his nervous lecture.

A salesman who never fails to fascinate me is the one who, out of a plump brief-case, produces an elaborate working model of his wares. Such a one drops in upon me from time to time with a patent window that can do everything but talk. It looks like nothing at all when he first slides it out of his case, but after he has pushed and pulled various rods it begins to look more and more like a young guillotine. Then he begins to work it, showing how it can be cleaned from the inside, how the screens work, how it can suddenly transform itself into a casement window, and do all sorts of other tricks. I have seen him put it through its paces many times, but I enjoy the performance so much that I always ask him to repeat it.

On his last visit I asked him if it wouldn't be possible to put a time-clock arrangement on it so that it would close of itself on cold winter mornings. Then, I pointed out, he would have a really human window, a window with a heart, and one that would appeal to every man and wife in the country who have lain in bed pretending to be asleep and wondering if the other would get up and brave the icy blasts. My friend was much struck with the idea and promised to take it up with his company, and I have no doubt that I will find the feature incorporated when he next does his stuff.

Among my business callers is one whom I can not always see, much as I should like to. He is a very dapper, smartly dressed man, and the last thing that he has on his mind is business. Every topic that is of immediate interest must be gone over thoroughly before he even approaches the crude subject of his occupation. During our last talk we went over the political situation very carefully, discussed the football prospects, commented on the stock market and, in general, sketched a complete survey of present conditions before my genial friend rose and said: "Well, I don't suppose you are in the market for a vacuum cleaner this morning?"

There is a tall, rangy cuss who dropped in to see me once, and whom I shall never miss if I can help it. I shall never forget my first glimpse of him—a raw-boned plainsman type, with the most disarming grin and caressing drawl I have ever encountered. He stood at the outer gate and as I glanced at him inquiringly he tendered a small pamphlet, and summed up his identity by saying: "Jest another of those damn paint peddlers."

If ever a man smelt of pinto ponies and the wide, open spaces this one did. I urged him to talk, but he was diffident.

"It's jest paint," he said, "an' it's all in there," indicating the folder. "They tol' me a lotta stuff down at the office, but gee whiz, I forgot it before I got out of the place. Honest, I don't know if it's any good or not, but they seem to be able to sell it to a lotta folks."

I knew all about the paint, or at least I knew as much as most architects do, which is just exactly nothing, in which knowledge my engaging salesman and I were equal.

However, it was a standard brand of high quality, and I have specified it to this day because the salesman told me he knew nothing about it.

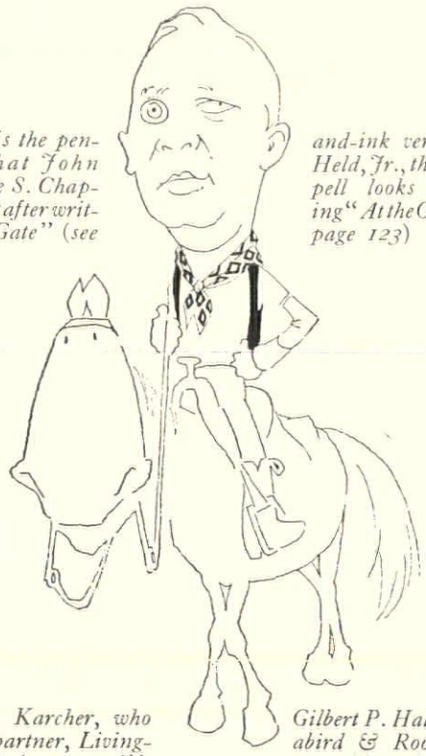
I might add many to my gallery of salesmen: the breezy, nervy lad who doesn't send in a card but "crashes the gate," and presents himself personally; the rapid-fire talker who has all the facts and figures at his tongue's end, and leaves me dizzy with a mass of data, formulæ, tests, and references; the man—but space forbids further citations. They are many and, frankly, delightful. They amuse and interest me. I like to study their products—and them—and I hope the time will never come when the stereotyped phrase, "Tell him I'm busy," will shut the door of human intercourse in the faces of salesmen friends, made and to be made.

Karden-Kazanjian Studios

Clarence S. Stein, who holds what is perhaps the long-distance commuting record among American architects, is now on his way to China

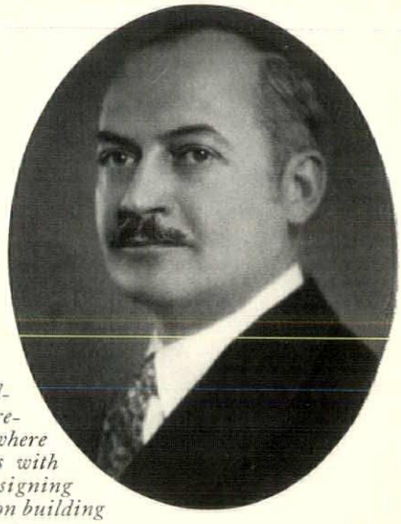
Andrew Reinhard, who with a flock of associate architects—Reinhard & Hoffmeister, Hood & Fouilhoux, Corbett, Harrison & MacMurray—seems to have a life job in adding steadily to the impressive pile of structures in Rockefeller Center

Here is the pen-and-ink version of what John George S. Chapman Held, Jr., thinks just after writing "At the Outer Gate" (see page 123)



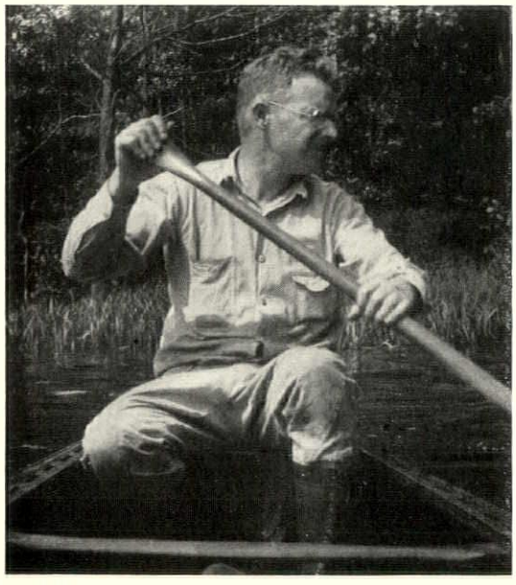
Underwood & Underwood

Walter T. Karcher, who with his partner, Livingston Smith, is responsible for the United States Naval Hospital illustrated on pages 69-78

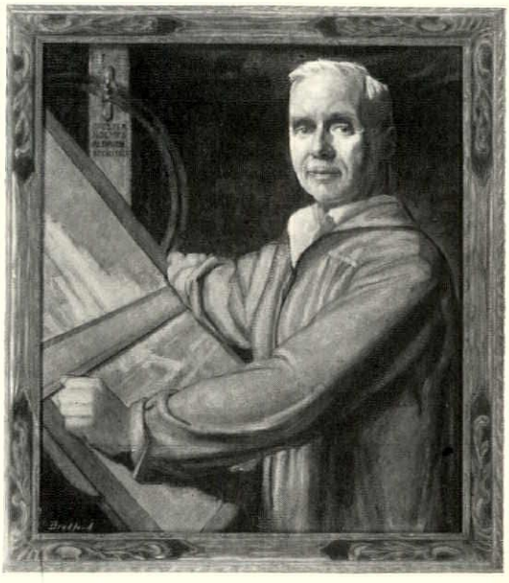


Gilbert P. Hall, of Holabird & Root, has returned from London, where he spent three months with C. Howard Crane, designing a $6,250,000 exposition building at Earls Court

You know these men by reputation



When Frank Forster, New York architect, isn't designing the country houses for which he has become famous he paddles his own canoe on his own lake near Madison, Conn.



Bradford's portrait of Chester Holmes Aldrich, who has temporarily left an active practice with his associates in Delano & Aldrich to spend a year directing the American Academy in Rome

The PRODUCERS' COUNCIL

News Reel of the Meeting in Detroit, December, 1935. Round-table Discussion of Pertinent Ideas

C. W. Ditchy, President of the Michigan Society of Architects, pointed out that producers in their respective lines were experts in producing quality products; that the architects were primary in making plans and supervising construction, but that the co-operation between producer and architect was needed to co-ordinate legitimate construction. This co-operation is also necessary to eliminate shoddy construction, dishonesty, and unethical dealings in the building industry.

F. W. Morse, of the Chamberlin Metal Weatherstrip Co., reported possibilities of having an architectural competition, sponsored by the Producers' Council, for the purpose of promoting the use of architectural service, the idea being that this would promote the use of quality products. This competition is an opportunity to publicize the Council.

F. R. Gilpatrick, of the Stanley Works, remarked that the competition should be held among prospective home builders, with essays by the contestants on "Why I Employed an Architect" and "Why I Did Not Employ an Architect."

F. W. Morse said that seventy-two letters sent to responsible newspapers and magazines had brought eighteen replies, all indicating an interest in the idea.

Alvin E. Harley, President Detroit Chapter, A. I. A., thought it was a splendid idea and asked Mr. Morse for a skeleton of the mechanics of the competition. Mr. Morse replied by saying that he was only interested, at the present time, in obtaining the sentiment of the meeting.

C. W. Ditchy said that the public has not benefited by past architectural competitions, and although there had been some benefit to the profession, competitions had tended to set up, in the minds of the public, the idea that free drawing services could be obtained from architects. He said this proposed competition would be very helpful toward familiarizing the public with the benefits of architectural service.

F. P. Byington, Vice-President Johns-Manville, said that such a competition would have to have two awards, one to architects on "Why Architectural Services Should be Used" and one to the public on "Why I Should Use Architectural Services."

The showing of hands indicated that the Council members were interested in the idea and urged Mr. Morse to continue his studies.

F. R. Gilpatrick said the ideal situation would be where a producer would take every architect with whom he had business dealings to the producer's plant and let the architect see for himself all the processes and materials necessary to produce a quality product. This would demonstrate the reasons for using quality materials, and why they command a preferential price.

C. William Palmer, Past President of the Detroit Chapter, A. I. A., said his interest in the Council was based on its aims and background. He asked the producers to report unethical dealings by architects and to discriminate against them.

H. Dorsey Newson, Chief of the Information Section, Federal Housing Administration, in addressing the producers, said: "I believe that 1936 is going to be a banner year in the building industry. I am convinced that the increases in your profits and in your sales over the period of the last twelve months will rise to even greater heights within the twelve months to come. I have confidence in the wisdom and foresight of the American home owner and the American manufacturer. I have particular confidence in the vision, the merchandising ability and energy of you gentlemen representing the durable goods industry. Such a combination of a market eager to buy and producers eager to sell cannot help but send the thermometer of American business to a new high during 1936."

President J. C. Bebb, of the Producers' Council and Advertising and Sales Promotion Mgr. of Otis Elevator Co., said: "A real business recovery is imminent but this cannot come overnight. Now that we feel that the trend has definitely turned upward, we can be more secure in our efforts to last out the final effects of the depression. The government is making a great effort to aid in carrying the construction industry through this next period by its agencies intended to encourage public and private participation in the Housing Program.

"The keynote to be selected for this meeting is obvious—increased co-operation between government agencies, financial institutions, architects, builders, and material manufacturers, to promote quality in the resurgent construction industry.

"In rebuilding the industry we must not allow it to revert to its condition of the boom days and before, when it was a case of every one for himself. We must be co-ordinated and organized. Construction must speak with a unified voice."

P. R. Saurer, of the Peelle Co., had this to say on the subject of good specifications: "We, here, are on common ground as manufacturers of quality building materials. To foster their use in buildings is one of the primary aims of the Council. Their use is a benefit to the industry as a whole.

"The use of quality products in building depends to a large extent upon the specifications written by the specifying authority. The specifying authority is the professional service of experts hired by the owner, or consumer, to select, and prescribe the materials for use in the finished building.

"Good specifications enhance the professional standing of the specifying authority, to promote the use of quality materials, and to insure the economic soundness of the finished building, which is of utmost importance to the industry.

"Thinking along these lines I suggest the possibility of annual specification awards sponsored by the Producers' Council — one main award sponsored by the Producers' Council and regional awards sponsored by Producers' Council Clubs.

"The awards would be made to the specifying authority which, in the opinion of the award committee, had written the best specification for a building completed during the year."

Y-DATA and NU-DATA

RESEARCH Bulletin Number 19 of the Producers' Council, just published, contains a new feature which is called Y-Data. Y-Data contains complete information on how the product is made, and answers the two questions of "How?" and "Why?" Y-Data describes manufacturing processes, standards, specifications, all of which are necessary to produce quality products.

Y-Data is combined with and in addition to Nu-Data, which outlines new products, services, and literature. Both of these services will be invaluable to architects for the solution of their problems. They are compiled and edited with the joint suggestions and experiences of the manufacturers themselves, the Producers' Council, and the Structural Service Department of the American Institute of Architects. For example, an architect looking for information and specification data on quality hardware that will meet specific requirements for a definite kind of structure, will find in Nu-Data and Y-Data the answer to his questions. They save time, and they take the place of extensive research that would be required by the architects and their assistants, for they provide a ready solution to a problem and are not selling efforts for particular materials. The Producers' Council is to be highly complimented on this splendid service.

ARCHITECTURE *will be glad to co-operate in furnishing these bulletins to architects who are interested.*

A LIST OF MEMBERS

The Producers' Council, Inc., is made up of the following members, as of January 15, 1936:

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San Francisco, Calif.

The Council is now conducting an intensive and energetic campaign for new members, and several additions are expected within a short time.

The CO-OPERATION I WANT

SYMPATHETIC co-operation between the architect and the manufacturer is the basis of not only successful business administration but actual progress in the building field as well. The architect, on his part, is of necessity limited in his design by his knowledge of the material with which he is working, and depends upon the manufacturer for information of technical progress in the material and its working methods. The latter, on the other hand, must rely upon the architect for not only a market but new uses and applications of the material.

With this thought in mind, we have asked a number of architects, selected at random, for their suggestions as to how the manufacturer can co-operate with them most efficiently in their joint task of producing better buildings. Here is one answer; others will follow in succeeding issues.

1. The presentation of all advertising material in form and size as advocated by the A. I. A.

2. A more clear-cut enumeration of:

A. The special properties or advantages of the material or construction.

B. Exact and clear information at scale that can be read on all structural data ultimately to be a part of the architectural drawings.

C. An exact phraseology that should appear in specifications.

D. Data on unit cost as of the year issued.

3. A yearly revision of this data with clear notation of what sheets in your files it is intended to replace.

4. The pitfalls that lie before the unwary architect who accepts a substitution "the equal of."

In all of the above I strongly urge that a sincere effort be made to expunge sales talk and give pertinent facts. As long as advertising is written by men who know nothing but salesmanship, whose whole lives are divorced from production, installation, and maintenance, we will continue to have the market flooded with gadgets, synthetic materials and prefabricated units which contribute *nothing* to the evolution of the science and art of building.

W. Pope Barney, A. I. A.,
Philadelphia, Pa.

FEBRUARY, 1936

Building Products' News

[Your design and specification will benefit by this service]

The prepaid service card in the lower right-hand corner is the quickest and most reliable way to keep your office posted about the new products and services

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Business is definitely better. Deflation has about run its course. Natural recuperative forces are in the ascendancy. There are signs of revival in the durable-goods industry and this means more building. Residential building is already under way. Replacement demand and the pressure of population are the two factors that will contribute to a revival of building. You want to keep posted and have your files thoroughly up-to-date. . . . See the best of the new products . . . we invite you to use the Service Card attached *for your convenience*. Address ARCHITECTURE, 597 Fifth Avenue, New York

American Dustube Collector

Simple design; no efficiency lost. Long, specially woven fabric tubes hung from ceiling racks; self-acting dust seals hold tubes to bottom minus clamps, bands or intricate devices. Spring suspension maintains proper tension on cloth, making for simpler insertion and removal of dust tubes. Tubular design, it is claimed, insures low operating and maintenance cost and because of large air chamber and open design of tube inlets, suction within casing is very low. American Foundry Equipment Co., Mishawaka, Ind. G. 304

Inki-Black

High-grade emulsified carbon black for darkening concrete and mortar. Mixes with water immediately and guarantees complete and uniform dispersion throughout entire mass of concrete or mortar. Eliminates fuss and bother of using light weight, greasy black pigments which are hard to mix. Concrete can be darkened in range from light gray to intense black. E. M. & F. Waldo Co., Muirkirk, Md. G. 305

Seamless Alloy Tubes

Seamless tubes and pipe of highly alloyed steel containing 25 per cent chromium and 20 per cent nickel. Available hot-finished in sizes up to six inches outside diameter and cold-drawn in smaller sizes. High degree of oxidation resistance and suitable for continuous operation at temperatures up to approximately 2100 degrees F. Babcock & Wilcox Co., New York. G. 306

Save-Lite

Prepared with co-operation of Better Vision Institute and Better Light-Better Sight Council, this is factual presentation of painting as part of lighting and "plant conditioning." Tells, concisely, what wall and ceiling paint should be and its importance as an aid to better, more economical production as well as for beauty and protection. Illustrated laboratory studies and various industrial applications—including before and after Sight-Meter readings. Case histories, simple charts on lighting standards and plant interior paint uses and applications constitute reference information of interest and value to plant owners. Sherwin-Williams, Cleveland. G. 307

Industrial Air-Conditioning Units

Compact, sturdy new coil-type models incorporate many features of design and construction adapted to the requirements for low-cost cooling and positive control of temperature and humidities in wide range of industrial applications. York Ice Machinery Corp. G. 308

Cedargrain

Outstanding! New! Cedargrain asbestos shingles for use as siding for houses. Made from asbestos fibres and Portland cement and are, therefore, fireproof, permanent and free from upkeep expense. All the charm of weathered cedar shingles combined with the durability of stone. Do not require paint or preservative. Three designs. Johns-Manville. G. 309

Propaganda vs. Facts

Straight-from-the-shoulder talk on how Genasco slam-test shingles and roll roofings are made and why they are better. Barber Asphait Co., Philadelphia. G. 310

Building for the Future

New general insulation guide book. It intelligently clears up mystery of insulation, beginning with simple definition of thermal insulation as applied to buildings, through various uses of insulation for decoration, sound control and heat resistance. Insulite Co., Minneapolis. G. 311

Sizes We Roll

Handy reference book includes lists of all sizes and shapes of various products rolled by Inland Steel Co., of Chicago, excepting rails, track accessories and tin mill products. Useful data in various gauge, weight and bundling tables. G. 312

Glass Insulation

Molten glass that would otherwise come out as milk bottles, vinegar jugs or pop bottles, is processed so that it is drawn into fibrous form, soft and fluffy, to be used as fire, vermin and moisture proof insulation for homes and other buildings, to keep them warm in winter and cool in summer. Owens-Illinois Glass Co. G. 313

Round Oak Line for '36

Stoves, ranges, furnaces and air-conditioners, presented in 1936, illustrated folder. Specifications on the "Arrow," "Royal" and "Victor" in addition to others produced by the Round Oak Company, Dowagiac, Michigan. G. 314

Steam Turbine for Mechanical Drive

Of pumps, fans, compressors, blowers, pulverizers, paper machines. Diagrams, cross-sections, capacities, savings in operation, applications, construction data. General Electric Co., Schenectady. G. 315

Aero Test

Aero Automatic Fire Alarm System given severe tests at Buffalo, N. Y. Convincing demonstration of speed and efficiency under unusual conditions, first being in an enclosed shed with large door wide open; second in open shed with no protection on any side. Alarms received at Central Station in twenty-five and thirty seconds respectively. Full information on system from American District Telegraph Co. G. 316

Shower Panel

New, built of heavy-gauge, rust-proof steel, punched to receive curtain-rod, shower head, water faucets and other fittings. Specially designed for converting rolled-rim, leg bathtubs into modernized shower-tub units. Easily installed on rim of wallside of tub, sealed with leak-proof joints and surrounded on all sides by special splash molding. White, blue and green. Accessories Co., Inc., New York. G. 317

"G-E Speedster"

New electric range boasts "Tripl-Oven." "Tripl-Oven" has super-speed pastry oven, using 45 per cent less current, super-fast broiler, with 2400 or 3600 watts for broiling and equipped with smokeless broiling pan, and the roasting oven has 5 per cent greater capacity. General Electric Co., Cleveland. G. 318

Manual No. 4

Specifications, details and method of erection for "Clip-On" Salvable Wall. Simplified, light and economical unit construction. Clip-On Systems Co., Philadelphia. G. 319

Hotstream Catalog 35

Entire line of water-heating appliances, gas, gasoline and kerosene heaters, specifications, diagrams, capacities, thermostats, automatic storage heaters, accessories, draft regulator, Draft-O-Stat, indirect heaters, data and general information. The Hotstream Heater Co., Cleveland. G. 320

Ambler Materials

Century Asbestos Shingles, Ambler Linabestos, Asbestos Waltile, Ambler Marbleite, complete line of fireproof building products presented with color plates, specifications, installation pictures. Keasbey & Mattison Co., Ambler, Pa. G. 321

Gold Leaf

The publishers have worked on this catalog for eleven months and it is not "just another catalog," but a most attractive and informative booklet on the uses of gold leaf in architecture. Installation photographs, application, maintenance and costs. Hastings & Co., Philadelphia. G. 322

Frameless Steel Bungalows

Qualifies F. H. A. insurance. Fire and lightning hazards reduced to minimum. Termites absolutely eliminated by vermin-proof construction. Large, pre-welded, highly-insulated sections, delivered to building site ready for assembly, eliminate conventional joists, studs, rafters, sheathing, etc. Plans, specifications. Insulated Steel Construction Co., Middletown, Ohio. G. 323

Dulux

According to manufacturers, Dulux Mill White is whiter than any factory finish heretofore available, stays white over a longer period and gives better lighting, appearance, protection, at lower final costs. Dulux Super-White Enamel for home interiors is another new du Pont product. E. I. du Pont de Nemours & Co., Inc. G. 324

Lower Process Costs

Illustrates and briefly describes features of Brown Air Operated Controllers recently introduced by Brown Instrument Co., Philadelphia. G. 325

Coronada-Lavinet

Storage cabinet in combination with lavatory. Modern, flat slab surface, porcelain enamelled cast-iron lavatory, with large rectangular basin. In white, pastels or two-tone effects. Cabinet of highest quality furniture steel, reinforced throughout and electrically welded to form rigid, substantial unit. New, side-hinged doors. Ventilated by holes in sides and back. Crane Company, Chicago. G. 326

General Catalog

National-Williams Oil-O-Matic Boiler Burner Units presented in A. I. A. File No. 30-C-14. Front, back and cross-sections, size chart, longitudinal section, technical data. National Radiator Corp., Johnstown, Pa. G. 327

Blac-Link Plug Fuse

Black Link and White Interior of fuses eliminate guesswork in locating plug fuses blown on light overload. Illustrations. Chase-Shawmut Co., Newburyport, Mass. G. 328

Sheetrock

True reproductions of actual wood on a backing of sheetrock wallboard—knotty pine, Douglas fir, walnut, matched walnut panels. For homes, offices, shops, hotels, display rooms. Installation photographs and colored plates. U. S. Gypsum Company, Chicago. G. 329

Portland Cement Stucco

Revised form a welcome addition to libraries of builders, architects and home owners. Complete instructions on how to produce variety of stucco textures, each step illustrated and final texture reproduced in full color. Modernizing discussed. Full set of specifications for proper application on new and old buildings. Portland Cement Association. G. 330

Burn Three-Cent Oil

Wicaco Metering Fuel Oil Pump permits any medium-sized heating plant to burn three-cent oil, according to manufacturers. Photos show typical installation on two well-known burners firing 2–7500 sq. ft. boilers. Wicaco Machine Corp., Philadelphia. G. 331

Copper Roofs

January issue of Copper & Brass Research Association's Bulletin features two pages of pictures of modern homes, showing how they may be protected indefinitely by use

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of copper for all exposed areas. Statistics regarding amount of water, of all kinds, which descends on roof and must be conveyed through gutters. Other examples of copper roofs featured, one page each being devoted to Mt. McGregor Sanitarium and the new Hayden Planetarium. G. 332

Milcor-Silvercote

Entirely new type of plaster base insulation consisting of corrosion-proof, reflective insulation combined with Milcor Metal Lath. Surface of reflective backing is Silvercote, a mineral, homogeneous pigment polished to silver-like sheen. Milcor Steel Co., Milwaukee. G. 333

New Kitchen Cabinets

Morgan Cabinets created by a group of prominent architects and domestic science authorities. New flush door guaranteed indefinitely against warping and twisting. Hardware, chromium plated, of exclusive Morgan design. Continuous toe space, deep counters, 36 inches working height. Morgan Woodworking Organization. G. 334

Struthers Dunn, Inc.

Twenty-eight pages, interesting and colorful, dealing with relays, timing devices, thermostats, pots and ladles, resistors, thermal links, insulators, etc. Struthers Dunn, Inc., Philadelphia. G. 335

Air Conditioning

All of you who are interested in air-conditioning—and no one can afford *not* to be, these days—will want a copy of the talk given by P. D. Briggs, Vice-President of ILG Electric Ventilating Company, before the Boston Air-Conditioning Bureau. G. 336

Lavashower

Plans and elevations, colored installations, types of showers, trimmings and curtain rods. Lavashower units furnished in white and five colors, all of acid-resisting enamel. Lavashower Corp., Philadelphia. G. 337

"Custom Built" Lighting Fixtures

File No. 31122 covers a number of exquisite designs in quality materials and beautiful finishes of fixtures for the home. Fully guaranteed. Prices for fixtures complete and ready for installation, without lamps. Beardslee Chandelier Mfg. Co., Chicago. G. 338

Benjamin

Twenty-eight-page bulletin of high intensity mercury vapor lamp fixtures—operation, color composition, advantages for various types of interior and exterior illumination. Complete descriptions, illustrations, dimensions and list prices, also tables on illuminating calculations applying to various fixtures. Outlines method of designing a general lighting system with these fixtures including design of combination lighting system consisting of mercury vapor and incandescent lamps. Benjamin Electric Mfg. Co., Des Plaines, Illinois. G. 339

Bulletin K

For the automatic control of relative humidity in all classes of comfort and industrial applications when used to operate electric solenoid valves, motor-operated valves, damper motors, relays, heaters, compressors, pumps, fans, etc., and all classes of humidifying and dehumidifying equipment, illustrations and prices of various types of Friez Humidistats. Also Humidity and Temperature Indicators, Thermostats, Sling-Psychrometers and Anemometers. Julien P. Friez & Sons, Inc., Baltimore. G. 340

Reduce Skid

New safety bathtub, made of formed metal, has Serpentine Embossed bottom. Safety feature is achieved by reducing slopes inside tub and by the wave-like tread. Stream-lined, finished in acid-resisting porcelain enamel in any color or combination of colors, and weighs only one-third as much as the cast-iron tub. Briggs Mfg. Co. G. 341

Type-T Seismo-Damper

Strength, compactness and high degree of vibration isolation for medium and light machinery achieved by Korfund Company's new model T Seismo-Damper. Specially intended for installation in skyscrapers, industrial plants, hotels and department stores. Diagrams and descriptions. Korfund Co., Long Island City. G. 342

Radial Wiring System

Utilizes recently announced G-E primary circuit breaker for outlet-box mounting which provides short circuit and overload protection for 125-volt a-c or d-c circuits and can be used as switch control for branch circuits. Device resembles standard flush tumbler switch and not only eliminates inconvenience of replacing blown fuses but prevents the user from fusing circuit so that it can be loaded to a capacity beyond its ability to carry the load safely. Illustrations, plans. General Electric Co., Bridgeport. G. 343

Air-Torch Incineration

Newest, simplest method of rubbish and garbage disposal. Principles described in detail. Kerner Incinerator Company, Milwaukee. G. 344

Miami Cabinets

File No. 29-i-1 shows typical installations of dressing-room mirrors, bathroom cabinets, recessed shelves, bathtub mirrors and accessories, with specifications. Philip Carey Company, Middletown, Ohio. G. 345

Airtrol

These units have been designed to bring together the necessary mixing dampers, screens, cooling and heating coils, humidifiers, impellers, motors, nozzles and controls—all in proper proportions and in one package. Capacities and characteristics of various Airtrol cabinets. J. H. McCormick & Co., Williamsport, Pa. G. 346

Bulletins No. 163 and No. 164

Bulletin 163 covers Steam Booster Compressor and 164 describes Air-Cushion Valve Single Stage Horizontal Roller Bearing Type Compressor. Sectional diagrams, specifications, sizes, capacities and ratings. Pennsylvania Pump and Compressor Company, Easton. G. 347

Micarta

New and attractive booklet covering uses of Micarta for interiors and exteriors. Color chart of thirty-two standard designs, colors and patterns. U. S. Plywood Co., Inc. G. 348

Residence Casements

Metal windows, all types, for residences. Illustrations, specifications, sections, types and sizes, hardware, construction details. Includes basement windows and utility windows. Campbell Metal Window Corp., New York. G. 349

Revised Edition

Procedure Handbook of Arc Welding Design and Practice some 140 pages longer than preceding book. Divided into eight principal sections, text in a simple, concise style, and profusely illustrated with detailed drawings and photographs. Lincoln Electric Company, Cleveland. G. 350

Modernized Store Fronts

Concealed Awning Enclosures called Newmanco, installation photographs, details, specifications. Advantages include concealment, protection to awning, no seasonal removing and resetting of awning, protection to working parts, automatic operation, adaptability. Newman Brothers, Inc., Cincinnati. G. 351

Permanent Cure for Rusty Water

New way to have crystal clear water in homes, apartments, commercial and industrial buildings without plumbing replacements. New filter of a size and design to purify entire volume of water consumed within building without faucet attachment and without pressure reduction. Installed in basement on water service line between water supply from street and supply line feeding plumbing fixtures of building. Designed with back washing equipment so that screens and filter bed may be readily cleaned of sediment. Har-bar Filter Co., Richmond Hill, L. I. G. 352

Permanent Structural Waterproofing

Four-stage treatment to seal brick or masonry positively and permanently against water infiltration. Wurtzilite, the new, scientific method of impermeable membrane waterproofing that guarantees watertightness forever, good appearance and greater economy. Description and installation pictures. Nicholson & Galloway, Inc., New York. G. 353

Glass Doors and Enclosures

All S. M. installations guaranteed watertight. All S. M. doors have heavy cast brass corner reinforcements and continuous hinges, guaranteed not to sag. Lever handles are foolproof. Door cannot stick or jam. No springs or snap catches to rust or get out of order. All models can be hinged to swing either right or left. Photographs of various types of shower doors and enclosures, cabinets, etc. S. M. Shower Door Co., Inc., New York. G. 354

Ventilating Brick

Four types of hollow metal brick extending through the wall, the size of standard brick with louvered face and waterdrip at top and bottom. Bricked into wall, taking up no space. Used to ventilate air spaces under buildings and special rooms in cellars and attics. Can be furnished with elbows and offsets where rooms and spaces are below grade. Illustrations, construction details, uses, advantages, installation data, specifications, prices. Benjamin Riesner, New York City. G. 355

Electric Furnace-Man

Automatic hot water for homes, clubs, apartments, hotels, restaurants, laundries and garages. Automatic anthracite burner has thermostat control, burns safe, clean, economical fuel, heats as needed, has revolving fire pot, a white baked enamel cabinet, automatic ash removal, dustless filling and scientific combustion. Installation photographs, description. Domestic Stoker Company, New York. G. 356

ADVERTISERS' LITERATURE

ARCHITECTURE
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February, 1936

I am listing items of immediate interest to me and would appreciate your letting the various manufacturers know of my desire for complete information.....

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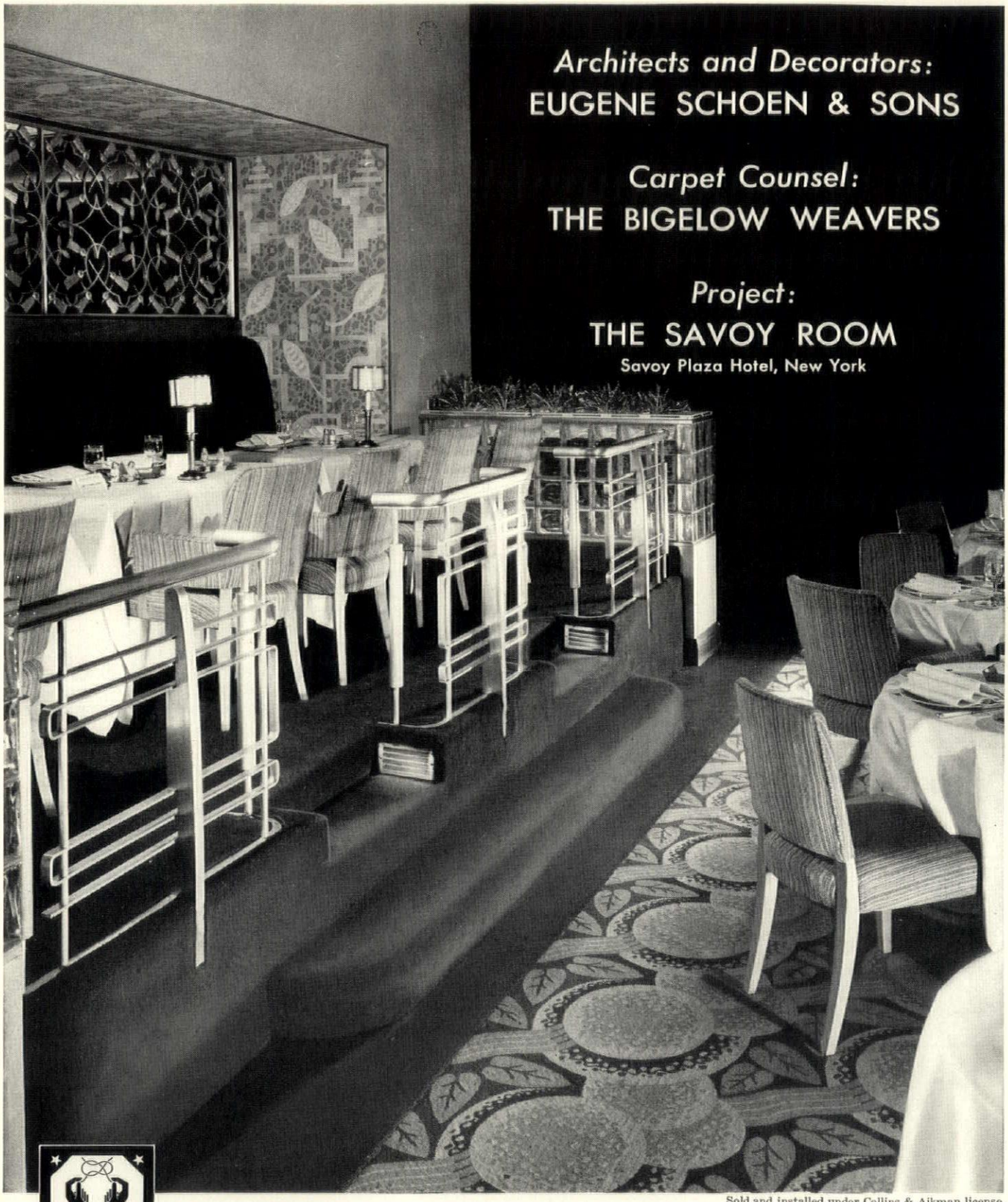

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WOVEN BY THE BIGELOW WEAVERS

In carpeting the beautiful new Savoy Room, Bigelow has combined figured Wilton with plain colored Lokweave Broadloom.

This striking treatment—the result of close collaboration with Eugene Schoen & Sons—is one more example of Bigelow's versatility, one more proof that Bigelow goes far beyond "just selling carpets." We try always to understand the architect's ideas—and to give him intelligent aid in working them out.

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The BULLETIN-BOARD

(*Continued from page 5*)

cost of $4236. The construction costs are complete, including plumbing, electric, and heating work.

The houses in this first group are designed to provide accommodations for families consisting of two adults and two children of opposite sexes. For economy in space the living and dining rooms are combined as one room. In addition, the houses include kitchen, three bedrooms, bath, and garage.

There will be a total of nine houses in the first Housing Project Unit. The six remaining houses are now in the process of being designed in preparation for the taking of construction bids. Roads for the first unit have been graded, trenches for utilities are being dug, a sewage disposal plant for fifty houses is being built, and a deep well for the water supply has been drilled. Underground electric service will be a feature of the project.

When erected these houses will be lived in by Purdue University faculty members and will provide a practical research laboratory for the purposes of finding a solution to the problem of building satisfactory homes within the cost range of the majority of home owners in the United States. For the purpose of research, all houses in the group are utilizing a variety of construction methods, combinations of building materials, and household equipment. Records will be kept of all detail labor and material costs on these houses as a basis for further study in finding a means of reducing the building costs of adequate small houses which is the primary object of the housing project.

TOWN PLANNING AT COLUMBIA

A FOUR-YEAR program of town planning and housing studies, designed to fit the architect for leadership in community development, has been inaugurated at the Columbia School of Architecture, it is announced by Professor Leopold Arnaud, chairman of the School's Committee on Administration.

The Carnegie Corporation of New York has made a grant of $24,000 toward the project, which will be directed by Henry Wright, F. A. I. A., and noted city planner. The new program, to be carried on as a major division of the school, will embrace both instruction and research, and will provide for wide experimentation in town-planning education.

Seeing a movement toward the suburbs, the Faculty of Architecture, it was explained, recognizes that action must be taken to prevent the repetition of "foolish practices" which result in "the shambles of unimaginative and hastily built speculative areas."

"Mr. Wright's attitude is that architecture and its resultant product in building is nothing more than 'applied' city planning and that there can be no distinct line drawn in either time or space at which one part leaves off and the other begins."

NEW COURSES AT N. Y. U.

NEW YORK UNIVERSITY is offering during its second semester of the academic year a series of practical courses of interest to architects, draftsmen, engineers, contractors, and others. Further details of these courses may be had upon application to the office of Dean E. R. Bossange, School of Architecture and Allied Arts, 1071 Sixth Avenue, New York City.

Building Laws—a series of lectures by Professor Simon B. Zelnik; Thursday evenings. Plan Read-

(*Continued on page 14*)

With Equipment by "CRANE"

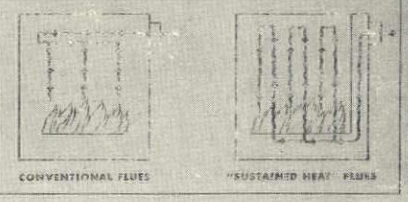
YOU'RE BOTH SURE OF *A Quality Job*

● The installation of such time-tested equipment as Crane Heating Systems and Plumbing Fixtures—backed by the integrity of their maker—means complete satisfaction for the client, and to the architect a job that's free from trouble.

The Crane D 1 Oil Burning Boiler accurately reflects the painstaking research and integrity of manufacture that marks every Crane product. Its revolutionary "Sustained Heat" principle literally *traps* your client's heating dollars, prevents their escape up the flue as wasted heat units. Likewise, Crane controlled water travel, directed counter to the flow of hot gases, accomplishes a substantial fuel economy. These and a score of other features distinguish the D 1 as a very real accomplishment in economical, dependable home heating.

There is a Crane Heating System for every type of fuel, every type of radiator heat. The line is complete for small or large residences and reflects every important advance in the design of equipment for radiator heating. Crane Directed Radiation and Crane Humidifying Radiators complete the perfect heating installation. You can assure your client a "backbone of quality" when you specify Crane for heating and for plumbing equipment as well.

Patented Down-Draft Bars Heat Escape



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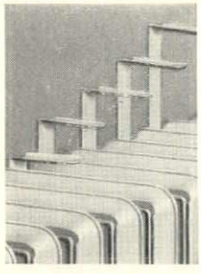
Eighty per cent of the energy required to condition the air in a home the year around is devoted to heating the air in winter. Be sure of the boiler and the biggest part of the job is done!

Crane Humidifying Radiator



Directed Radiation

Crane Round Boiler

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Crane Boilers, Radiation, Humidifying Radiators, Valves and Fittings fill every need in the modern heating installation. Sectional and round boilers for coal, oil or gas, and for steam, vapor, vacuum or hot water systems. A wide range of styles and sizes.

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The BULLETIN-BOARD

(*Continued from page 12*)

ing and Estimating—a course by A. Benton Greene, instructor; Saturday afternoons. Specifications—a course for specification writers by Professor DeWitt C. Pond; Wednesday evenings. Air Conditioning—a course by Alfred I. Jaros, instructor; Monday evenings. New Materials—a course of lectures by S. Clements Horsley, instructor; Wednesday evenings.

FREDERICK S. BENEDICT
1861–1936

FREDERICK STAPLES BENEDICT, architect, a partner in the architectural firm of York & Sawyer for more than thirty years, died January 8, at his home in Brooklyn.

Mr. Benedict was graduated from Cornell in 1885, after which he spent some years with the firm of Babb, Cook & Willard. One of his associates has said that Mr. Benedict brought to York & Sawyer "a mature judgment and a thorough knowledge of construction, building methods and materials, which made him invaluable as a specification writer and superintendent of construction."

Mr. Benedict was a member of the American Institute of Architects.

A. S. T. M.

A LIST of meetings planned by the American Institute for Testing Materials is given below.

1936 Regional Meeting, Wednesday, March 4, Hotel William Penn, Pittsburgh.

1936 Group Meetings of A. S. T. M. Committees, Monday, March 2 through March 6, Hotel William Penn, Pittsburgh.

Thirty-ninth Annual Meeting, June 29 through July 3, Chalfonte-Haddon Hall, Atlantic City.

At the regional meeting, there will be a symposium on high-strength construction material metals.

GEORGE M. BARTLETT
1874–1936

GEORGE MARBLE BARTLETT, architect of New York City, died January 8, at his home in Mount Vernon. Mr. Bartlett was born in Windsor Locks, Conn., and studied architecture at Pratt Institute.

He was for a number of years associated with Ernest Flagg, but for the last twenty-six years has maintained his own office at 103 Park Avenue. He designed the hangars and airports for the Colonial and Curtiss systems. Other buildings to his credit are the Mount Vernon City Hall, the police headquarters, the Westchester Woman's Club, in the same city, and the Siwanoy Country Club.

PERSONAL

Allan Wallsworth, architect, announces an association with Earl E. Trickler, mechanical engineer, in the firm of Wallsworth & Trickler, at Marinette, Wis.

Norstrom & Anderson, architects, announce the removal of their offices to the Insurance Exchange Building, 318 West 9th Street, Los Angeles, Calif.

Effective January 1, the firm of Clark & Crowe, architects, was dissolved by mutual consent. Pendleton S. Clark will continue his practice at 610 Krise Building, Lynchburg, Va., and Walter Rogers Crowe will continue his at 609 Krise Building, Lynchburg, Va. Manufacturers' catalogs are requested by both.

BOOK REVIEWS

INDUSTRIAL ARCHITECTURE. Edited by C. G. HOLME. Introduction by L. H. BUCKNELL. 208 pages, 9 by 11 inches. Illustrations from photographs. Printed in Great Britain. New York: 1935: The Studio Publications, Inc. $10.

A compilation of illustrations with descriptive captions picturing some of the most recent architecture in this specialized field. In spite of our reputation as an industrial nation, comparatively few of these examples are in the United States. The author is a member of the Royal Institute of British Architects, and the editor, of course, is the well-known editor of *The Studio*, London.

REPORT OF COMMITTEES, AMERICAN SOCIETY FOR TESTING MATERIALS. REPORT OF COMMITTEE A-5 ON CORROSION OF IRON AND STEEL. F. F. FARNSWORTH, Chairman. 31 pages, 6 by 9 inches. Illustrations from diagrams. Pamphlet binding. Philadelphia: 1935: American Society for Testing Materials, 260 South Broad Street. 50 cents.

REPORT OF COMMITTEE B-3 ON CORROSION OF NON-FERROUS METALS AND ALLOYS. T. S. FULLER, Chairman. 35 pages, 6 by 9 inches. Pamphlet binding. Philadelphia: 1935: American Society for Testing Materials. 50 cents.

REPORT OF COMMITTEE B-6 ON DIE-CAST METALS AND ALLOYS. J. R. TOWNSEND, Chairman. 46 pages, 6 by 9 inches. Illustrations from diagrams. Pamphlet binding. Philadelphia: 1935: American Society for Testing Materials. 75 cents.

REPORT OF COMMITTEE D-14 ON SCREEN WIRE CLOTH. Introduction by G. W. QUICK. 20 pages, 6 by 9 inches. Illustrations from photographs and diagrams. Pamphlet binding. Philadelphia: 1935: American Society for Testing Materials. 35 cents.

SLUM CLEARANCE AND RECONDITIONING OF INSANITARY DWELLINGS. Edited by the INTERNATIONAL HOUSING ASSOCIATION, Frankfort-Main. In two parts: Vol. I, 209 pages; Vol. II, 83 pages, 8½ by 11½ inches. Illustrations from maps, plans, and photographs. Printed in Germany. Stuttgart-W: 1935: Julius Hoffmann. Vols. I and II, Boards, RM 16; Cloth, RM 20.

Another impressive compilation by the National Housing Association of its findings throughout the world in connection with slum elimination. The contributor for the United States is Colonel Horatio B. Hackett, Director of Housing Division, PWA. This also is published in parallel columns of German, English, and French.

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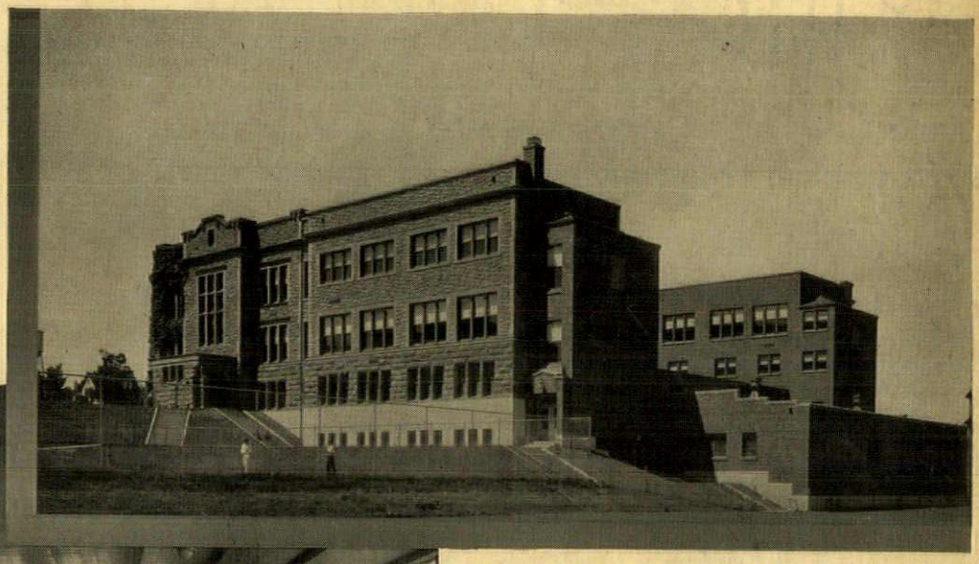

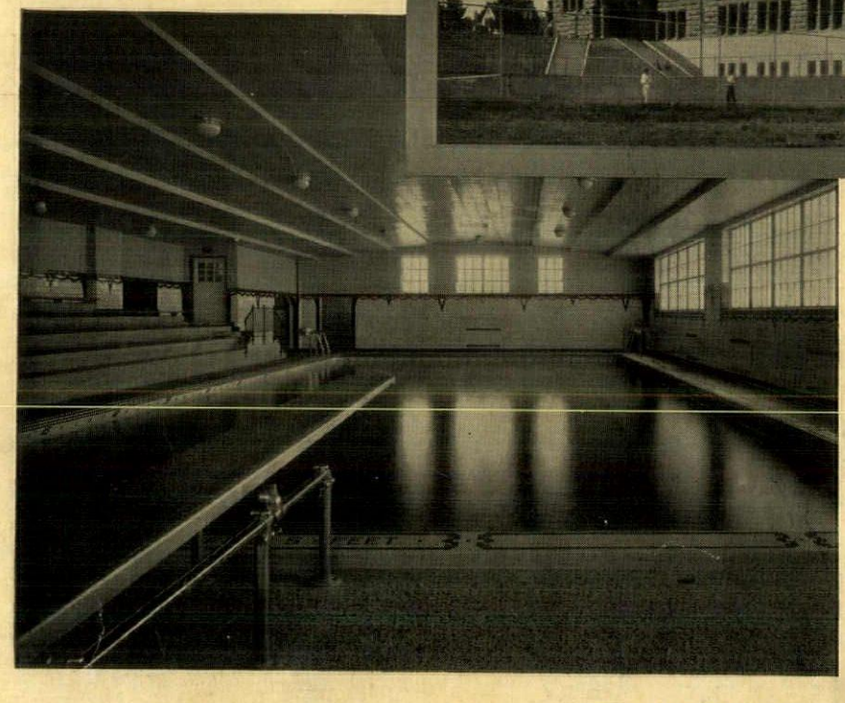

High School at Painesdale, Mich., and below, a view of the pool—John D. Chubb, Chicago, Architect.

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