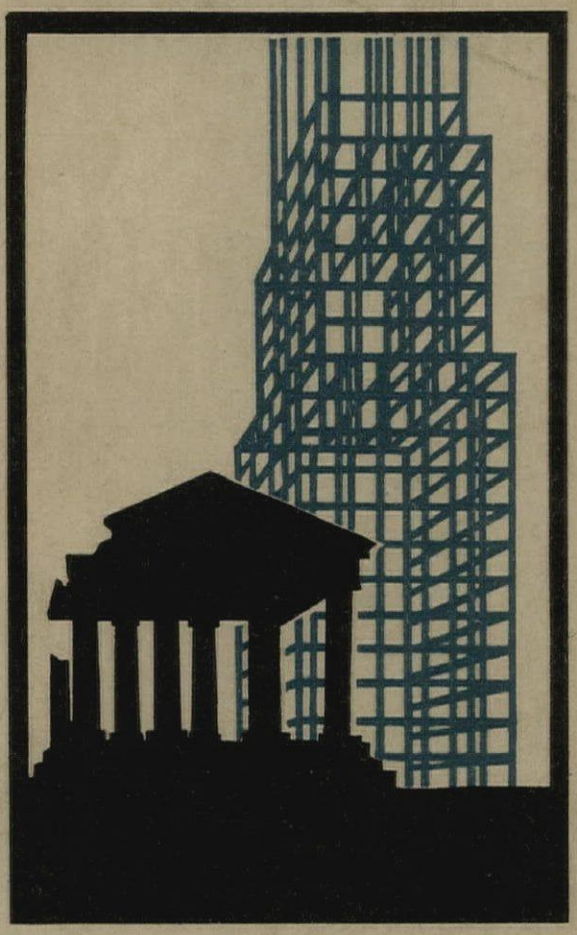
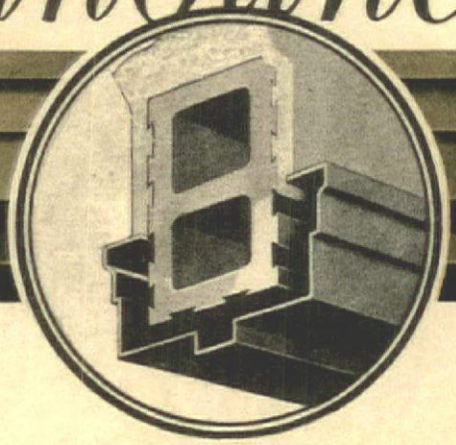
THE ARCHITECTURAL RECORD



AUGUST
1929

Announcing



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Truscon offers in its Integral Door Jambs and Trim a quality product which completes the fireproofness of a building at economical cost. Truscon Jambs and Trim are built into the construction, being anchored to the floor and partitions and becoming an integral part of the building. The complete door frame and trim reach the job ready to be set as a unit. They are furnished in standard sizes with transom bar as integral part of the frame, if desired.

Write for full information and quotations

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO
STEEL DOOR DIVISION
Trussed Concrete Steel Company of Canada, Limited, Walkerville, Ontario
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THE ARCHITECTURAL RECORD

Published Monthly by F. W. Dodge Corporation, 115–119 W. 40th St., New York
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Entered as second class matter May 22, 1902, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

TRUSCON PROTECTION IS LASTING PROTECTION

Montgomery, Ward & Co., Kansas City, Mo., McKecknie & Trask, Kansas City, Mo., Architects. Basements and tunnel of this, the second largest building in the world devoted exclusively to mail order business, waterproofed with Truscon Waterproofing Paste Concentrated.

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IT is obvious that the builders of this fine building would exercise the utmost care in choosing the best and most lasting protection for their construction. The fact that Truscon Waterproofing Paste Concentrated was employed is significant of the outstanding record of results which an investigation of its merit disclosed. There is substantial reason why Truscon protection is invariably preferred.

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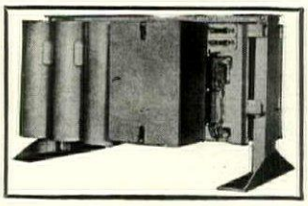
A Standard Strowger P-A-X with 10 Telephone Capacity



The Type 10 P-A-X switchboard is simple, compact, easily installed and maintained, and occupies very little space. May be had if desired, installed in a handsome steel cabinet, finished in either mahogany or olive green.

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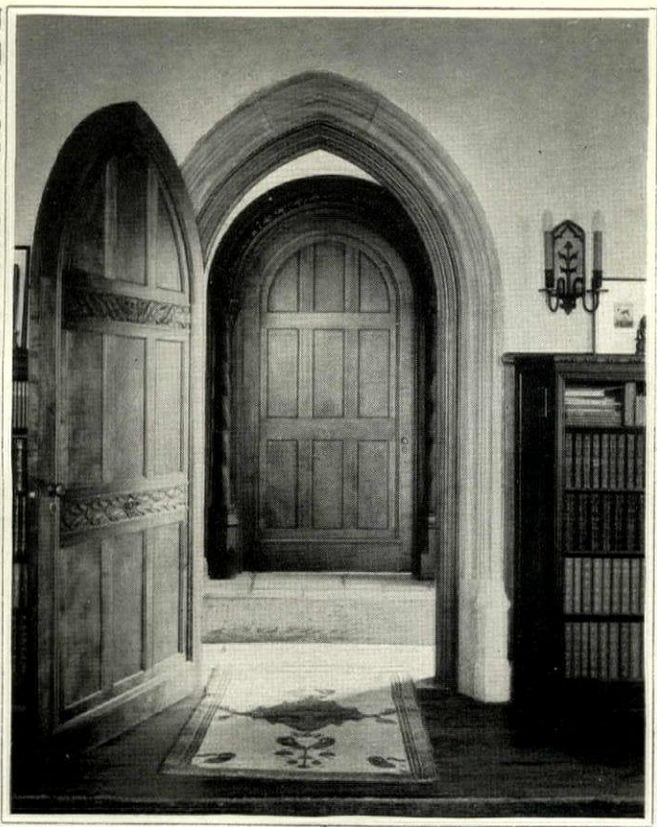

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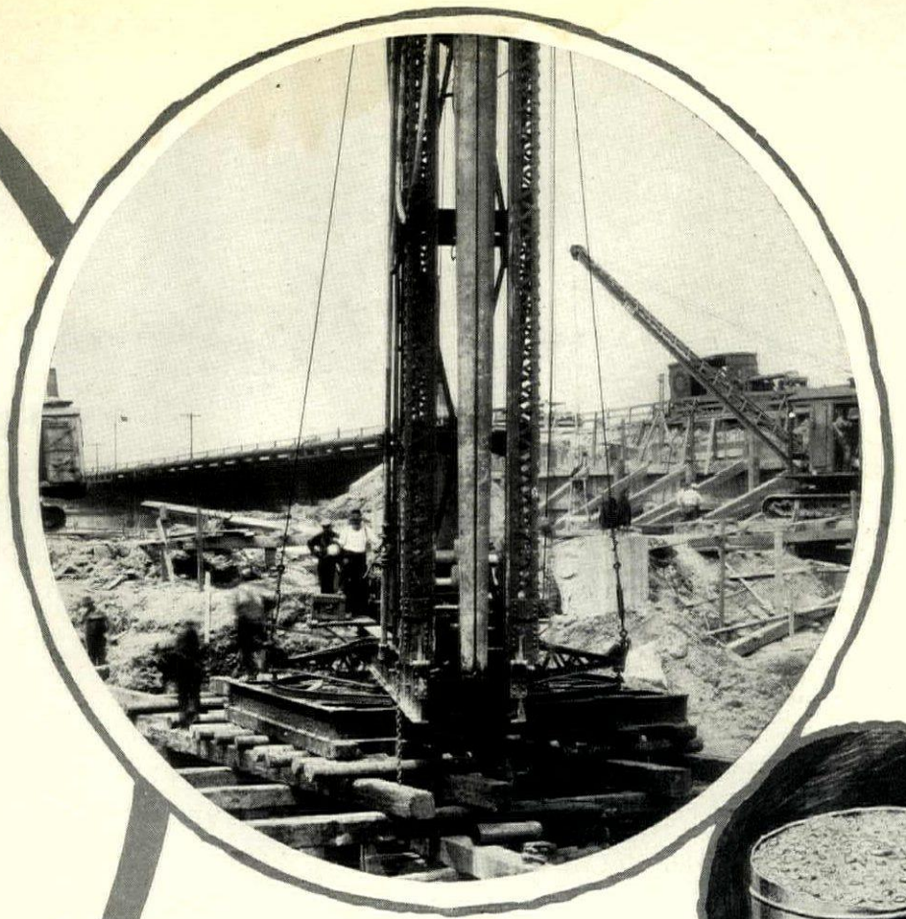

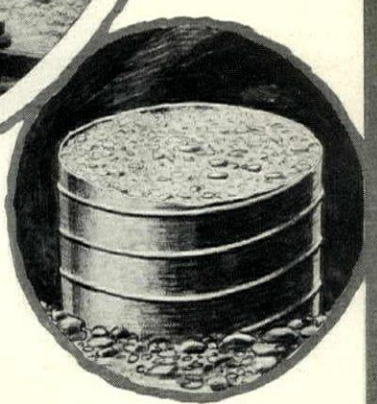

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The New *Ribbed STEELTEX* takes plaster out of the replacement group

FURNISHINGS
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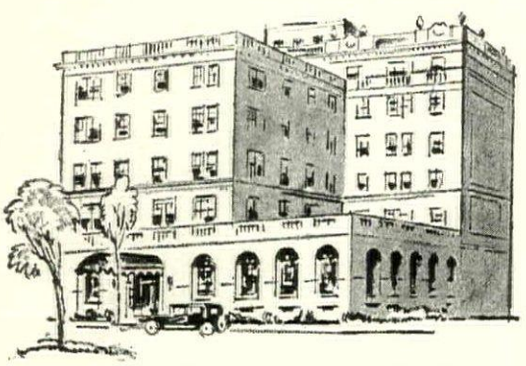
THE reinforcing principle of STEELTEX is well known to architects, contractors, and builders through over a quarter of a million installations. It has won definite approval from building experts, because it puts plaster walls and ceilings in the class



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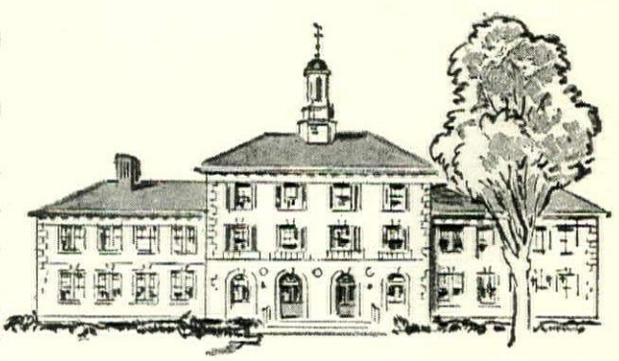

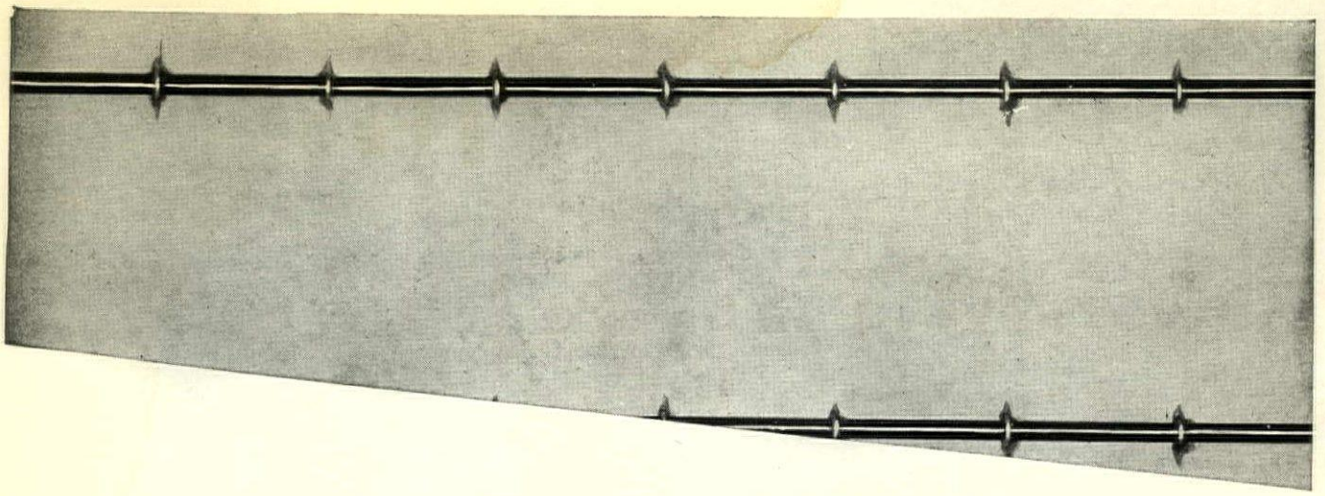

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uniform thickness, continuously reinforced by a network of completely embedded steel. No special skill is required.

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DIVISION OF
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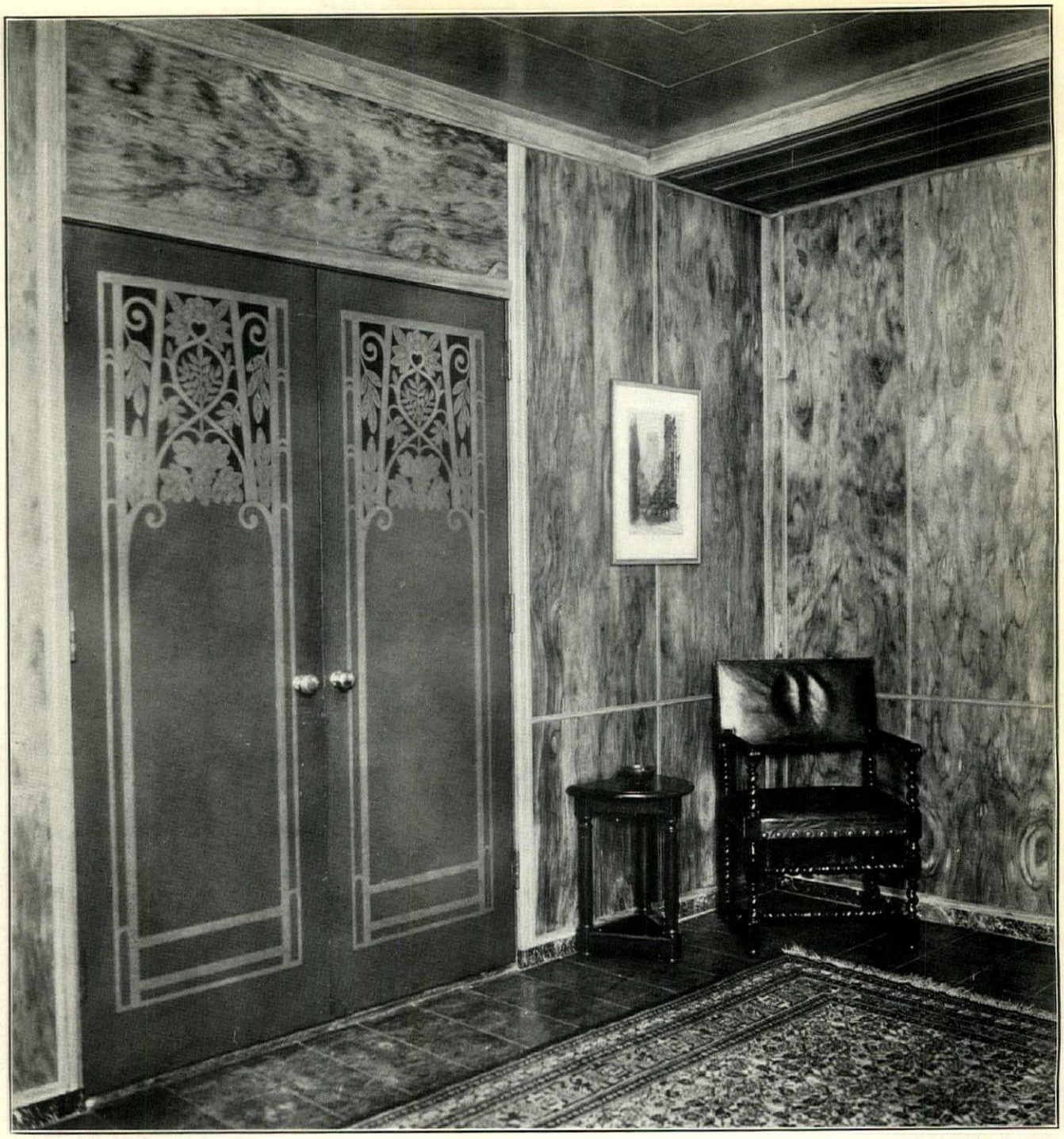

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in a competition just held by the Royal Institute of British Architects for the planning and design of a parking garage was given to a design using d'Humy Motoramps. There were 45 entries.

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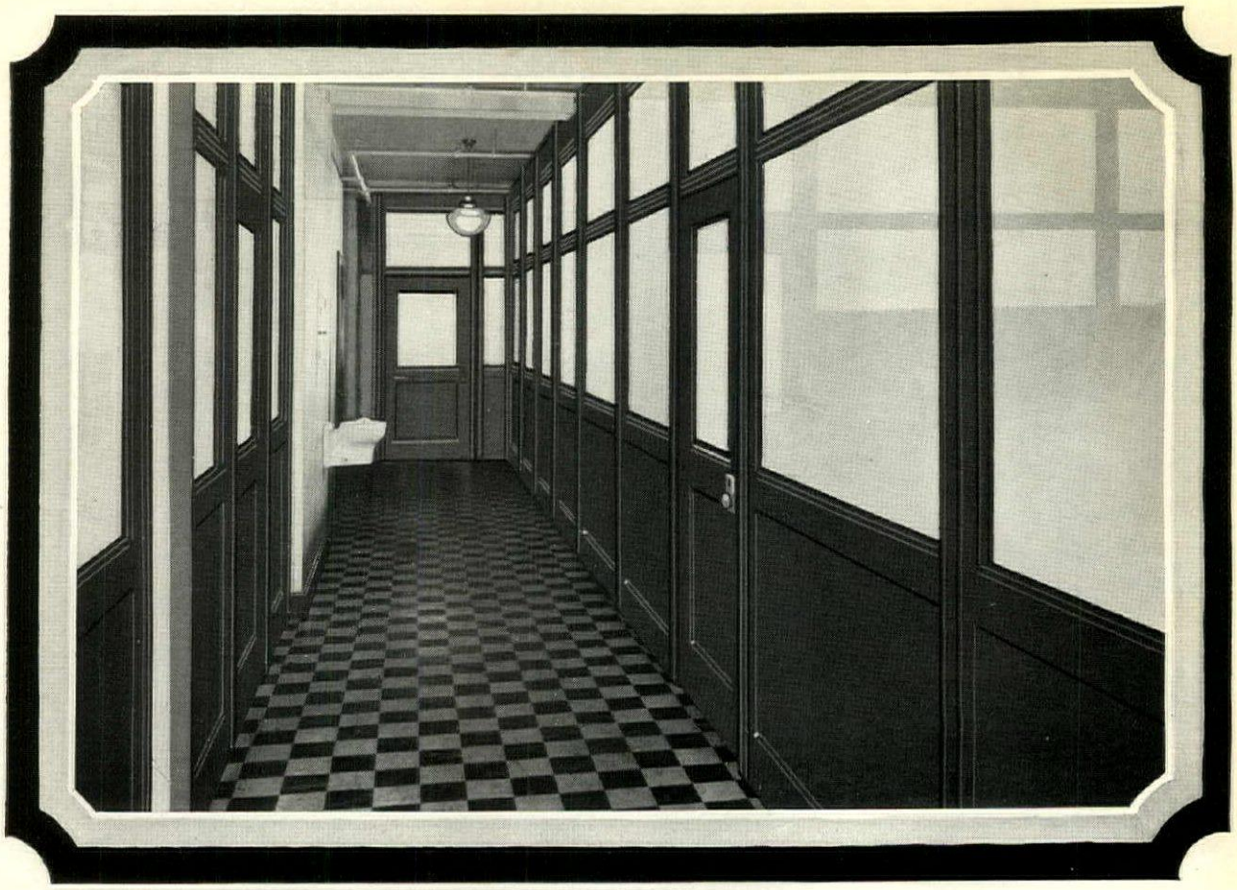

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THAT won't tell whether it's good or bad.

Nor can you judge Sanymetal Partitions by a picture. It's what's under the surface—design, construction, sheer quality—that makes Sanymetal an extraordinary partition.

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It wears "*plus-quality*" *protection* overhead

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Multi-layered, Multi-sealed. Made of the toughest fibred felts, and asphalts carefully blended at Carey's own factory by Carey's own experts in roofing technique. Weather-tight, long-lastingly dependable. The roof that has been tested in every climate and under all conceivable conditions—the roof that asks no favors of weather and time.

Write us for full particulars—also for your copy of our Architects' Specification Book.

Carey BUILT UP ROOFS

"A ROOF FOR EVERY BUILDING"

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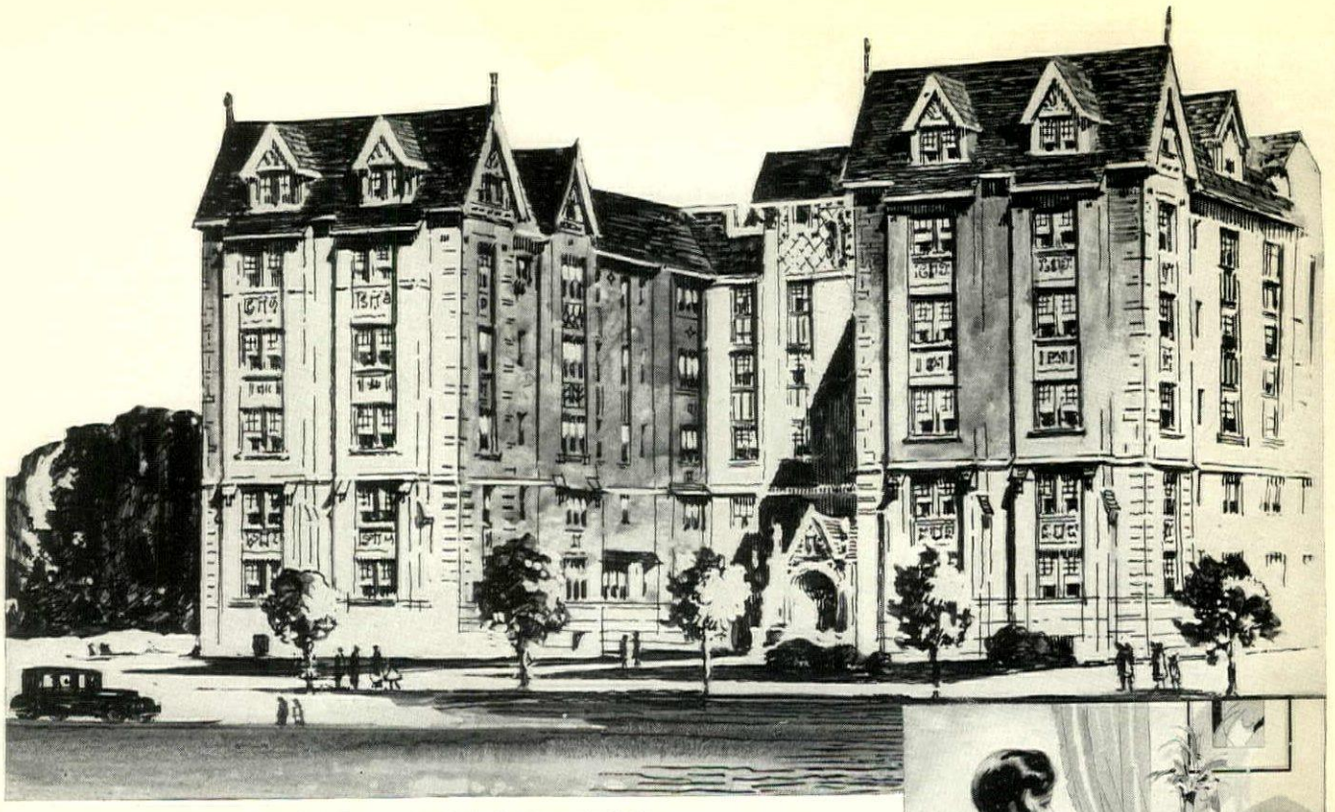

Hampden Hall, Pittsburgh—*H. G. Hodgkins, Architect*

Hampden Hall
(PITTSBURGH)
is installing the new RCA Centralized Radio

A single antenna will provide radio reception for 55 apartments in the new Hampden Hall, now being erected in Pittsburgh.

The owners have solved the antenna problem by adopting RCA Centralized Radio.

In each apartment there will be a wall outlet, connected with the central antenna, enabling the tenant to connect his own receiver, pick out his favorite stations and programs—and get better reception than if he had his own individual aerial.

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1. A single antenna connected with a distribution system to radio receivers in rooms throughout the building. As many as 80 radio sets of different makes can be independently operated from this common antenna, by plugging into wall outlets—and far more satisfactorily than by the use of individual antennae. Additional central antennae may be installed, if required, for additional groups of 80 receivers.

2. Centralized radio receiving equipment to distribute broadcast programs to as many as 3000 rooms throughout a building. Equipment may be installed to transmit a single program, or to make available the choice of programs from two, three or four broadcasting stations.

The first method is ideally adapted for apartment houses, dormitories, office buildings, etc., where tenants desire to have their own receiving sets. It does away with the unsightly multiplicity of individual aerials, and the inconvenience of connecting them with distant rooms.

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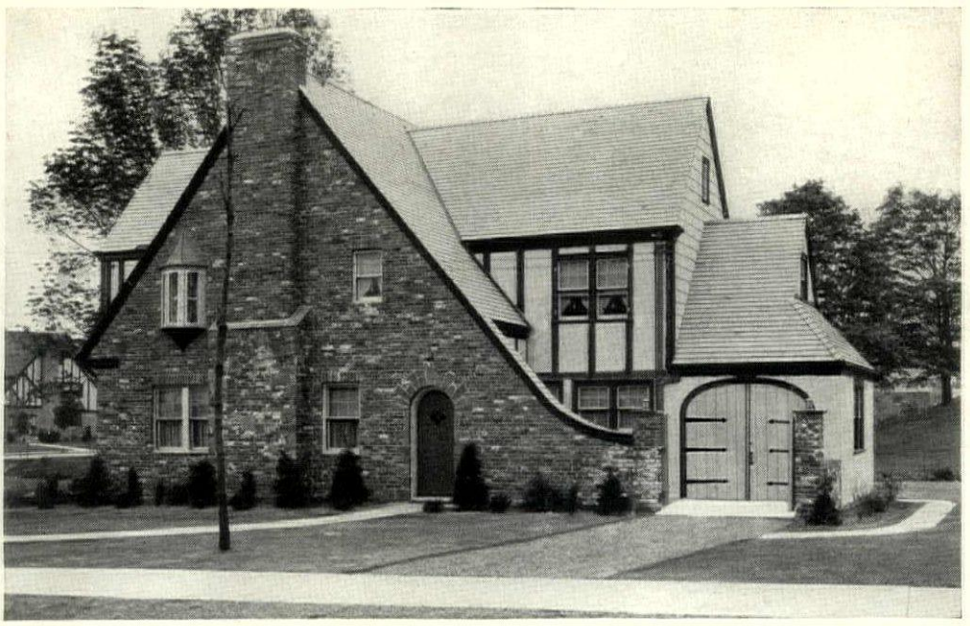
Descriptive pamphlets of these two systems, and of the special apparatus designed for them, are available for architects, builders and building owners.

The Engineering Products Division, Radio-victor Corporation of America, at any District Office named below, will answer inquiries, and prepare plans and estimates for installations of any size.

ENGINEERING PRODUCTS DIVISION
RADIO-VICTOR CORPORATION OF AMERICA
261 FIFTH AVENUE, NEW YORK CITY

Chicago, Illinois	*Atlanta, Georgia*	*Dallas, Texas*	*San Francisco, California*
100 West Monroe Street	*101 Marietta Street*	*Santa Fe Building*	*235 Montgomery Street*



Hinged Doors Swing Easier and Close Tighter

Sturdy hinges with long supporting leaves, positive door holders, and a Kee Bolt — that is Stanley Garage Hardware Set No. 1780½.

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A pair of hinged garage doors properly equipped with one of these sets .... *operates easier .... closes tighter .... is more weatherproof .... enhances the appearance of the garage*

Full information on the No. 1780½ as well as other sets of Stanley Garage Hardware will be sent upon request

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Perhaps our architectural representative can assist you. He will bring you complete information . . . and offer to you the services of our modern, well-informed architectural department. Just let us know the most convenient time.

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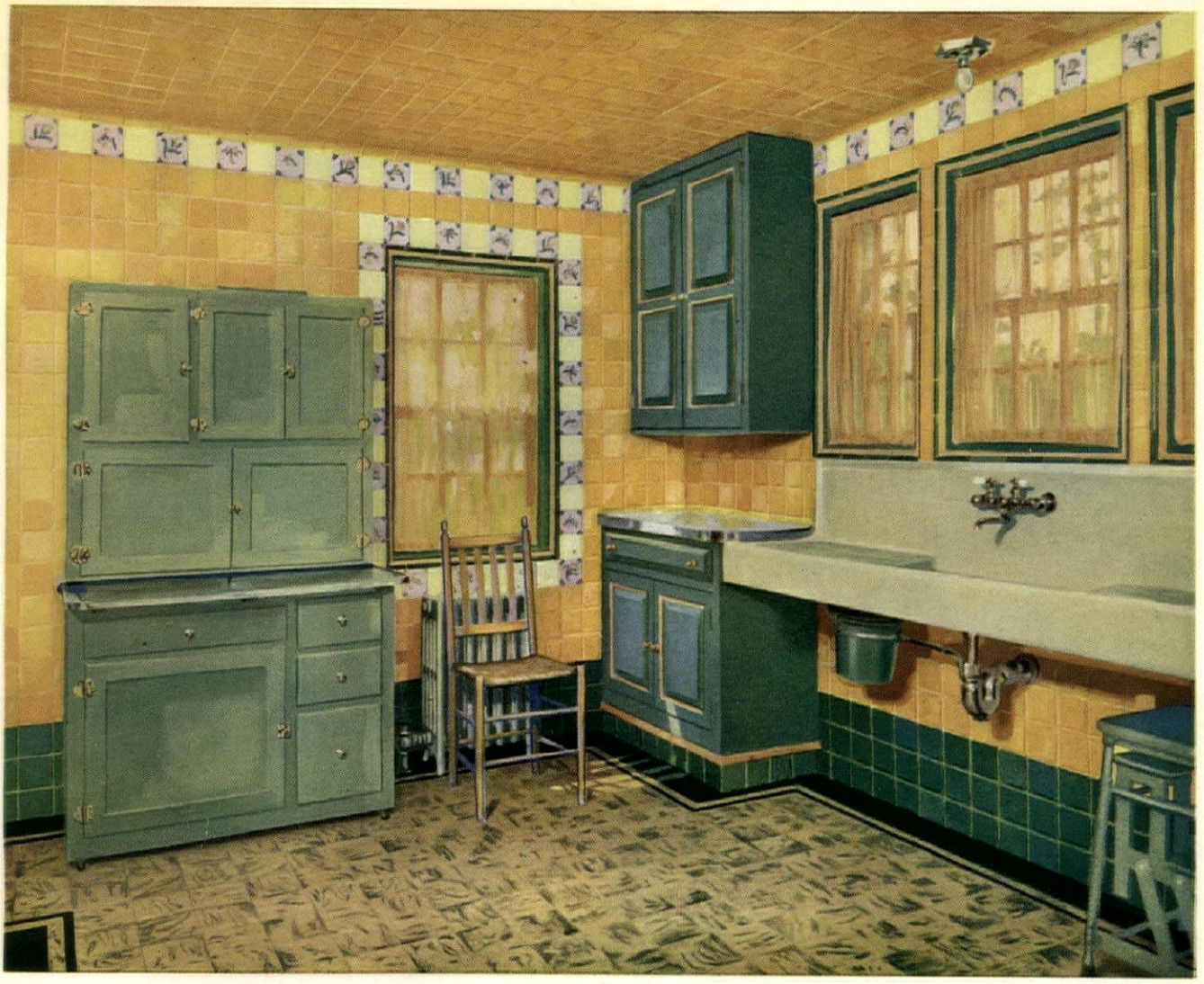

Good Taste Invades the Kitchen

WITH the renaissance of color in American life riotous kitchens became the rule. No color was too intense, no contrasts too violent.

This phase is rapidly giving place, however, to a keener perception of color harmony; an universal good taste. Its requirements are met by ARCHITECTURAL TILE with a line of colors, many of them exclusive, which has been painstakingly worked out to provide the subtle harmonies, quiet tones, that can be made for real beauty in the application of tile.

An art brochure tells in full colors the unusual story of ARCHITECTURAL TILE. Write for it—and enlist the cooperation of our skilled designers in working out striking new effects.

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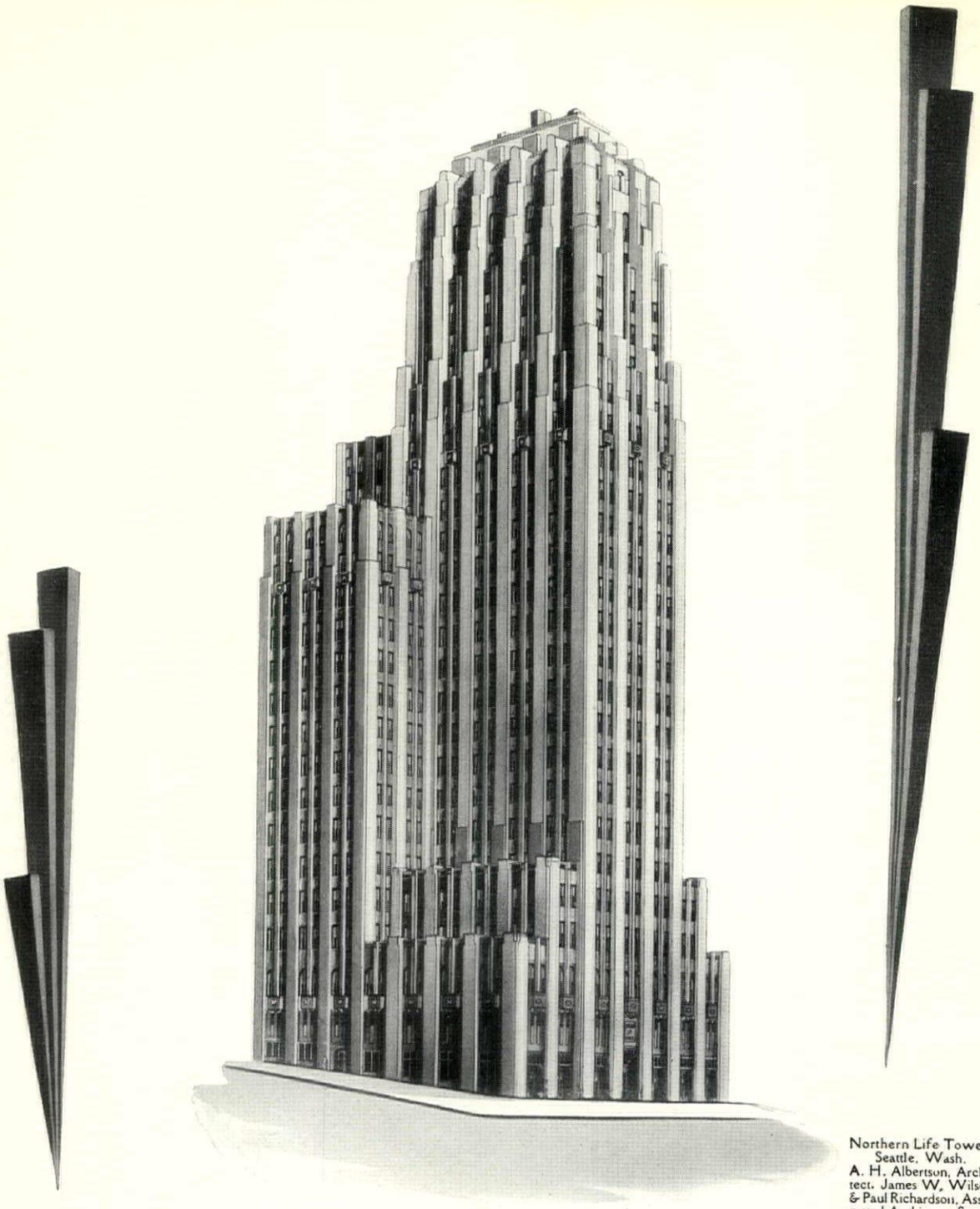


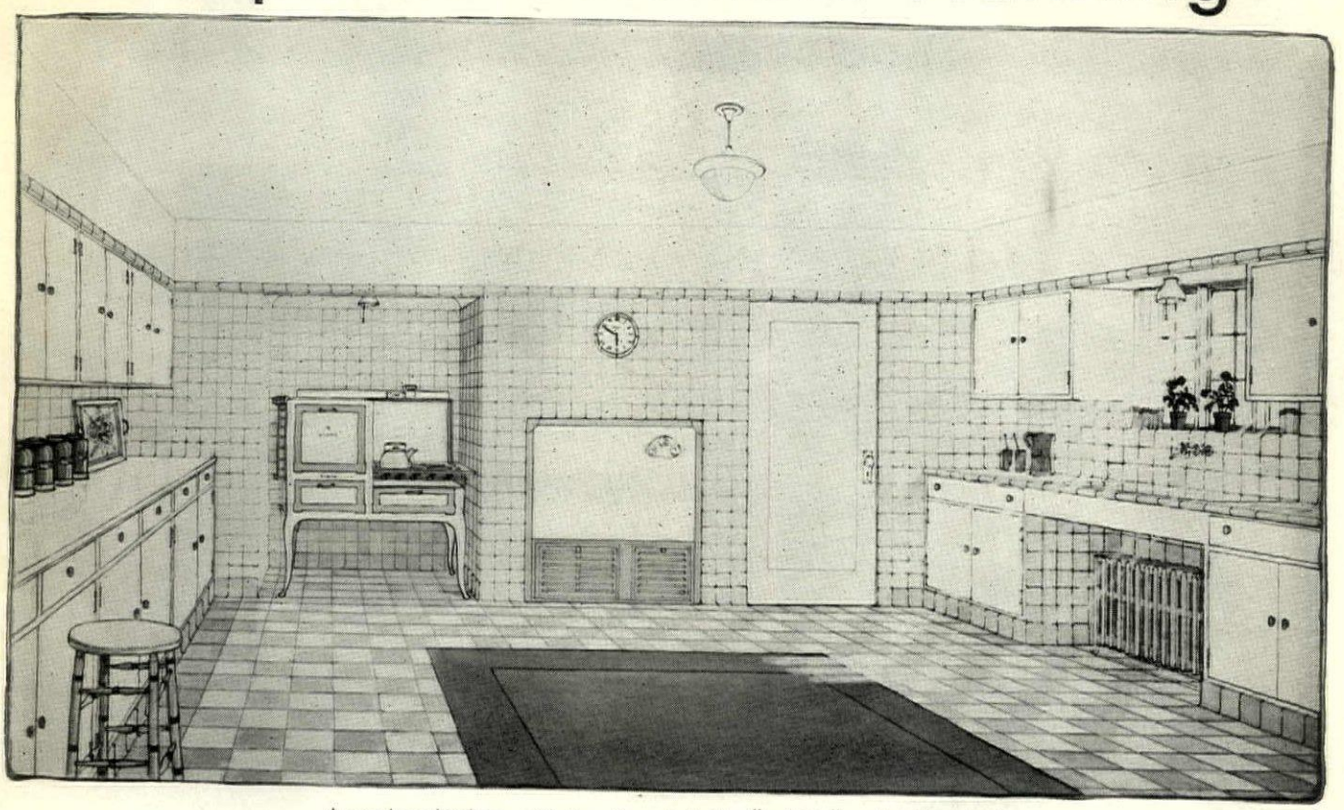
Northern Life Tower,
Seattle, Wash.
A. H. Albertson, Architect. James W. Wilson & Paul Richardson, Associated Architects. Sound Construction & Engineering Co., Contractors.

Elevators of the Finest Type

Modern architecture demands speed, high speed —positive, accurate landings—ease of control and safety. In these, Westinghouse Elevators excel.

Westinghouse Electric Elevator Company

How BRYANT GAS HEATING Simplifies Basement Planning



A modern kitchen, with the Bryant Boiler "built-in" under the clock

I. Bryant Gas Heating employs a minimum of floor space. No fuel bin or storage tank is required. No space is needed for tools, brooms, oil cans, refuse cans or other accessories.

II. The Boiler can be placed without regard to driveway—there are no fuel deliveries.

III. The latest Bryant is wholly enclosed. No controls are exposed to tampering. It can be placed, without screening, in passageway or play room.

IV. A Bryant can be located in laundry or kitchen without partitions. There is no soot, grease or grime.

V. If a basement "entertainment studio" is contemplated, the streamline design and handsome crystalline finish harmonizes with any setting.

VI. A Bryant can save its cost by reducing the excavation required and partitions eliminated.

With
BRYANT AUTOMATIC
GAS HEATING

your client can throw away his furnace room tools—eliminate fuel storage—make a single match his winter's kindling—'tend furnace by the calendar, not by the clock—live in a warm house, sleep in a cool one—laugh at blizzards—and enjoy winter.

BRYANT GAS HEATING

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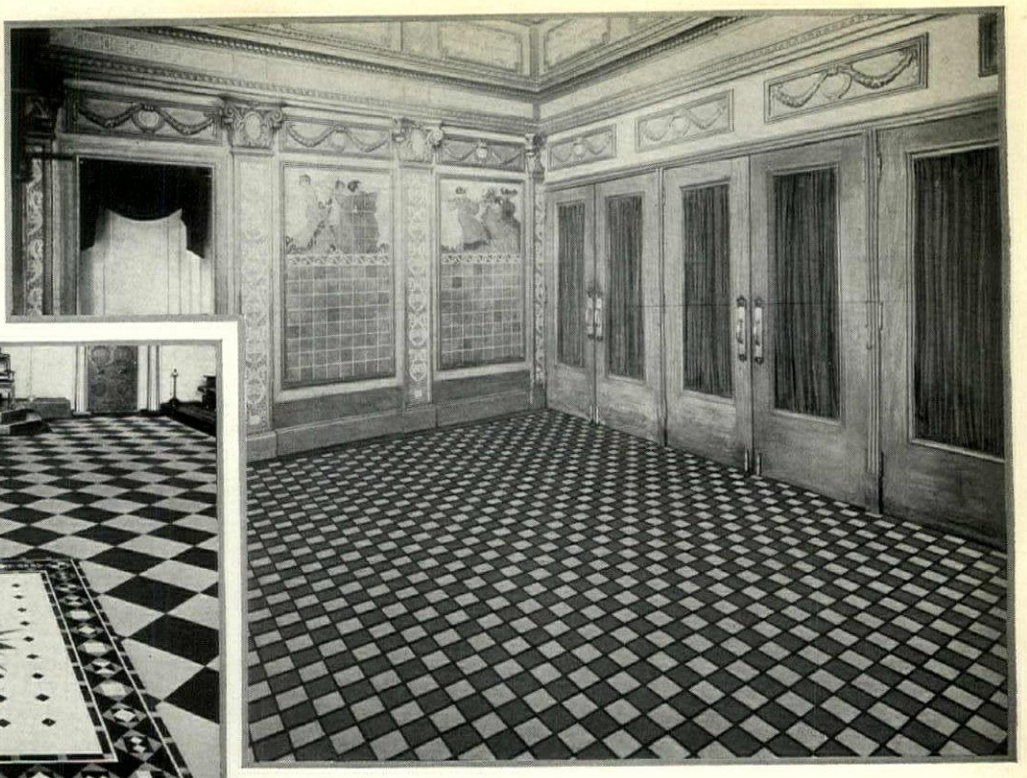
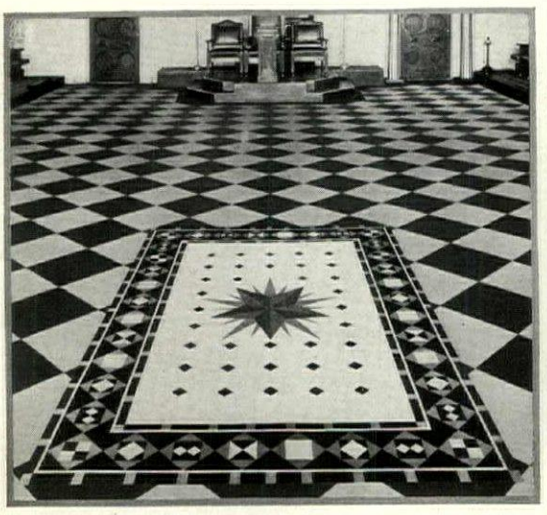
17866 St. Clair Avenue . . . Cleveland, Ohio

Right—Foyer of Pantages Theatre, Minneapolis, Minn.: Armstrong's Linotile in Light Blue and Light Gray tiles, with border.

Below—Lodge-room of the Society of True Sisters, New York City: Armstrong's Linotile in Ivory and Topaz tiles, with special design.





When floors are Custom Built

Building Interiors take on a new interest . . . .

DESIGNING the decoration of a public building . . . never an easy nut to crack! For the foyer of a theatre differs so radically from the lodge-room of a religious order. But when the hard shell of the problem is broken, how sweet the meat of result!

And never more sweet than when you can play with adaptable materials. Custom-built floors of cork, for instance. Then you can personalize the interior. Swirling lines and rainbowed color of theatre foyer are harmonized by a hand-tailored cork floor that guides the decoration of walls, ceiling, and furnishings. The lodge-room's somber simplicity is lightened, brightened by floor color and pattern that says "just right."

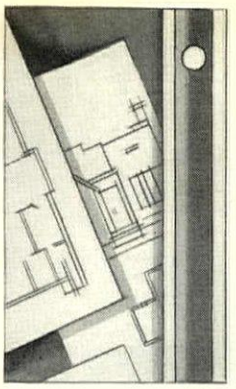
In nearly every city, floor contractors are equipped to install Armstrong's Linotile and Cork Tile in the proper hand-laid manner at moderate cost.

Armstrong's Linotile gives you all this freedom in floor decoration. Not just a matter of selecting the suitable color . . . although there are thirty marble designs and plain colors. Not merely a question of picking the preferred tile size . . . although there are eighteen standard sizes, both square and oblong. But distinctly a floor of your own designing. Distinctly different for theatre or lodge—or for library, bank, school, hotel, hospital, home.

And Armstrong's Linotile becomes even a greater decorative factor when you consider its practical qualities. Warm, springy, non-slippery. So quiet, too. Permanent. Easy to clean. Complete information is given in "Custom-Built Floors of Cork." Armstrong Cork Company, Custom Floors Department, Lancaster, Pennsylvania.

Armstrong's CUSTOM FLOORS

LINOTILE · CORK TILE



ANNOUNCING

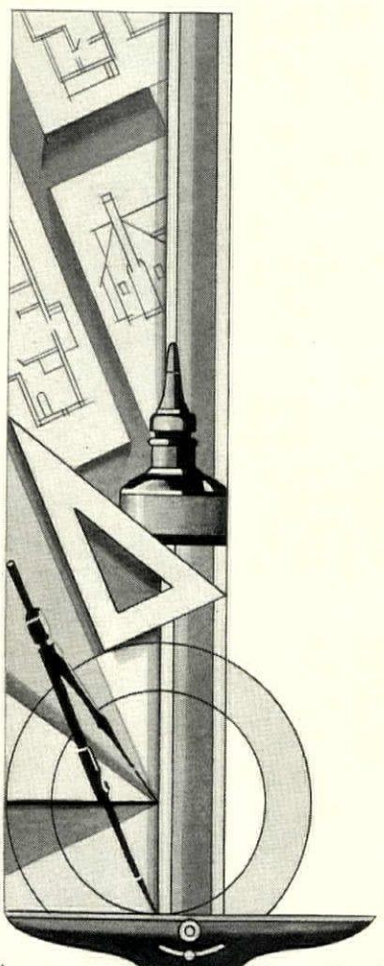
AN ARCHITECTURAL EDUCATIONAL CAMPAIGN

AND SMALL HOMES COMPETITION

SPONSORED BY MIDWEST CHAPTERS OF THE AMERICAN INSTITUTE OF ARCHITECTS FOR THE MONOLITH PORTLAND MIDWEST COMPANY

A WIDE range of appropriate small home designs . . . a keener appreciation of the value of architectural services by home builders . . . these are the primary purposes that prompt the announcement of this unique competition. Prizes are offered for the most suitable small house designs with separate cash awards for educational articles on the importance and value of architectural services in designing and building a home

The contest is open to architects, architectural draftsmen, students and any one qualified by training and experience in architectural design and rendering. Entrants may compete for either the general prize, the special awards, or for both.



THE PRIZES

First Prize: A three months independent trip abroad, first class, with all expenses paid, and $500 cash for tips and incidentals.

Second Prize: A two months trip abroad on tour or regular cruise with all expenses paid and $300 in cash for tips and incidentals.

Third Prize: A three weeks vacation trip anywhere in the United States, including expenses and $100 in cash for incidentals.

Ten Honorable Mentions: $50.00 each, in addition to a special leather copy of Richard S. Requa's latest work "Old World Inspiration for American Architecture."

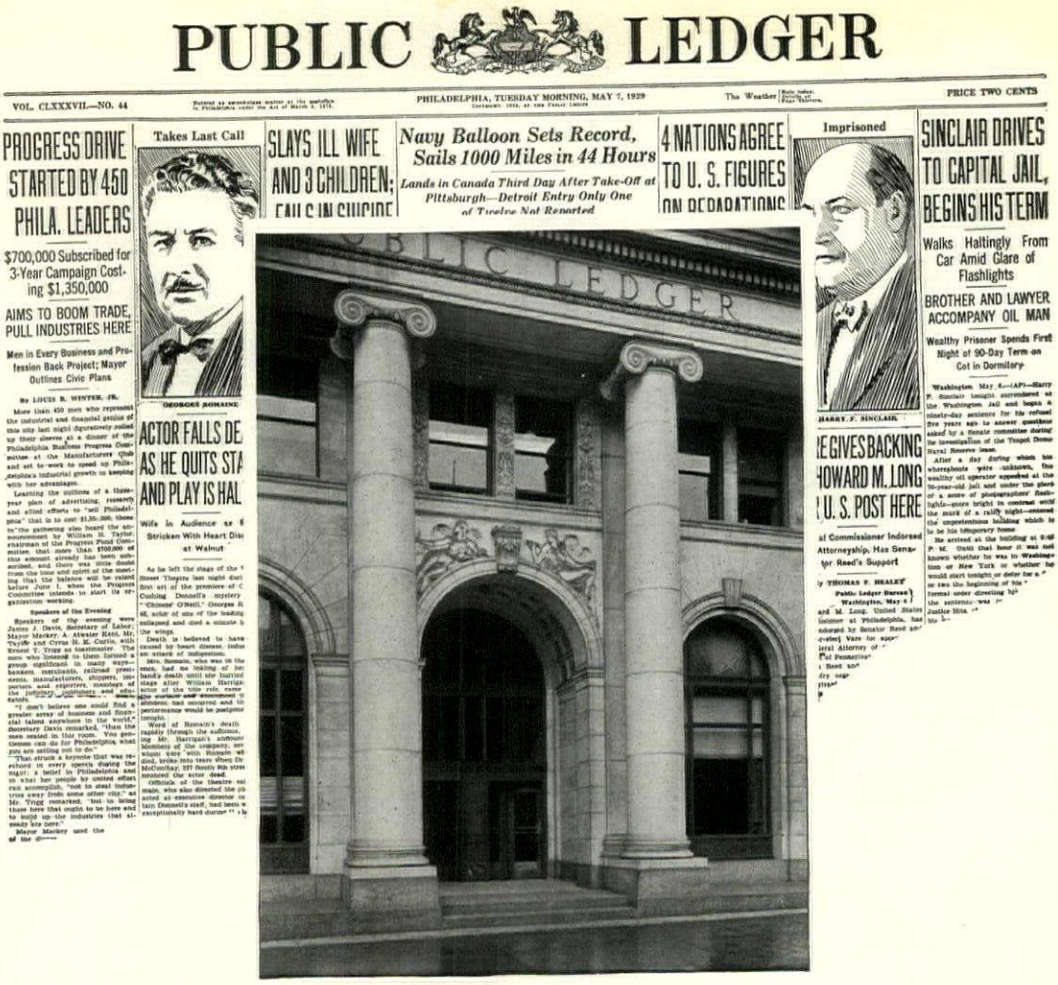
Special Prizes: First, $100 in cash; four Honorable Mentions of $50 each.

The contest is to be judged by a committee of architects, selected by Midwest Chapters of the American Institute of Architects. Richard S. Requa, A. I. A., Professional Advisor.

Closing Date . . . October 15th, 1929

All entries must be received at 650 17th Street, Denver, Colorado not later than October 15, 1929. Programs fully outlining all requirements and conditions of the contest have been prepared. You can secure a copy by writing or wiring . . . .

MONOLITH
PORTLAND MIDWEST COMPANY • DENVER
COLORADO • 650 17th STREET


PUBLIC LEDGER

VOL. CLXXXVII.—NO. 44 PHILADELPHIA, TUESDAY MORNING, MAY 7, 1929 PRICE TWO CENTS

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SLAYS ILL WIFE AND 3 CHILDREN; CALLS IN SURGE

Navy Balloon Sets Record, Sails 1000 Miles in 44 Hours

Lands in Canada Third Day After Take-Off at Pittsburgh—Detroit Entry Only One of Twelve Not Reported

4 NATIONS AGREE TO U. S. FIGURES ON REPARATIONS

Imprisoned

HARRY F. SINCLAIR

E GIVES BACKING HOWARD M. LONG U. S. POST HERE

SINCLAIR DRIVES TO CAPITAL JAIL, BEGINS HIS TERM

Walks Haltingly From Car Amid Glare of Flashlights

BROTHER AND LAWYER ACCOMPANY OIL MAN

Wealthy Prisoner Spends First Night of 90-Day Term on Cot in Dormitory

Entrance to Public Ledger Building, Philadelphia, Pa. Vermont Marble and Brick. Horace Trumbauer, architect.

The throb of presses is the pulse-beat of the nation. Great newspapers, like great men, are vital to the strength and growth of our national life. They speak to the world with the Voice of America . . . they guard the liberties we cherish . . . they serve us all!

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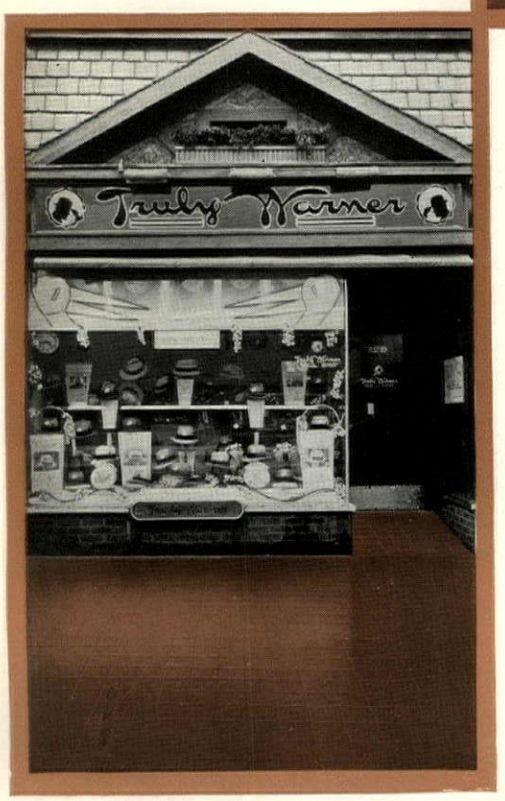
VERMONT MARBLE

An interesting use of Masterbuilt Colored Concrete floors is to be seen in the Truly Warner Hat Store, Kansas City. The walk outside the store is red concrete, colored and hardened by Master Builders Colormix, distinguishing the store from any other in the block.

Inside the store, a pleasing effect in the same material carries out the color theme as a background for the display of hats.



Colormix and Colored Metalicron now contain Omicron, the new ingredient which gives concrete greater strength and protection from disintegration or corrosive wear.

The Merchandising Appeal of Colored Concrete Floors

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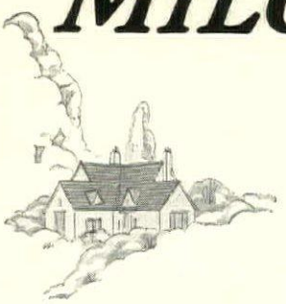
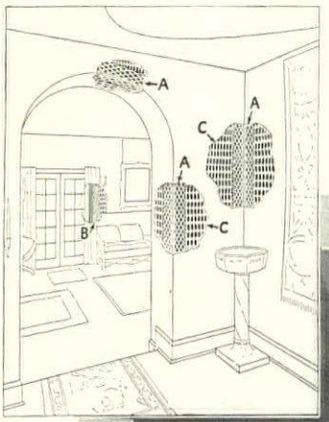
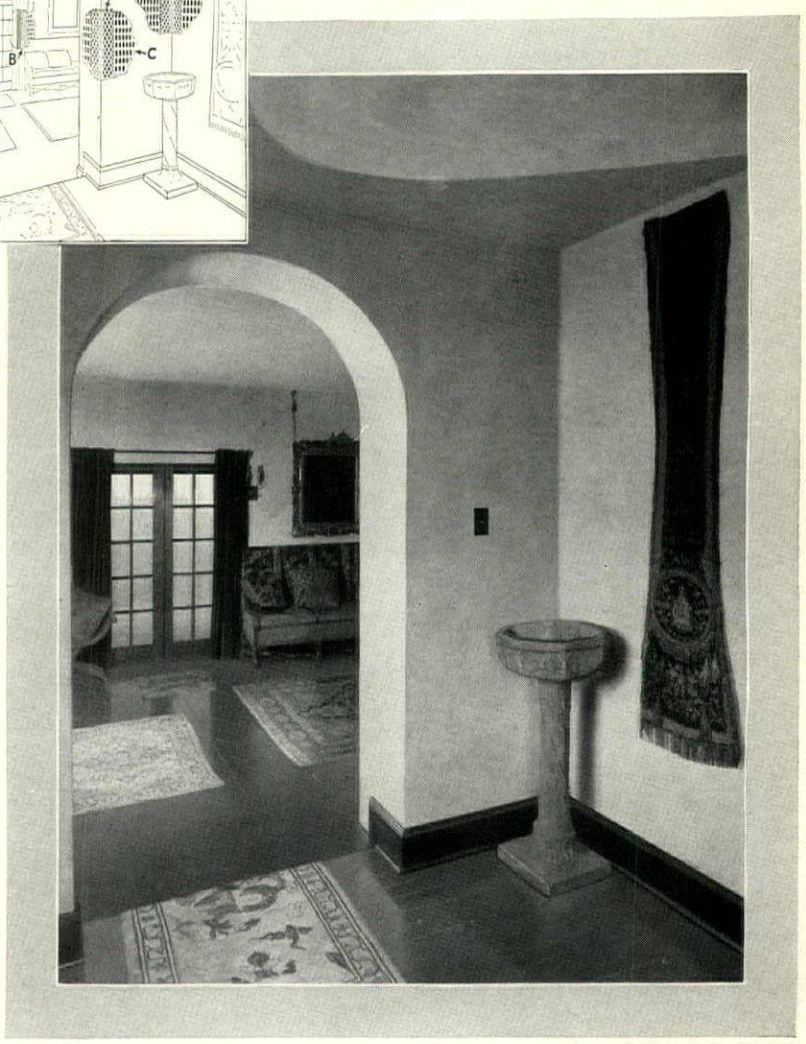
MILCOR Products preserve the- *Charm of Graceful Interiors*







MILCOR offers three metal building materials designed especially to protect and preserve the lines of graceful interiors. They are Stay-Rib Metal Lath ... Expansion Corner Bead... and Expansion Metal Casing. Each of these products has a definite place in modern, fire-safe construction. And each of these products has certain structural advantages which make them particularly practical.

Stay-Rib Metal Lath is a perfected plaster base ... It represents the highest development of expanded metal design. Reinforced by longitudinal ribs, Stay-Rib Metal Lath has great strength and rigidity without excess bulk and weight. Its mesh is so formed, that in plastering, slight pressure of the trowel completely imbeds it. A maximum protection against plaster cracks. Expansion Corner Bead and Casing have patented wings of expanded metal. When used over Stay-Rib Metal Lath, the plaster keys through the mesh of both the casing or corner bead and the lath... making these vulnerable points the strongest parts of the wall.

Specify *Milcor* products for permanence... The "*Milcor* Manual" will be sent you upon request.

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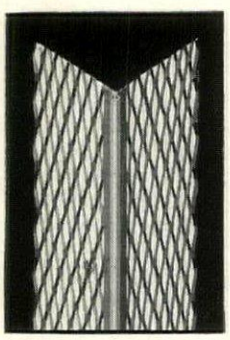
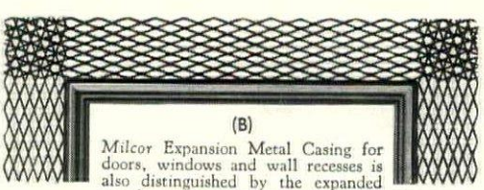


(A)

Milcor Expansion Corner Bead is distinguished by its expanded metal wings . . . This feature . . . a *Milcor* patent . . . permits a perfect grip upon the plaster and prevents chipping off from unavoidable abuse.

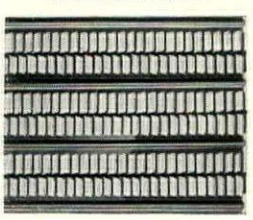


(B)

Milcor Expansion Metal Casing for doors, windows and wall recesses is also distinguished by the expanded metal wings. It cannot pull away during settlement and will not leave cleavage cracks.

(C)

Milcor Stay-Rib Metal Lath has unusual strength and rigidity. Its design . . . a *Milcor* patent . . . affords the maximum protection against plaster cracks.



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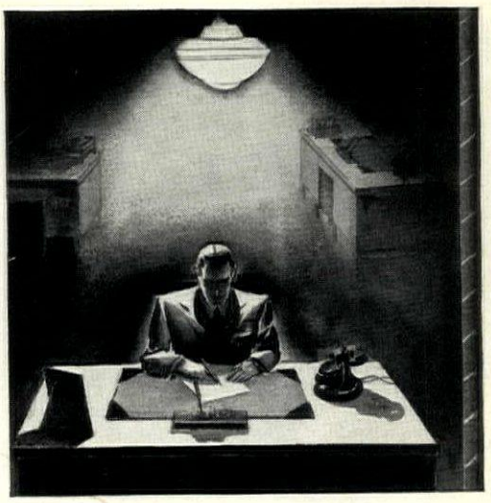

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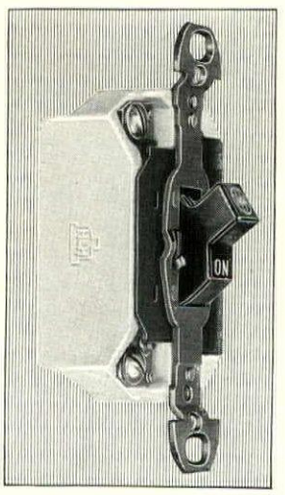

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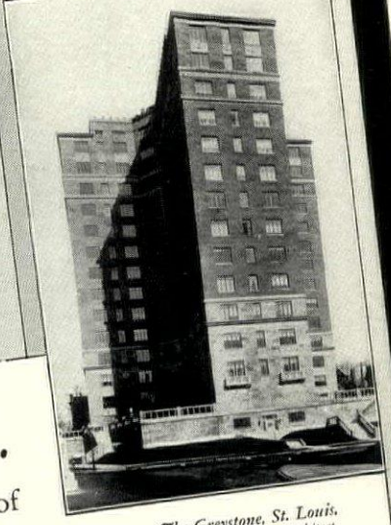
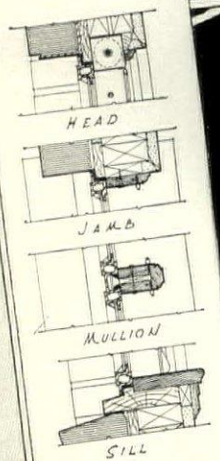


The Greystone, St. Louis, George D. Barnett, Architect.
Rolscreens installed in solid masonry construction—wood trim.



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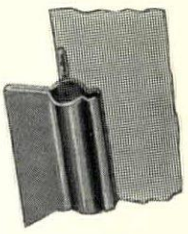
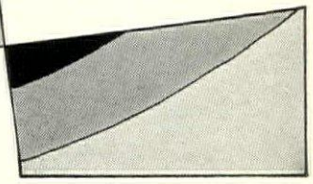


A section through guide showing lugin selvedge of screen wire which prevents screen from sagging. A "non-sagging" feature found only in Rolscreens.

Rolscreen Architects' Manual sent on request



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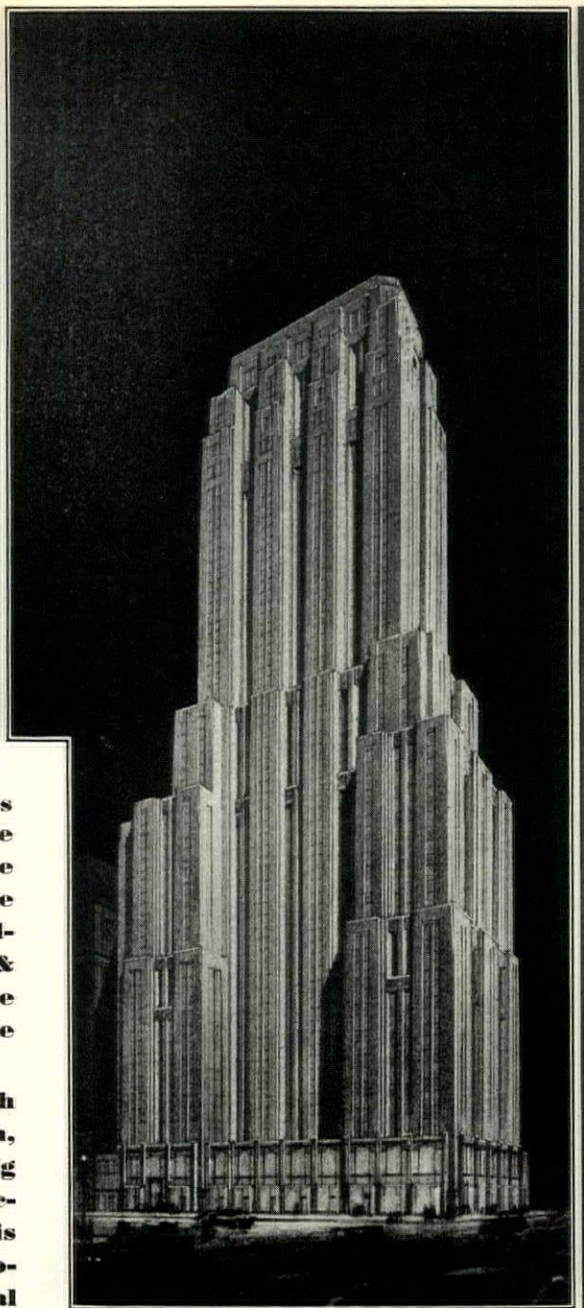

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Holabird & Root, Architects
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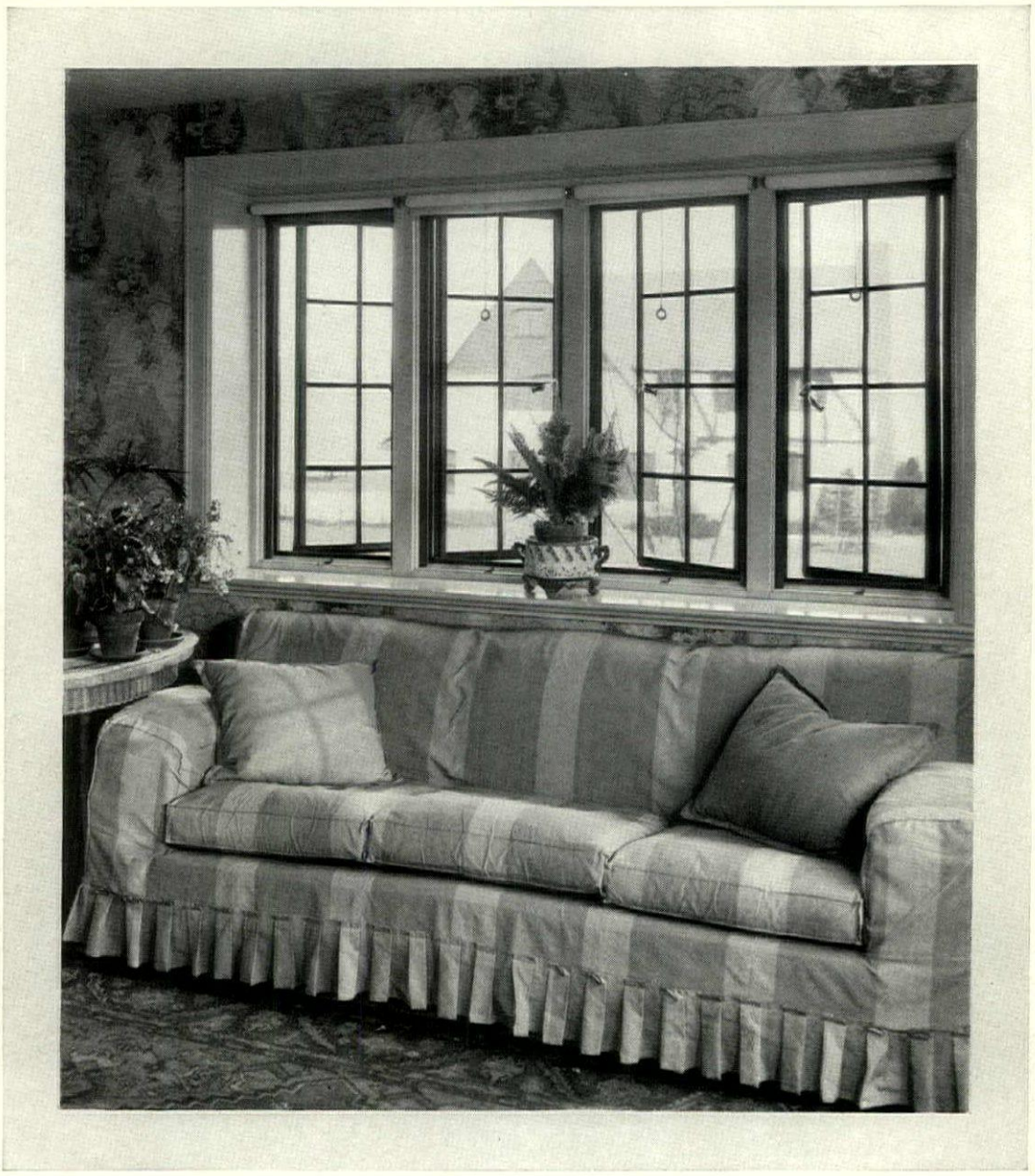

Lupton Casements flood this sun-room with light and air. Residence of H. M. Weir, Glenside, Pa. Architect, Frank B. Milnor

LUPTON Residence Casements are delicately patterned. Slim cross-pieces divide the panes of glass, and add to that buoyant atmosphere so characteristic of the modern interior. This daintiness of design is carefully supported. The four outside borders of each window-leaf are butt-welded for extra strength.

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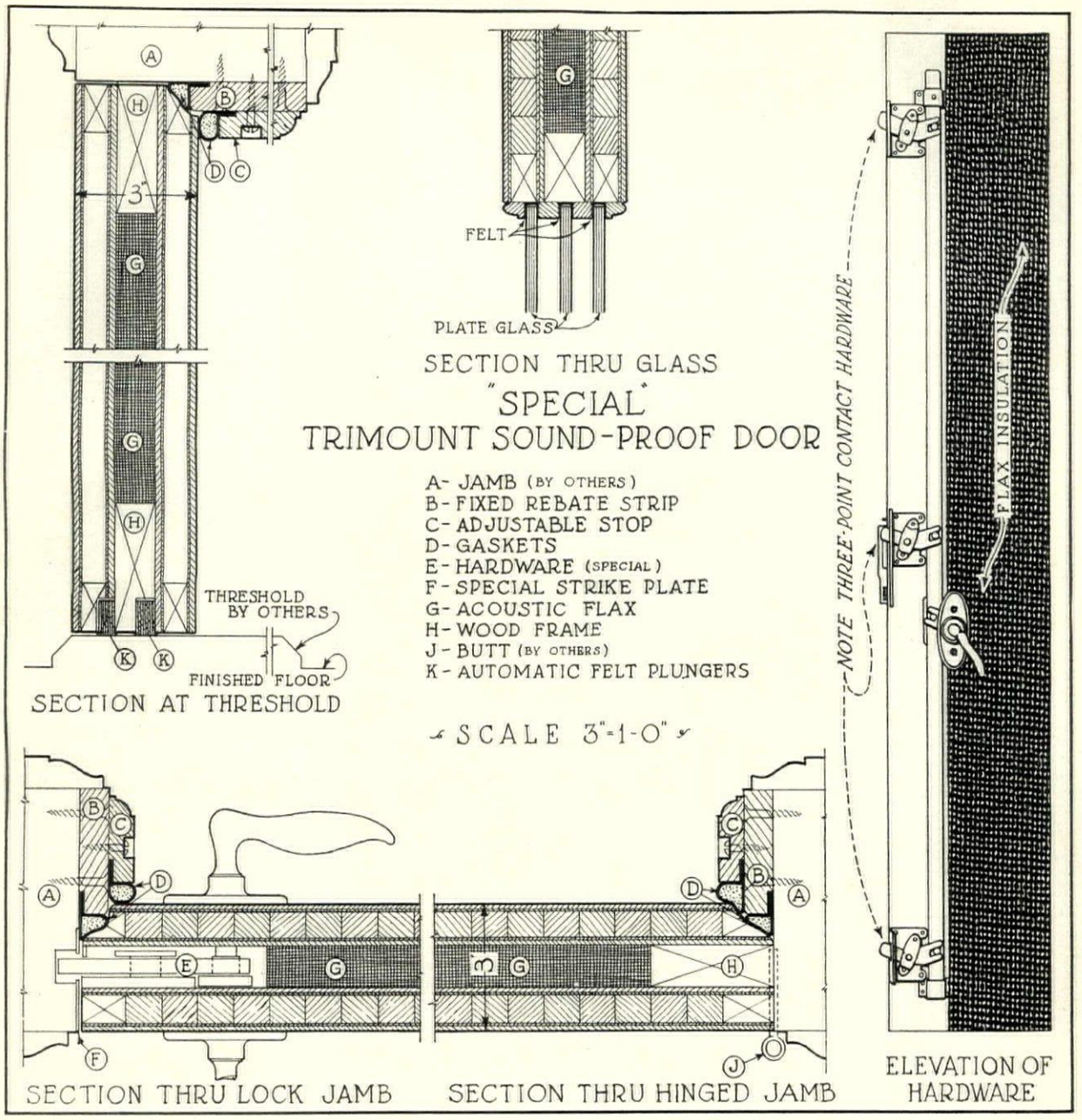

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AMERICA'S OLDEST VENEER DOOR SPECIALISTS

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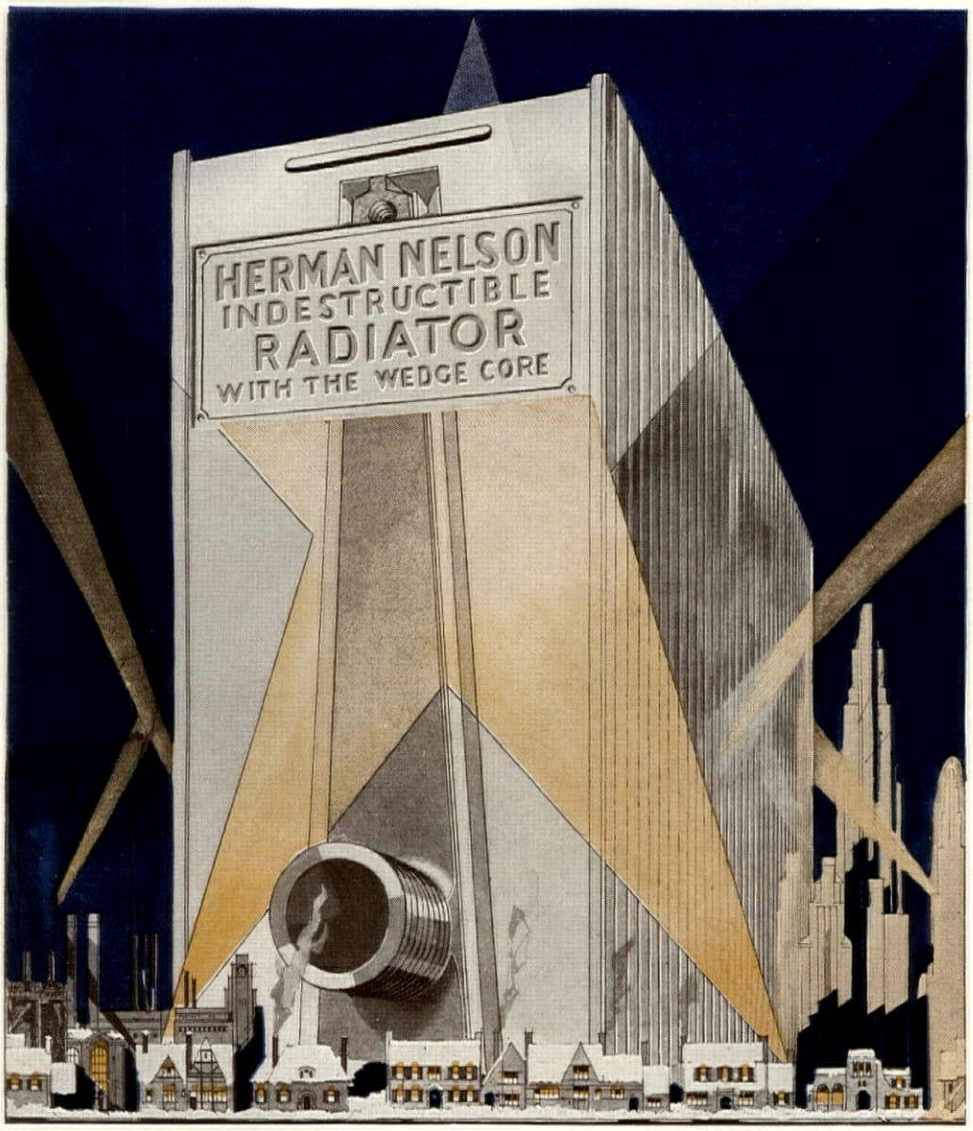

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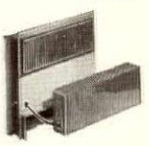

. . . supersedes all previous radiators, radiator cabinets or enclosures. Occupies no room space and makes possible any desired decorative scheme or furniture arrangement. Indestructible in service.

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It operates at steam pressures from 1 to 150 lbs., and offers the better and more economical way of diffusing heat in Factories, Railroad Shops, Roundhouses, Mills, Warehouses, Garages, Gymnasiums and Industrial Buildings.

Herman Nelson Radiator Sections
for Blast Heating and Cooling

Indestructible, operating at any steam pressure from 1 to 150 lbs., non-corrosive and leak-proof. May be arranged in banks to solve any special problem of heating or cooling.

THE HERMAN NELSON CORPORATION · *Moline, Illinois*

Builders of Successful Heating and Ventilating Equipment for over 20 Years

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VENTILATION

UNIVENT

(TRADE MARK)

Radiator (1) comes installed in a steel case (2) more substantial than the wall itself. The complete unit is ready to install in any standard wall or partition.

HERMAN NELSON INDESTRUCTIBLE RADIATOR

RADIATORS—*yes, but out of sight—out of the way*

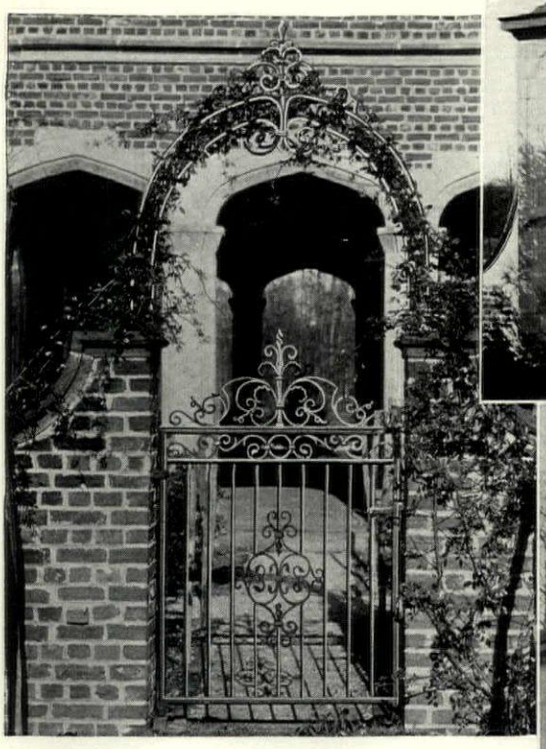
NO LONGER need space wasting radiators intrude upon beauty in the home, office, or monumental building. An Architect's ideal has been made a reality by the Herman Nelson Invisible Radiator.

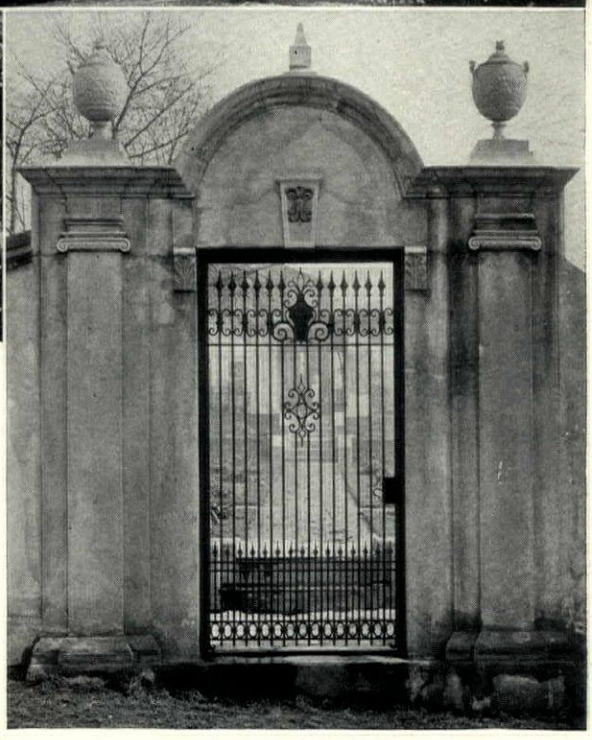
Once walled in, this compact modern heating unit offers all the advantages of finest radiator heat, yet permits of unlimited scope in the arrangement of furniture or decorative scheme.

Indestructible, rust-proof and leak-proof, it never requires service. Even freezing does not harm it.

From the standpoint of comfort, sanitation or investment, the Herman Nelson Invisible Radiator represents a new heating standard. Let us send you our book and complete data. The Herman Nelson Corporation, Moline, Illinois.

HERMAN NELSON
Invisible
RADIATOR
For Steam, Hot Water, Vapor or Vacuum Heating





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See Our Page in SWEET'S

MANY of America's most beautiful estates are guarded by *Fiske* gates. Whenever enduring beauty and perfect workmanship in ornamental metal work are prerequisites, *Fiske* is the natural choice. This preference is based on more than 70 years of dependable performance. *Fiske* cooperates closely with Architects and Builders—following through designs submitted or offering the original suggestions of skilled artists.

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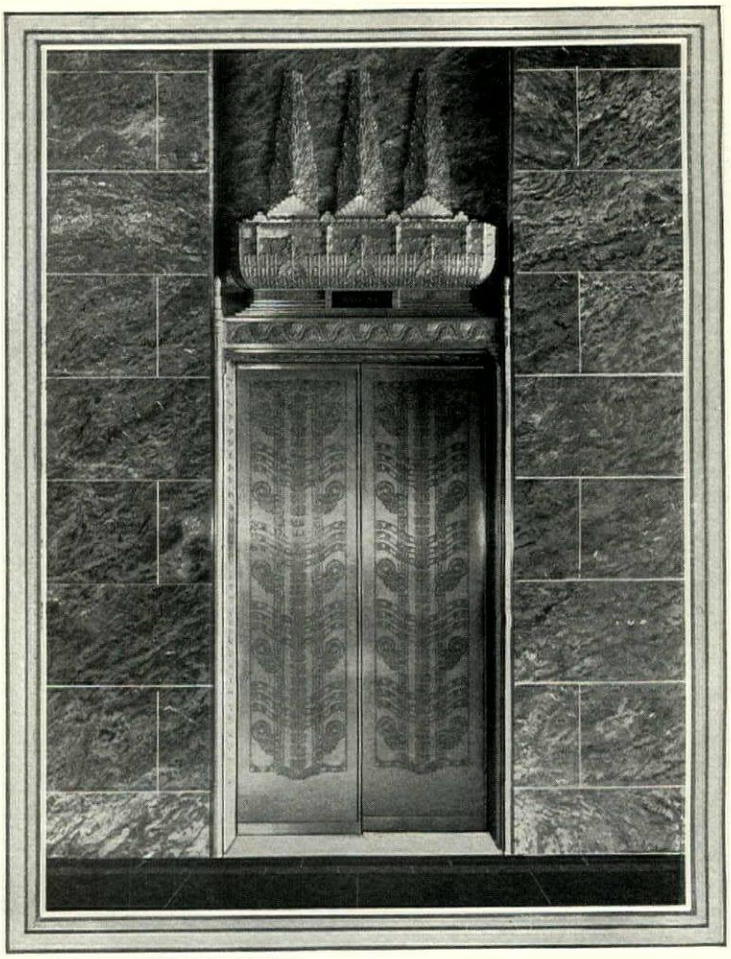
SPECIALISTS IN ORNAMENTAL METAL WORK

ELEVATOR ENTRANCES by DAHLSTROM



The distinguished list of those who have chosen Elevator Entrances by Dahlstrom includes many who are governed by no consideration save that of QUALITY. It is highly significant that these are among the most enthusiastic advocates of Dahlstrom equipment. Dahlstrom built Elevator Entrances include all general types . . . the designs being beautifully executed by master craftsmen. Wide variety in finish and appointment is planned to express varying individuality. And the most exacting requirements may be fulfilled in the range of color combinations.

. . . . . .

In the Northern Life Tower, Seattle, Washington, the Elevator Entrances are by Dahlstrom. Architect: A. H. Albertson & Assoc., Seattle. Contractor: Sound Construction & Eng. Co., Seattle.

"No building is more fireproof than its doors and trim"

DAHLSTROM METALLIC DOOR CO.

402 BUFFALO STREET (Est. 1904) JAMESTOWN, N. Y.

New York Chicago Los Angeles Detroit Dallas

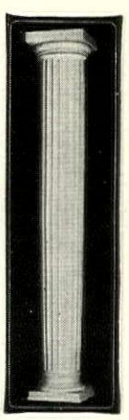
Reflecting the culture and traditions of Colonial days

The Rice-Tucker Entrance, shown, was designed by Samuel McIntyre of Salem, Massachusetts, who realized to an unusual degree the possibilities of the classic column and entablature. Erected in the year 1800, this entrance so faithfully reflects the culture and traditions of the Early American period, that it is today being preserved in the Essex Institute Gardens.

The Rice-Tucker Entrance, built in the year 1800

THESE BOOKLETS OF COLUMNS, COLONIAL ENTRANCES AND GARDEN EQUIPMENT SENT GLADLY

The entrance for each home you design can be practically a duplicate of the Rice-Tucker or one of many other famous doorways. In a new booklet, recently published by Hartmann-Sanders, is shown a notable group of such entrances. There are also booklets displaying a complete line of garden equipment, as well as of famous Koll Lock-Joint Columns—the columns which *cannot come apart*. Write for the booklets. No charge. Hartmann-Sanders Co., Factory and Showroom: 2152 Elston Ave., Chicago. Eastern Office and Showroom: Dept. R, 6 East 39th St., New York City.



HARTMANN-SANDERS

PERGOLAS · COLONIAL ENTRANCES · KOLL COLUMNS
ROSE ARBORS · GARDEN EQUIPMENT

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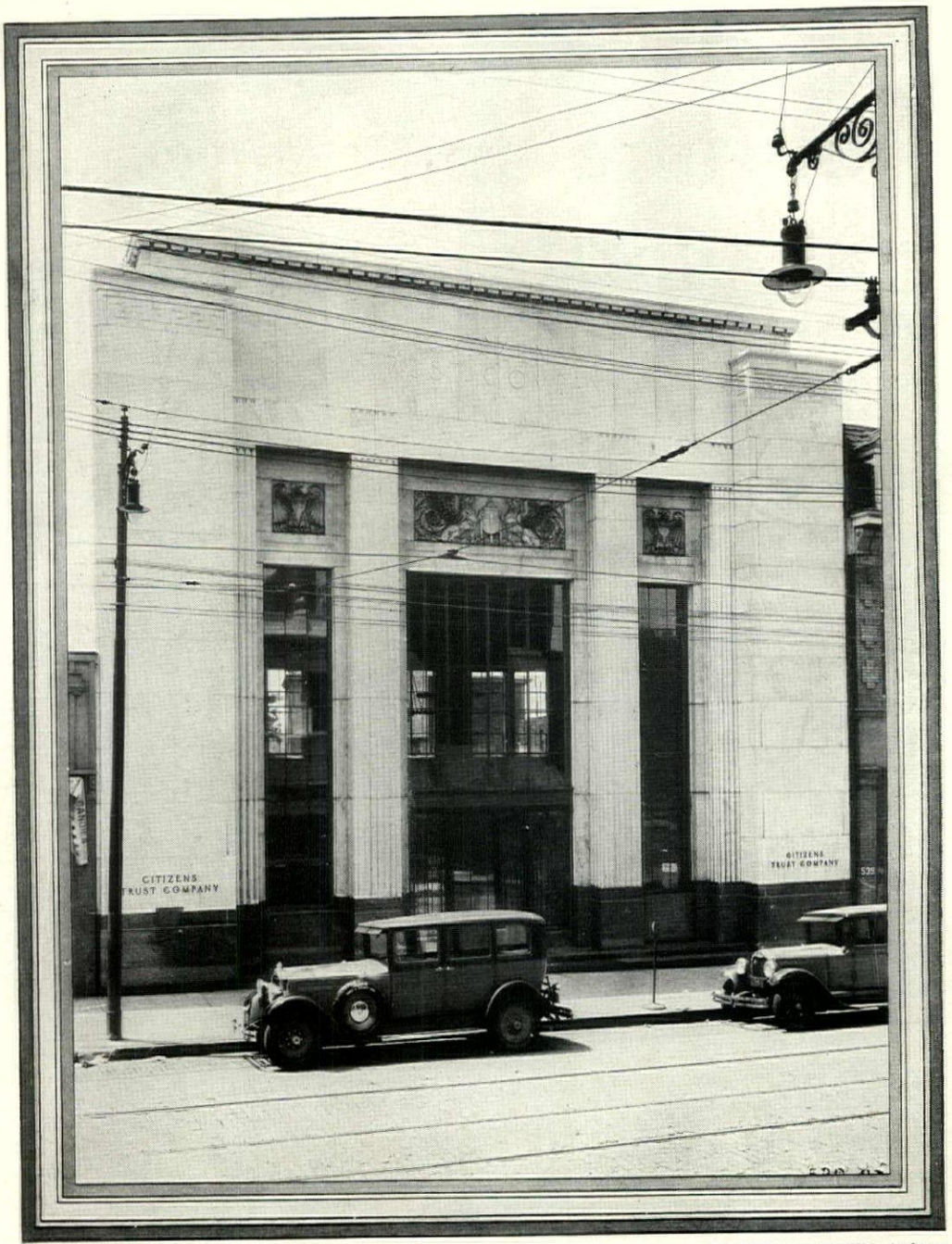

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Georgia Marble, for a bank facade, need not cost more than ordinary stone . . . Frequently, when our engineers are consulted, they are able to suggest revisions in the stone details—such as simplifying the jointing or reducing the thickness of some of the blocks—which will permit the use of Georgia Marble without appreciably increasing the cost of the building . . . A book, "Examples of Bank Work in Georgia Marble," containing photographs and useful detail drawings, will be sent upon request.

THE GEORGIA MARBLE COMPANY · TATE · GEORGIA

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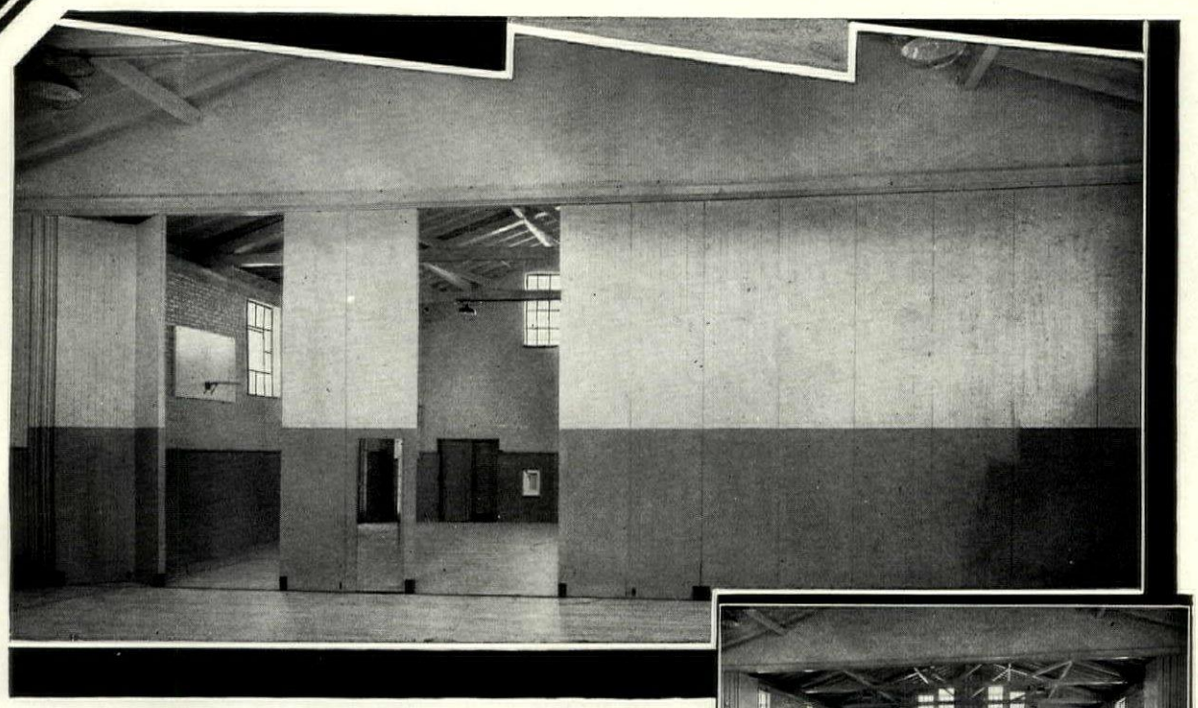
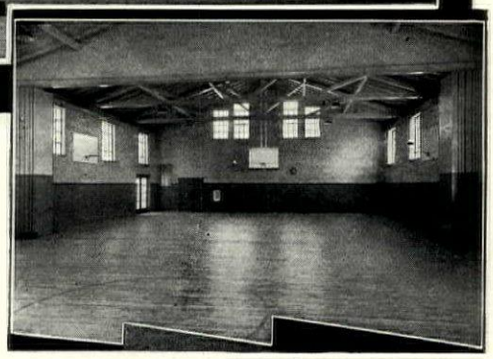
Wilson

SECTIONFOLD
(REG. U.S. PAT. OFF.)
PARTITIONS





Wilson Sectionfold Partitions in Gymnasium of Junior High School, Burbank, California, F. D. Rutherford, Architect

Note how partitions fold back out of the way when not in use.

YOU are not experimenting when you specify Wilson Partitions.

They are far past the introductory stage—Profit by our experience of 50 years.

When you specify Wilson Sectionfolds you run no risk of dissatisfaction such as might occur in the case of products which have not been tested and proven during long years of use.

Wilson Sectionfold Partitions are the product of the pioneers in the manufacture of partitions. Experiments, conducted over half a century have resulted in exclusive patented features which give you the utmost in durability, ease of operation and freedom from trouble.

Other outstanding advantages are as follows:

1. Prevent interference between participants of different games.
2. Avoid necessity for permanent hand ball and squash courts. Space for such courts can be sectioned off at will and then made part of the main gymnasium when desired.
3. May be equipped with slate blackboards for classroom use.
4. Small doors in partitions give easy access to all rooms.
5. Panelled differently on both sides, if desired, to harmonize with surroundings.
6. Adapted to old buildings as well as those under construction.
7. Perfect operation because of our own installation and service offices in principal cities.
8. **Woodwork and hardware all products of our Factory and all of best quality obtainable.**
9. **Five year guarantee with each installation.**

Get full details and illustrations showing how SECTIONFOLDS are increasing the gymnasium and classroom facilities of modern schools.

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OVER FIFTY YEARS IN BUSINESS

Decorative heather-brown tile inserts for stair-treads and landings ...permanent, pleasing and safe, wet or dry.

There has been a definite demand for a material that would have the beauty of natural stone plus limitless durability.

Albertile, the new Alberene product, not only retains all the advantages of the natural quarried stone, but the process of treating it to a temperature of 1800° F. increases its abrasive quality many, many times, and also changes its color from blue-grey to a permanent heather-brown.

Used as stair-tread inserts or as a border on landings, or for tile flooring in grill-rooms, solariums, lobbies, etc., Albertiles insure satisfaction for the life of the structure, safety at all times, and freedom from upkeep costs.

The tile insert has the advantage that it can be purchased in standard sizes, and set without the necessity of securing stairway measurements which may cause delay in shipment of the material.

The brochure, "Architectural Alberene", shows Albertile in actual color, used in conjunction with other materials. Your request for it, or for a sample Albertile, will receive prompt attention.

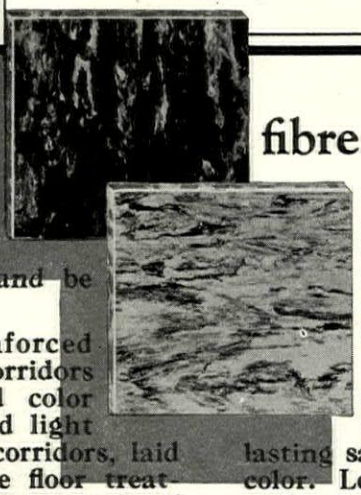
ALBERENE STONE COMPANY
153 WEST 23rd STREET, NEW YORK

Branches: Chicago Philadelphia Boston Newark Pittsburgh Cleveland Richmond Washington, D. C. Rochester Quarries and Mills at Schuyler, Va.

ALBERTILE

Tiles of Heat-treated Alberene Stone

General Offices, State Street Trust Company, Boston. Large rectangles of cream and red grainings against a black field, with inner lines of cream. This floor expresses the feeling of stability achieved by the massive beams and columns, and the wide panelling.



Lasting Wear in a fibre reinforced rubber floor

Lasting satisfaction, too. A safe investment in quiet, durable, trouble-proof and comfortable floors that you can recommend and be proud of.

You can use Stedman Reinforced Rubber Tile on all upper floors—corridors *and* offices. Its thirty standard color types provide for every traffic and light condition. Practical colors for corridors, laid in any pattern you desire; office floor treatments to meet the individual requirements of each tenant; all in one durable material, quiet, comfortable, economical.

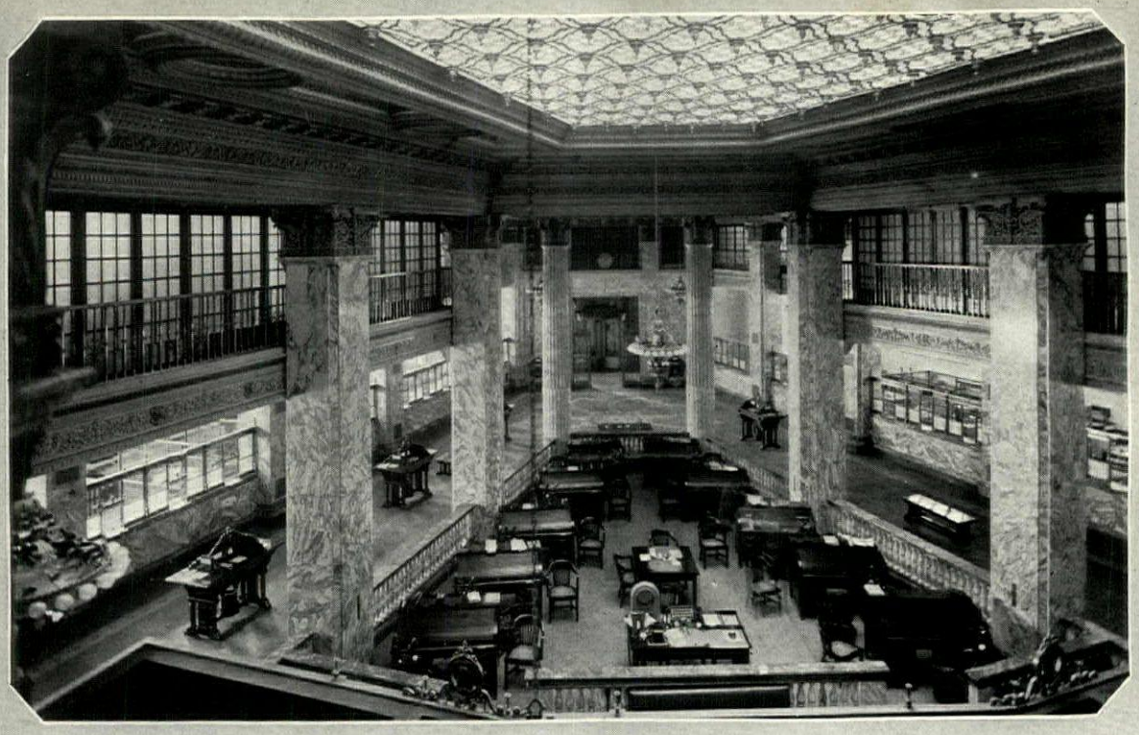
These are matters of structure. The rubber is reinforced with millions of cotton fibres, which permeate and bind the compound, giving it unusual toughness and density, insuring lasting resilience. Stedman Reinforced Rubber Tile does not spread, crack or chip. The surface is smooth, foot-sure and impervious.

Plan with Stedman. We design, plan and lay our floors, handling every detail, insuring excellent workmanship and lasting satisfaction. Write for our catalog—in color. Let us send a representative, qualified and competent to advise with you on any flooring problem.

STEDMAN PRODUCTS COMPANY
SOUTH BRAINTREE, MASSACHUSETTS

STEDMAN RUBBER TILE

Invisible Fibre Reinforcement gives lasting Wear and Beauty

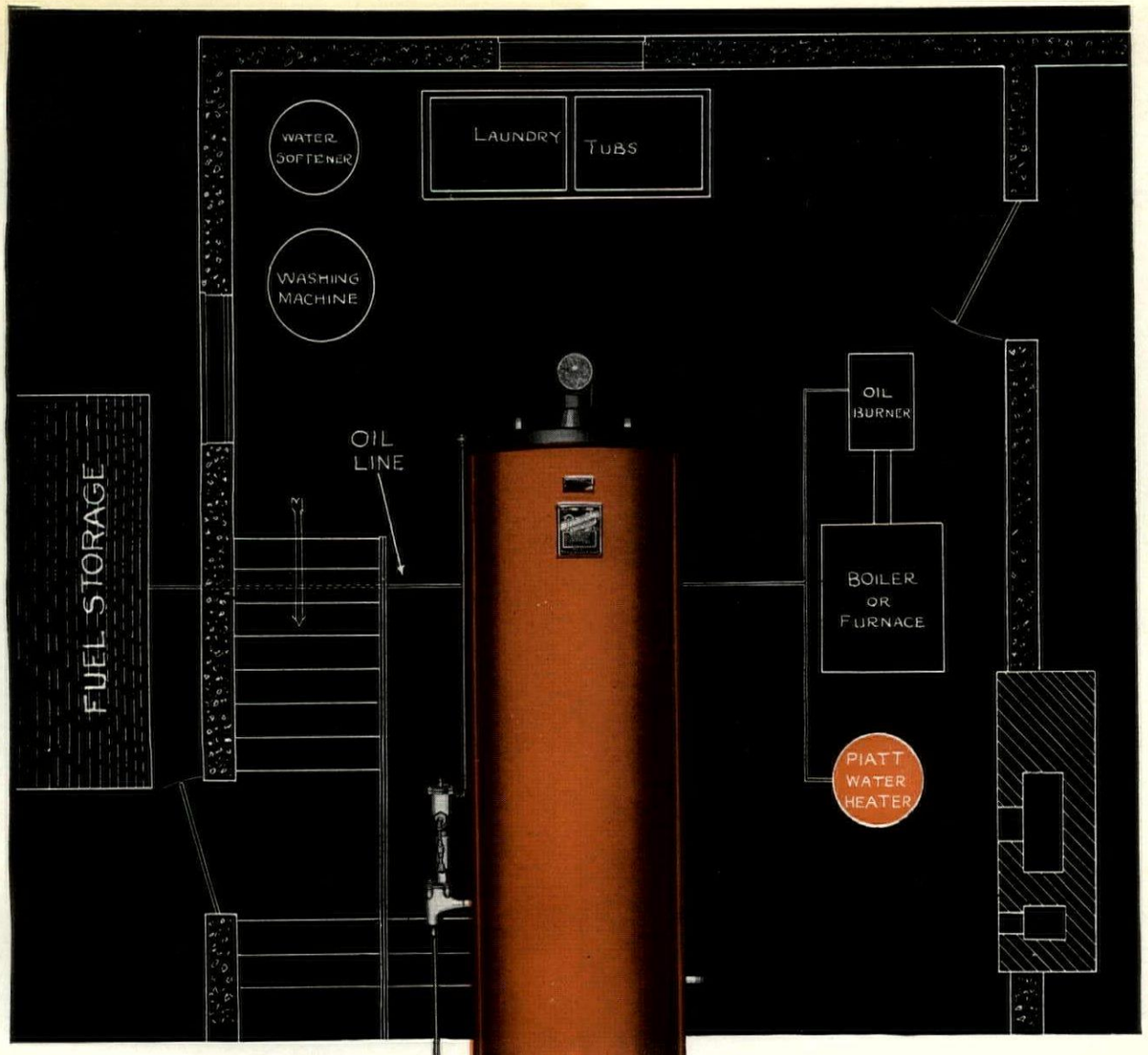


Chambers & Thomas, Buenos Aires, Architects.
York & Sawyer, New York, Consulting Architects.

The interior of The First National Bank of Boston building in Buenos Aires is finished in porphyry and green and yellow Uruguay marble. Its spacious dignity is in keeping with the character of this banking institution.

STONE & WEBSTER
ENGINEERING CORPORATION

Builders



Burn Oil
Save Toil

New - to the *architectural profession*

If not professionally, at least as individuals architects have had opportunities to follow the success of Piatt Oil-burning Water Heaters among local Piatt dealers and in homes and apartment houses. The Piatt Water Heater is listed as standard by Underwriters' Laboratories.

This success was inevitable. The Piatt Principle of Combustion and the Piatt System of Control gives the owner an abundant supply of steaming hot water inexpensively —automatically—safely—relieving him from all considerations of operation except merely lighting. Installation is so simple that Piatt has the preference over any other water heater.

Write for arrangement layout.

MOTOR WHEEL CORPORATION
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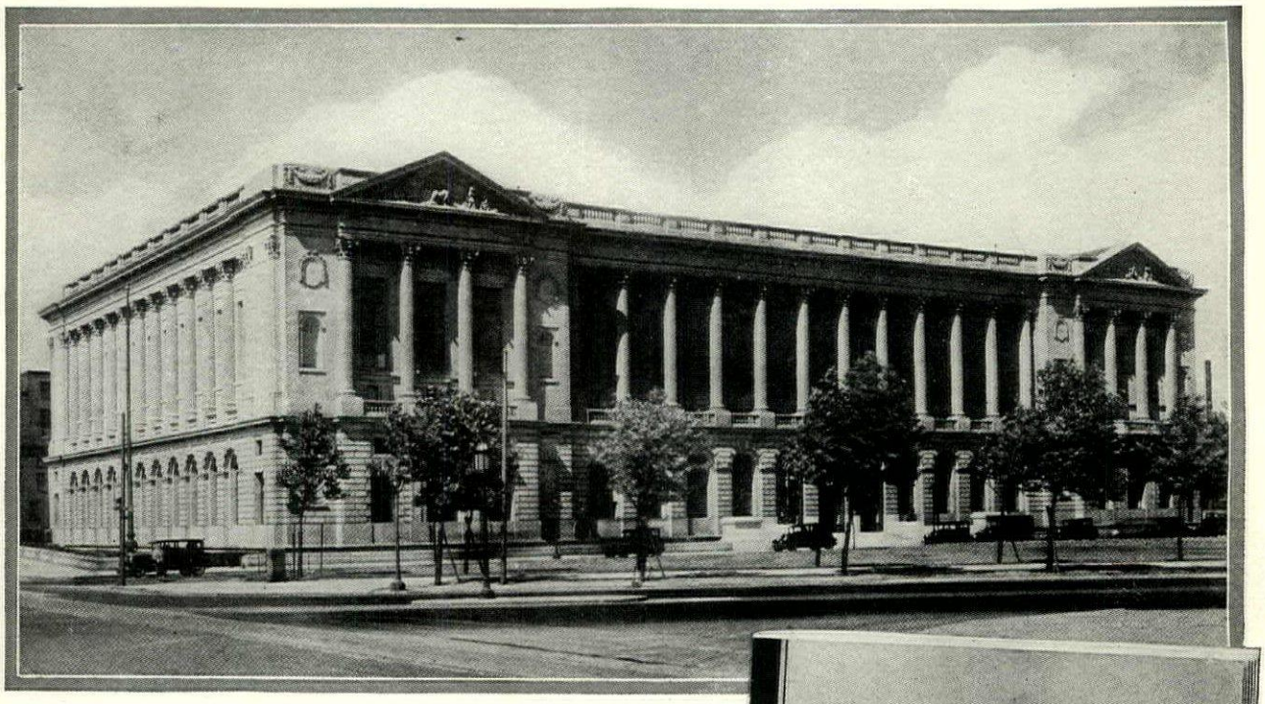
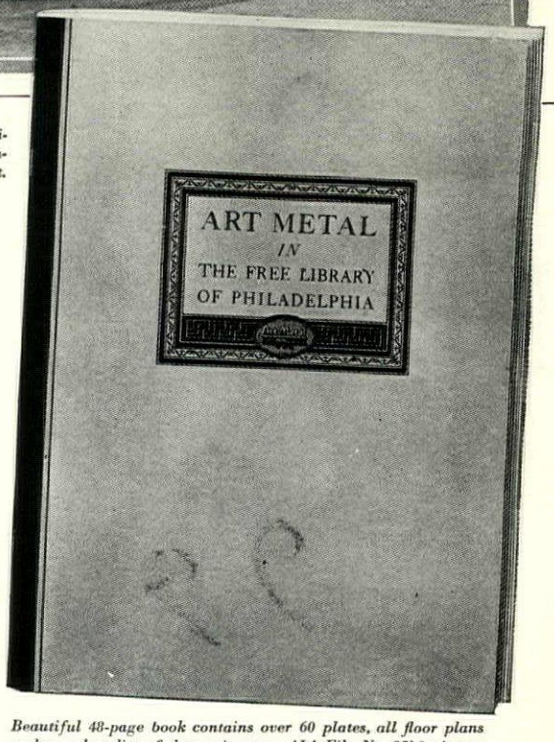
PIATT OIL BURNING APPLIANCES *made by* MOTOR WHEEL CORPORATION

The largest *metal* library equipment job in the world



The Free Library of Philadelphia, with its stately French architecture, is one of the city's most imposing buildings. The entire equipment is of Art Metal. Horace Trumbauer, architect.



Beautiful 48-page book contains over 60 plates, all floor plans and complete list of the equipment—AIA File No. 35b2 gives a supplement of specifications on Art Metal Library equipment.

Send for beautiful free book describing fully this complete Art Metal installation

75 CARLOADS—over 2,783,000 pounds—of Art Metal equipment were used in the magnificent new Free Library of Philadelphia. From the massive bronze entrance doors to the simplest fuse box, Art Metal has replaced wood.

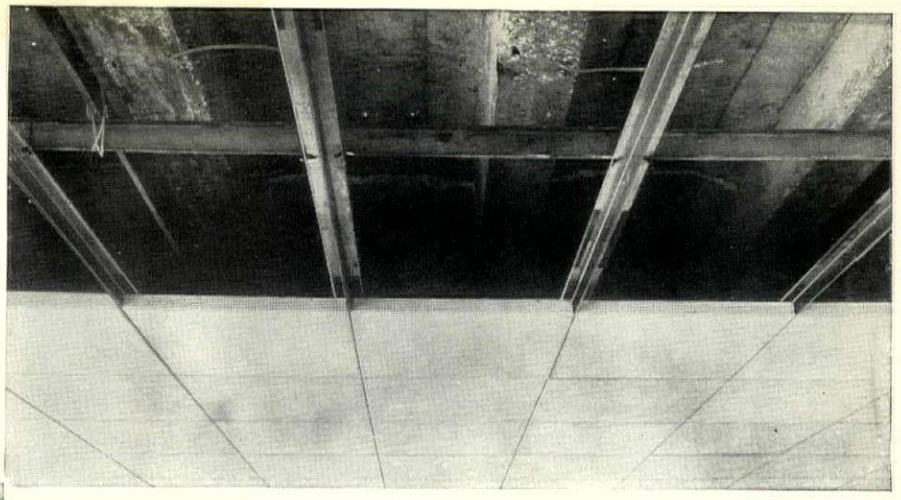
Art Metal had the immense facilities to fill every specification . . . to execute every new design. For forty years Art Metal has been producing equipment for banks, libraries and public buildings. This installation shows the great value of that long experience. It is a signal example of Art Metal's ability to adapt its craftsmanship to the architect's design and the administration's purpose.

Write for this beautiful free 48-page book. In it you will find many examples of effective handling of library problems. Just address your request to Art Metal Construction Company, Jamestown, N. Y.

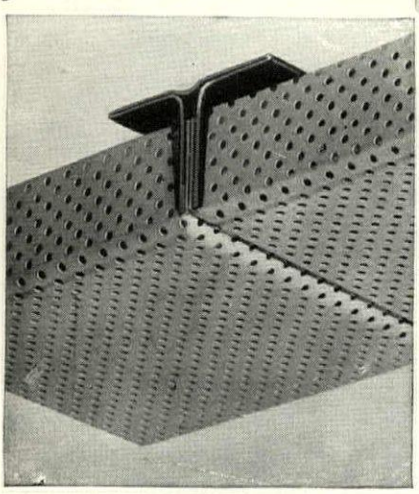
Art Metal

JAMESTOWN - NEW YORK

BRONZE AND STEEL INTERIOR EQUIPMENT FOR BANKS, LIBRARIES AND PUBLIC BUILDINGS · · · HOLLOW METAL DOORS AND TRIMS



JOHNS-MANVILLE



SANACOUSTIC *sound-absorbing* TILE

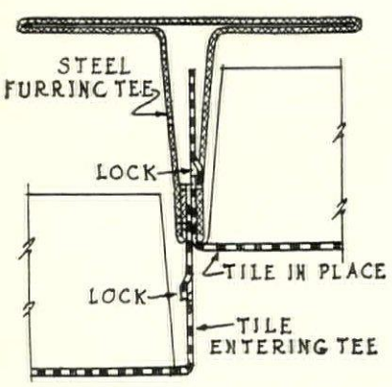
THESE simply applied ceiling tiles provide a complete substitute for metal lath and plaster on furred ceilings—*plus* the most efficient *sound-absorbing* finish on the market—*plus* an interior finish that "is without fire hazard"*—*plus* an interior finish with a maintenance economy comparable only to glass or glazed tile—plus attractive appearance, excellent light reflection and permanence.

Each Sanacoustic Tile consists of a perforated metal container which is filled with a fireproof sound-absorbing material.

Sanacoustic Tile supporting Tees may be wired directly to the furring channels—note the close-up above—no backing is required. Any 12 in. x 12 in., 12 in. x 24 in. or 24 in. x 24 in. tile may be instantly withdrawn from the supporting Tee to provide access to pipes, conduits or ducts in the furred space.

J-M Sanacoustic Tile is the *ideal* sound-absorbing finish for Offices, Bank working spaces, Hospitals, Restaurants, Schools and other rooms where it is desired to end excessive noise.

Sanacoustic Tile is a *supplement* to our standard Nashkote Acoustical Treatments. For further information about this Sanacoustic Sound-absorbing Tile, mail the coupon below—today.



Method of fastening Sanacoustic Tile to furring tee

* Underwriters' Laboratories Report No. 2197

Johns-Manville
SANACOUSTIC
SOUND-ABSORBING TILE

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A-87-8

Interior of the
University of Chicago Chapel
Chicago, Illinois

BERTRAM G. GOODHUE
and
BERTRAM G. GOODHUE ASSOCIATES
Architects

AN ACOUSTIC INSTALLATION of AKOUSTOLITH sound absorbing artificial stone and special colored ceramic and gold tile as a soffit course to constructive Guastavino Timbrel Tile ceiling vaults and ribs.

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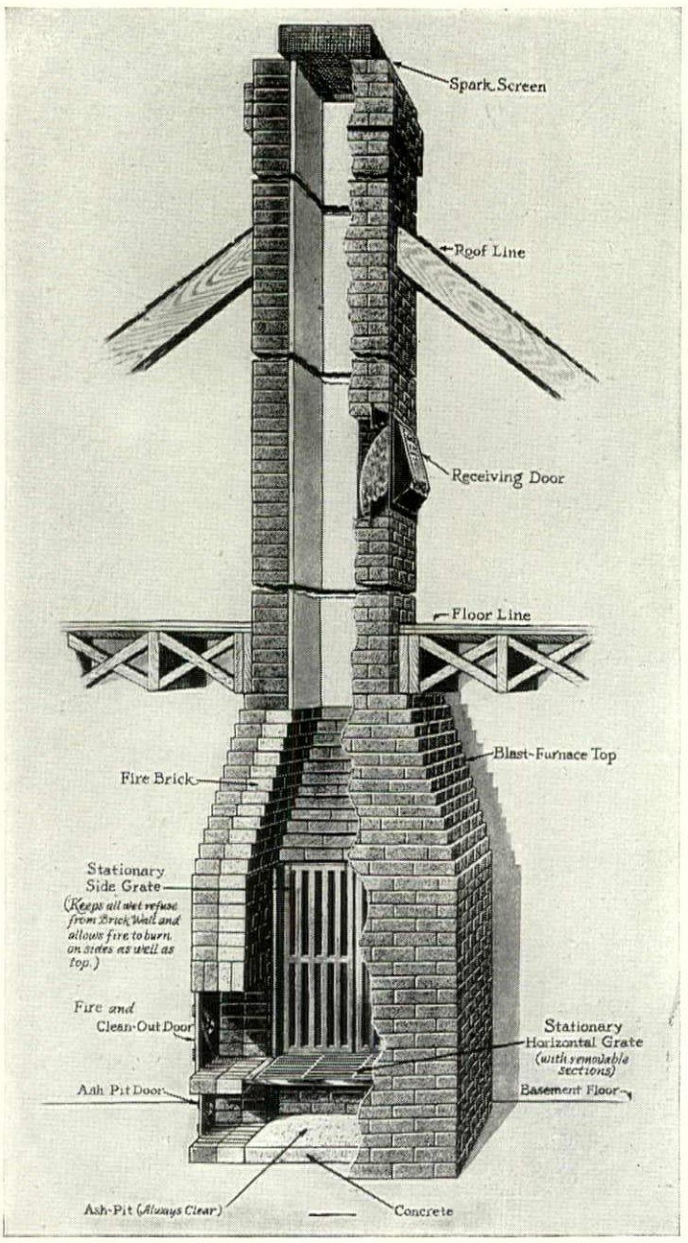
K-M Incinerators

For Residences, Apartments, Hotels, Offices

Three Unique Features Provide a Strong Draft Which Results in Quick Drying and Speedy, Thorough Combustion



Real Estate Trust Bldg., Philadelphia, Pa., equipped with K-M Incinerator

THREE features of K-M Incinerators provide an unusually strong draft which in turn leads to the quick drying out of the refuse and speedy, thorough combustion:

—the blast furnace design of the combustion chamber.

—the two inch air space between the sides of the "suspended basket" grates and the fire brick side walls which permit the circulation of air and combustion on all sides as well as at the top of the rubbish.

—the two point draft which comes both thru the clean-out or fire door and thru the ash pit doors.

These features making for the efficient operation of K-M Incinerators together with their low cost and simplicity of design without bearing blocks, shakers, nuts, bolts, handles or moving parts of any kind have led to their widespread popularity in residential and apartment house construction from coast to coast. Ask your local K-M distributor for complete details or write direct.

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KELLOGG MANN & CO., INC.
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DO NOT make hospital corridors into speaking tubes that carry the conversation of every visitor into wards and private rooms. Cover the ceilings with Acoustex. Acoustex does its work efficiently; eliminates irritating echoes and reverberations. *Yet not at the expense of appearance.* Acoustex is a ceiling finish beautiful in itself. Its rich textured surface, tinted to your specifications, is at home in any surroundings. In more and more hospitals, offices, schools, and public buildings the ceilings of Acoustex prove that in acoustical design the trend is definitely decorative.

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Acoustex erectors are located in principal cities. Should one not be available in your vicinity, write direct.

ACOUSTEX
offers you . . .

The most beautiful acoustic material on the market . . . Tiles from 6″ x 12″ to 12″ x 24″ and large sheets 2 feet wide and up to 10 feet in length . . . all one inch thick . . . Tinted to your specifications . . . Unusually high coefficient of sound absorption . . . Fire-resisting . . . Moisture-proof . . . Easily vacuum cleaned and redecorated . . . Tested through years of successful installations.

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Boston Acoustical Engineering Division
of Housing Company, 40 Central Street
Boston, Mass. R

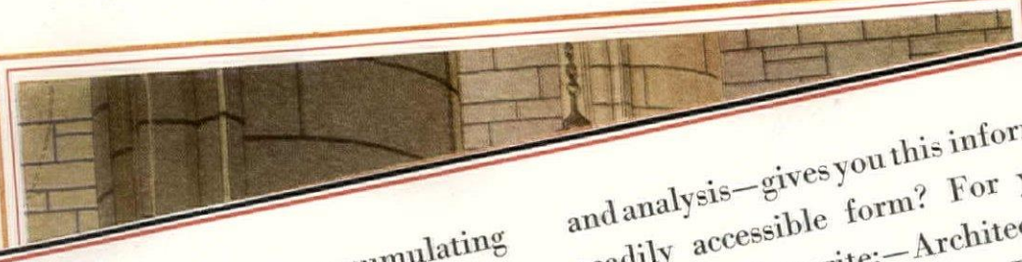
Send Specifications and Details on the Use and Application of Acoustex for our acoustic file.

Name_____

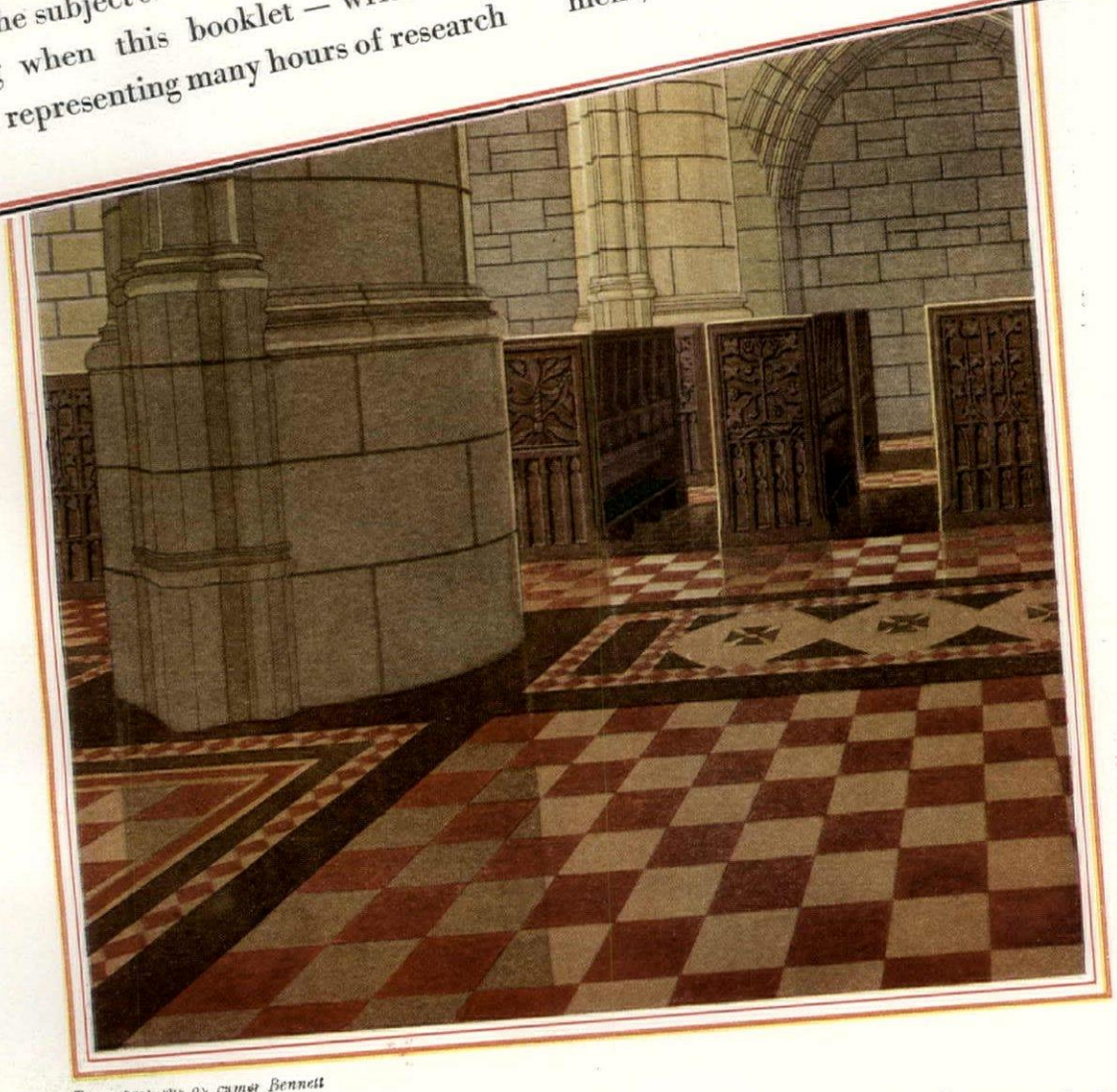
Address_____

ACOUSTEX

The *Decorative* Sound Absorbent



WHY spend your valuable time accumulating data on the subject of church and community house flooring when this booklet — written by architects and representing many hours of research and analysis—gives you this information in graphic, readily accessible form? For your copy of this useful booklet write:—Architects' Service Department, Congoleum-Nairn Inc., Kearny, New Jersey.

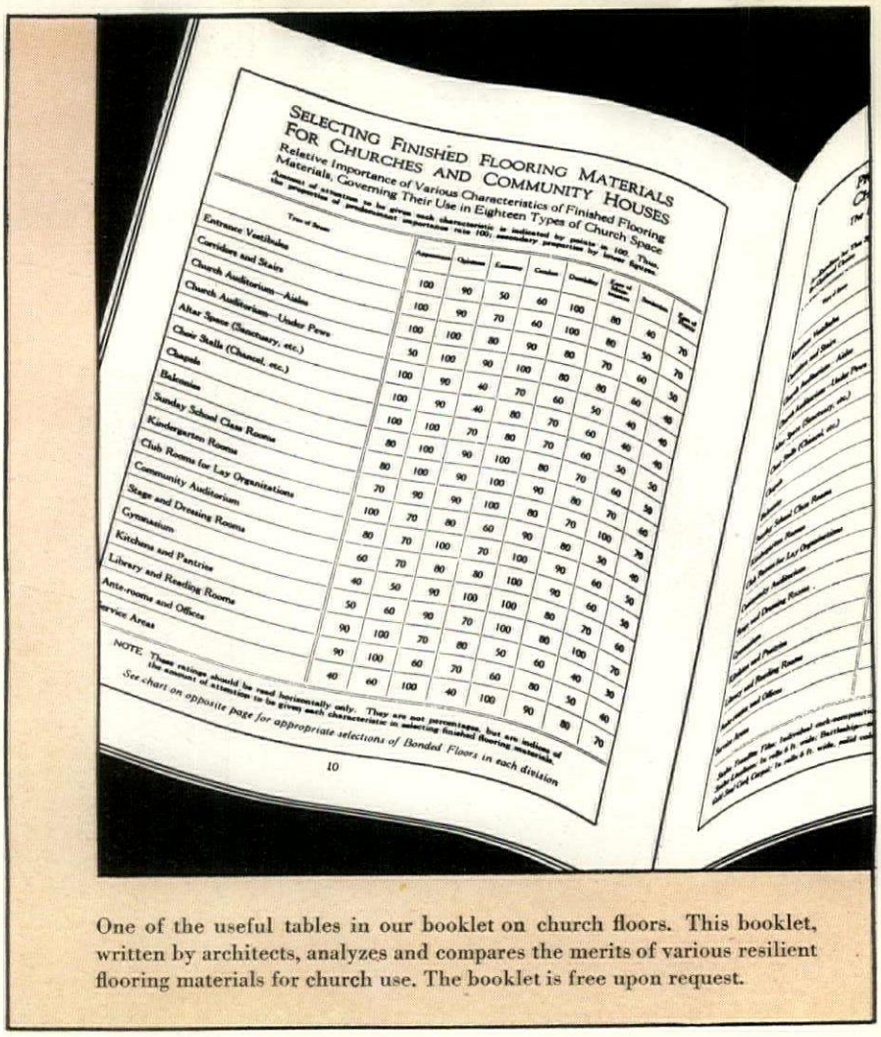


From painting by Lamar Bennett

FACTS YOU SHOULD KNOW ABOUT RESILIENT FLOORS IN CHURCHES

(see next page)

A useful BOOK for ARCHITECTS



One of the useful tables in our booklet on church floors. This booklet, written by architects, analyzes and compares the merits of various resilient flooring materials for church use. The booklet is free upon request.

"*FACTS . . . about Resilient Floors in Churches*" is the title of a booklet written by architects who have made a survey and study of the special flooring requirements of this type of building. It represents the latest findings on various types of resilient flooring.

And most important of all: it analyzes the relative importance of quietness, comfort, durability, appearance, sanitation, for any given church or community house floor area—chancel, nave, aisles, vestibules, class-rooms, club-rooms, etc. And further—it sums up this information in a "quick-action" chart which makes all of it available to you at a glance.

This up-to-date, accurate and practical presentation of *floor facts* throws helpful light on the whole problem of church flooring.

Floor facts for other types of buildings are presented in the same impartial, concise fashion in other books of this series, which analyze floor problems in Schools, Hospitals, Stores, Offices, Libraries, Clubs and Hotels.

Other data offered by our Architectural Service Department includes: specifications and detail drawings on linoleum, cork-composition tile and cork carpet, descriptive booklets, etc. Write us for this and any other information you need on resilient floors.

CONGOLEUM-NAIRN INC.
General Office: Kearny, N. J.
Authorized Contractors for Bonded Floors are located in principal cities

Here are illustrated just a few of the many color units available to architects using Bonded Floors of *Sealex* Linoleums and *Sealex* Treadlite Tiles.

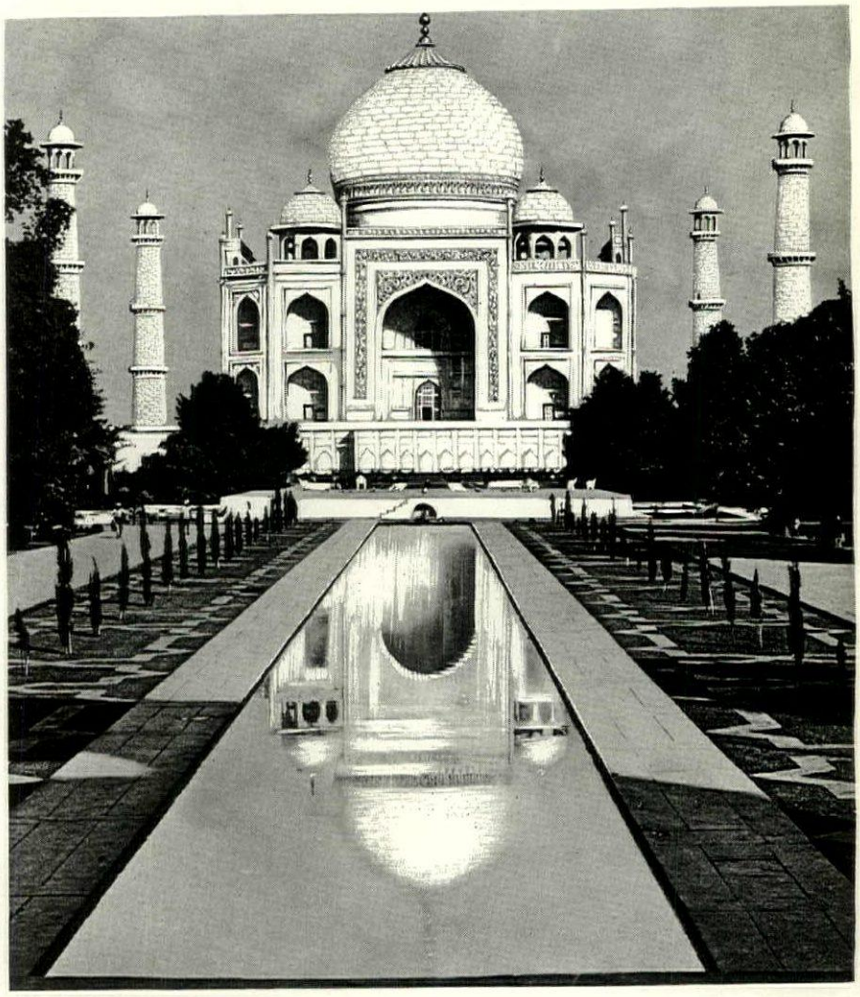
BONDED FLOORS

Sealex Linoleum and Tile — ISSUED BY U.S. FIDELITY AND GUARANTY CO. — *Backed by a Guaranty Bond*

(see preceding page)

Why is the Taj Mahal so snowy white . . . .

?



SHAH JAHAN, that great Mogul emperor, pondered long over a fitting expression of his grief for the death of Mumtaz Mahal. A mausoleum, certainly, he thought—a magnificent and costly building—emblematic of the purity of a beloved wife—a gem of the golden age of Indian architecture, whose stainless and snowy perfection should typify his lost love for all time.

Here is a case where conception was followed through to execution—where the incandescent whiteness of one of the world's most perfect structures was faithfully realized in the fact just as it was planned in its creator's dream.

Many an architect, as he admires the snowy whiteness of his stucco model of a bank, towering office block, or a great urban apartment, is looking in his mind's eye at the finished building, in which no variation in tint of building stone shall be allowed to camouflage structural offsets and carving detail, or detract from the simple and sweeping vertical lines that distinguish the architecture of today.

To gain this end, the architect will avoid variety of shading in his stone. More than likely he will specify Select and Standard Buff Limestone—of which an unlimited supply is now available—for he is well acquainted with its *absolutely uniform*, creamy whiteness, essential to the proper execution of his plan as it is projected in the snowy model of stucco.

There is, we repeat, PLENTY of Select and Standard Buff. We have it. And we shall welcome correspondence with architects interested in the almost unique possibilities of this very beautiful *uniformly creamy white* stone.

VICTOR OOLITIC STONE COMPANY
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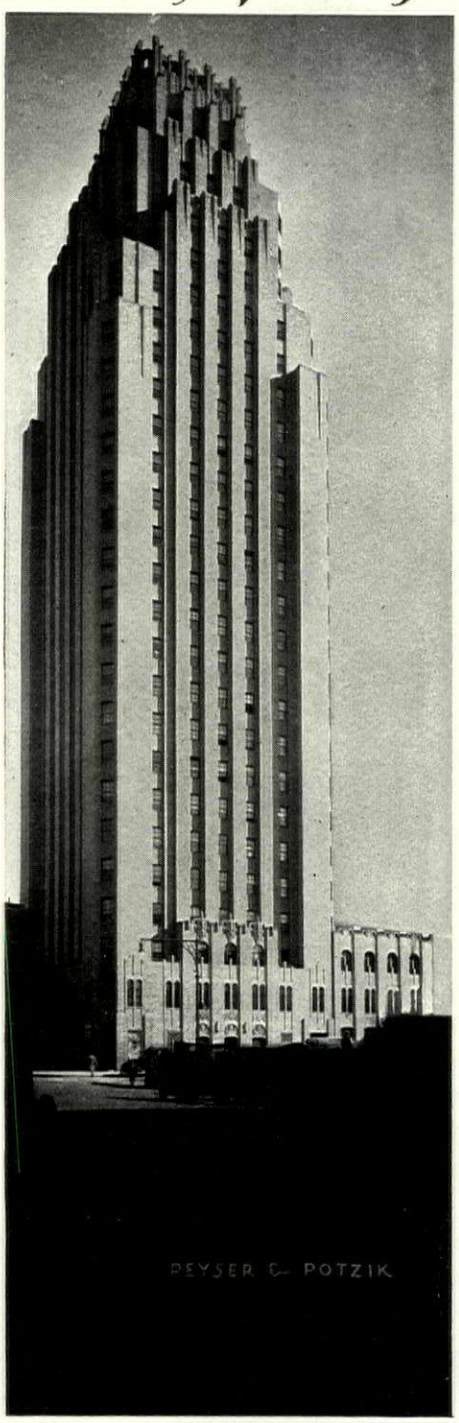
Bloomington Indiana

WINDOW GLASS
that Ornaments the Beauty of Design



Panhellenic Tower, New York City—an "A·W·G" installation, Architect, John Mead Howells; Contractor, Hegeman Harris Co.

ROCOCO detail is no substitute for design, nor is blank wall area always as practical as window space. As beauty lies in true utility, so window glass has become the jewel of architecture. Its increased use has added a rent producing, sales producing personality to structures.

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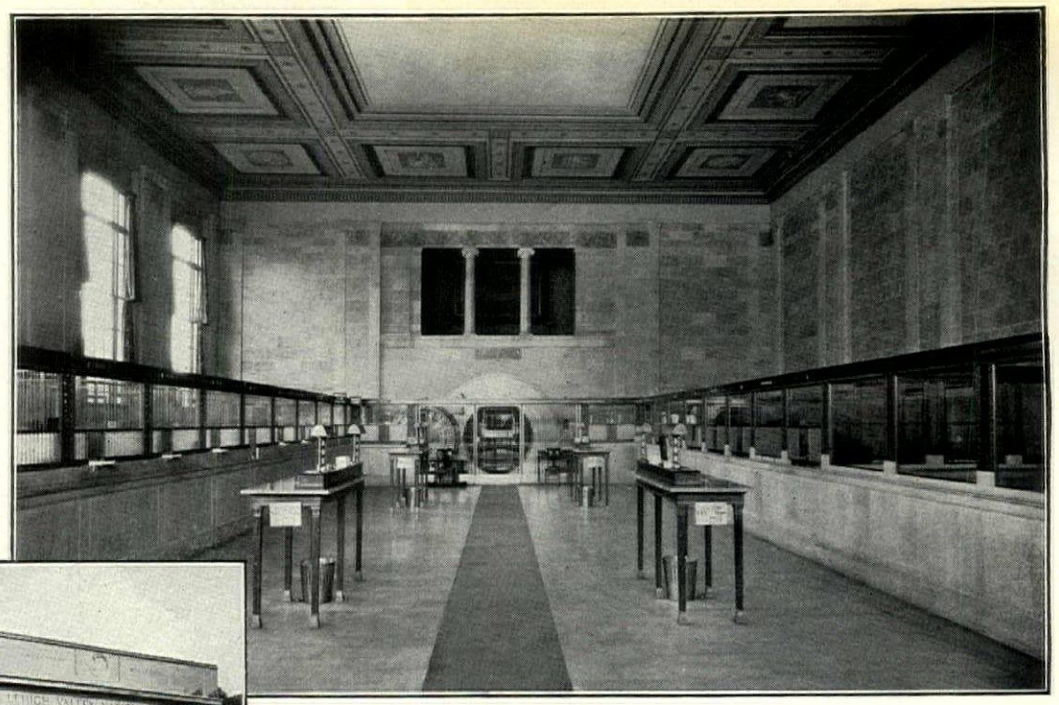

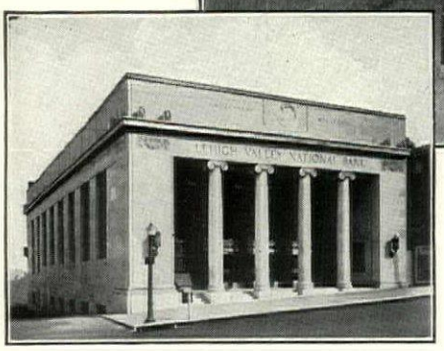

Lehigh Valley National Bank, Bethlehem, Pa. Ritter & Shay, Architects, Philadelphia, Pa. H. E. Stoudt & Sons, Contractors, Allentown, Pa., Louis Arbizzani, Plasterer, Bethlehem, Pa. Ohio White Finish supplied by Morris Black, Bethlehem

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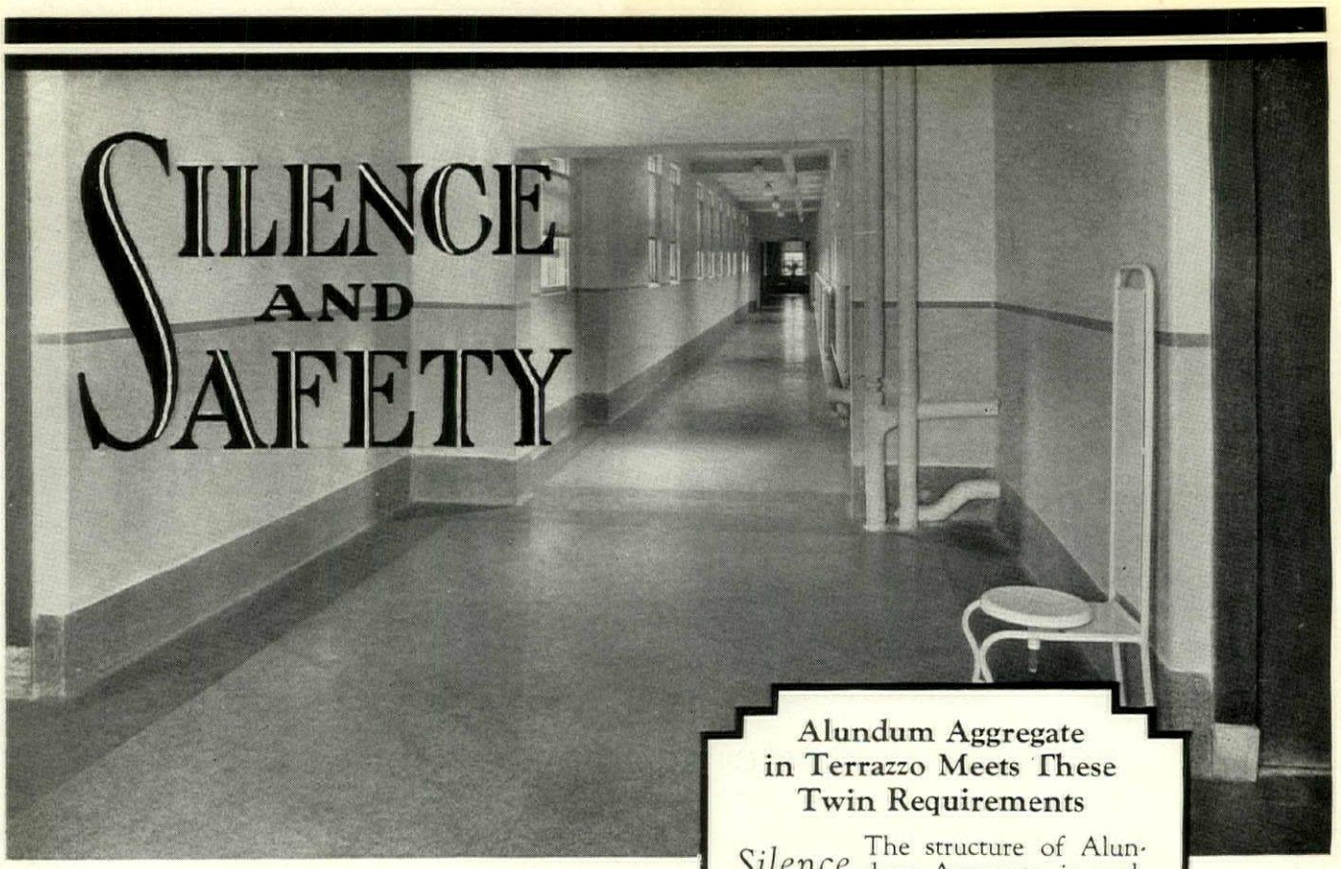

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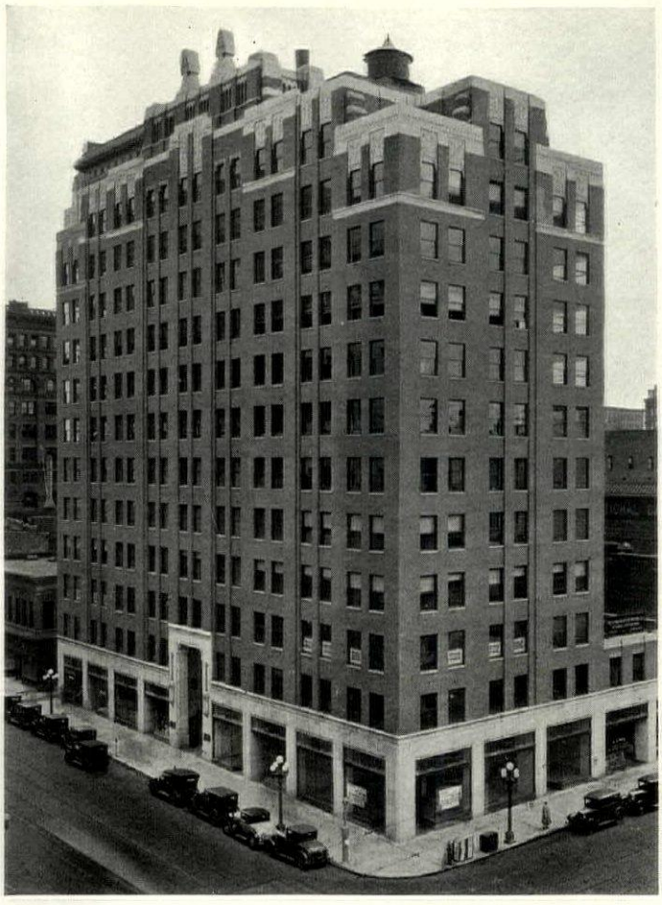
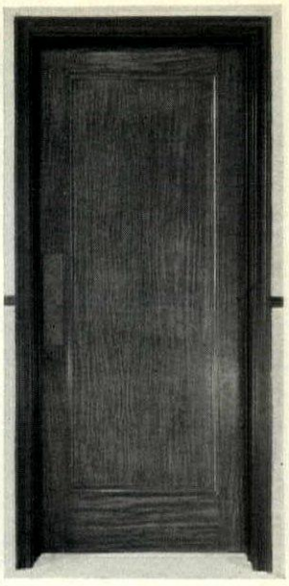
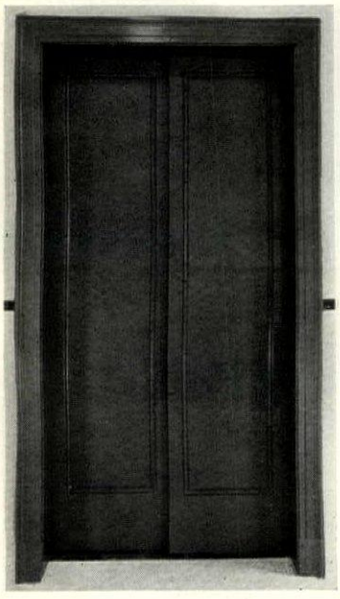




Stairway Door

. . . . Elevator enclosures are bronze and bronze enamel. The doors are 14 gauge tubular construction, equipped with hardware and sills, and with Thorp noiseless guides. Thorp rolled hollow metal frames used throughout. All stair doors are baked mahogany finish.

Hodgson Building, Minneapolis. *Architect*, S. N. Crowan and Associates, Chicago. *Contractor*, Wells Bros. Construction Company, Chicago.



Elevator Enclosure

Close Harmony

makes another record . .

The Thorp organization is proud of its capacity for teamwork with the architect and contractor. In the one case, this means intelligent following of instructions, expressed or implied, so that the architect's conception will be sympathetically reproduced. In the other, it means gauging production to the contractor's schedule, so that costly delays are avoided and work goes on, from start to finish, efficiently.

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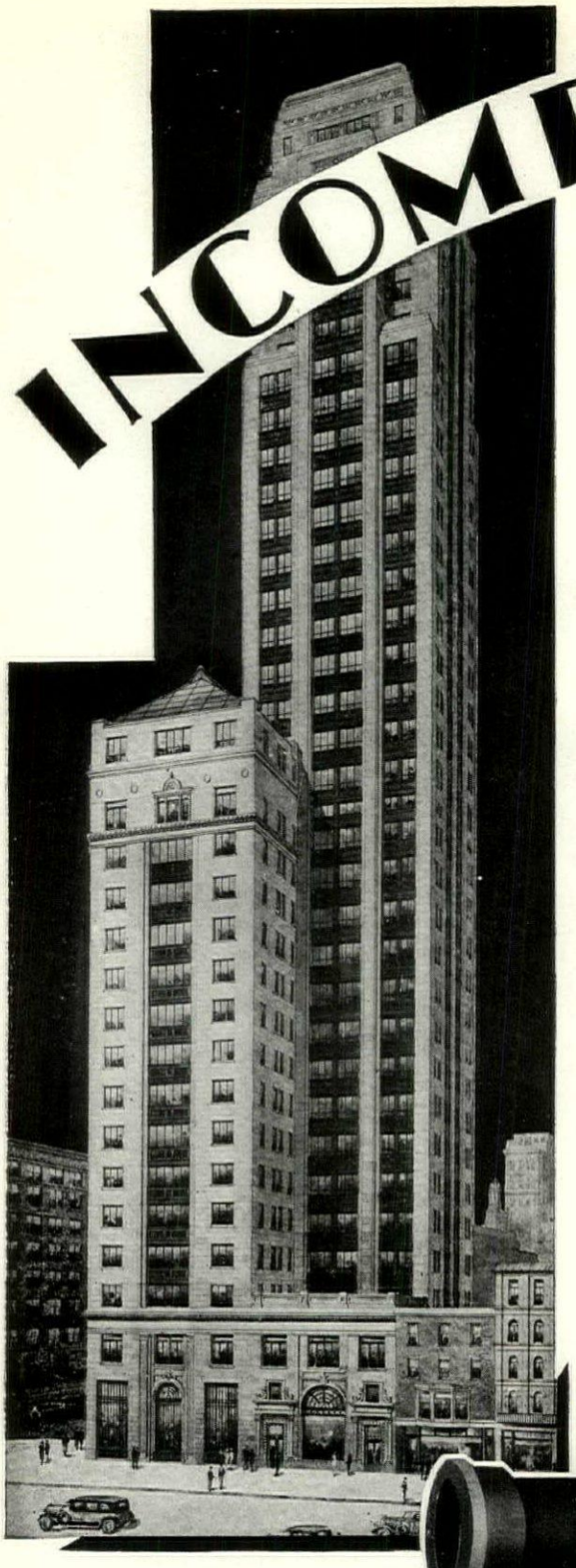

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Bed Rooms

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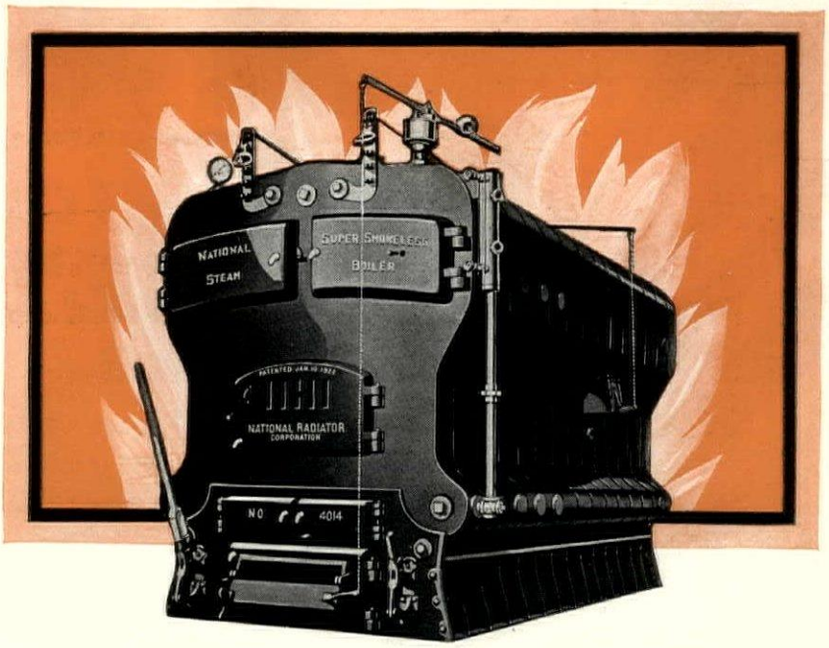
Living Room



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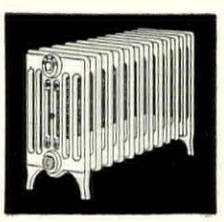

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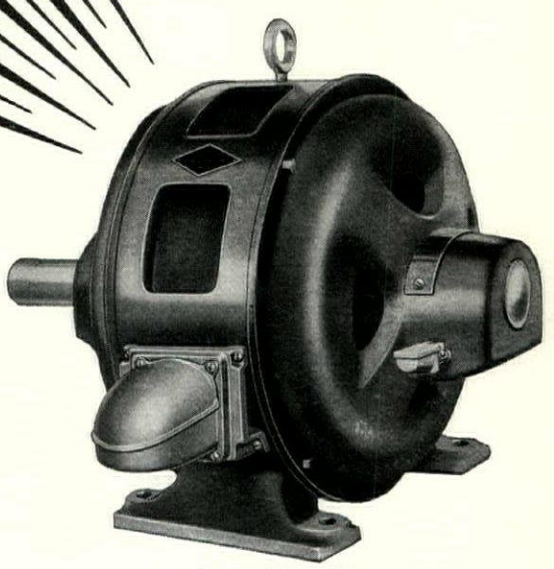

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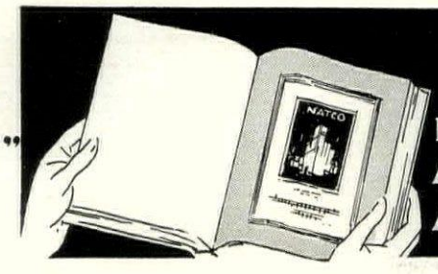

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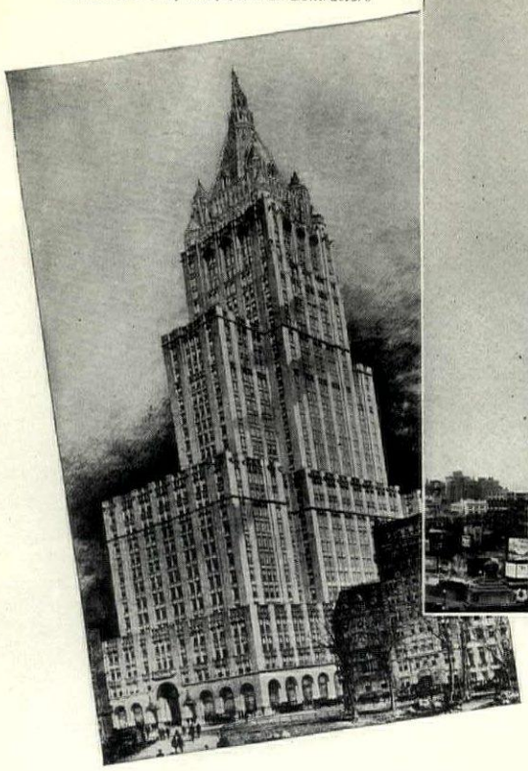

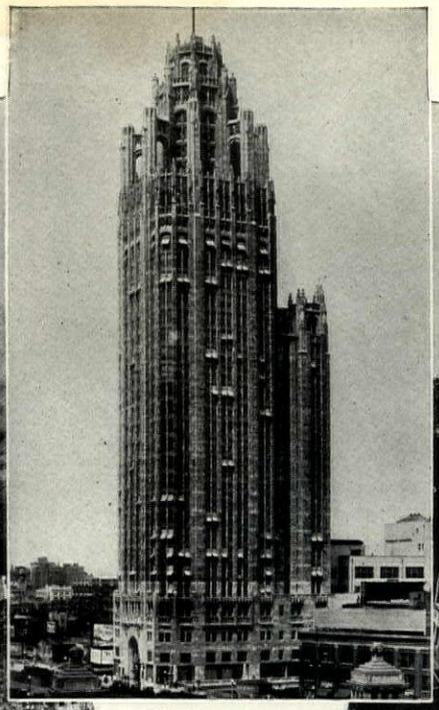

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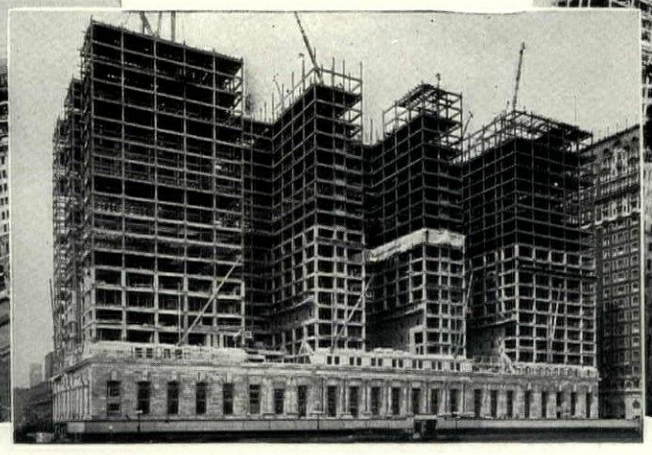

Fidelity-Philadelphia Trust Company Bldg.,
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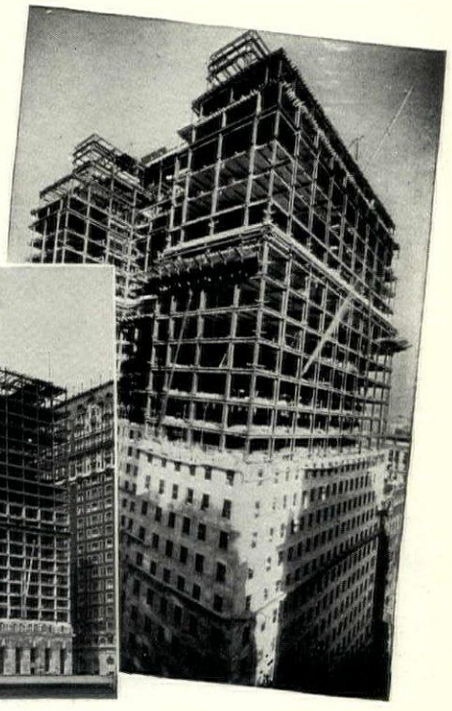
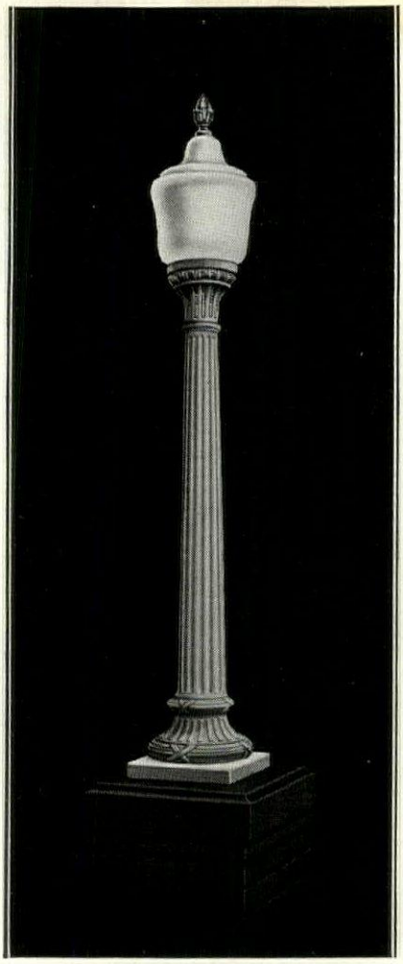
Irwin & Leighton, *General Contractors*





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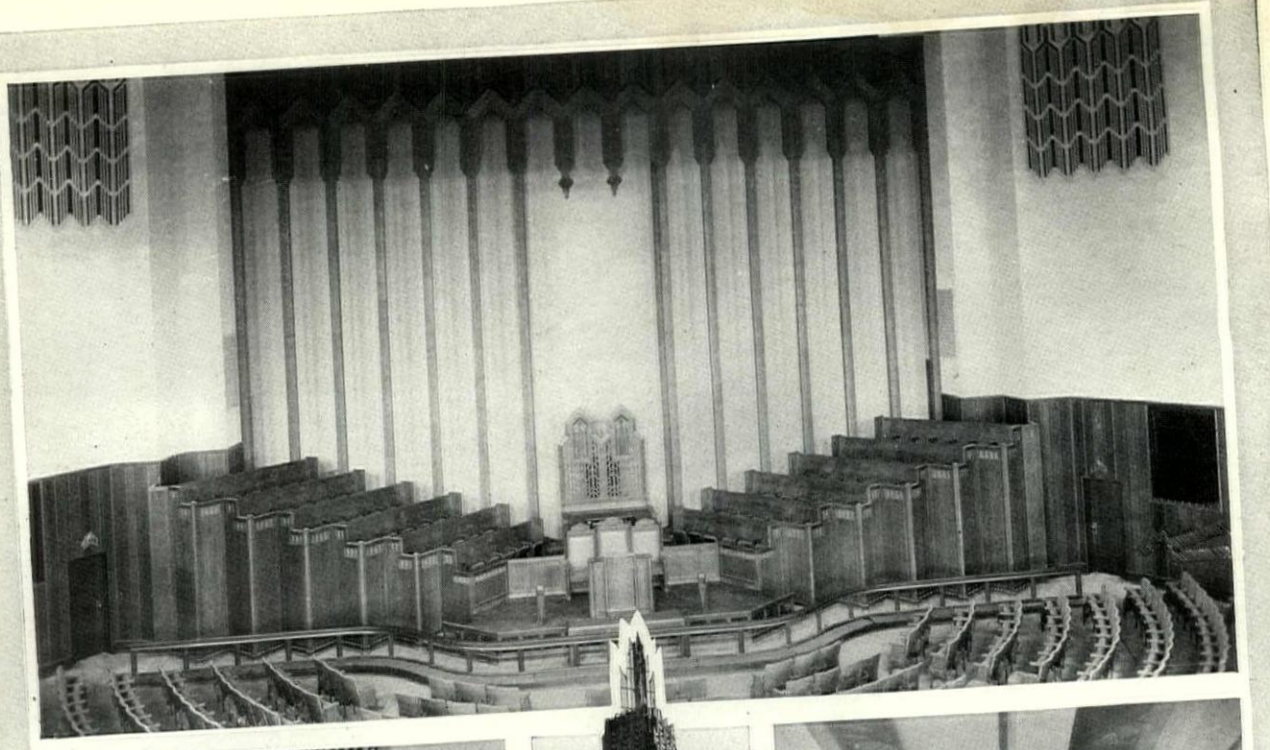

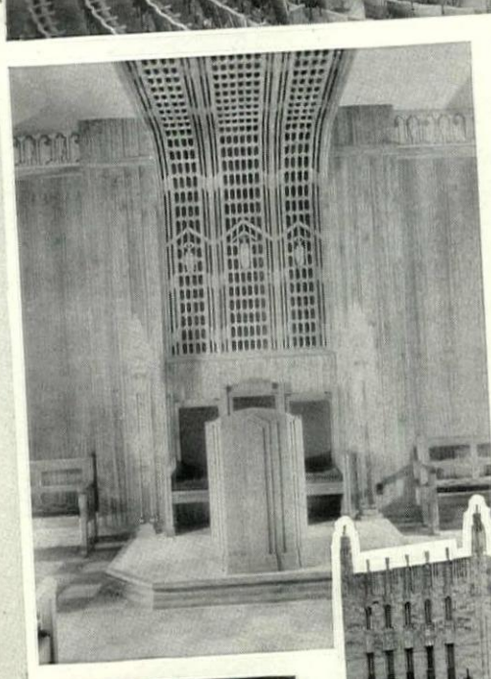

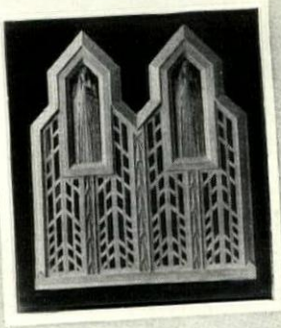


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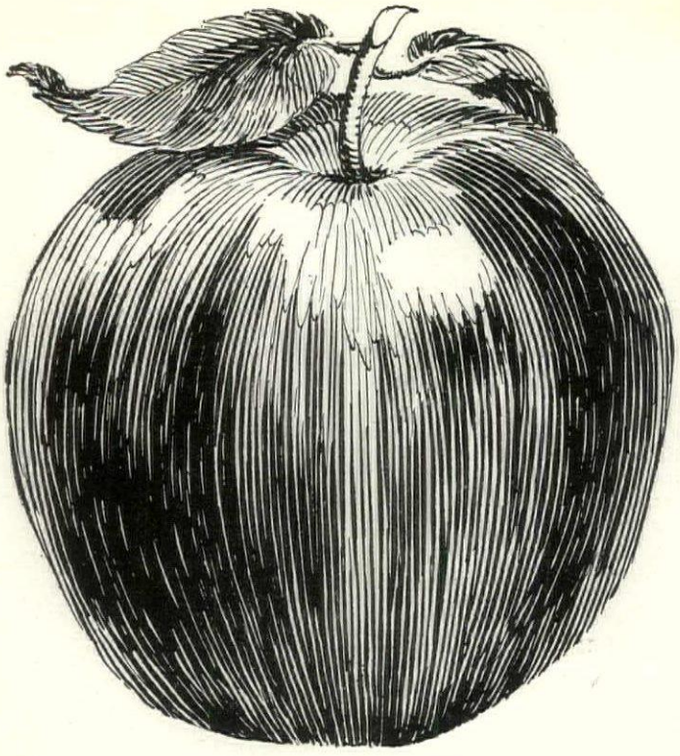

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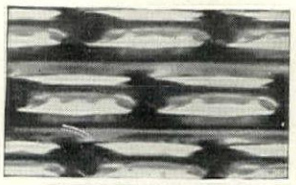

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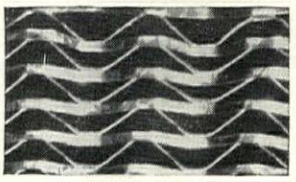

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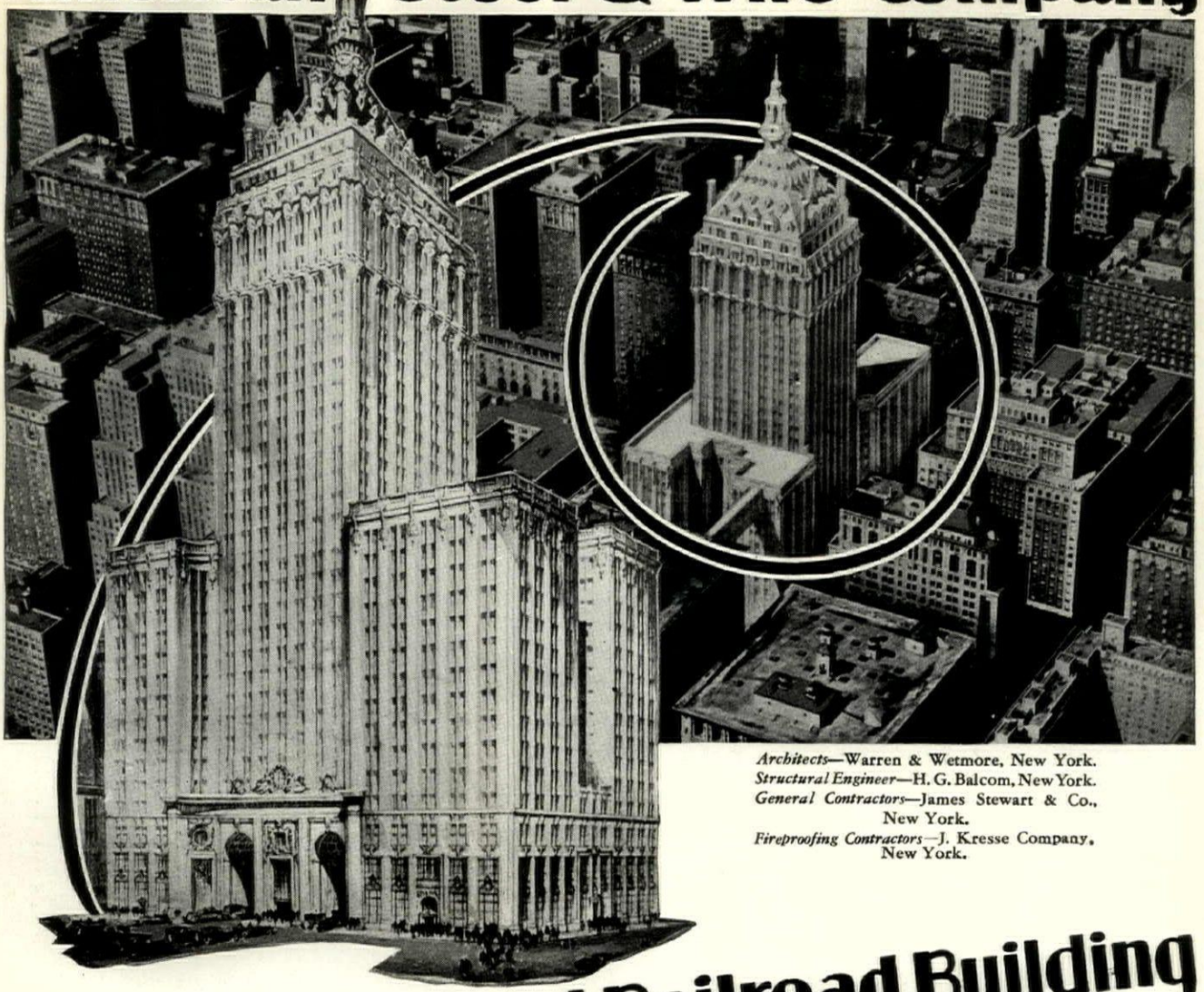

Architects—Warren & Wetmore, New York.
Structural Engineer—H. G. Balcom, New York.
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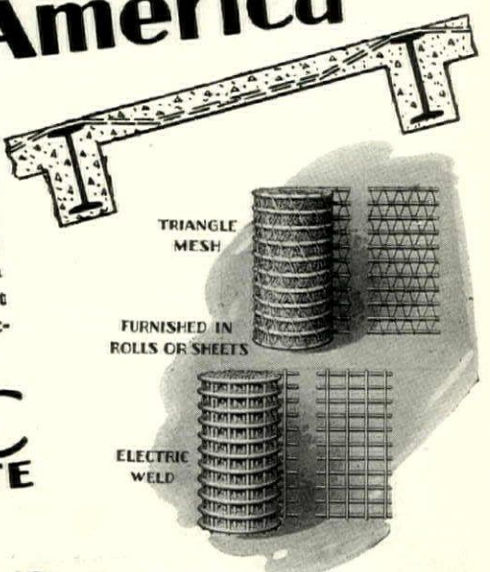

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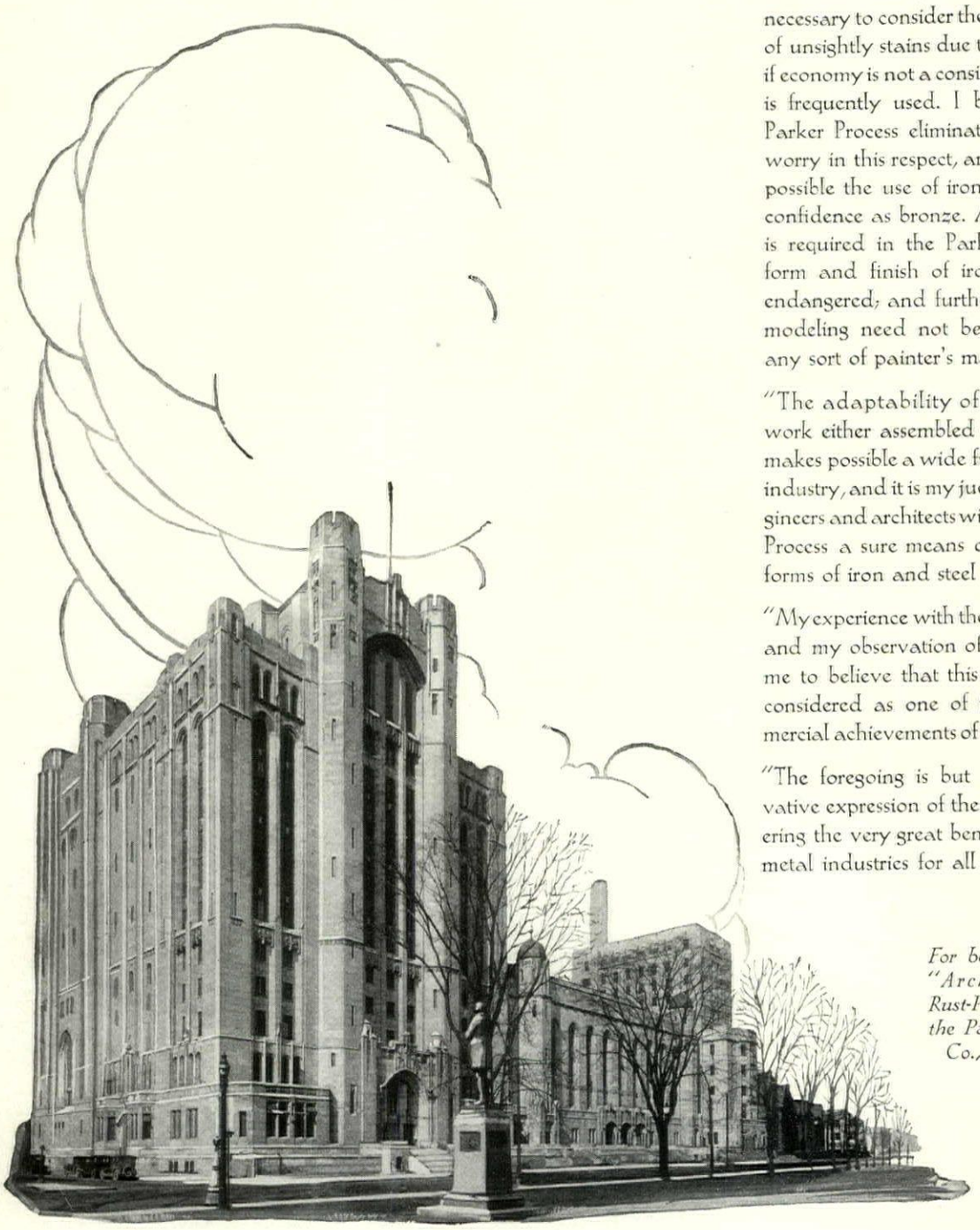
PARKERIZING has become so well and favorably known that architects are specifying it with full confidence in its substantial character. Mr. George D. Mason, President of the George D. Mason Company, Architects of Detroit's Seven-Million-Dollar Masonic Temple, says:



"In any combination of ornamental iron and stone work, the architect finds it necessary to consider the probable result of unsightly stains due to iron rust, and if economy is not a consideration bronze is frequently used. I believe that the Parker Process eliminates all cause for worry in this respect, and that it makes possible the use of iron with the same confidence as bronze. As no high heat is required in the Parker Process, the form and finish of iron work is not endangered; and furthermore, delicate modeling need not be filled up with any sort of painter's material.

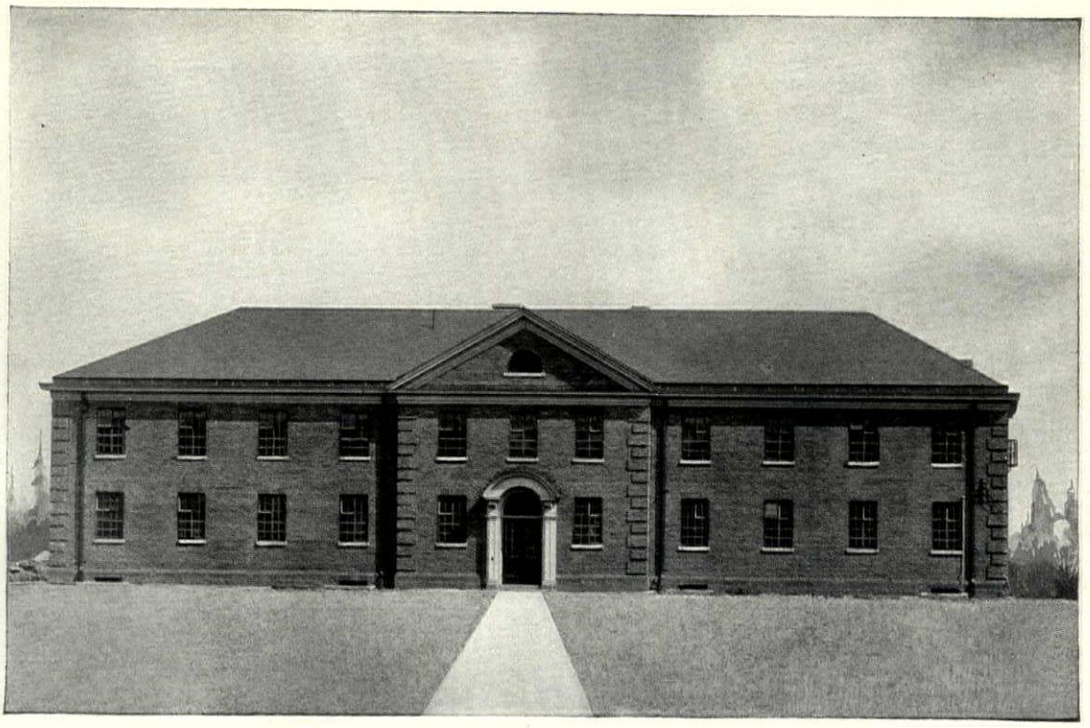
"The adaptability of the process to work either assembled or unassembled makes possible a wide field in the metal industry, and it is my judgment that engineers and architects will find the Parker Process a sure means of protecting all forms of iron and steel from corrosion.

"My experience with the Parker Process, and my observation of its results, lead me to believe that this Process can be considered as one of the great commercial achievements of modern science.

"The foregoing is but a very conservative expression of the matter, considering the very great benefit assured the metal industries for all time to come."

For booklet entitled—"Architecture and Rust-Proofing" address the Parker Rust-Proof Co., Detroit, Mich.

PARKERIZING IS RUST-PROOFING



An Orthopedic Hospital Building, Haverstraw, New York
One of the many New York State buildings covered with Monson Lustre slate

MONSON LUSTRE roofing slate commends itself to the architect who is seeking the finest type of unfading black slate obtainable. This black slate has no equal for strength and lasting qualities and is far more beautiful than inferior materials. Monson Lustre slate is shipped direct from our quarries and therefore receives the strict supervision and inspection as our other slate.

This beautiful black slate does not cost much more to quarry, the freight charges are about the same and it does not cost any more to apply than inferior slate. Hence a truly high class roof may be specified without fear of seriously increasing the total appropriation for the building.

We have an unlimited supply of this exceptional slate rock and architects who specify Monson Lustre slate can be assured of having what they want when the buildings are ready for it.

Rising and Nelson Slate Company

WEST PAWLET, VERMONT

Architects' Service Department: 101 Park Avenue, New York City

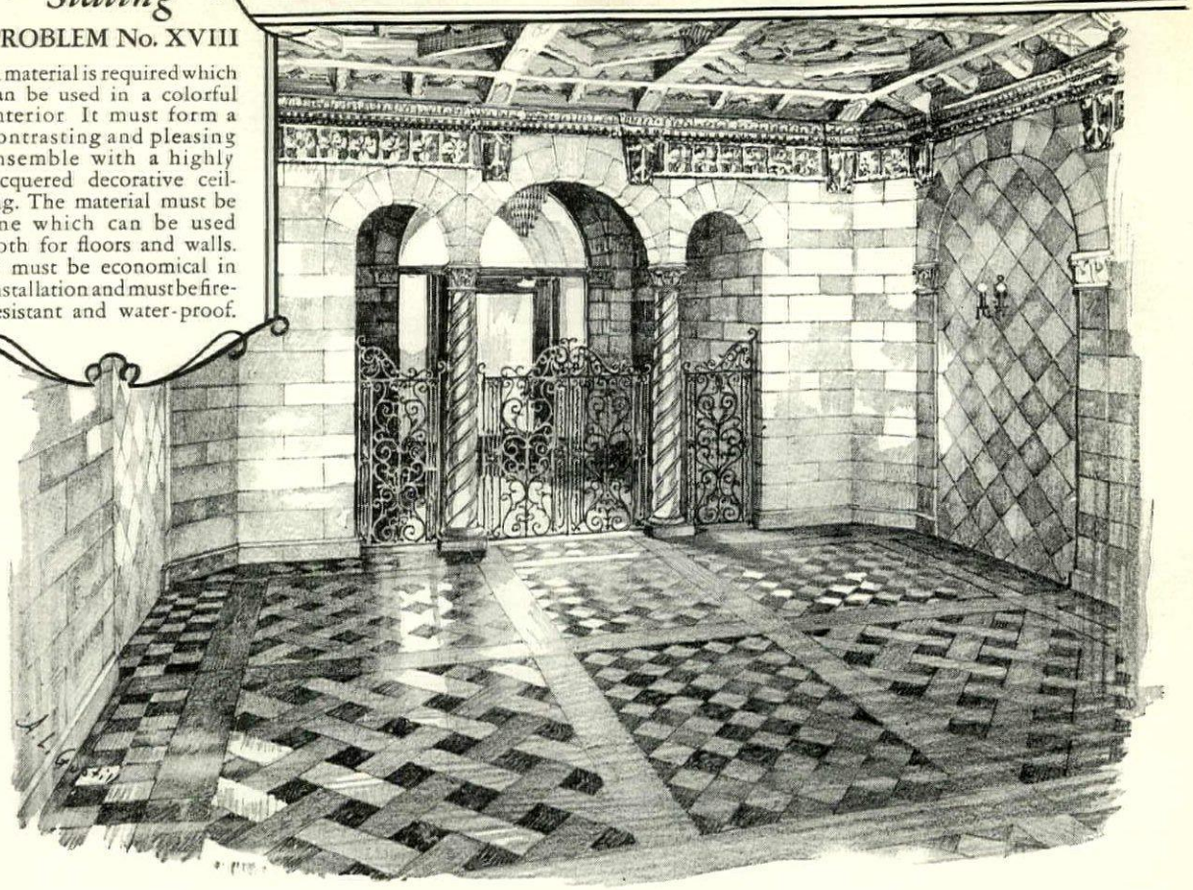
CHICAGO DETROIT PHILADELPHIA BOSTON

ZENITHERM

Stating

PROBLEM No. XVIII

A material is required which can be used in a colorful interior It must form a contrasting and pleasing ensemble with a highly lacquered decorative ceiling. The material must be one which can be used both for floors and walls. It must be economical in installation and must be fire-resistant and water-proof.



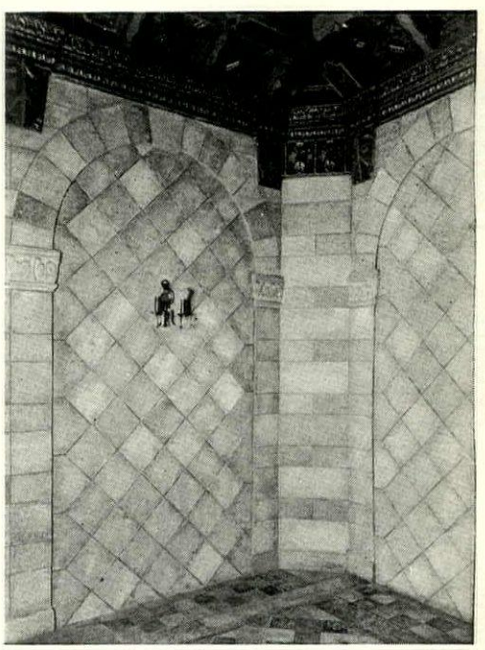
The PROBLEM *Solved*

THE architect of the J. D. Hannah apartment in San Francisco met such a problem by using Zenitherm. His design called for a Loggia rich in contrasts of color and texture. For the floor he used Zenitherm in a basket weave design in Green, Gold and Red. For the walls the colors chosen were Pink, Gold and Drab, set both in ashlar and diagonal squares. The richness of the effect lies in the tri-toned colors and innate texture.

When laid over concrete or worn wooden floors Zenitherm is usually laid in a bedding compound. On walls it is nailed to the brown plaster coat or to furring. As the material is usually cut, to fit the pattern, at the factory, and is nailed in place by carpenters, the installation cost is not high.

Zenitherm does not support combustion. It can be scrubbed and hosed without harm. 21 standard colors are available. Special colors can be made to architect's orders. Full information for specifying can be found on page A-337 of Sweet's Catalogue.

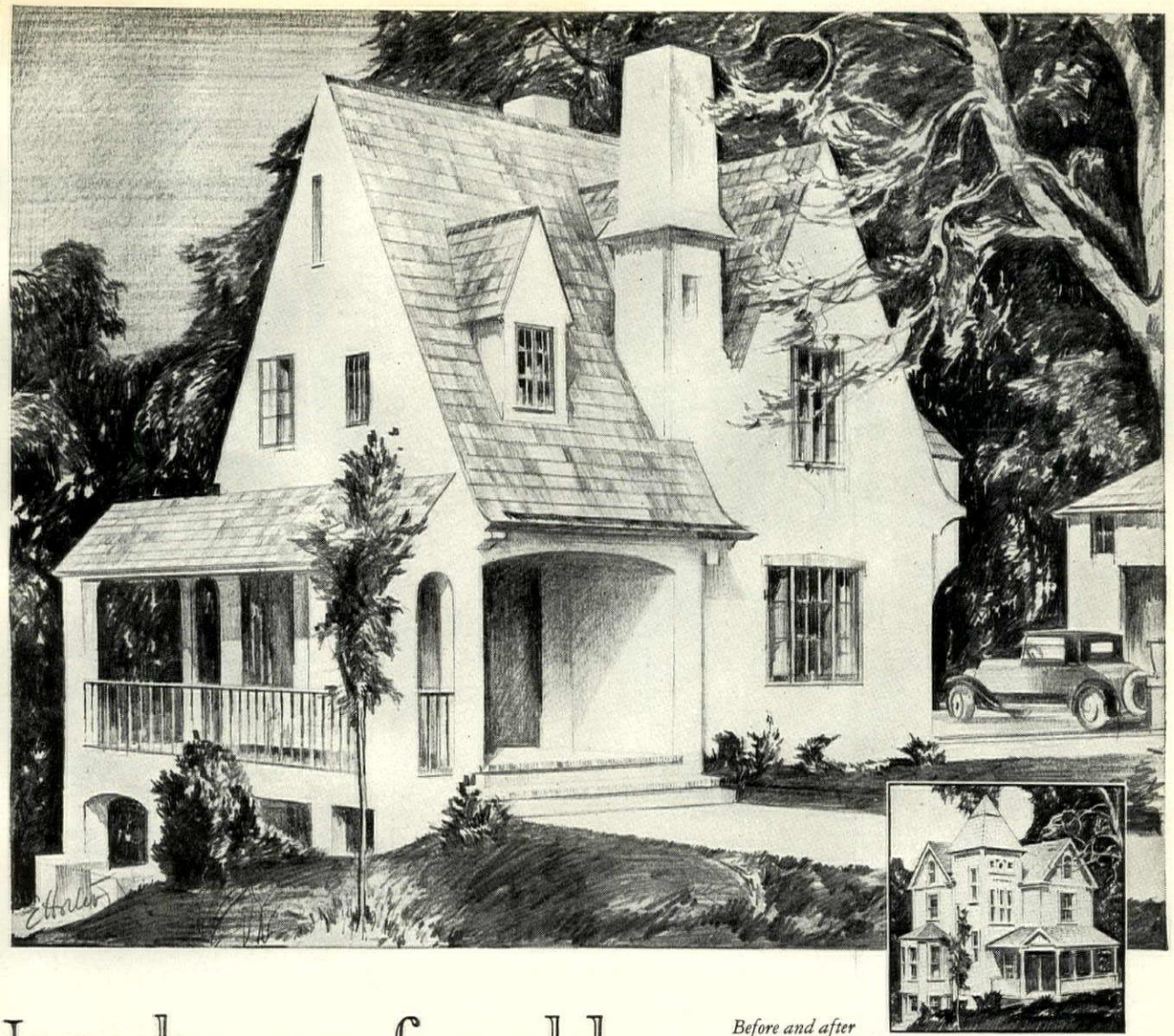
A. G. H. Rinaldo *President*



Vestibule in the J. D. Hannah Apartment, San Francisco, Cal. Edward E. Young, *Architect.*

ZENITHERM COMPANY, INC. — KEARNY, N.J.

110 East 42nd St., New York City – Otis Building, Philadelphia – 612 North Michigan Ave., Chicago, Ill.
11 Beacon St., Boston, Mass. 55 New Montgomery St., San Francisco



Before and after remodeling an old frame house at Norwalk, Conn. Harry Stacy Benton, Architect & owner.

New houses for old — — — *at a profit*

It was just a sad relic of the gay nineties, an old frame house that was out of date. No one wanted it. Even at the buyer's own price, it could not be sold.

Then it was remodeled. The exterior was transformed with stucco made with Atlas White Portland Cement. And immediately it was sold for $13,500, which amount carried a good profit over the cost of improvements.

There are twelve million other homes in this country that likewise can be modernized with profit to their owners. Complicated rebuilding operations are seldom needed. The cost is not necessarily high. In most localities a frame house can be overcoated with Atlas White stucco for about the cost of two paintings. With consequent added beauty, fire-safeness, insulation, and freedom from upkeep costs.

Architects who are serving clients on remodeling or modernizing will find that they can achieve the utmost in exterior charm by employing the limitless color and texture possibilities of stucco made with Atlas White Portland Cement.

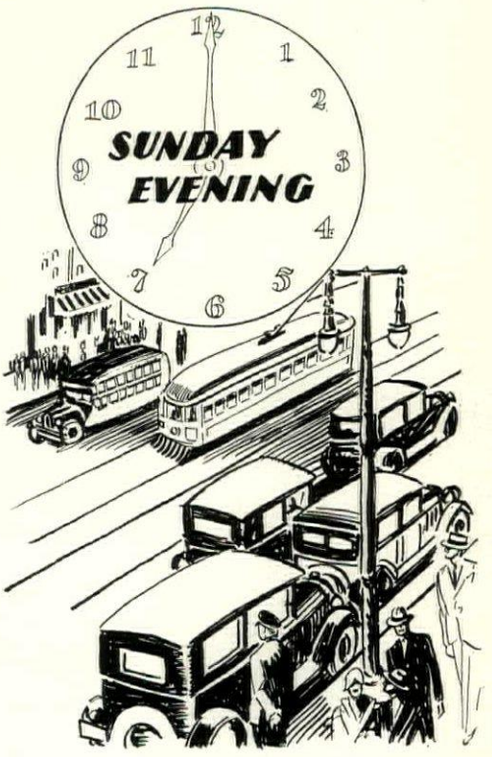
ATLAS PORTLAND CEMENT

THE ATLAS PORTLAND CEMENT COMPANY, MAIN OFFICES: NEW YORK, ST. LOUIS
BOSTON · ALBANY · PHILADELPHIA · CHICAGO · DES MOINES
OMAHA · KANSAS CITY · OKLAHOMA CITY · WACO · BIRMINGHAM

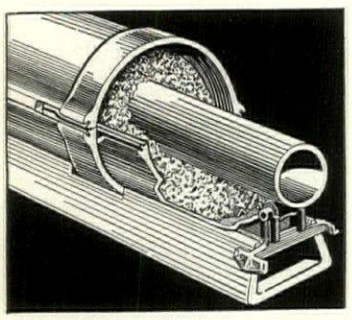
Ric-wiL Engineering made this Possible!

ON a Friday morning we received an order for 80' of 12" Ric-wiL Conduit complete, needed for a service connection to a theatre in Cleveland. The order was shipped in the afternoon and reached the job the next day.

1. At 12:10 Saturday night a section of Euclid Avenue was marked "No Road" and the excavation began.
2. By 4:00 o'clock Sunday morning the trench was dug and graded, Ric-wiL Base Drain Foundation, pipe supports and bottom halves of conduit were installed.
3. By 10:00 Sunday morning the 4" steam pipe was in and welded, insulation was all applied, top halves of conduit were installed and Loc-liP joints cemented.
4. Backfilling was complete at 3:45 o'clock, practically no delay being necessary on account of cement setting.
5. Paving was re-laid and the street opened again to traffic by 7 o'clock Sunday evening—*less than 24 hours after work was started.*



Only Ric-wiL design, the result of Ric-wiL engineering, made this speed possible. And this same engineering explains the fact that efficiency tests of Ric-wiL are averaging from 92% to 94% efficiency. You cannot afford to overlook this conduit for your next job.



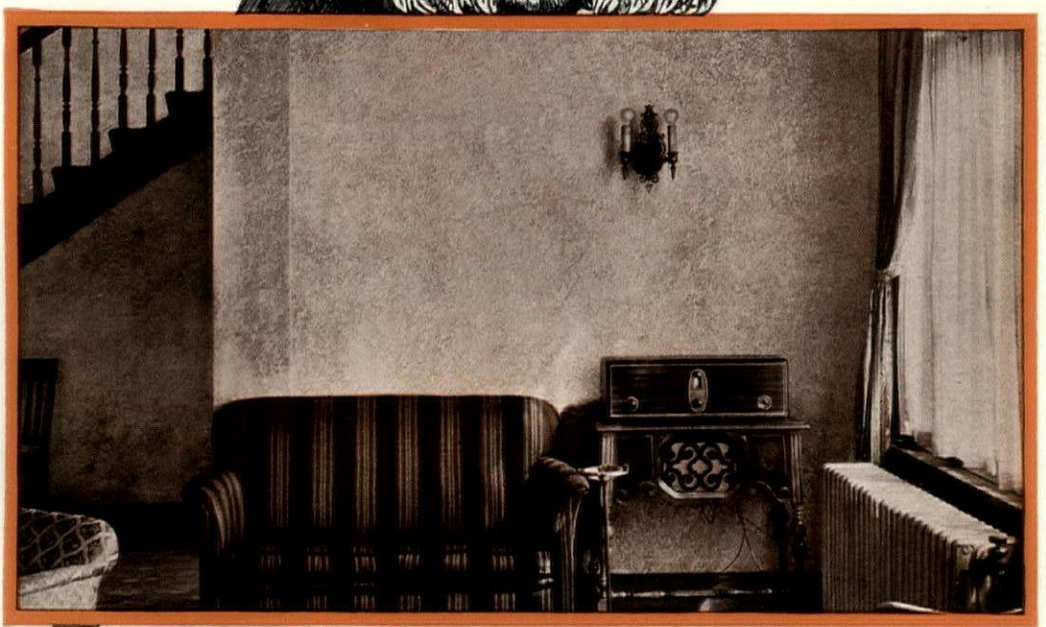
This is Ric-wiL Type F with Dry-paC insulation, one of the 4 types of Ric-wiL Conduit which meet all conditions.

The Ric-wiL Company
1566 Union Trust Bldg. Cleveland, Ohio
NEW YORK BALTIMORE ATLANTA · CHICAGO

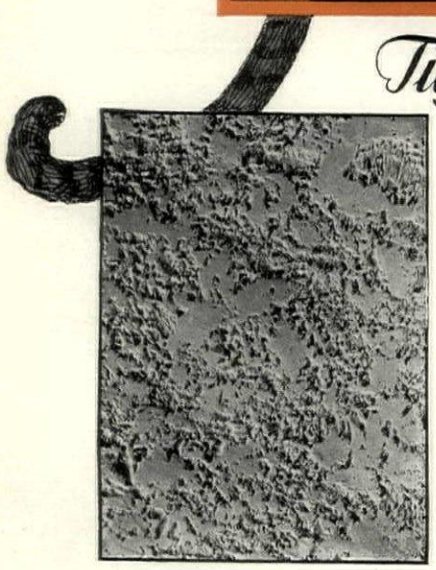
Originators *of* Waterproof Conduit Filler

RIC-WIL

UNDERGROUND CONDUIT



Tiger "FOOTPRINTS" *Imply Speed*



The eye of the intrepid explorer quickens as he crosses the trail of the Jungle Master, for he recognizes the distinguishing tread and knows the graceful speed which characterizes that imprint. The eyes of the world sparkle with admiration when the "Footprint" (texture and finish) of our symbolized Tiger is encountered in America's architectural trail, for here again is found unquestioned individuality and distinction.

Throughout the nation, the originators and creators of better buildings concede Tiger "Footprints" to be a mark of indisputable quality, which is always accorded favorable recognition. This evidence of desirability, expressed in popular public approval and the general acknowledgment by Craftsmen of the ease of application and other exceptional working qualities of Tiger Finishing Lime has founded the accepted conviction that *"Tiger 'Footprints' Make Fine Buildings Finer"*.

The KELLEY ISLAND LIME & TRANSPORT COMPANY
"World's Largest Producer of Lime"
LEADER BUILDING : : CLEVELAND, OHIO

SERPENTINE STIPPLE

Another Attractive Tiger "Footprint"

An exceptionally fine finish for walls and ceilings of Banks, Theatres, Churches, Show-windows or massive rooms. There is practically no limit to the color combinations which can be used. Heavy sponge treatment—flattened.

The Famous

TIGER FINISH

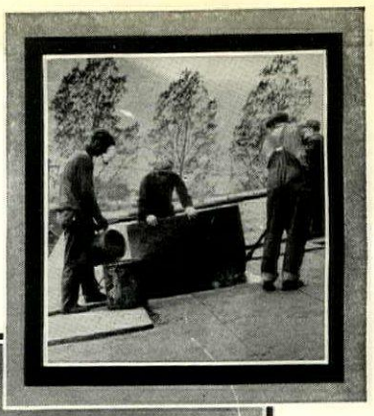
[*And*—Tiger Mason's, Tiger Agricultural, Tiger Chemical, Tiger All-Purpose Hydrate in 10-lb. packages, and High Calcium and Magnesium Lump Limes. Also Quickslake (ground quicklime) in paper-lined jute sacks.]

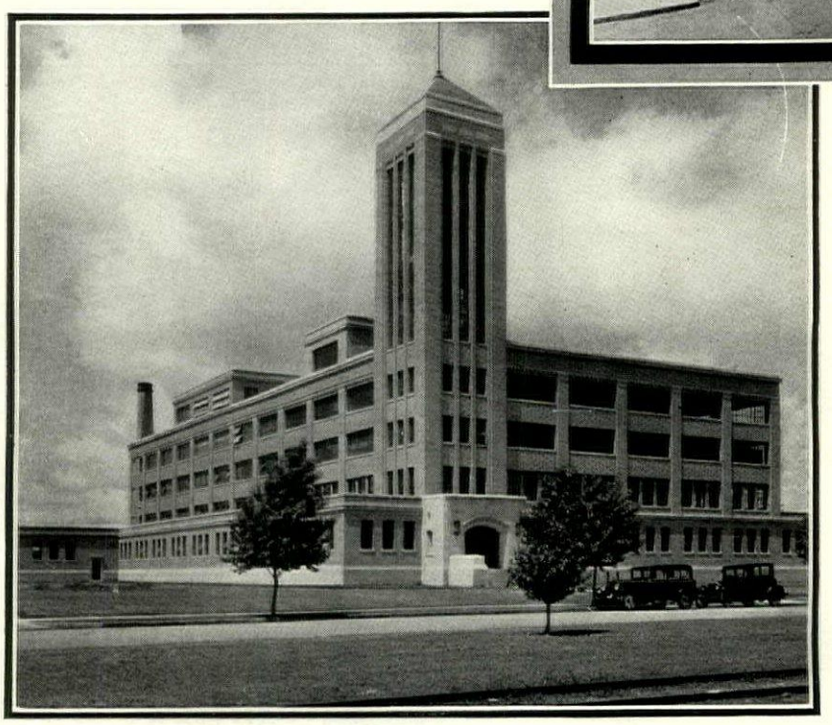
"SPREADS LIKE WARM BUTTER"

PROTECTED

from . . .
heat loss . . .
heat penetration
. . condensation
by 50,000 sq. ft. of

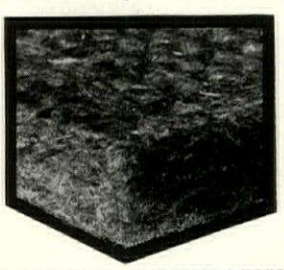
FLAX-LI-NUM





ARCHITECTS and heating experts have by actual practice proven that FLAX-LI-NUM is an ideal material for roof insulation. Not only has it high intrinsic insulating value . . Not only does it prevent heat loss . . heat penetration . . and condensation . . but in addition, its semi-rigid form assures a permanent bond between the material and the roof deck.

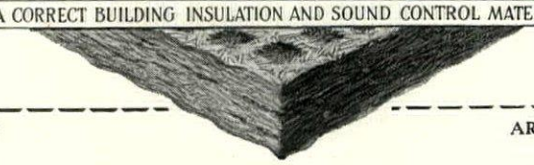
50,000 sq. ft. of full one inch FLAX-LI-NUM protect the roof of the Cream of Wheat Building at Minneapolis . . 50,000 sq. ft. of a material equal in insulating value to 27 inches of solid concrete . . FLAX-LI-NUM is made in full one inch thickness . . for roof insulation . . It is flexible in form to conform with the deck . . It will not break, crack or tear . . Where sheets butt together the flax fibres interlock forming a continuous sheet of insulation over the entire roof. Let us send you a copy of the FLAX-LI-NUM Manual containing valuable reference information.



FLAX-LI-NUM INSULATING COMPANY, *St. Paul, Minnesota*

Flax-li-num

A CORRECT BUILDING INSULATION AND SOUND CONTROL MATERIAL



FLAX-LI-NUM INSULATING COMPANY
St. Paul, Minnesota

AR-8

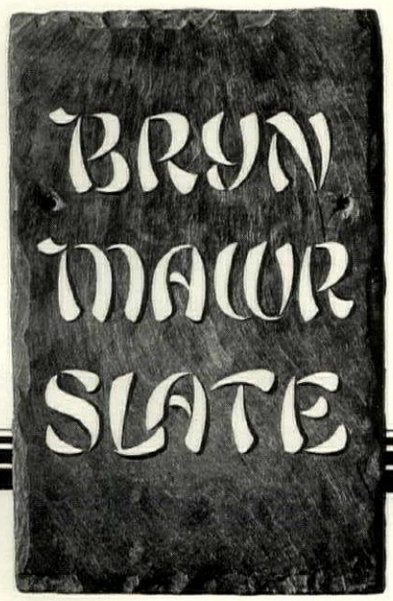
Send me complete information about Flax-li-num. Also facts about the 2-air-space method.

Name..... City.....

Address..... State.....

BRYN MAWR SLATE

A BRYN MAWR Slate Roof, by Owen W. Owen's Sons, Inc., on a recently completed residence. Strongly reminiscent of the European taste in domestic architecture. The architect was Victor R. Provost of Boston, Mass.



SLATE in itself—although a splendid roofing material established by hundreds of centuries of almost universal use—is no more a roof than a box of paints is a picture. Slate is a means of design—a way to secure extremely beautiful effects by skillful variation in tone and tint and by control of graduated sizes and exposure to weather. BRYN MAWR Vermont Slate is supplied in all desired tints, colors, sizes and thickness, for every variety of roofing, flagging and interior work—and comes from a firm that have been specialists in slate and its most effective use since 1884.

OWEN W. OWENS SONS, INC.

Established in 1884

Granville - - - - - New York

PUT Reading Genuine Puddled Wrought Iron Pipe into your buildings. As far as you are concerned, the wrench that tightens the joints is the last wrench they need ever know. For far beyond the span of human life, these sturdy pipes will resist corrosion, strain, and vibration. But if the building be torn down, other wrenches may take these pipes apart only to reinstall them elsewhere!

Be sure you get pipe with the Reading name, date of manufacture, and cut-in spiral knurl mark on it.

READING IRON COMPANY, Reading, Pennsylvania

Atlanta · Baltimore · Cleveland · New York · Philadelphia
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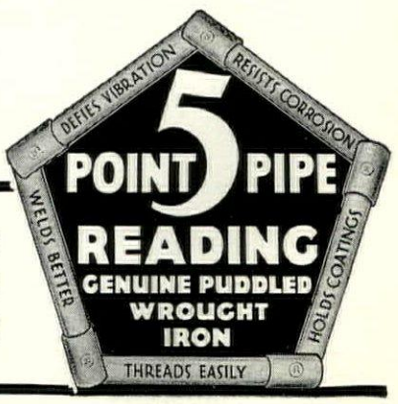
GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM 1/8 TO 20 INCHES



Through the office of
RICHARD D. KING

Fenestra Casements were used in the
Casa Riviera Apartments

Over 1,500 Fenestra Casements have not only added to the exterior beauty of this new fourteen-story apartment building at Long Beach; but have contributed to its interior charm as well. One of the most imposing buildings on the Pacific Coast, this has quickly become a popular rendezvous of the elite.

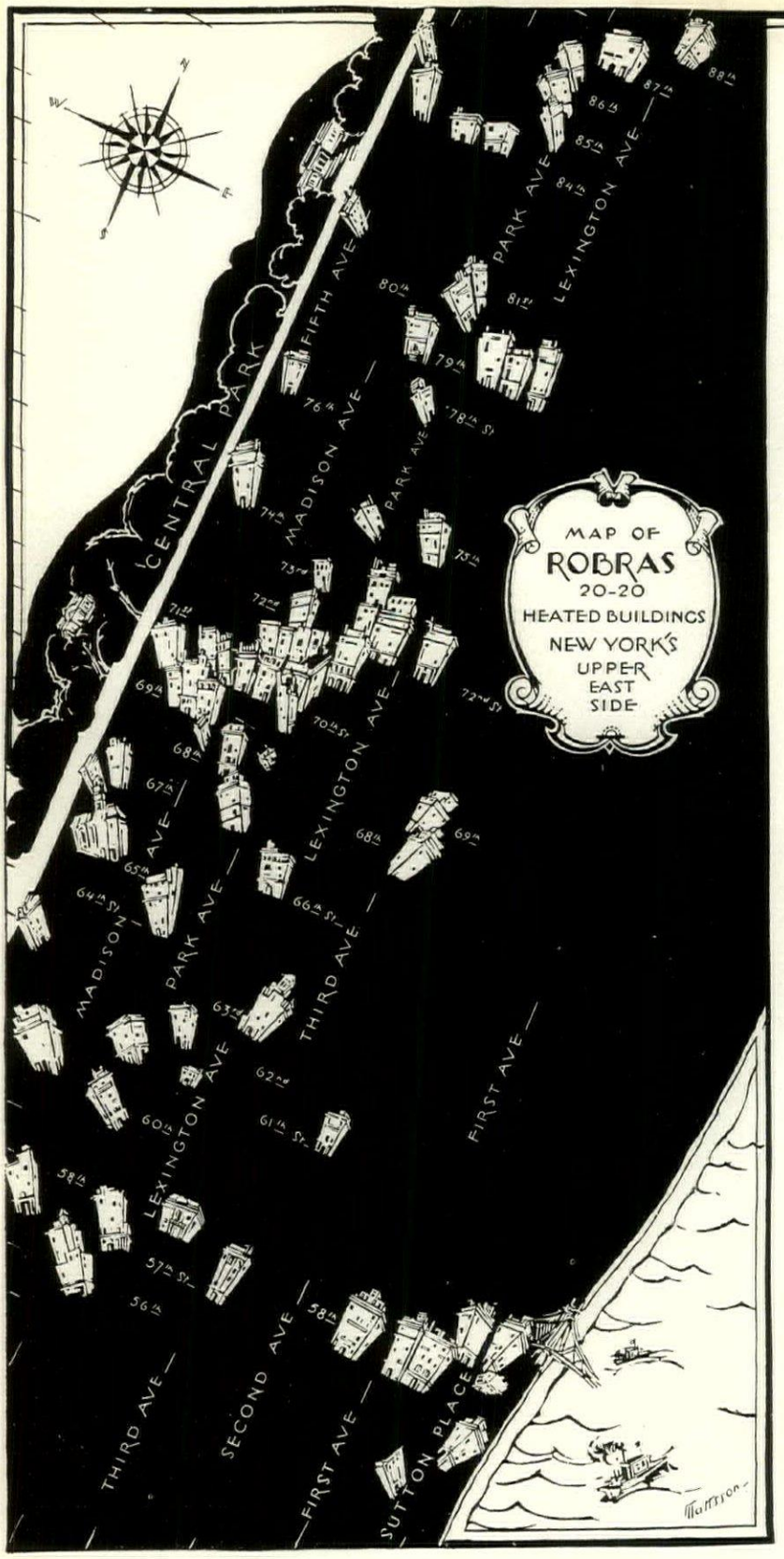
In such a brilliant beach location, nothing but sunny, airy windows could satisfy architect and owners. Because of their narrow muntins and frames, Fenestra Casements admit all possible sunlight. The swing leaves open easily, 100% if desired, to take full advantage of the fresh beach air.

Fenestra Casements are rough-weather windows, too. They close snug-tight without sticking or warping and present a wide, flat, double overlapped weathering against continued storms. Other reasons for specifying Fenestra are: easy washing from within, inside screens that protect draperies, fire resistance. See the Fenestra Blue Book in Sweet's Architectural Catalogue for further details.

NEW! OUTSTANDING! Fenestra Screen Casements, the latest development in steel windows, provide screens that fit FLAT against the window frame, thus eliminating the cost of wood trim. Swing leaves may be unlocked and opened or closed and locked without touching the screens in any way. Yet all screens may be removed or replaced in an instant when desired. Provision is made for the attachment of brackets accommodating both glass curtains and drapes. Standard sizes reduce the cost to little, if any, more than ordinary windows. Write for details.

DETROIT STEEL PRODUCTS COMPANY
2285 East Grand Boulevard, Detroit, Mich.
Factories: Detroit, Mich., and Oakland, Calif.
Convenient Warehouse Stocks

Fenestra
casement windows of steel



WHY IS Each of These Important Buildings ROBRAS 20-20 Equipped?

TWO years on the market and Robras 20-20's have become a prime requisite in all the better buildings in New York's most exclusive residential district!

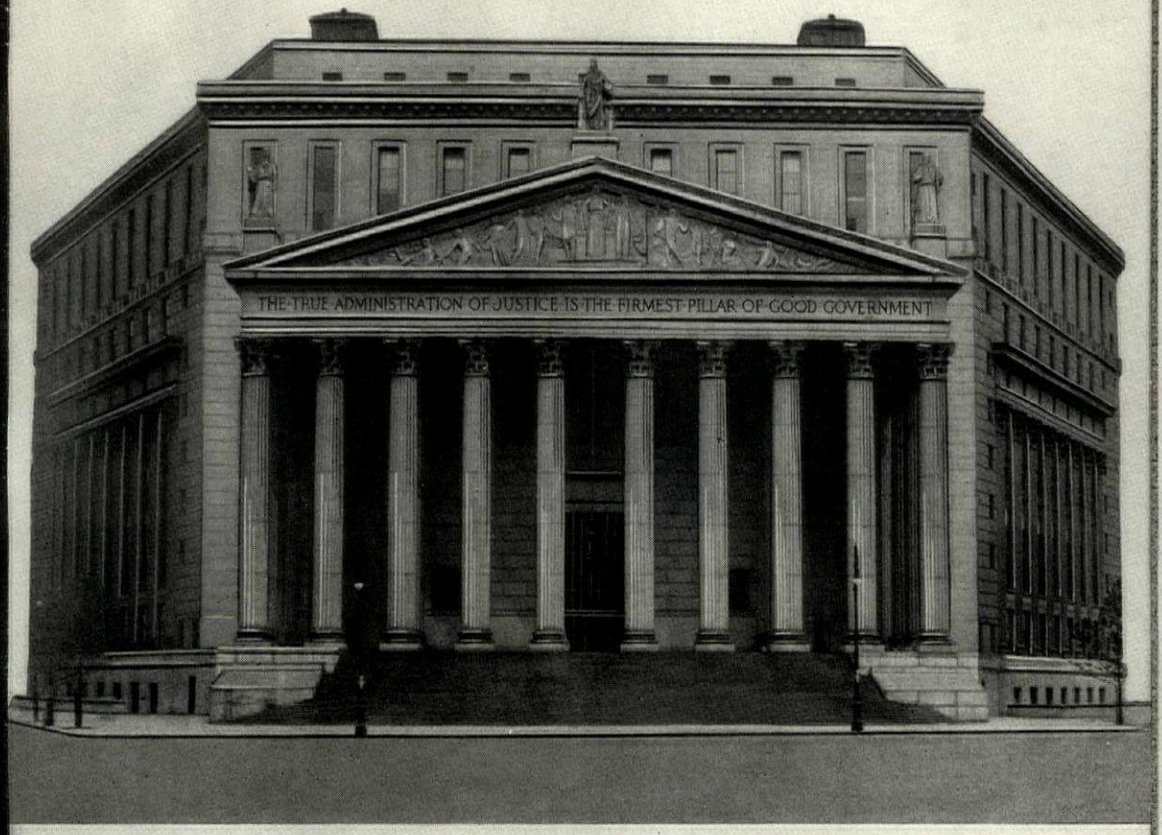
How have these radiators achieved such popularity?

Because they go in the wall out of sight, and out of the way. Because they contain more square feet of radiating surface per cubic foot, than any other radiator. In other words, more Robras 20-20 Radiation can be installed in any given space, than can any other type or kind of radiation, no matter what the size or shape of the space may be.

These radiators when installed give added beauty and dignity to the design of the room. They cost but little more than enclosed cast iron radiators, or cast iron radiators with covers.

ROME BRASS RADIATOR CORPORATION

ONE EAST FORTY-SECOND STREET, NEW YORK CITY



New York County Court House, N. Y. C., Guy Lowell, Architect

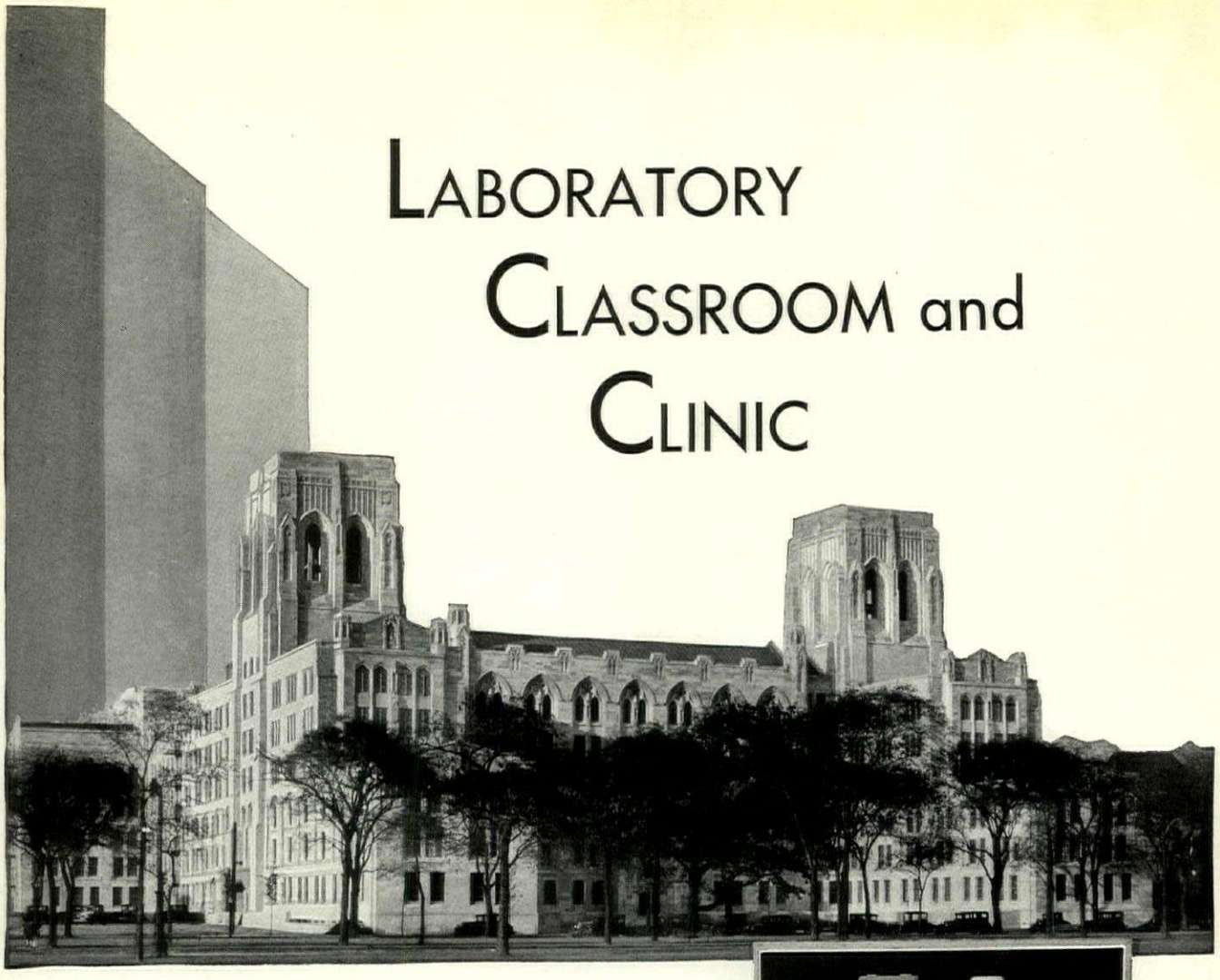
THERE are some buildings in which the use of granite is inevitable. A public building such as shown here is an example. There are innumerable other buildings where it could be used to both economic and esthetic advantage if its possibilities were fully known. The office of this association is maintained to furnish, without obligation, accurate and expert advice on any subject pertaining to granite.

National Building Granite Quarries Assn.
31 STATE STREET BOSTON, MASS.
H. H. Sherman, *Secretary*

GRANITE

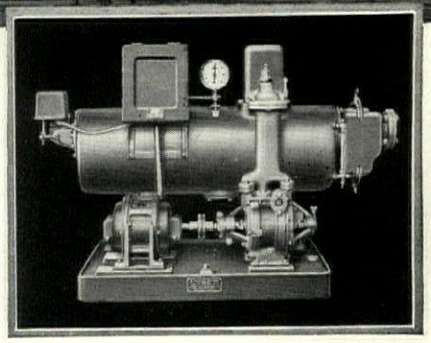
On request a complete folio of these Granite Studies will be reserved for you.

LABORATORY CLASSROOM and CLINIC



. . . all properly heated

Careful thought was given to affording every facility for the study of medical science in the new Medical School Building of the University of Chicago. And the problem of maintaining comfortable, healthful temperatures was not overlooked. Even distribution of heat and quick response to varying demands are assured by the installation of two Jennings Vacuum Heating Pumps which keep return lines and radiators always free of air and condensation.



Jennings Vacuum Heating Pumps are furnished in standard sizes ranging in capacity from 4 to 400 g. p. m. of water and 3 to 171 cu. ft. per min. of air. For serving up to 300,000 sq. ft. equivalent direct radiation. Write for Bulletin 85.

New Medical School Building, University of Chicago, Chicago, Ill. Coolidge and Hodgdon, architects; John D. Small, heating engineer; L. H. Prentice Co., heating contractor.

Jennings Pumps

THE NASH ENGINEERING CO 13 WILSON ROAD, SOUTH NORWALK CONN.

ARCHITECTS' ANNOUNCEMENTS

ALLMENDINGER & SCHLENDORF, architects, have moved their office to the Williamsburgh Savings Bank Building, 1 Hanson Place, Brooklyn, N. Y., opposite the L. I. R. R. depot.

HARRY ADELMAN, architect, formerly of 494 Broadway, Bayonne, N. J., is now located at 437 Broadway, in the same town.

HOIT, PRICE and BARNES, architects, have moved their offices to 2500 Telephone Building, Kansas City, Mo.

ROBERT M. BLACKALL and S. BRUCE ELWELL have dissolved their partnership. Mr. Blackall is now practicing architecture and engineering at 75 State Street, Boston, Mass., and Mr. Elwell has established architectural offices at 18 Newbury Street, in the same city.

GEORGE HARWELL BOND announces his withdrawal from the firm of G. Lloyd Preacher & Co., Inc., effective July 1st, 1929, and also announces the establishment of an office for the practice of architecture under the name of George Harwell Bond, with offices at 1309-10 Candler Building, Atlanta, Ga.

THE NEW OFFICES of R. E. Bostrom are located on the fifth floor of the Castle Building, 1410 Stanley Street, Montreal, Canada.

L. A. DESJARDINS has changed his address to 725 Denver National Bank Building, Denver, Col. Manufacturers are requested to supply them with a few self addressed envelopes or cards—that the firm may call upon them when their products are being specified.

JOHN TAYLOR EGAN, architect, has moved his offices from 12 East 41st Street, New York City, to 205 East 42nd Street.

OTIS JOSSELYN FITCH, architect, has opened new offices in the Studio Building, Portland, Oregon.

MERTON E. GRANGER has moved his architectural office from 600 Merchants' Bank Building to 605 Gurney Building, Syracuse, N. Y.

ARTHUR M. HEDA is now practicing architecture at Suite 1800, Madison Square Building, 123 W. Madison Street, Chicago, Ill.

F. ALBERT HUNT and EDWARD KLINE, architects, have opened new offices at 127 East 47th Street, New York City. Formerly, they were located at 157 East 44th Street.

JOSEPH R. KOBERLING announces the formation of the architectural firm Koberling & Baker, located at 569 South Peoria Avenue, Tulsa, Oklahoma. They will be glad to receive manufacturers' literature.

WILLIAM C. LAURITZEN, architect, has moved his offices from 690 Eighth Avenue, New York City, to 356 Fulton Street, Brooklyn, N. Y.

FRANK LIPPERT, architect, is temporarily located at 50 Richards Road, Port Washington, N. Y. He has moved from his old office at 47 West 34th Street, New York City.

OWING to the retirement of Mr. Frank J. Helmle, the firm of Helmle, Corbett & Harrison will be known as Corbett, Harrison & MacMurray. This firm is located at 130 West 42nd Street, New York City.

THE OFFICES of Frank McCandless Crooks are now located at 508 Third Avenue, Pittsburgh, Pa.

CARL W. CLARK, architect, has changed his New York City address to 33 West 42nd Street.

LEWIS SETTINO is now practicing architecture at 225 Westchester Avenue, Portchester, N. Y. Formerly, he was located at 11 South Main Street, South Norwalk, Conn.

The partnership of MACMANUS & GRIFFITHS of 11 East 42nd Street, New York City, has been dissolved. Alex. J. MacManus is practicing architecture temporarily at 75-42–113th Street, Forest Hills, Long Island, N. Y.

CHARLES F. PARK announces the removal of his architectural office from 600 Merchants' Bank Building, Syracuse, N. Y., to 605 Gurney Building in the same city.

W. STENWOOD PHILLIPS, architect, formerly at 137 East 43rd Street, has opened offices at 521 Fifth Avenue, New York City.

RICHARD S. SHAPTER, architect, has changed his address from 23 Maple Street, Summit, N. J., to 382 Springfield Avenue, in the same town.

The firm of MAX SEIGEL & GEORGE H. LEVY, architects, has succeeded the firm of Cohen & Siegel at 45 West 57th Street, New York City.

CHESTER J. STORM, architect, has changed his address from 1440 Broadway to 225 West 34th Street, New York City.

WALTER S. TIMMIS is now practicing architecture at Second National Bank Building, Hempstead, Long Island, N. Y. He used to be at 315 Fifth Avenue, New York City.

ANNOUNCEMENT has been made by D. A. Valvano of the removal of his architectural office from 88 Broad Street, Elizabeth, N. J., to 225 No. Wood Avenue, Linden, N. J.

LAWSON LIBBY WAGNER, architects' consultant, has offices at 1420 Graybar Building, New York City, where he would be glad to receive manufacturers' literature.

C. W. BRAZER, architect, has changed his address from 1133 Broadway to 232 Madison Avenue, New York City.

ROBERT WISEMAN has moved his office from 18 East 41st Street, New York City to 7 East 42nd Street.

THE FIRM name John B. Peterkin-Thomas M. Bell & Frank M. Andrews of 285 Madison Avenue, New York City, has been changed to Shape, Bready & Peterkin.

An escape into silence

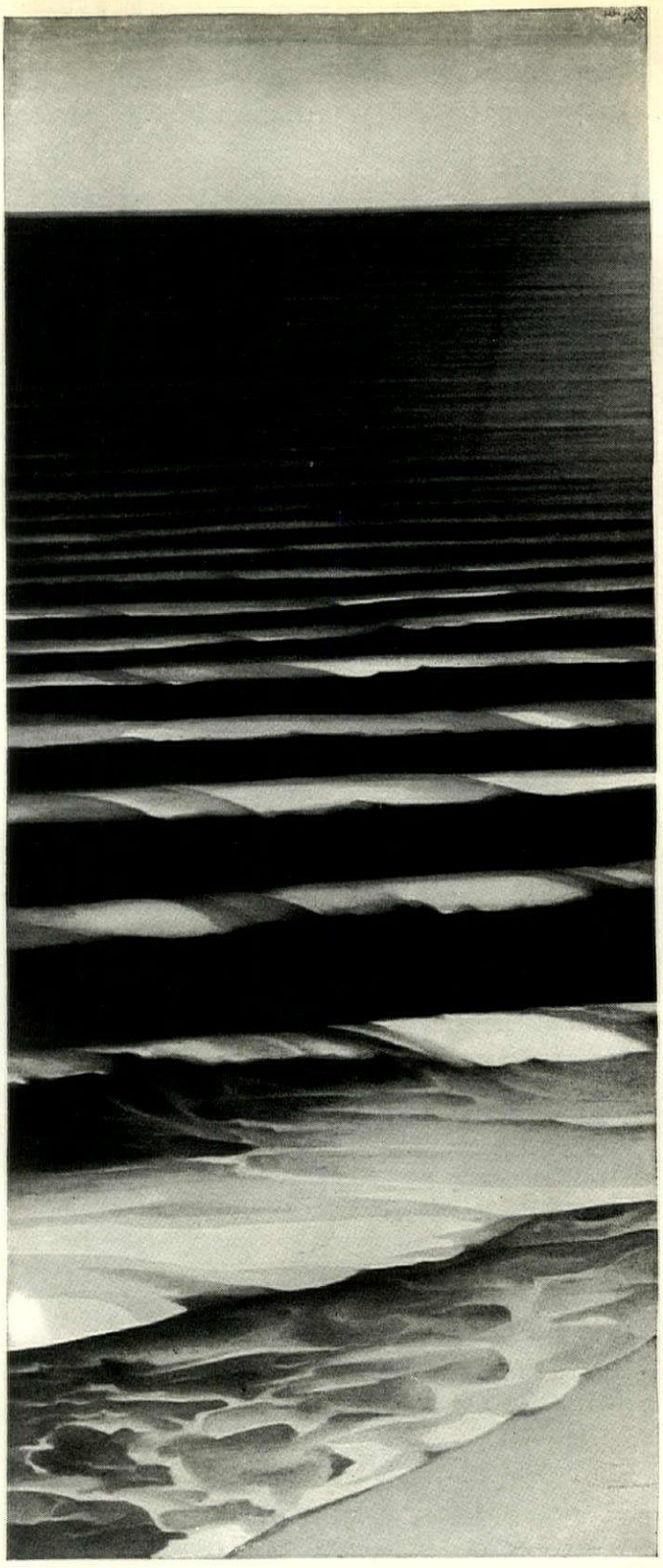
The ideal condition, in this industrial age, for maximum efficiency of work, rest and recreation, is comparative quiet, for *we live in bedlam*. In and out of homes, offices and workshops we suffer a confusion of jarring noises.

Sound travels in waves. Sound waves created in one room may not be halted by a wall or ceiling, but set it vibrating, somewhat as a telephone diaphragm vibrates, with the result that the sound is re-created on the opposite side.

Modern science has made possible the confining of sound within the room in which it originates. Such confinement is provided by the U S G System of Sound Insulation.

This system is a supplemental construction for forming floors, partitions and ceilings so that sound will not be transmitted through them. It includes the treatment of vents, ducts, etc., and the setting of machinery bases.

The U S G System of Sound Insulation is installed, under contract, by the United States Gypsum Company, which assures undivided responsibility, and guaranteed results. For information address Sound Insulation Department, United States Gypsum Company, Dept. 43K, 300 W. Adams St., Chicago, Ill.



The United States Gypsum Company offers a complete sound service, which includes noise absorption and auditorium correction, as well as sound insulation

U S

USG SYSTEM OF SOUND INSULATION

Created by the United States Gypsum Company

EXCAVATIONS AT DELOS

Delos, to the architect and archaeologist, is important for its mosaics. Knowledge of the old Greek floors is derived almost entirely from the excavations made on the island by the French Archaeological School at Athens. The ancient floor mosaic reproduced here was excavated recently and has not before been illustrated. It was measured and rendered in water color by André Leconte, winner of the Grand Prix de Rome in 1926.

The peristyle court distinguished the domestic architecture of Delos. Each house turned its back to the street and the entrance gateway was the only element of interest on the exterior, excepting the high walls of marble. Through the vestibule and past the gatekeeper's quarters, the visitor came to the court, the very heart of the house, surrounded on four sides by the portico.

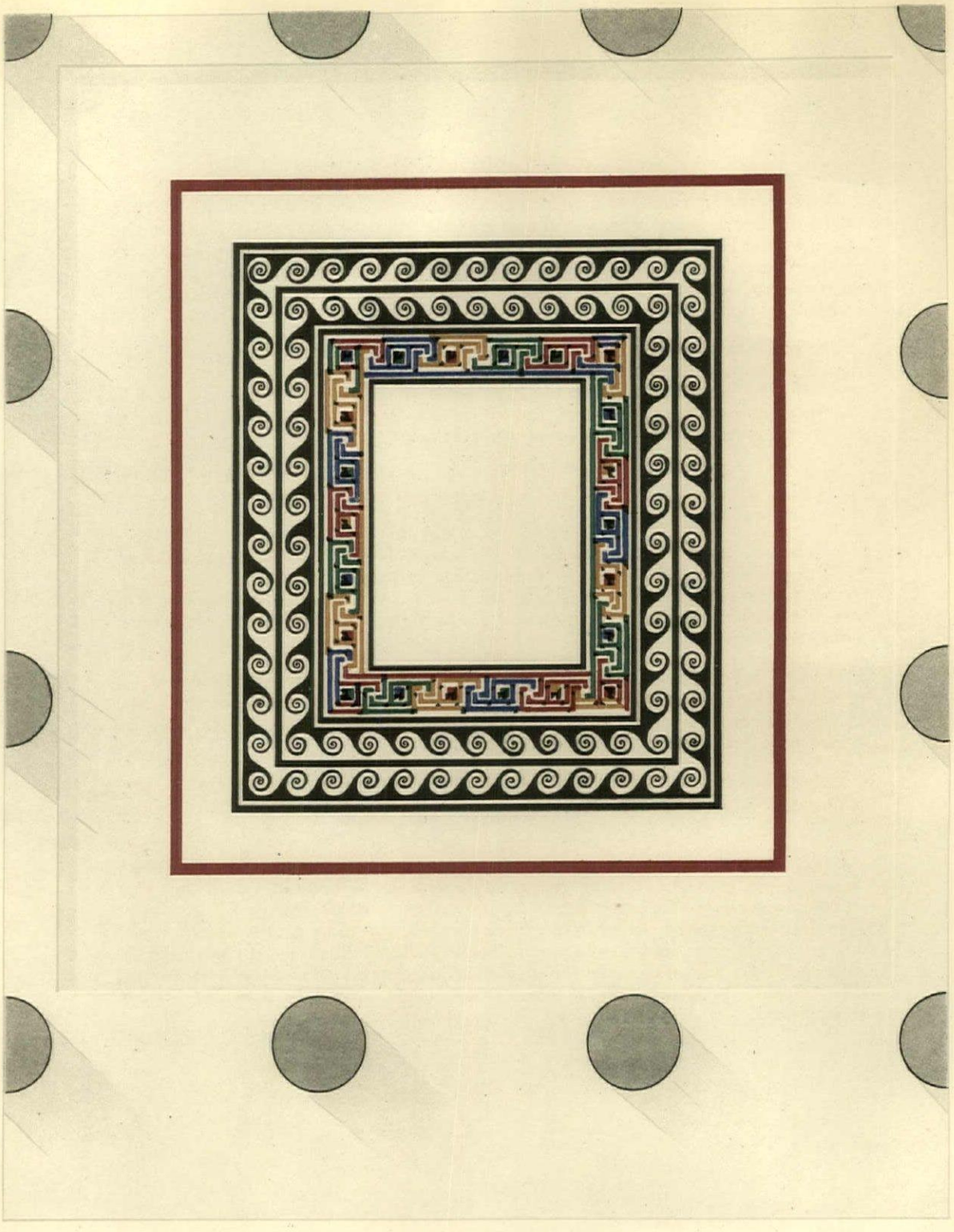
Generally a cistern was found under the court for storage of water to supplement the well in the event of a great drought. The vaulted ceiling of the cistern was often richly ornamented in mosaic.

Around the court were the rooms of the household. The reception and banquet halls were spacious and had mosaic floors as fine as that of the court. In the service rooms, the kitchens and the slaves' quarters, flooring was either the trodden earth or a very coarse mosaic. One house possessed a bath room; almost all had a rudimentary sewerage system.

The Delian house usually had an upper story, reached by large stairways of stone or wood. These rooms, likewise decorated in mosaic or fresco, were arranged like those of the ground floor and opened on a gallery surrounding the court. A terrace or low roof with large tiles topped the house.

The mosaics belong to the period of great prosperity, the third, second and first centuries B. C., after the Romans ceded the island to the Athenians and Delos became the center of a flourishing commerce.

Great buildings and fine private houses were built. With rare exceptions the houses were grouped in *insulae* varying greatly in dimensions, sometimes comprising three or four large mansions, sometimes a large number of small lodgings. Forms were very irregular since the Delian architect was not constrained by parallel lines or right angles. Streets went zigzag and crossed obliquely. Each builder had the same ideal—to utilize most advantageously the ground at his disposal. Because of this natural development, the architecture of Delos avoided rigidity and the harshness of geometric lines.



MOSAIC FLOOR IN DELOS ISLAND_GREECE

SCALE 1/40

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF
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ARTS & CRAFTS

VOLUME 66 AUGUST·1929 NUMBER 2

CENTRAL PARK CASINO

JOSEPH URBAN, ARCHITECT

PARK restaurants in the United States are something of a rarity. Road houses, night clubs, hotel dining rooms, "hot dog" and soda stands are more national expressions of eating out. The park restaurant is for most of us a European acquaintance. A few unimaginative attempts serve chiefly to emphasize the lack.

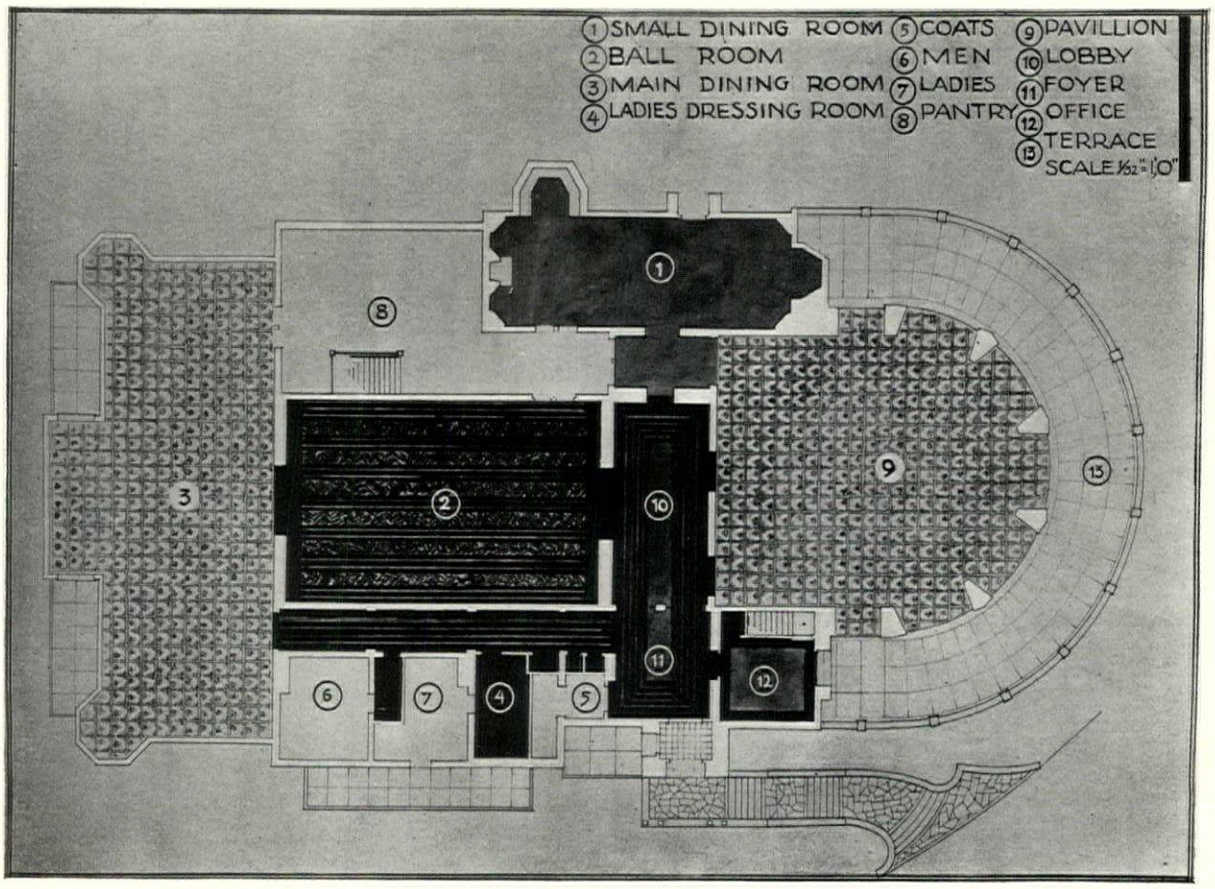
The old Casino in Central Park was such an essay. In make-up it was a compromise between a road house and a sort of Coney Island Winter Garden. The accommodations comprised two small dining rooms, a glassed-in conservatory covered with paint and a large, dark interior room, the middle of which was occupied by a steep stair to the basement. Outside, a tiled terrace covered with a low awning in summer provided out-of-door eating space. There was no resemblance to the outdoor restaurant of Europe similarly located, but in a rough and ready fashion it furnished some of the elements of an inn and something of the air of an amusement park. In the nineties, when New York was small and Central Park something of a drive, the Casino enjoyed a polite popularity.

The alterations by Joseph Urban place the Casino in the hotel class. Something of the old inn character was preserved with one of the small dining rooms, at present the least used feature of the layout. The two most popular rooms are those where tables are set about the dance floor and the part of the main dining room where the ballroom floor is in view. Similarly, the first seats taken on the terrace are those where persons arriving can be seen. Seclusion can hardly be set at a premium at present, whatever its value to the Victorian diner.

The old building could have accommodated about three hundred and fifty persons shut off from one another in small and large groups; the altered layout provides for four hundred and sixty-eight. On the opening night this layout gave place to one for six hundred; tables for two were practically without demand and larger parties had to be accommodated. Such continues to be the case. Parties of six are a fair average. The original plan seated 114 persons in the pavilion, 96 on the terrace, 128 in the main dining room, 96 in the ballroom and 24 in the small dining room, at round tables 30 inches for two persons and 33 inches in diameter for four, accommodations which can be stretched to four and six covers. Twelve square tables in the main dining room were provided to be used separately, or combined as banquet tables.

The plan provides a clear traffic scheme emphasized by the carpet designs. Although it is in units based on a 27-inch width throughout, open in arrangement as the old building permits, its use and the comments of patrons suggest that still greater openness of arrangement would be practical. One of the excellences of the arrangement for social usage is the sense of pageantry and leisurely movement suggested in the traffic routing. A single, sweeping stair with an easy rise and many landings gives access through a porch and vestibule to the square foyer which distributes guests to the coat rooms, dressing rooms and main dining room, office and the lobby. The lobby in floor plan is a continuation of the foyer but mounts higher in volume. It gives access through two doors, six feet wide, to the pavilion and through a ten-foot folding door to the ballroom. At the other end of the ballroom a ten-foot door throws the main dining room and ballroom together. The small dining room is entered directly from outside or through a small door and passage at the end of the lobby. This passage connects the pantry service with the pavilion. The terrace and pavilion in summer work as one room together through the use of seven ten-foot openings at the curved end. The glass doors fold back against the reveal of the walls and the pavilion becomes a room virtually out of doors. On the terrace the cantilevered awning gives shade but, instead of interposing supports between the people and the prospect, enframes the view in one sweeping, inclusive line. The bigness in effect of this device together with the unobstructed spaces of most of the rooms gives a grandeur to the scheme often lacking in arrangements of greater actual dimension.

The domed ceiling of the pavilion contributes to the airiness of this room, main-



tained by the delicacy of its lighting and decoration. The unobstructed space was attained through the use of *Lamella* construction, an invention used first for hangars and somewhat familiar at present in garage work. In Europe it has been developed also as a steel structure. Steel *Lamella* is not yet available in this country. The decorative qualities of this method of construction are shown in the room by Urban. Foreign photographs also show its decorative possibilities though the apsidal form is less usual. In order to preserve the unit scale of the construction Urban covered the under size intersections in the apse with plyboard and formed a great six-pointed half star of streaming floral decoration. The dome itself covers the space like a tent; there is no air chamber, yet the room remains the coolest in the building owing to the openness of the door and window plan.

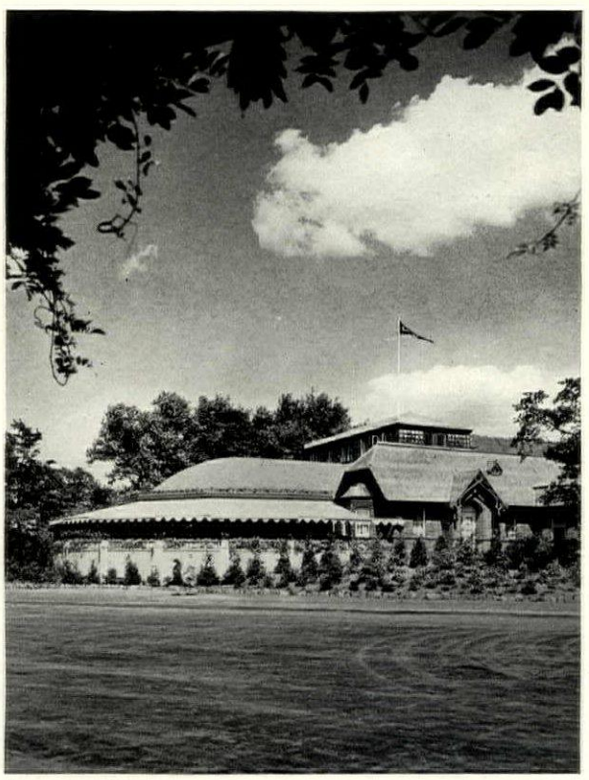


Photo. Sigurd Fischer

CASINO IN CENTRAL PARK
JOSEPH URBAN, ARCHITECT

Acoustically the Pavilion is a sensation. When the orchestra placed in the central bay under the half dome plays, the music has a richness of tone seldom heard. There are no echoing surfaces owing to the broken ceiling and the wood construction seems to vibrate like a cello.

The ballroom, originally the interior space with the central stair already described, has a ceiling of black glass squares hung on a wooden framework from the old ceiling. By leaving the ceiling undefined in this way height is given the room and the festive quality of the crystal chandeliers and the people below is doubled by reflections.

Opposed to the pavilion in tonal quality is the effect of the glass ceiling on the acoustics. Here the music has a sharp brilliance lacking, however, any metallic quality. Such power is given the tone that it penetrates the whole building when not muffled by the presence of many people.

The main dining room occupies the former winter garden designed originally as a conservatory. Heat through the glass was always a drawback which had been formerly somewhat overcome by painting the roof. Urban dropped the ceiling at the sides and filled the central dome with a mural of purple and blue butterflies and flowers. The walls and low parts of the ceiling were covered with silver leaf to provide a lively background for the magenta-stenciled decoration.

Lighting is for the most part handled in a flood-light system, either through glazed diffusing transoms, as in the lobby and main dining room, or in enameled metal diffusing fixtures, as in the small dining room and pavilion. Opal glass plates conceal the source and soften the light in the foyer and entrance vestibule. Down the corridor an extremely effective enameled metal fixture is used which gives a diffused illumination

Photo. Sigurd Fischer

ALCOVE OFF SMALL DINING ROOM
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

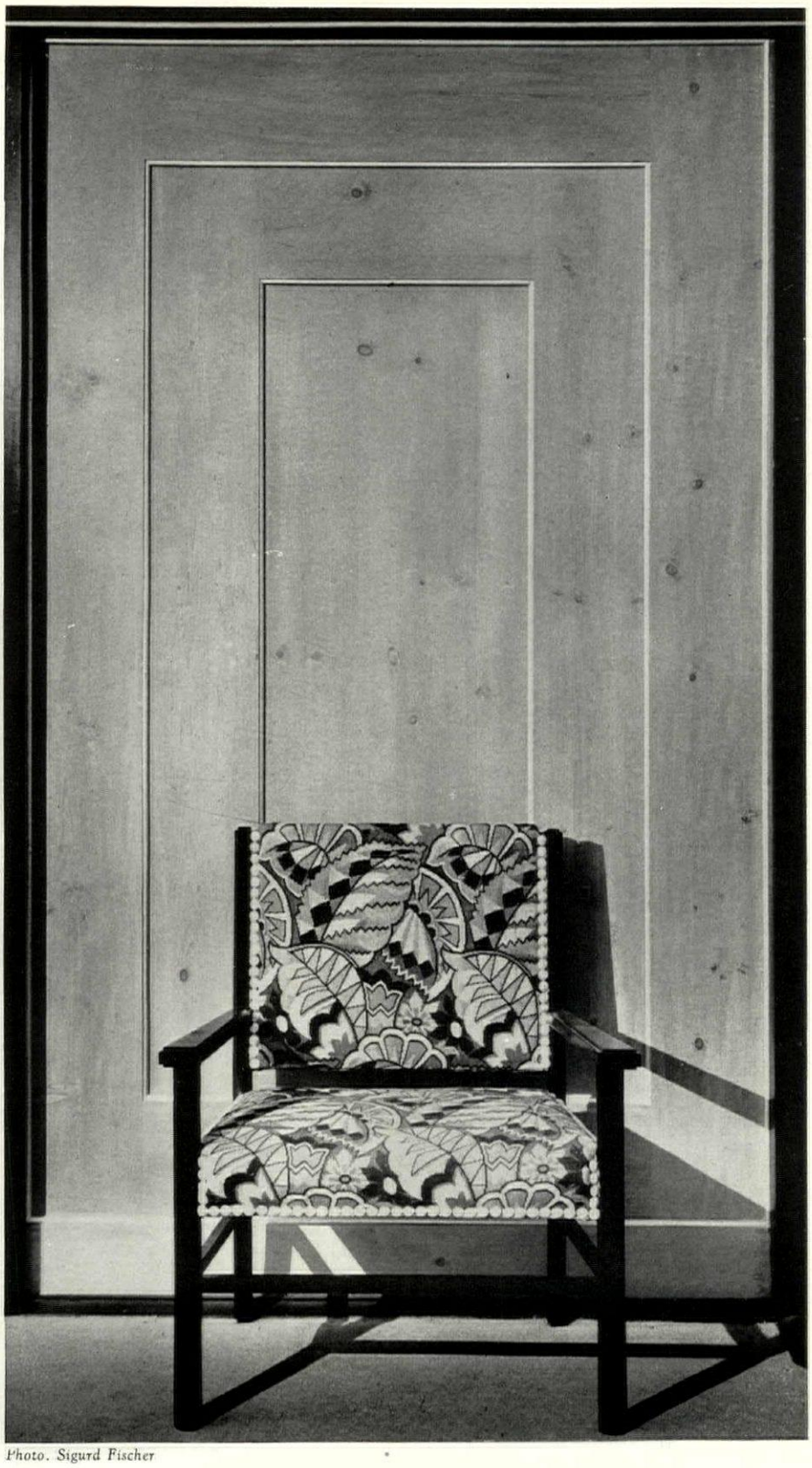


Photo. Sigurd Fischer

DETAIL, SMALL DINING ROOM
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

Photo. Sigurd Fischer

CEILING DETAIL, PAVILION
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

Photo. Sigurd Fischer

DETAIL, BALLROOM
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

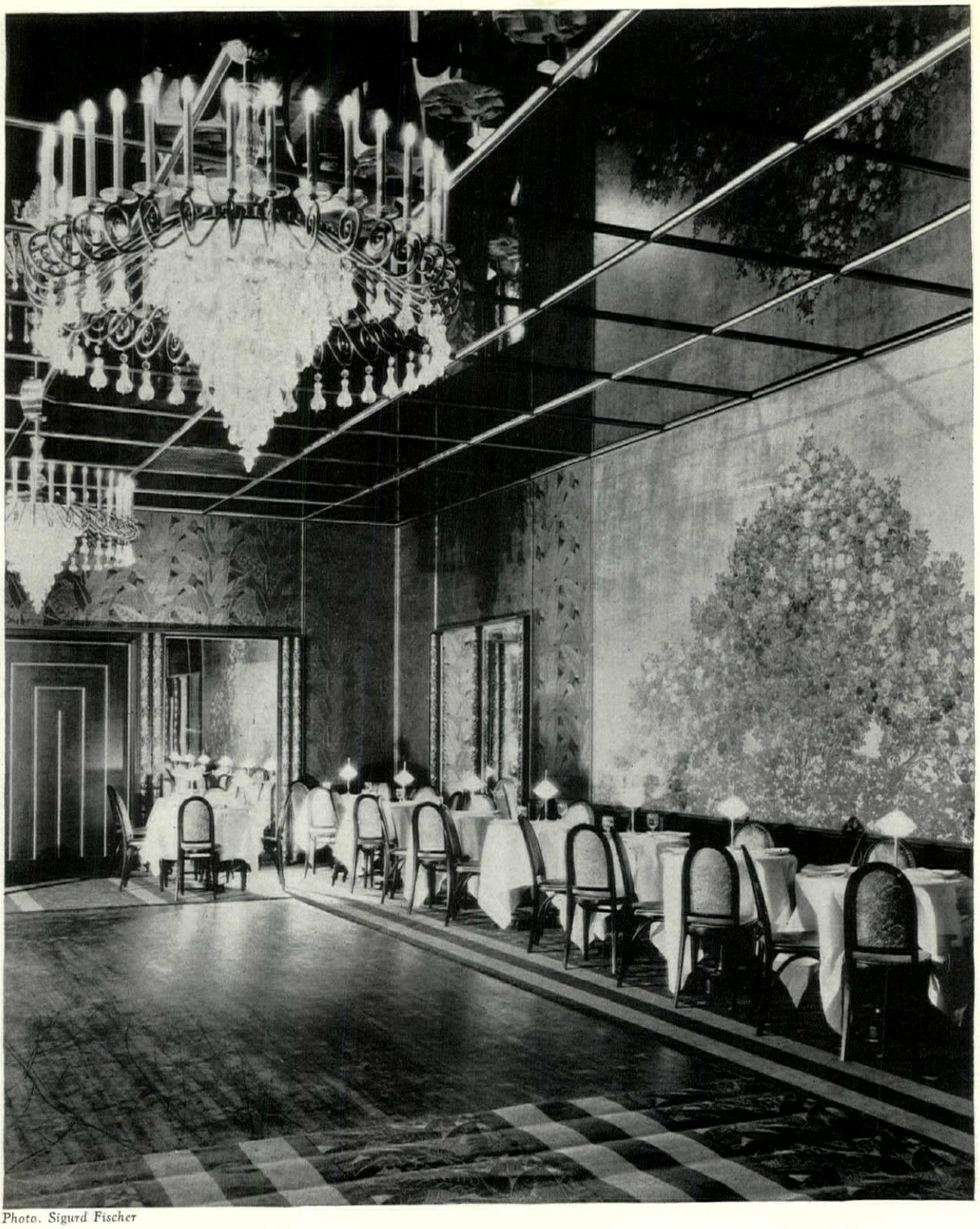


Photo. Sigurd Fischer

BALLROOM
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

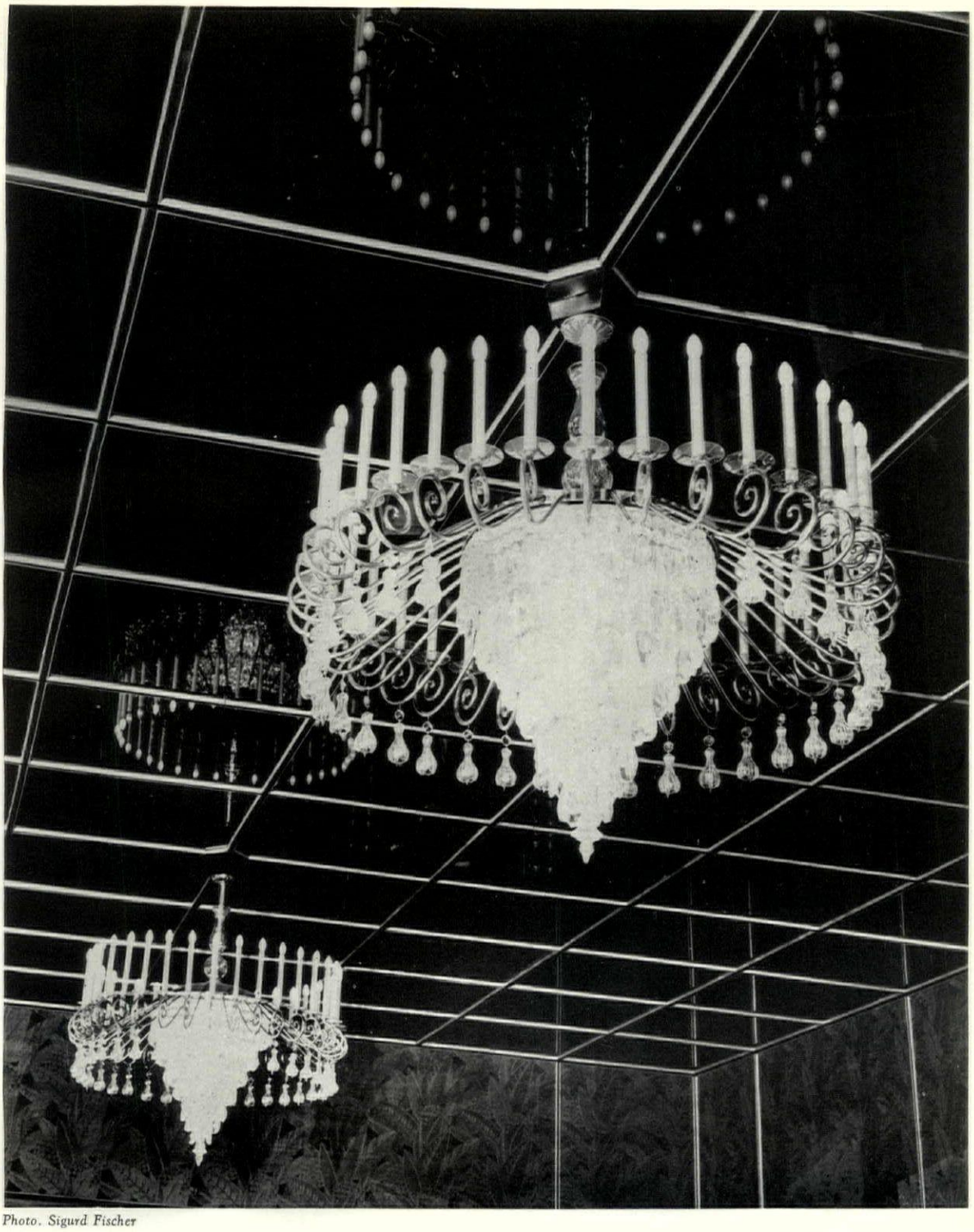


Photo. Sigurd Fischer

CEILING, BALLROOM
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

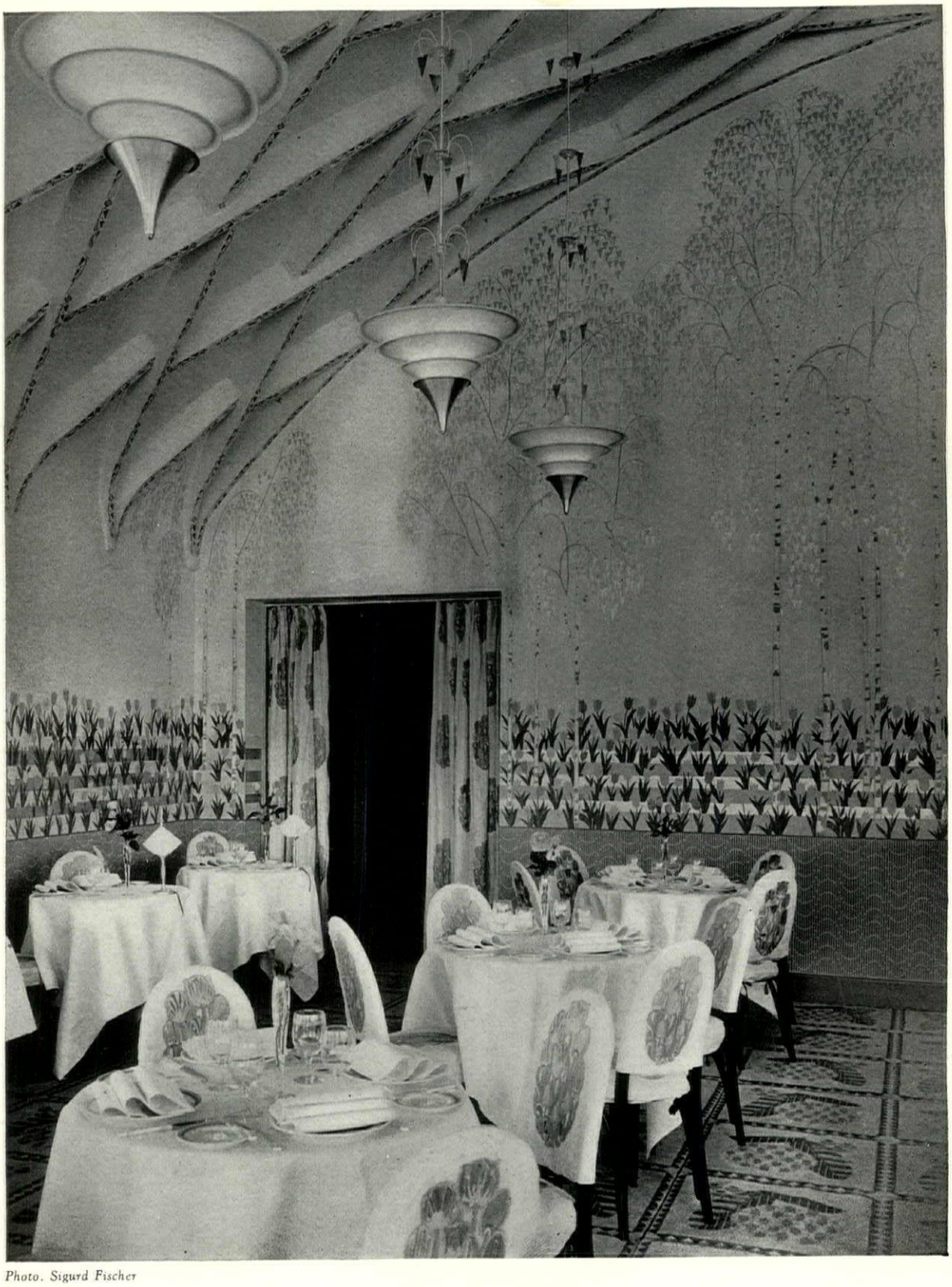
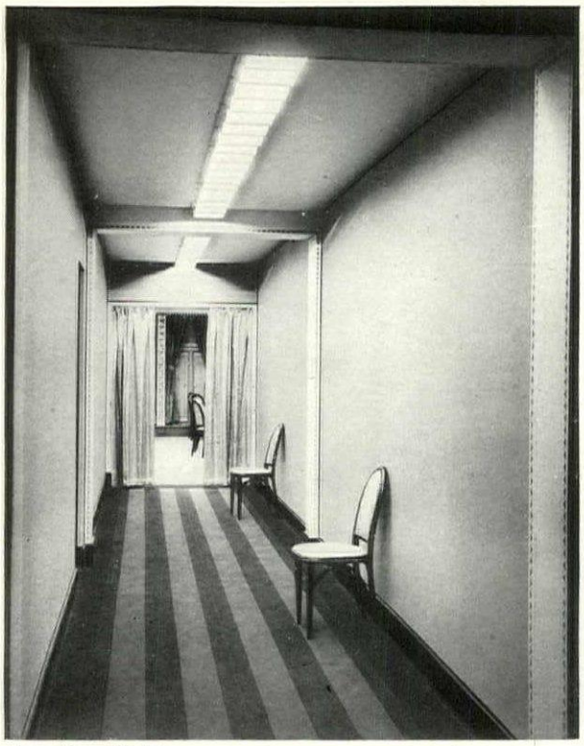


Photo. Sigurd Fischer

CORNER OF PAVILION
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

Photo. Sigurd Fischer

INNER LOBBY
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT



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CORRIDOR
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

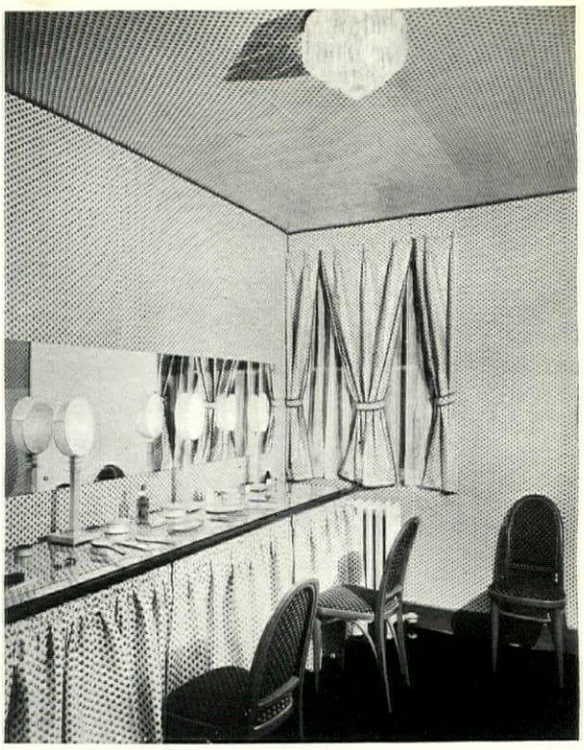


Photo. Sigurd Fischer

LADIES' DRESSING ROOM
CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

leading to the main dining room. Brilliancy was desired for the ballroom so crystal covered the shining metal reflectors and clear bulbs. A ring of unshaded candle lights finishes the fixture at the top and describes a circular constellation in the black glass above. All lighting fixtures, furniture and carpets were specially made. The cretonnes of the pavilion were specially blocked in Urban's scenic studio. Precedent for the architect's universality, established in the Metropolitan Museum Exhibition, is continued in the Central Park Casino. New York now possesses a restaurant which, for versatility of design in varied media, can be compared with European achievements.

THE TECHNIQUE OF THEATRICAL PRODUCTION

BY CLAUDE BRAGDON

To give a glimpse of the World-of-Make-Believe in the making, by tracing the permutations a theatrical production goes through from its inception to the moment when the curtain rises on the opening night, I am choosing for illustration Walter Hampden's *The Light of Asia*.

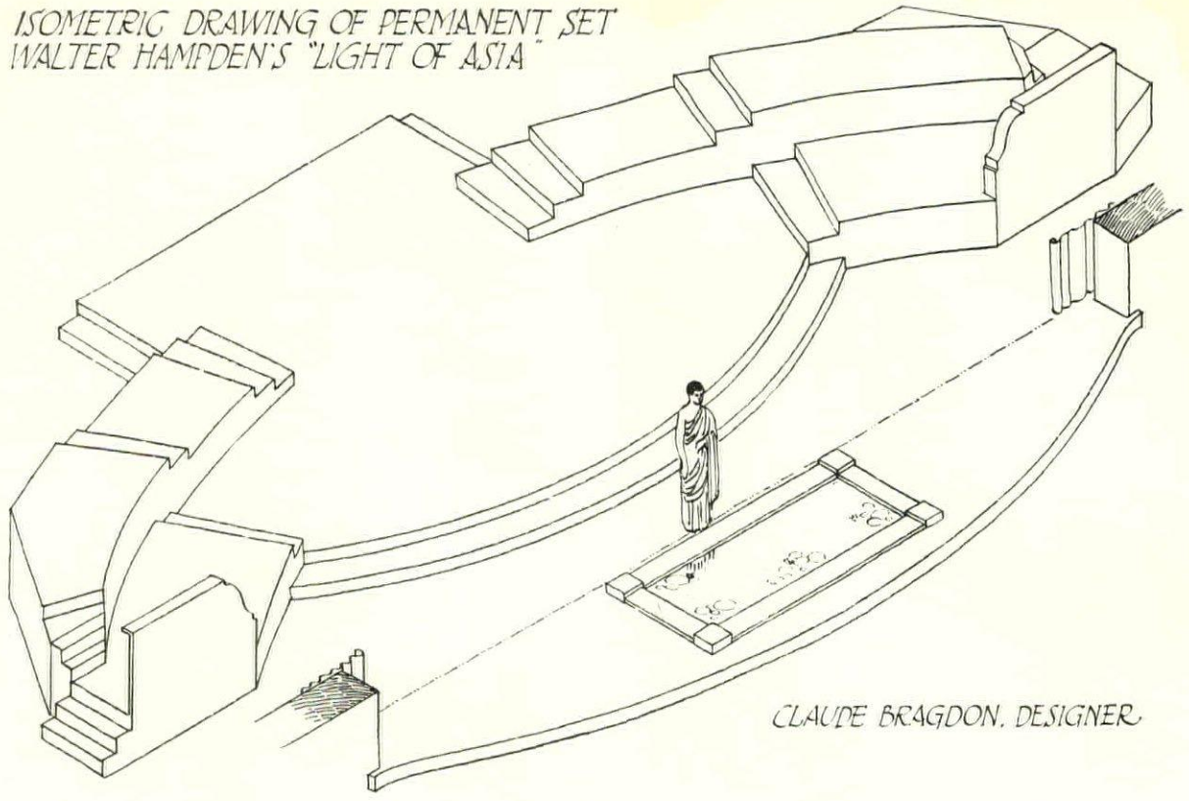
The play is a chronicle of the life of Buddha, presented in nine scenes and involving over a hundred characters, many requiring three and four complete changes of costume. Numerous elaborate properties are also necessary; a fruit tree in full bloom, a litter and two palanquins, thrones, rugs, cushions, flowers, musical instruments, swords, spears, head dresses, belts, sandals, and so on, all of which, even to the last shoe string, it is the province of the art director to provide.

Although the designing, drawing and detailing of all this may occupy months, the actual fabrication must be done in a few weeks by reason of the conditions prevailing in the New York theatre where scenery must pass without a pause from carpenter shop to scenic studio and thence to the theatre, and where costumes cannot be started until rehearsals are under way, not until four weeks before the opening because of the terms of the Equity contract. For example, if you need horses as gentle as kittens, they will be delivered punctually every night at the stage door. If you are called on to furnish a room in the Victorian manner, there are two great emporia wherein are stored the spoils of countless auction and rummage sales. One man makes a business of buying clothes from arriving immigrants for use in the theatre; another specializes on the making of animals' heads; still another makes practically all the armor seen on the New York stage. During the peak of the theatrical season all these purveyors of theatrical pleasure labor incessantly.

Active work on a production begins usually about four weeks before the opening and corresponds to "breaking ground" for a building operation. For months before one has been dreaming, scheming, drawing, and re-drawing. Just how much of this has to be done depends largely upon the felicity and practicability of one's initial conception: in the case of *Cyrano*, the preliminary sketches were carried out without a single important change; in *The Light of Asia*, on the other hand, three schemes were abandoned before discovering the final one which grew out of the necessity for quick scene changes, for getting many actors effectively on and off the stage, and for the performance of certain rituals and dances.

All these matters were determined by Mr. Hampden in the same manner an architect's client determines the general layout of his factory, store or bank. Our deliberations finally led us to an arrangement of steps and platforms, a *permanent set* in which there are seven separate entrances and exits and four different acting levels. Moreover, the steps are so few, low and broad, that they do not interfere with the dramatic action. This stage arrangement proved to be half the battle, because it established other features of the production. All that remained was to give each scene its appropriate "dressing" by means of curtains, ground rows, back drops and stage "props." The elimination of "flats" greatly facilitated scene changes.

My experience in the theatre has convinced me of the soundness of Mr. Hampden's contention that the stage floor should be three dimensional, with some practical system of ramps and platforms to reinforce the "mystical protagonists." The sound-



ness of such a scheme was demonstrated in the scene before the battle of Agincourt in Mr. Hampden's production of *Henry V.*, where the kneeling king has a long scene alone; only by placing the single figure on a rocky mound was it given the necessary dominance.

The permanent set was built first of all, and rehearsals conducted upon it, so that the actors could become at home in their environment. The next addition was a vast expanse of black velvet curtains at the sides and rear of the stage, forty-two feet high, and set as far back as possible. These curtains absorb the light so successfully that they give the effect of infinite space; they can be parted to reveal the cyclorama, and masked apertures at right and left form invisible exits. Gauze drops, ground rows and foliage borders, slim garlanded masts, a ruined wall, a pool, a shrine, wine jars full of orchids and jasmine, and other paraphernalia of luxury and pleasure complete the stage accessories.

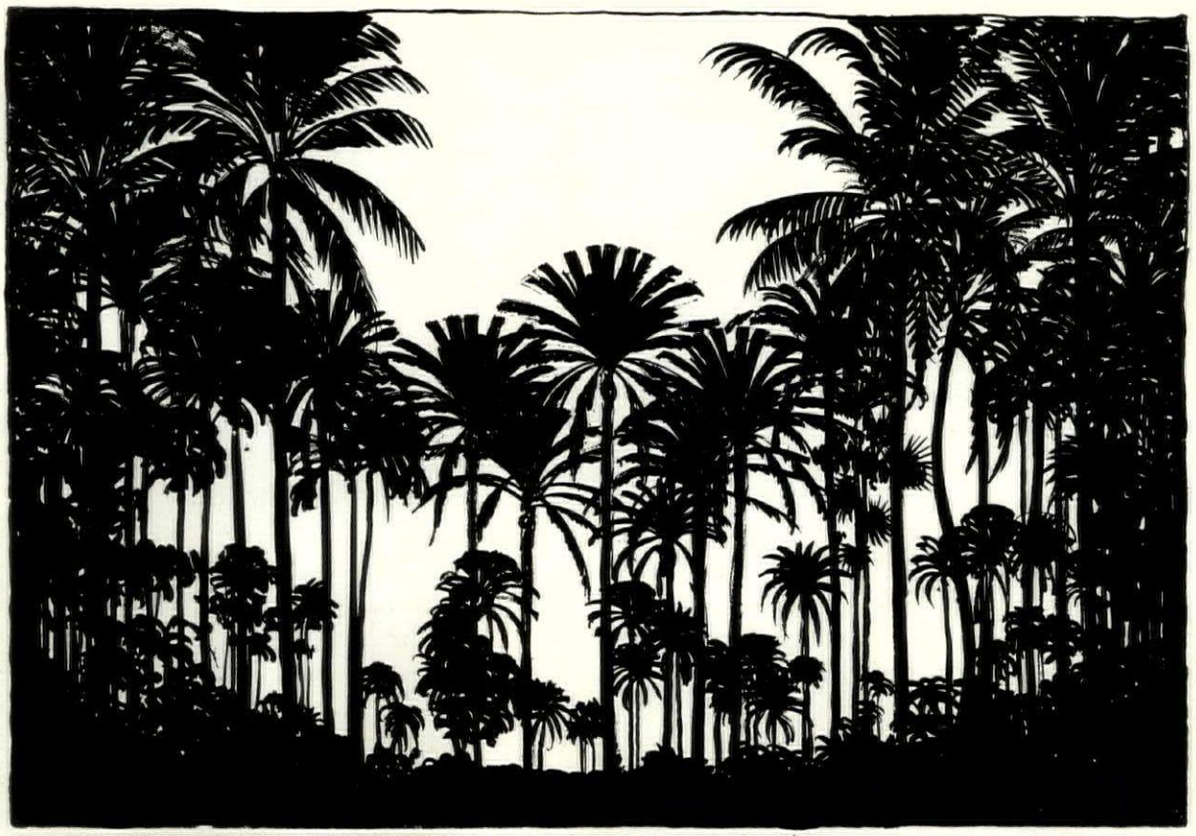
The scenery and stage "props," such as chairs, tables and beds, are usually let by contract from working drawings, supplemented sometimes by color sketches or pasteboard models. For curtains and draperies, samples of materials and dyes, and full-size details of stencils are furnished. Rugs are bought, rented or borrowed. All artificial foliage is executed from sketches by artisans. Costumes are let by contract from carefully drawn colored sketches. Wigs and shoes are the work of specialists.

In the costumes for *The Light of Asia*, a difficulty was encountered. Hindu clothing consists largely of simple cloths and success depends, therefore, less in the making than in the wearing. The costumes were designed on the back instead of on the drawing board, the actors being instructed how they should be worn. In the coloring of the costumes three things had to be kept in mind: their dramatic and psychological appropriateness, their relation to the various backgrounds, and to one another.

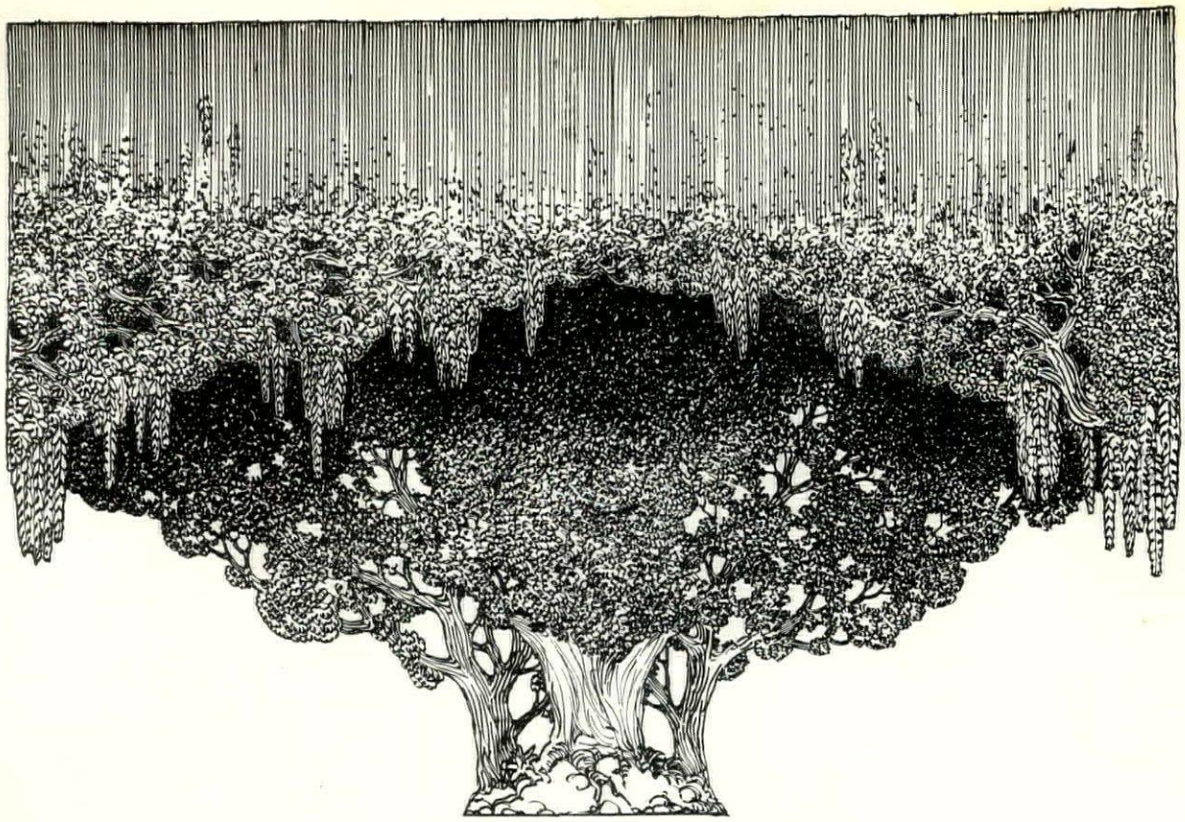
Scenery is painted either vertically on counter-weighted frames that slide up and down, or horizontally on what is known as a "painting floor." The latter is the European method, and has an advantage in permitting the color to puddle, giving a richer texture. The Bodhi tree, in *The Light of Asia* was painted in this way. The medium used is opaque water color with an admixture of glue, and the material canvas, except where an effect of luminosity is desired, and muslin and dye are used. Curtains must always be dyed, for paint will stiffen the fabric and flake off. A variety of materials may be used, but linen is perhaps the most satisfactory. In *The Light of Asia*, for the large curtains I used what is known as table felt; this has a heavy pile and takes dye. After being dyed in two tones they were spattered with violet, and darkened gradually toward the top to give an effect of descending "from the unknown to the known." In the theatre, broken color, mixed in the spectator's eye instead of on the canvas, is the most beautiful. Sometimes painted surfaces are sponge-stippled, spattered, or rolled with a wound-up cloth, to give richness of texture. Sometimes, like water colors, they are washed on. To give "life" sometimes they are sprinkled, while still wet, with bronze or silver powder.

A scientific knowledge of color is of the utmost value to the artist working in the theatre. He must know not only the visual effect of various color combinations, but also the effect of colored lights on colored surfaces. Stage light is usually warmer than studio light, so all colors must be correspondingly colder. The finished and lighted scene has often to be toned up or down by the painter.

During the fabrication of the scenery, properties and costumes, the company is being rehearsed, the "extras" drilled, the



GAUZE DROP OF PALM TREE FOREST FOR WALTER HAMPDEN'S LIGHT OF ASIA PRODUCTION

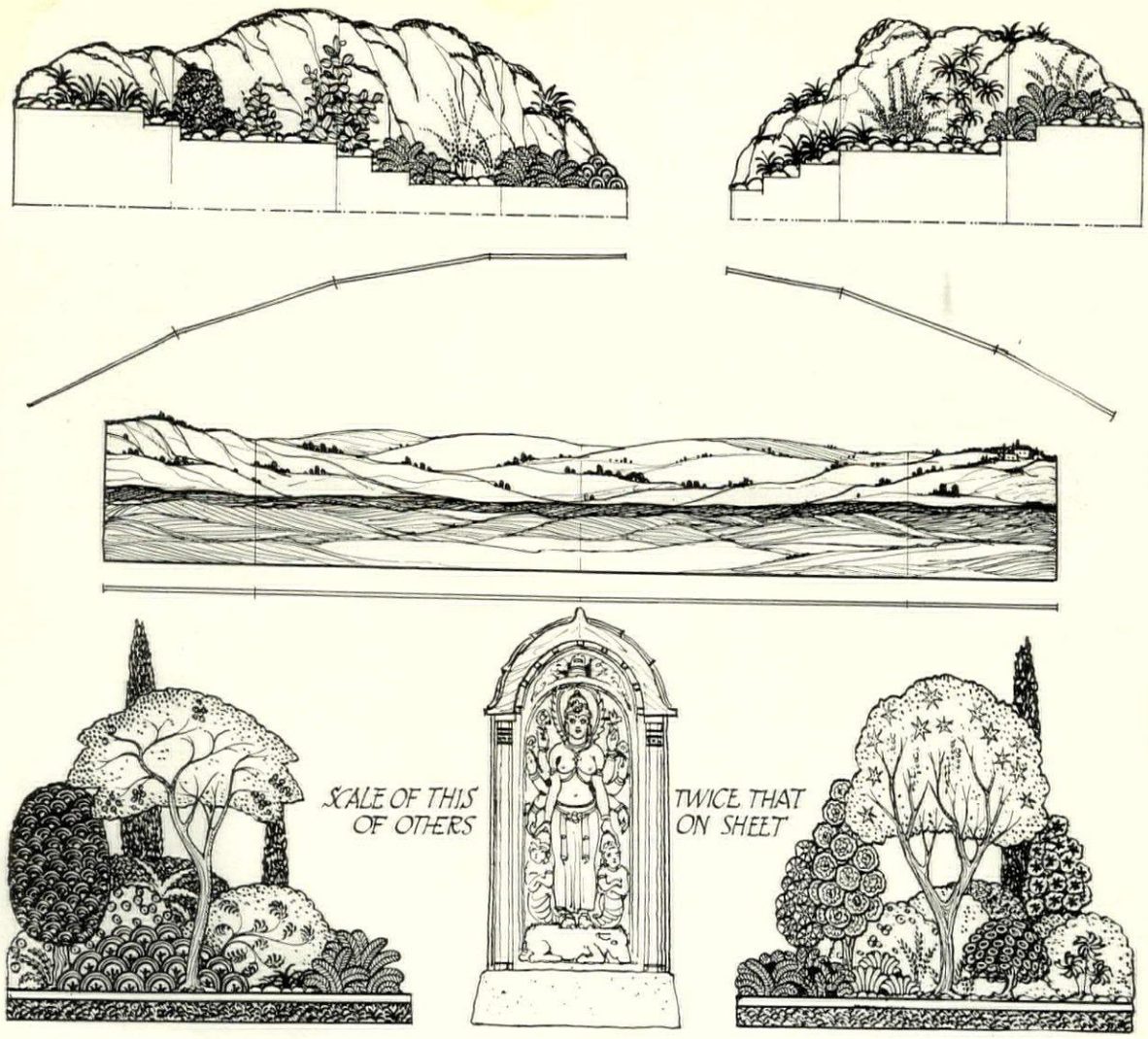


BODHI TREE AND FOLIAGE BORDER, WALTER HAMPDEN'S "LIGHT OF ASIA"

dances and music developed. These various elements coalesce shortly before the first dress rehearsal. This event is preceded by a dress parade in which each costume is inspected, accepted or rejected. Changes are inevitable in the costumes brought thus into juxtaposition with other costumes and seen under stage lights. These changes continue up to the opening night and not infrequently thereafter.

Only after the dress rehearsals is it possible to attack the problem of lighting, although charts of the lighting of each scene have been made, and the necessary equipment provided. Because dress rehearsals are usually few and troubled, the lighting, though of the first importance, gets less than its due consideration. This was not so, however, in the instance of *The Light of Asia*, where an entire day, instead of the usual few minutes, was given over to the lighting of a single scene. Of course, this scene involved sunlight, moonlight, dawn, lightning, and "the light that never was on sea or land," in addition to an aura about the body of the Buddha and the "invisible ray" (made visible by a chemical paint) directed on Mara's animal-headed horde.

The ideal equipment would make it possible to command light of any color or intensity upon any point within the stage area. Color is obtained by means of differently dyed gelatines; intensity is regulated by means of rheostats or dimmers. Diffusion and concentration are taken care of by diffusing screens and lenses whereby the lighted area may be reduced to the size of a human face. The old system of "strips" and "borders," rows of lamps in galvanized iron troughs placed above and at the sides of the stage, is obsolete in up-to-date theatres. The X-ray type of unit, with each lamp in its individual reflector and equipped with



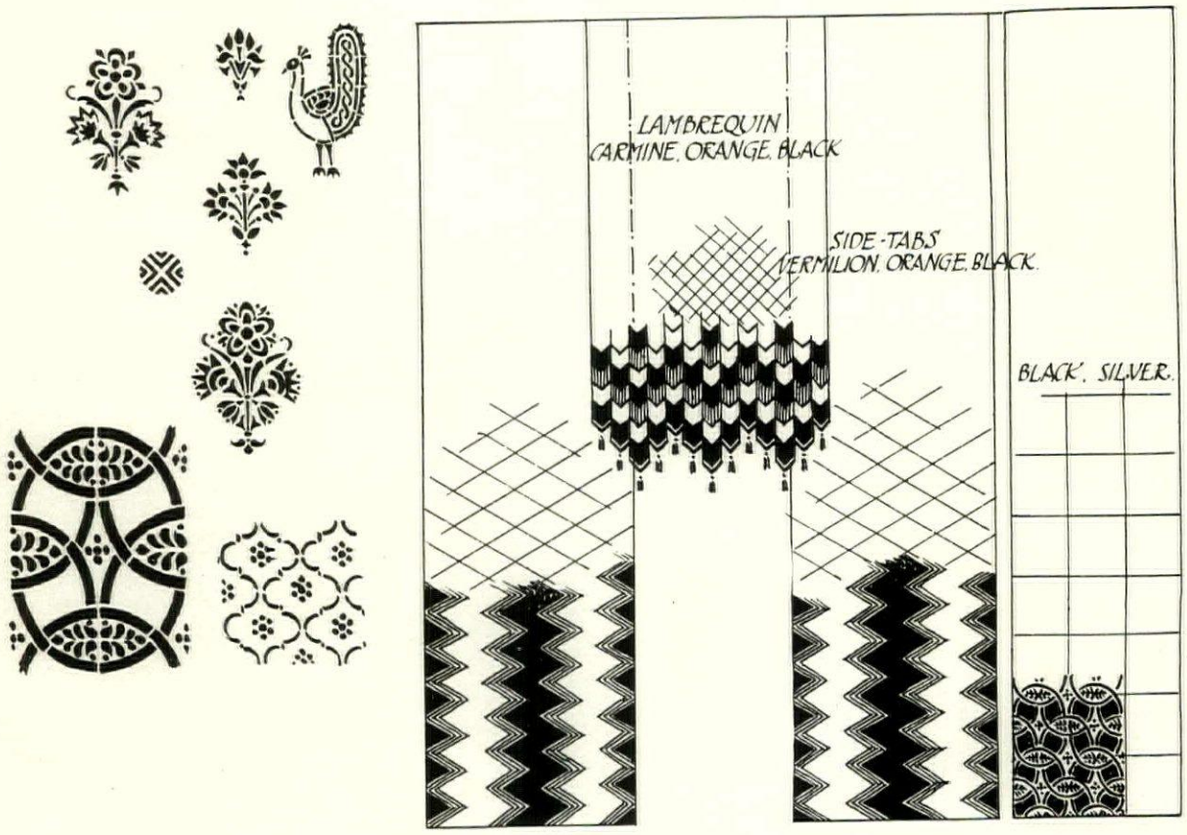
VARIOUS ROCK AND FOLIAGE WING PIECES, GROUND-ROW, AND SHRINE

gelatine screens, is gradually giving place to spot-lights of various types and sizes, which are capable of being swung in any direction, focused, and provided with adjustable metal shields to overcome the "spill" of light. Footlights are used more and more sparingly, merely to mitigate the heavy shadows cast by overhead light. In Hampden's theatre I eliminated them entirely, together with the unsightly footlight "trough." Their function is performed by spot-lights on the front of the balcony. There are certain types of lighting units used for special purposes: a powerful lamp and its reflector on an adjustable stand to throw a shaft of light through a window or open door; small strip-lights placed on the floor or hung on the scenery to take the blackness out of ground rows or masking pieces; flood-lights hung far away and high aloft to give the effect of bright sunshine or moonlight. The cyclorama, or sky cloth, is lighted by units of a special type, which, though only four feet away from the cloth, spread an evenly distributed sheet of light from top or bottom, of any color or intensity.

The richness of stage light, compared

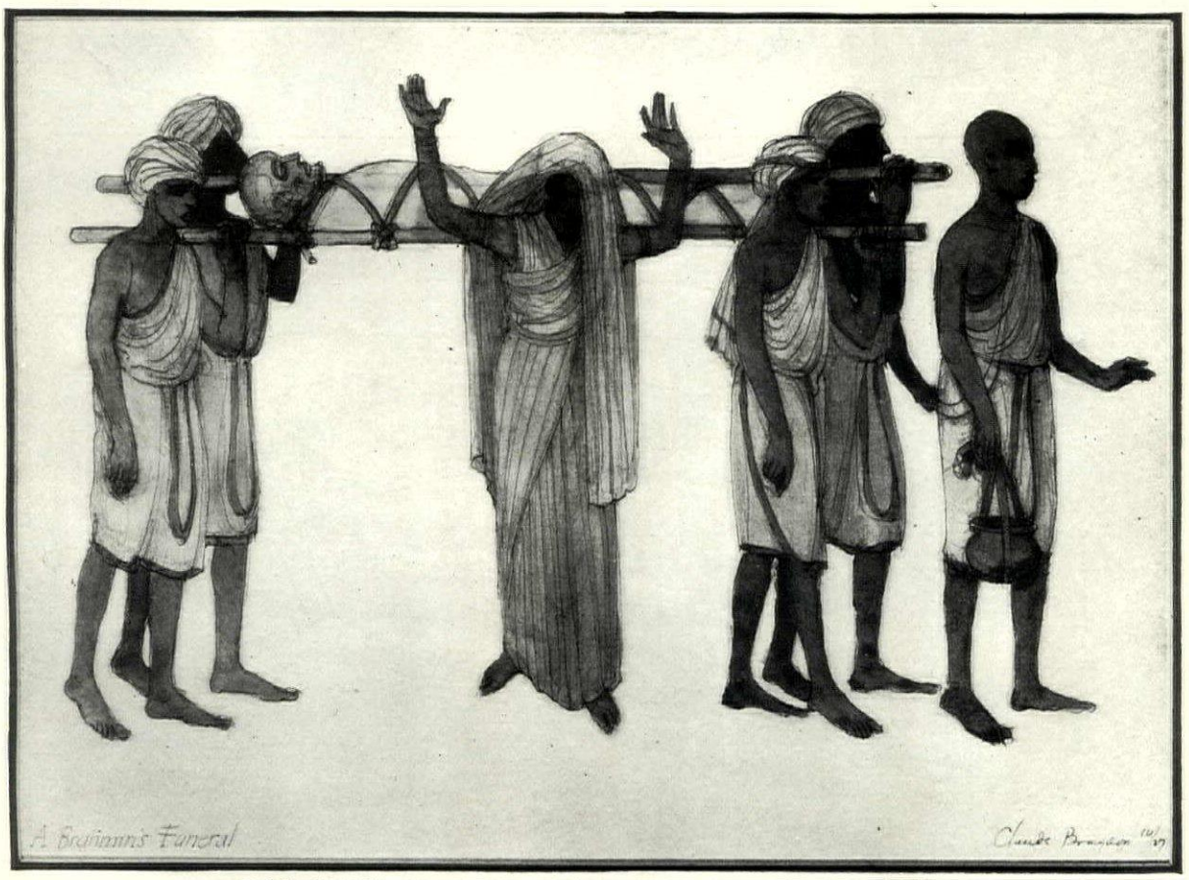
with ordinary lighting, is due to the fact that the white light is split into its component colors and re-mixed "in the eye." The result is a natural light, but one in which the shadows are opalescent, multicolored, because the shadow of a colored light yields always its complementary hue. If, for example, an object be illuminated by a red light from one direction and by a green light from another, it will appear in its true color because red and green, being complementary, will produce white, but the shadows, instead of being grey-violet, will be red on the side opposite the green light, and green opposite the red. By the use of different colored lights a living, dynamic quality can be imparted to the most ordinary fabrics,—they can be painted with light.

In *The Light of Asia* production I endeavored to eliminate the "picture frame," making the scene blend into darkness before it intersected the proscenium arch. This was achieved by means of the black curtains, the dark painting toward the top and sides, and a concentration of warm light in the center of the stage, surrounding this with a penumbra of colder, dimmer light. The purpose was to make the play a series of dream-pictures, as if seen in the depths of some great crystal sphere.

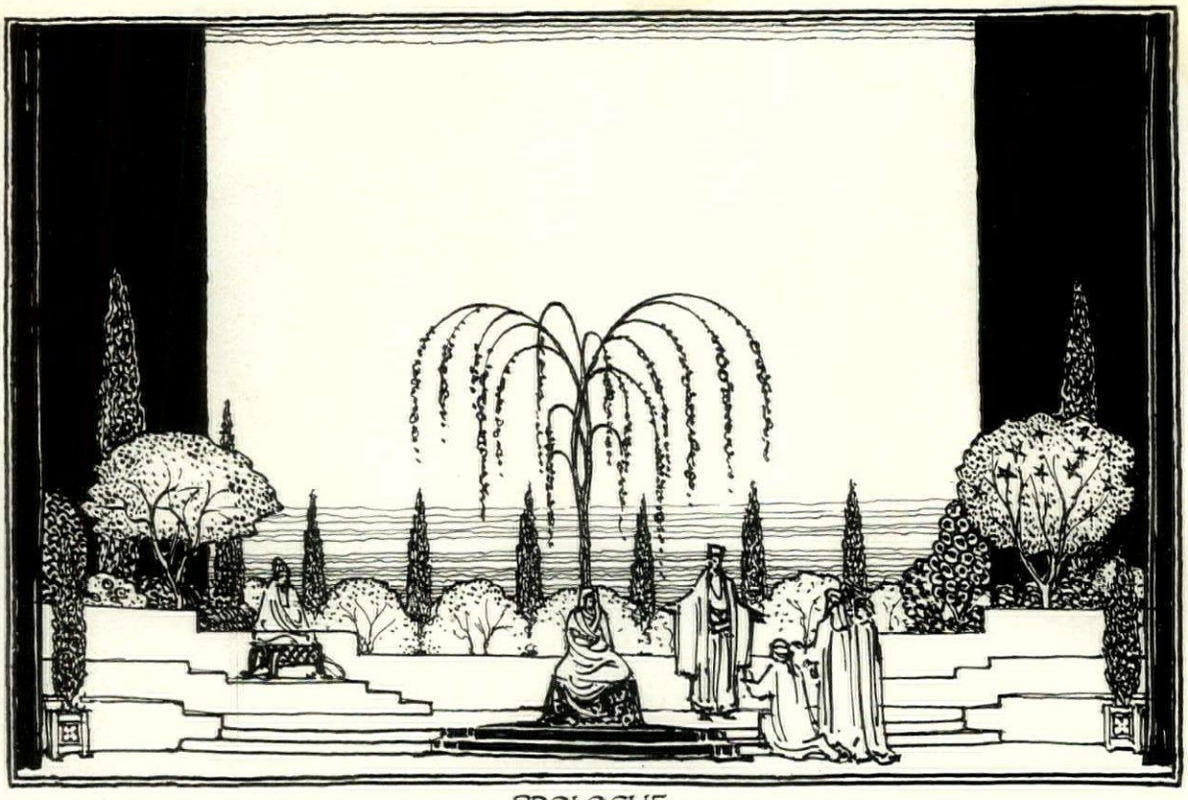


CURTAINS AND CURTAIN STENCILS. WALTER HAMPDEN'S "LIGHT OF ASIA"

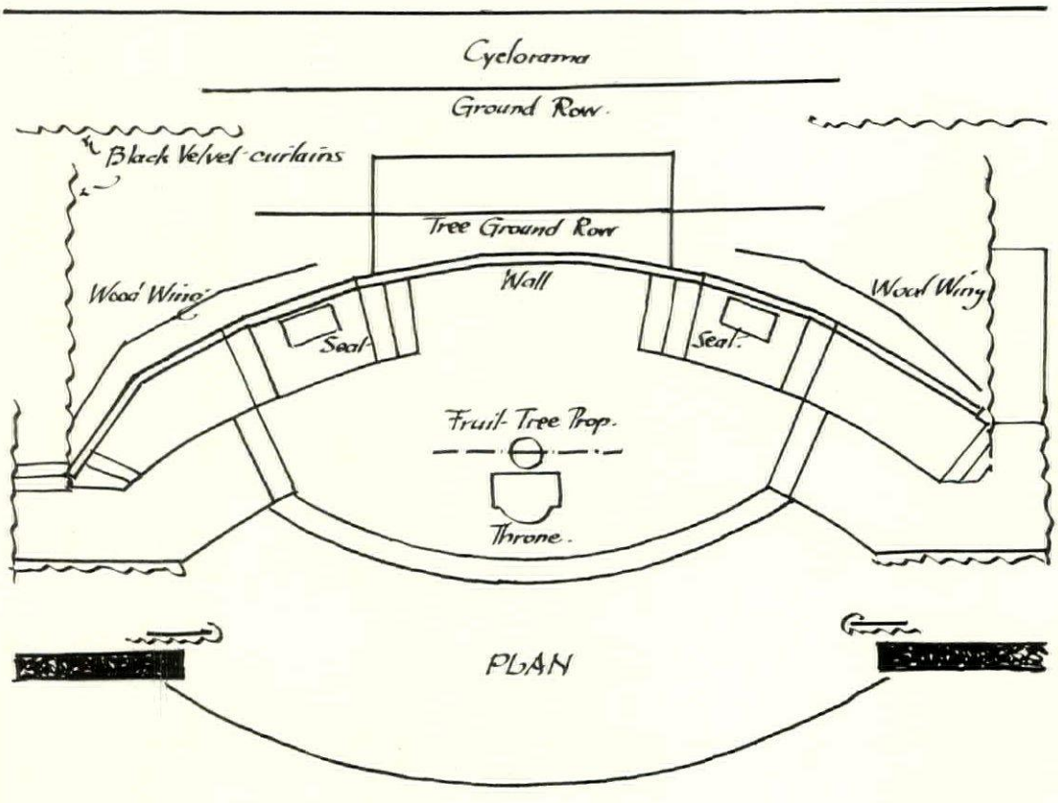
Fabricated and delivered at the stage door, all these accessories of the production are ready to be handled by the stage employees. The wardrobe mistress delivers the costumes to the dressing rooms, and keeps them clean and in repair. The "crew" is captained by the head carpenter, whose lieutenants are the head property man and the head electrician. Each in turn is commander of his own squad, which



COSTUMES, WALTER HAMPDEN'S "LIGHT OF ASIA"



PROLOGUE



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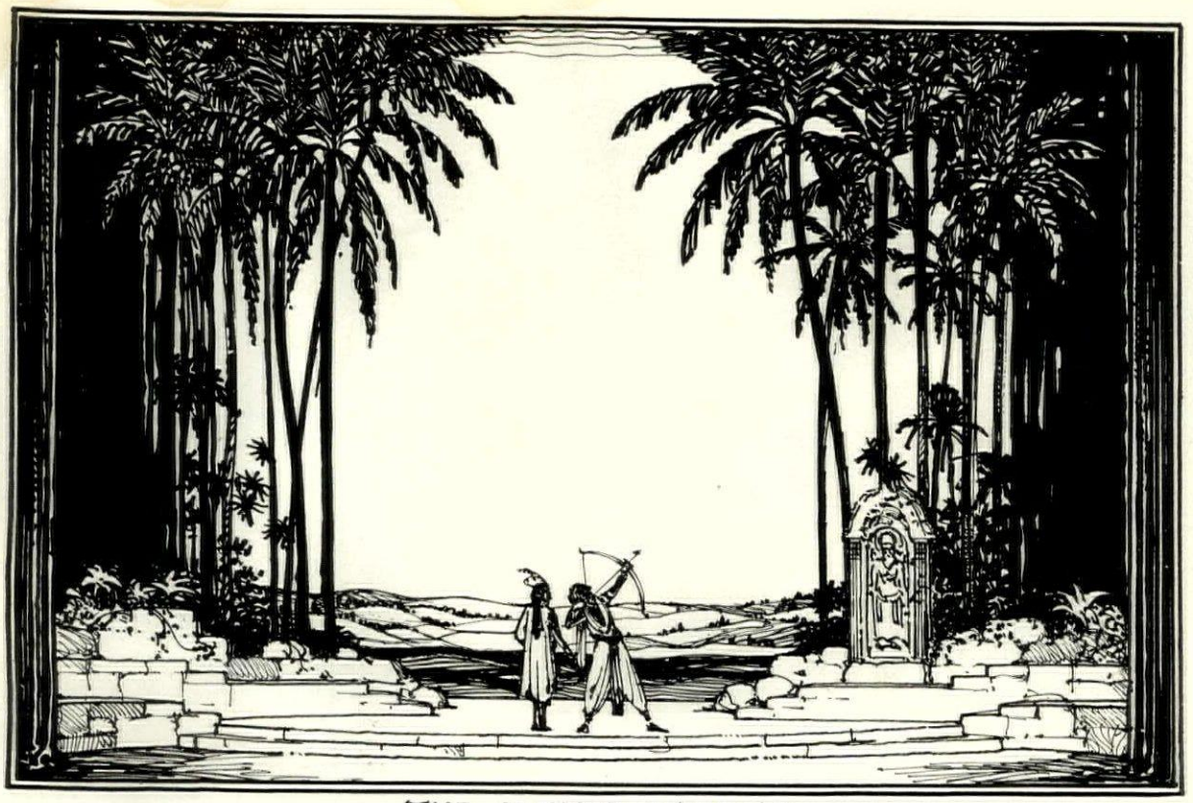
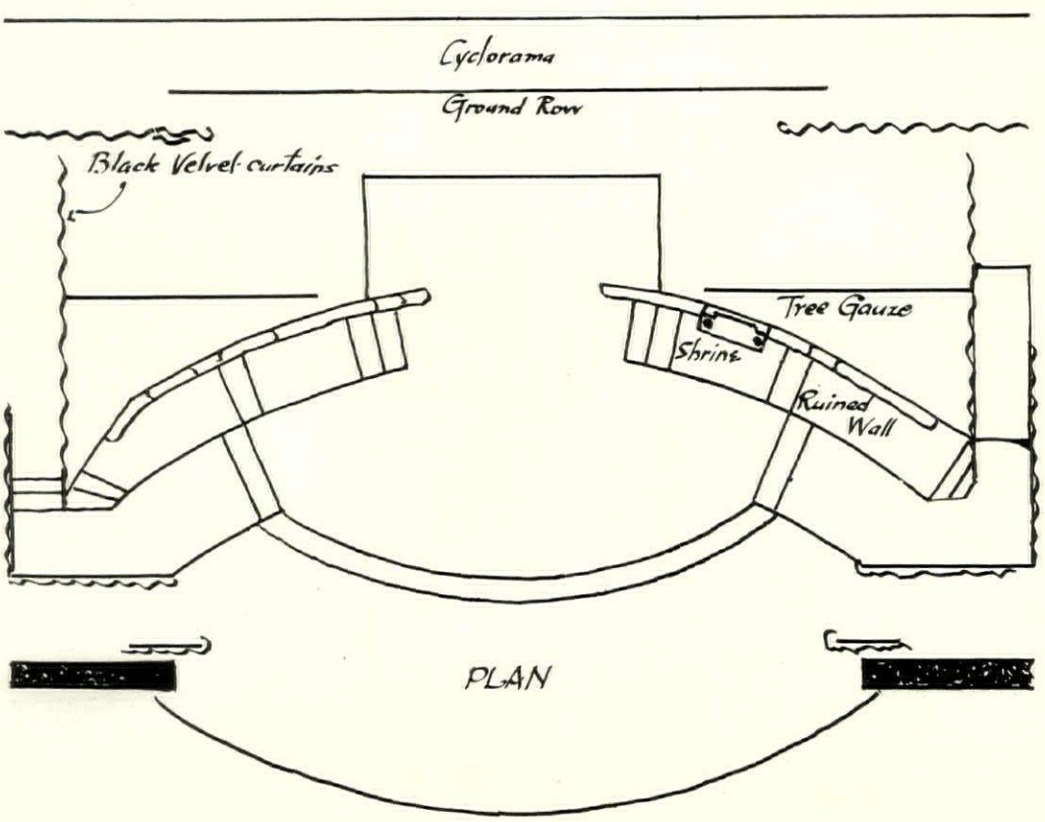
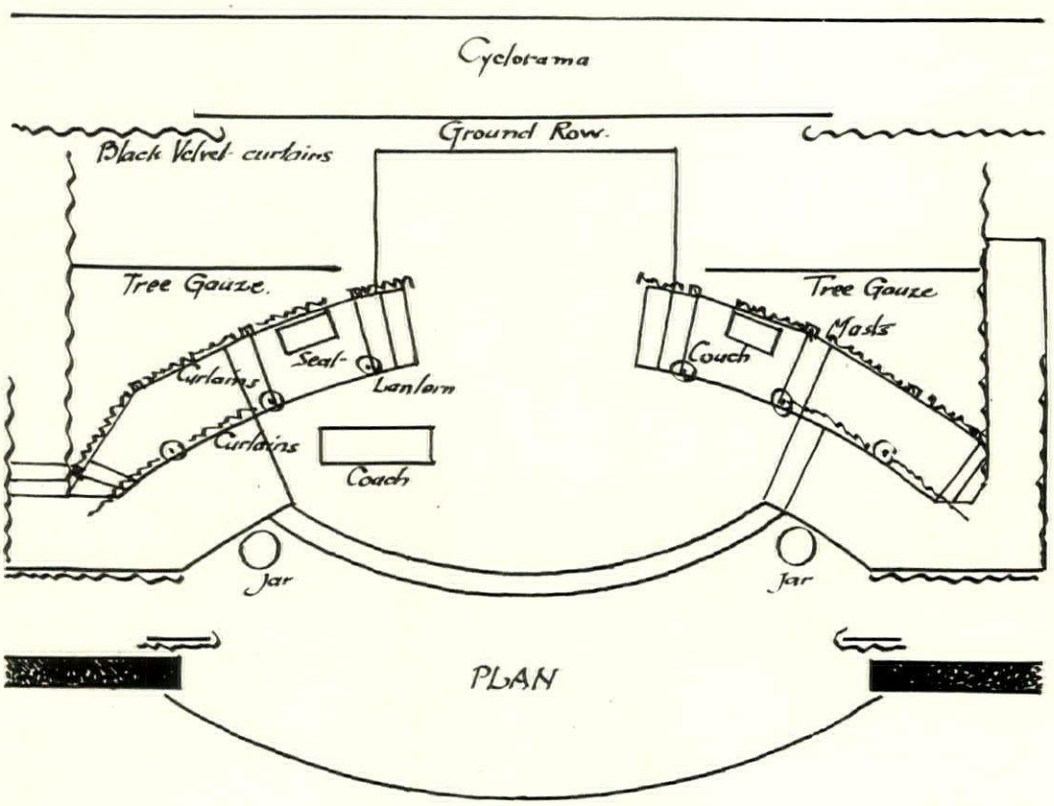


THE RUINED GARDEN



THE PLEASURE PALACE



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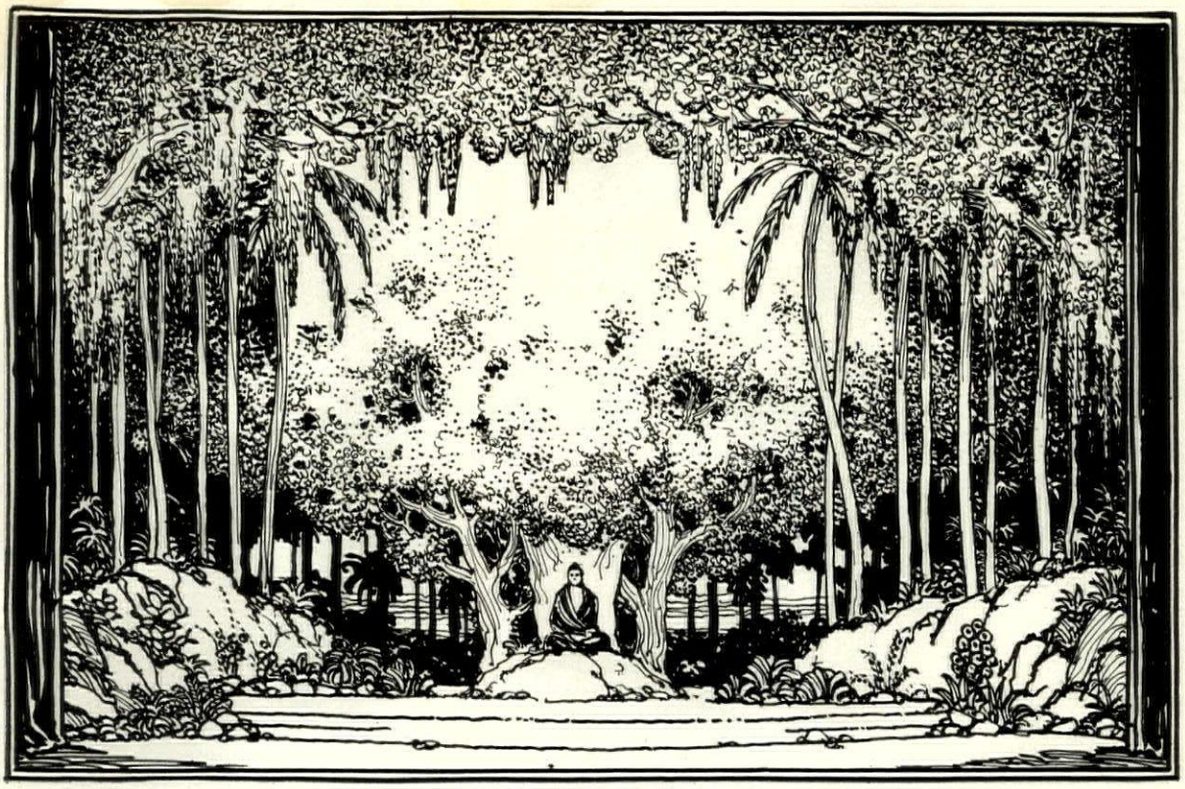
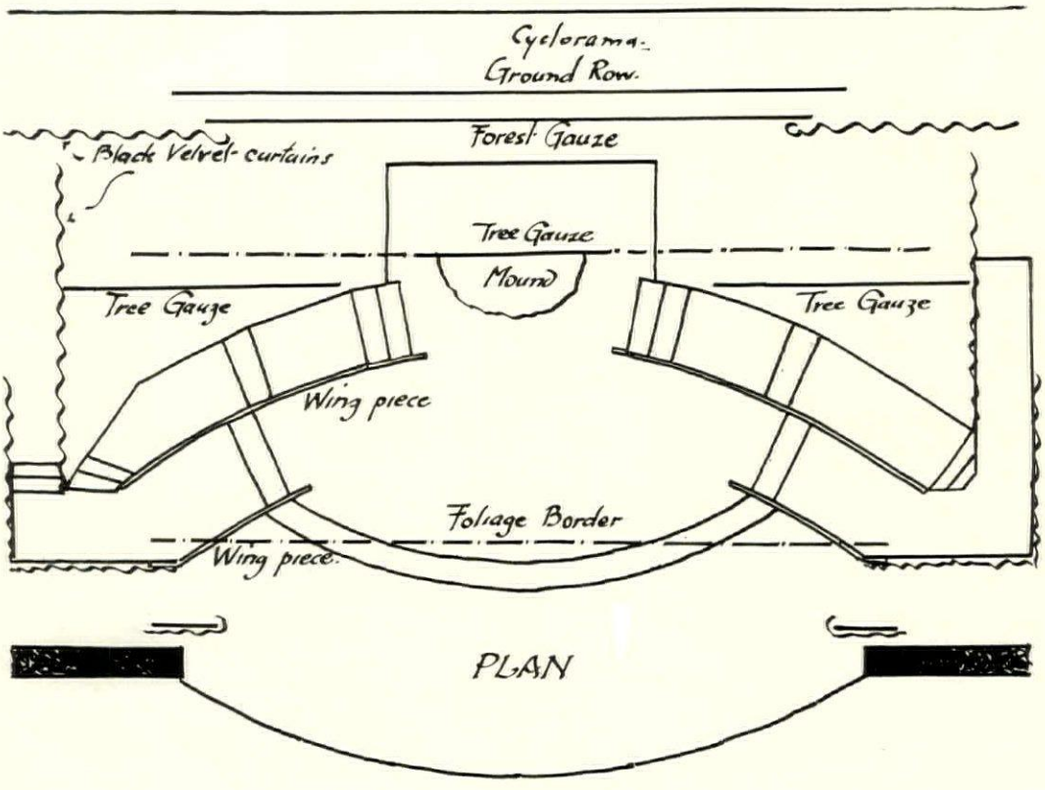
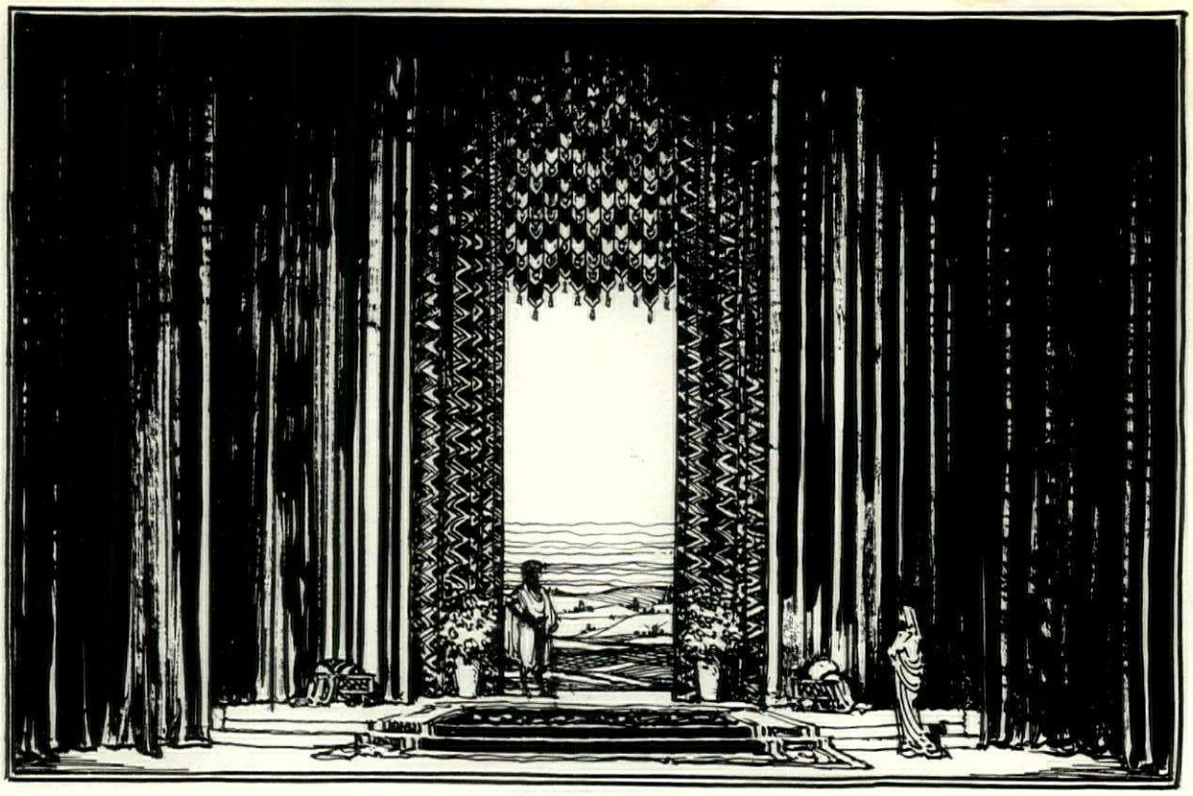


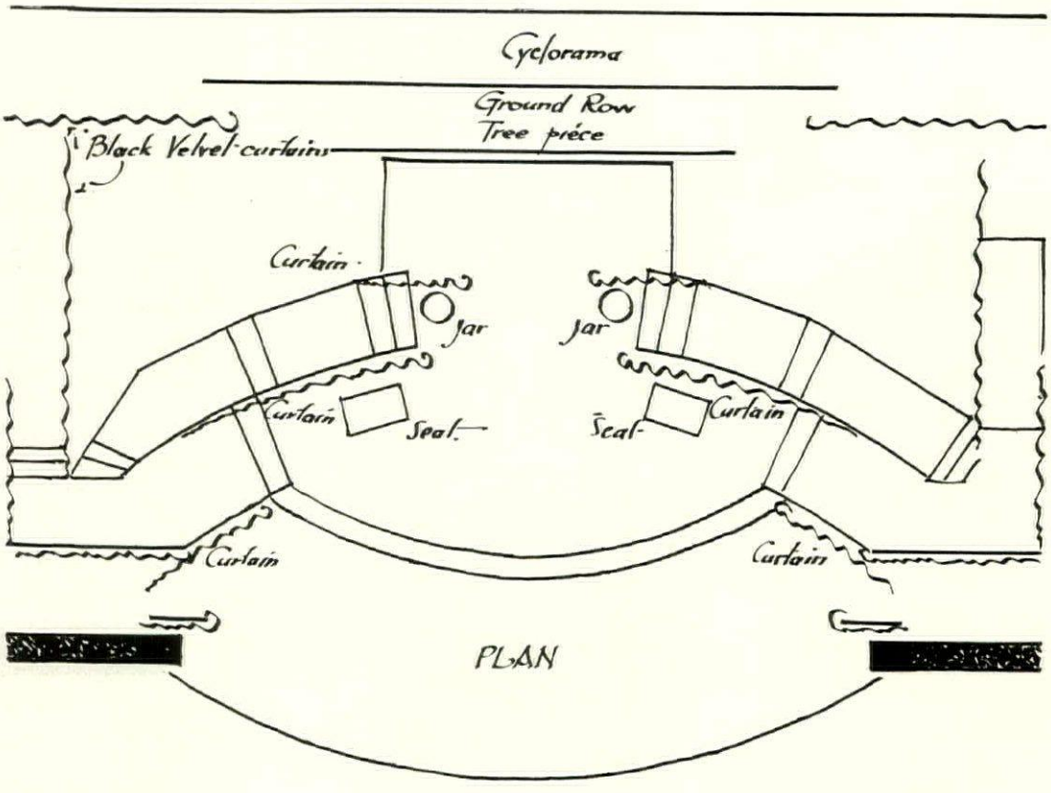
THE BODHI TREE



PLAN

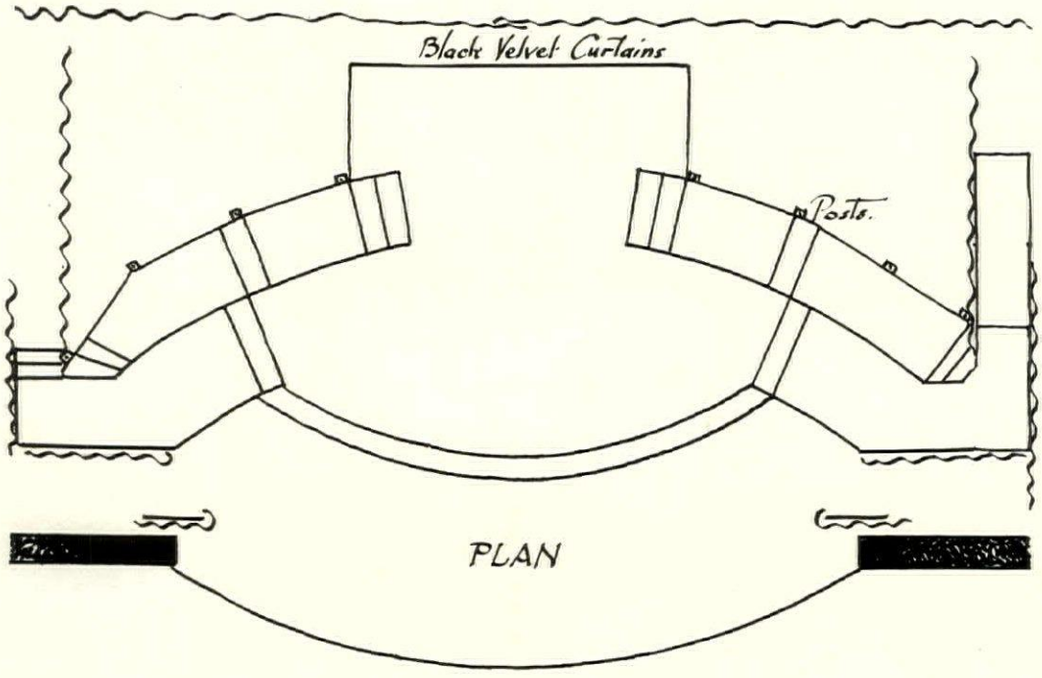


INTERIOR



PLAN

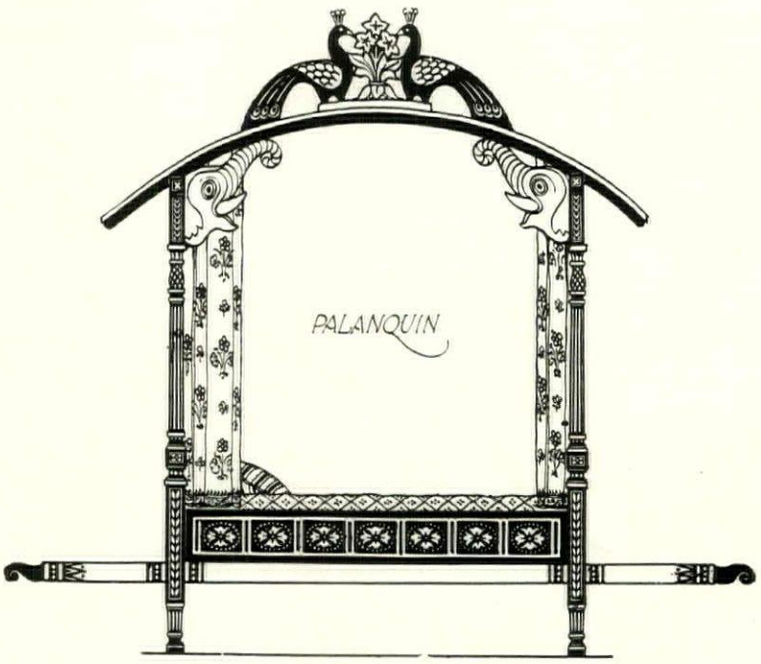
THE CITY SQUARE



PLAN

varies in number according to the size and elaborateness of the production. The head carpenter's contingent handles all the scenery on the stage floor; another group, the "flymen," aloft in the fly gallery, attends to the curtains and painted drops, and whatever else may be suspended from the gridiron. The head property man usually has assistants whose duty it is to lay the floor cloth, set, and dismantle the stage of its mobile elements at the beginning and end of every scene. There is a house electrician and a stage electrician, each presiding over his own switchboard. This backstage crew, never seen and rarely heard by the audience, often outnumbers the actors in a theatrical production.

Such are some of the problems and processes of professional theatrical production. Into the question of the inherent necessity of these problems, or the intrinsic excellence of these processes, I shall not enter. When it is impossible to change existing conditions one must operate as one can within the imposed limitations. But perhaps some new start on simpler and firmer foundations may emerge under the domination of a different consciousness, perhaps the consciousness of the younger generation, in whom, despite discouragement and frustration, enthusiasm and hope burn bright. For to them the theatre is an altar flame of which they could be, and perchance will be, the ministering acolytes.



ARCHITECTURE, THE EXPRESSION OF THE MATERIALS AND METHODS OF OUR TIMES

BY LE CORBUSIER

Let us not confuse outward show, however impressive, with an essential truth which is still indistinct in the whirlpool of an epoch in the full tide of evolution.

By "*impressive outward show*," it is implied that the architecture of today appears to be dictated in the eloquence of its form by modern materials and methods. "*Essential truth*" suggests an architecture that results from the state of mind of an epoch and that an architecture exists, *takes* form and is *expressed* only at that *very moment when a general evolution of mind is accomplished*. It is at that moment alone when mind has recognized and admitted a system of thought which, above all, represents in every field a profound modification of previous states. There is no architecture *during* periods of crisis; architecture comes *after* periods of crisis.

The crisis then has passed? From the consideration of the world about us the opposite seems certain. Perhaps not; a few spirits (not all—far from that, but only those of leaders—and that is enough) have passed through the crisis, and have formulated a new attitude of mind which follows *completed changes*. Only objects—material reality—are in a state of complete disturbance. And why are they? Because precisely at this moment, there breathes a new spirit and the entire world—both man and materials—must inevitably follow the implacable destiny of a new tendency.

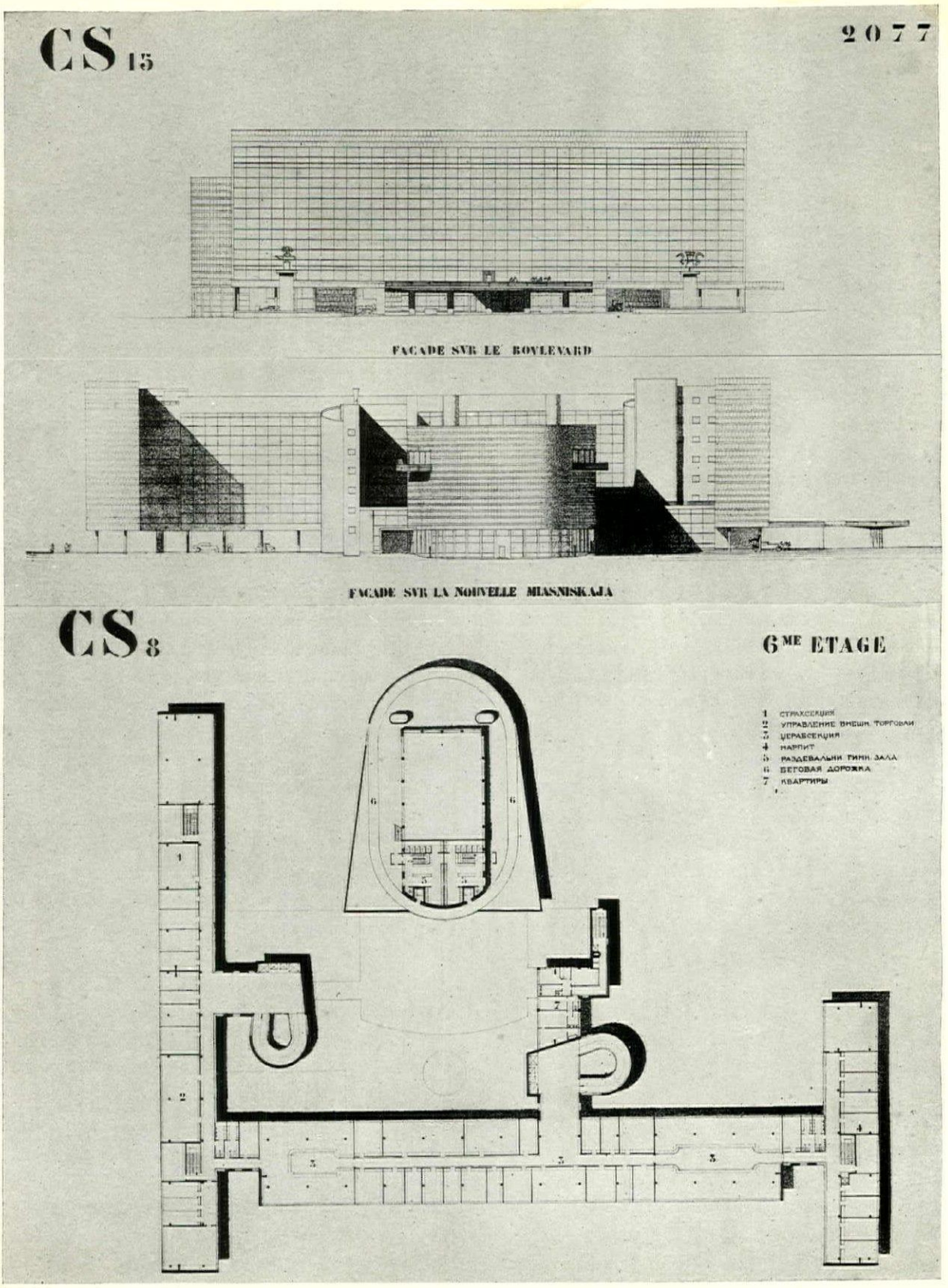
Is there then indeed an origin to this profound upheaval? Most certainly. *It has existed for a hundred years*. During the century our brains have escaped from ancient customs. Our life has gone from day to day, changed bit by bit. And thus we scarcely appreciate it. We were unable to know where all this was leading, we could feel only that it *was* leading, powerfully, violently, and ever and ever more rapidly.

Meanwhile, shallow spirits of limited vision cried out: "The world is being wrecked, all is lost." And in desperation, like shipwrecked sailors grasping at floating debris, we clung to the past. Never before had so much archaeology been done as during those heroic times when science was pushing us, each day more insistently, along the adventurous paths that lead towards the unknown.

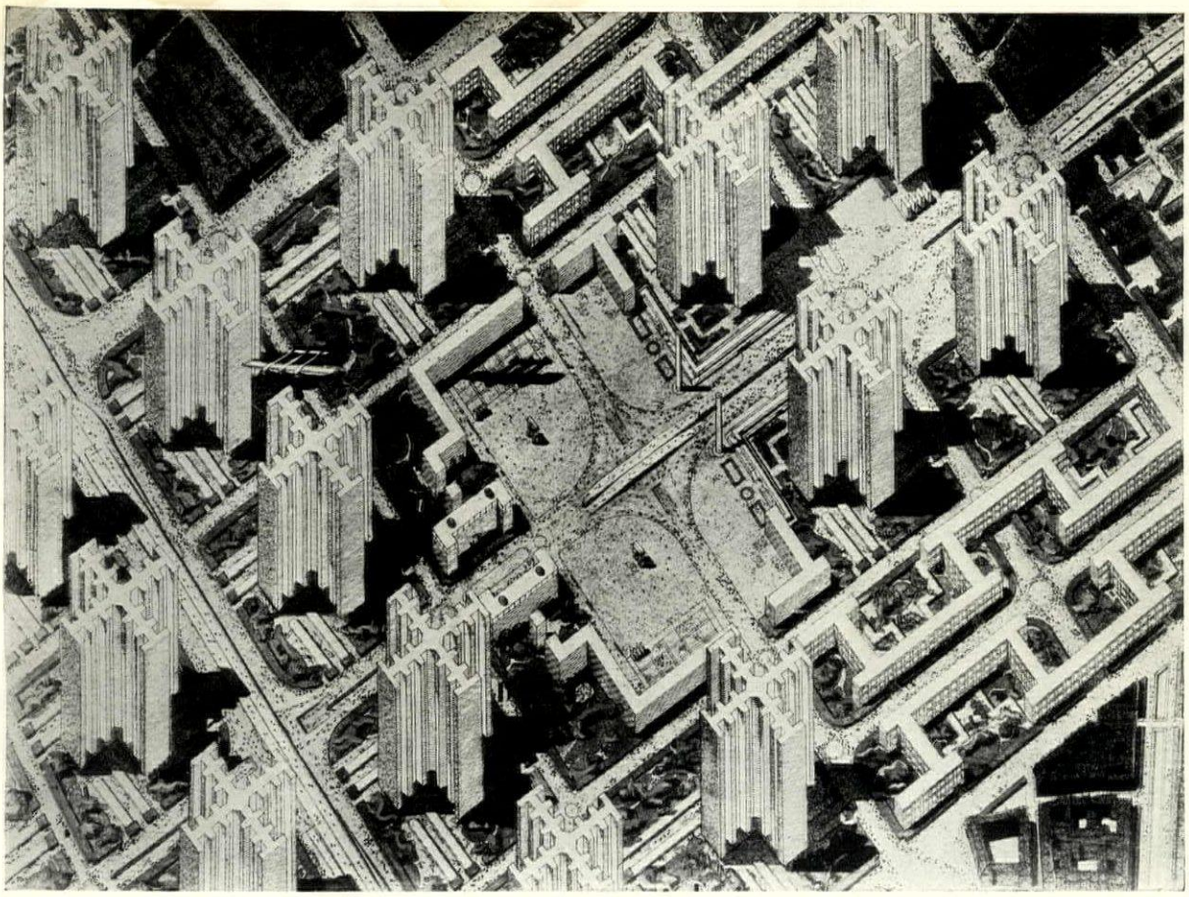
Is not architecture determined by new materials and new methods? (It is high time I were defining what architecture is.) Indeed to all in America belong the new materials, with you modern methods are in use. But for a hundred years your *architecture* has not evolved. Alone your programs have changed. And you construct your skyscrapers in the manner of students of the École des Beaux-Arts building a private house. I repeat: a hundred years of new materials and new methods have made no change whatsoever in your architectural viewpoint.

* * * *

It is time, though, to define architecture. Architecture is not building. Architecture is that cast of synthetical thought in response to which the multiple elements of architecture are led synchronically to *express a purpose*. And as this synthetical purpose is absolutely disinterested, having for object neither to make durable, nor to build rapidly, nor to keep warm, nor to promote sanitation, nor to standardize the domestic usefulness of the house, I would say, since it is above any utilitarian objective, it is an elevated purpose. Its object is to bring us benefits of a different nature from those of



PALACE OF THE CENTROSOGUS, MOSCOW
LE CORBUSIER AND PIERRE JEANNERET, ARCHITECTS



A PROPOSED HOUSING DEVELOPMENT FOR PARIS
LE CORBUSIER AND PIERRE JEANNERET, ARCHITECTS

material usefulness; its aim is to transport us to an inspired state and thus to bring us enjoyment.

Saying this I find myself in accord with the humblest accomplishment of the simplest conscientious laborer, and on the other hand I put myself in agreement with all the great traditions of the past.

* * * *

Nevertheless, there exists in these days, an absorption in definitely practical ideas which is precisely expressed by the subject which was suggested to me, "Architecture, the expression of the materials and methods of our times."

I will even say that it is the clue to the present situation. And here is the reason:

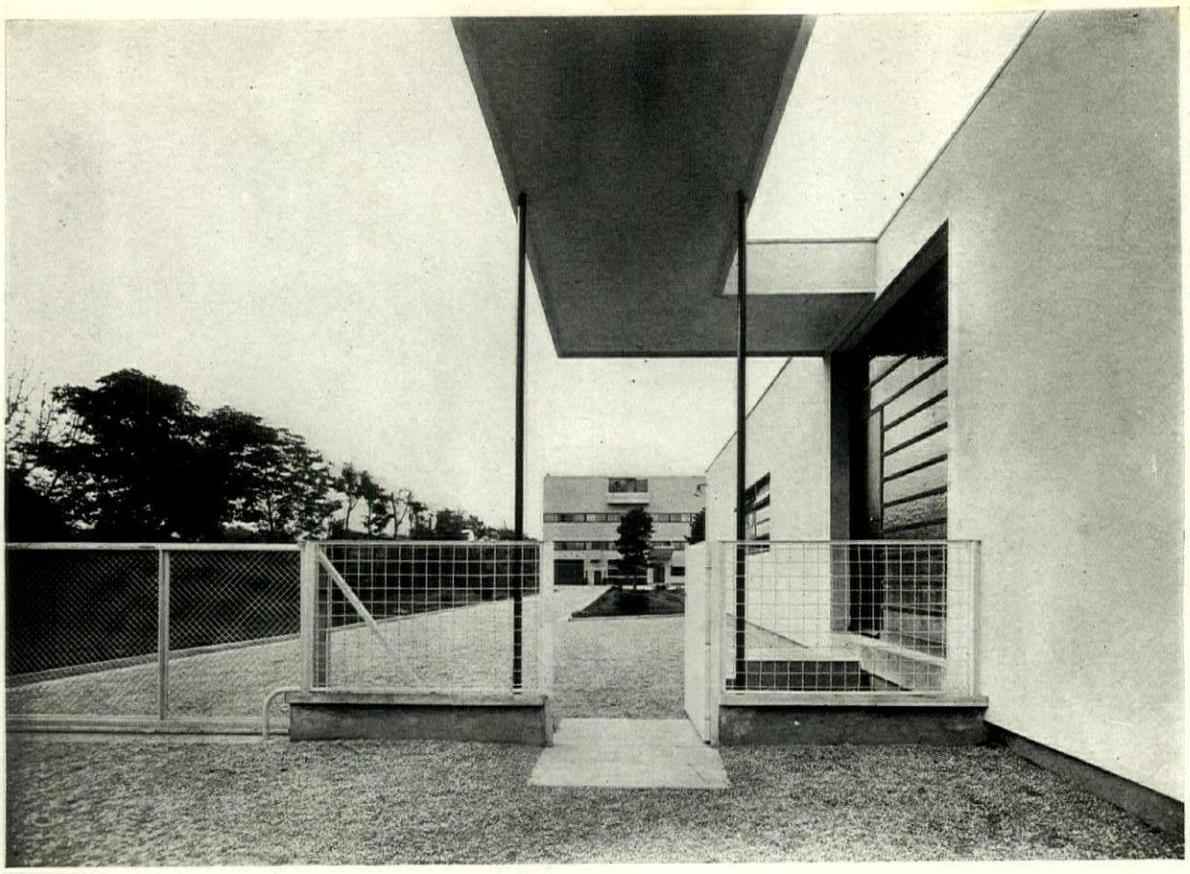
A system of thought is imbued with life only when there exists a balance between the results of evolution and the spiritual direction of its progress.

What, then, is the direction of its progress today?

A hundred years of a mechanical era have brought forth an entirely new spectacle. Geometry is supreme. Precision is everywhere. The right angle prevails. There no longer exists any object that does not tend to severity.

Industrialism has stated the postulate of economy: to attain the maximum of result at the minimum of expense.

Science, mathematics, analysis and hypothesis, have all created an authentic machinery of thought. An imperative need of clarity, the search for the *solution*. It is for that which the mathematicians term the "*elegant solution*."



A VILLA AT SORCHES
LE CORBUSIER AND PIERRE JEANNERET, ARCHITECTS

Has not this all pervading precision, exactness and accuracy definitely annihilated the imperceptible, distance and mystery? Miraculously, *quite the contrary* is the case. This century has officially opened to us gates yawning on the infinite, on majesty, silence and mystery. More than ever before, man's soul is pathetically brought face to face with itself. Never was there an epoch so powerfully, so unanimously inspired. Poetry is everywhere, constant, immanent.

* * * *

Here, then, is set forth that point of view which constitutes the present era, a veritable magnetic pole towards which swings the compass of *our initiatives, of all our initiatives*.

Let us come to the point. What, in view of the purity and supreme clarity of this new state of thought, are our present architectural forms? Do we concern ourselves with this gleaming liberty of disinterestedness, of courage and poetry? Alas, how timid we are, how firmly we are chained, like slaves. The past has ensnared us, whereas its law is to cry to us, "carry on—why don't you progress and move forward?" We are cowardly and timorous, lazy and without imagination.

Cowardly, timorous, lazy and without imagination, because, now and invariably, we want our new houses to resemble the old. What a poverty of creative ability!

Meanwhile the means are at hand; science, mathematics, industry, organization.

We still permit our houses to lie close to a damp and unhealthy ground. We are still discussing whether or not our houses

TWO HOUSES AT STUTTGART
LE CORBUSIER AND PIERRE JEANNERET, ARCHITECTS

are to have roofs, while roof gardens bring health, joy, and an upheaval of plan replete with magnificent liberties. We are still building our houses of stone, with massive walls, while light and slender cars are speeding at sixty miles an hour through snows or under the tropical sun. We are still employing masons and carpenters *on the job*, to work in rain or snow, or fair weather, while factories could turn out to perfection that which we accept poorly executed.

And so forth and so on.

* * * *

Here, now, are my conclusions. In what way are we to allow so many innovations? How are we to select these forms still unknown in the building of houses? How are we to arrange them in such a manner as will bring us anew before an architectural phenomenon as will make us feel once more the vigorous delights of architecture?

A state of new enthusiasm exists; a system of thought has been wrought by a hundred years of investigation and acquired results. We have a *line of conduct*. Instinctively our choice tends towards such constructive systems, towards such materials as possess forces capable of feeding our enthusiasm. In us moderns the new feelings, an instinct, control actions which are in harmony with each other.

The harmony of former centuries is in confusion. The effect continues but the cause has been swept aside by the mechanical revolution. The mechanical revolution is a new cause—immense phenomenon in the history of mankind. Where are the new effects?

Let us be led by this enthusiasm which animates us. Industrialization, standardization, mass production, all are magnificent implements; let us use these implements.

I wish to give you the basis of my reasoning: I am certain that that which at this moment appears most revolutionary in contemporary architectural creations, be it in France, Germany, Russia, or elsewhere,—all that is *still nothing more than the old aspect caught in the quicksands of the past.* It is my opinion that as yet we have seen nothing new, done nothing new. That which will come in architecture will survive only when an urbanism, brought face to face with the present social upheaval, will have created cities of which we have as yet not even an idea, of which we have not yet even considered the possibility.

Such is the progress on the one hand (and it is gigantic by comparison with the means at the disposal of the builders of the Romanesque period, or that of Louis XIV) and on the other hand the architects of the contemporary epoch daring at last to state a problem, and to announce the answer, and thus to give to the world an architectural system which is the resultant of the spirit of an era.

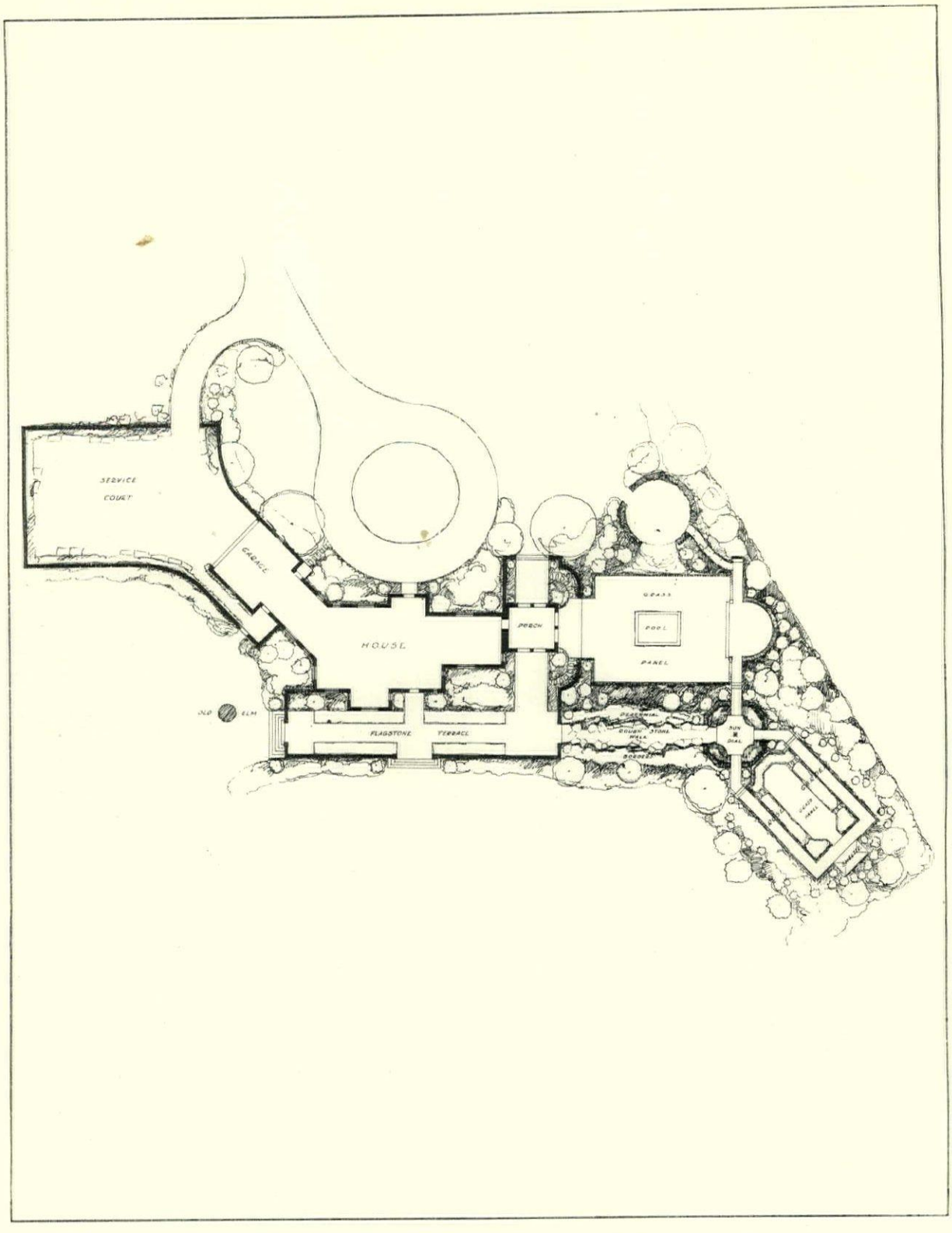
The line of action exists—the modern system of thinking.

The Americans, however, are the people who, having done most for progress, remain for the most part timidly chained to dead traditions.

On the other hand, their willingness to progress further strikes me as boundless. And that is a force which, soon, will swing the balance.

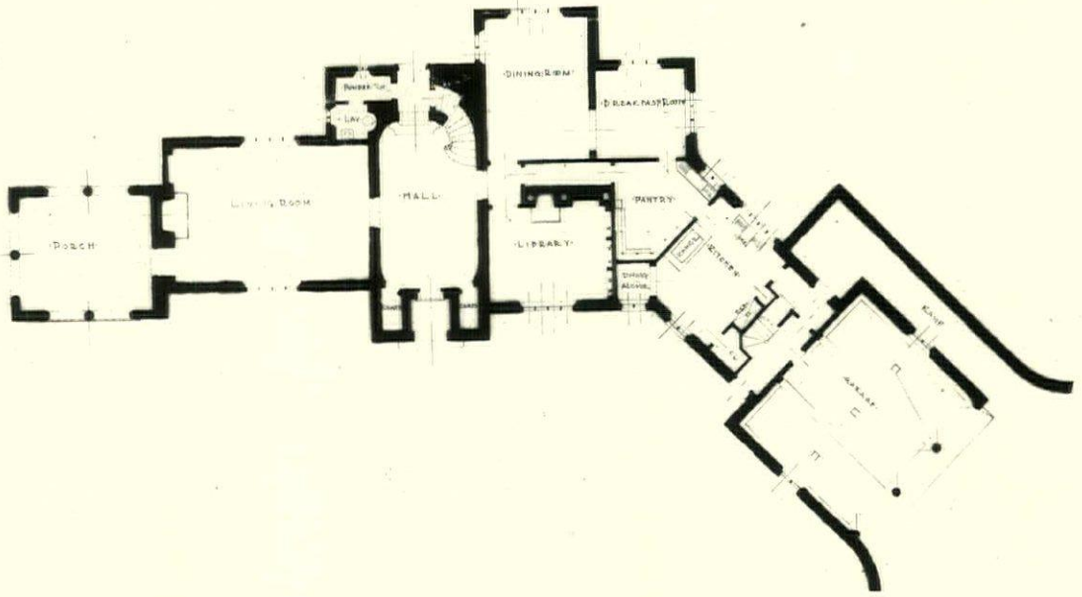
PORTFOLIO
OF
CURRENT ARCHITECTURE

General View
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT
HAROLD C. SHOEMAKER, LANDSCAPE ARCHITECT

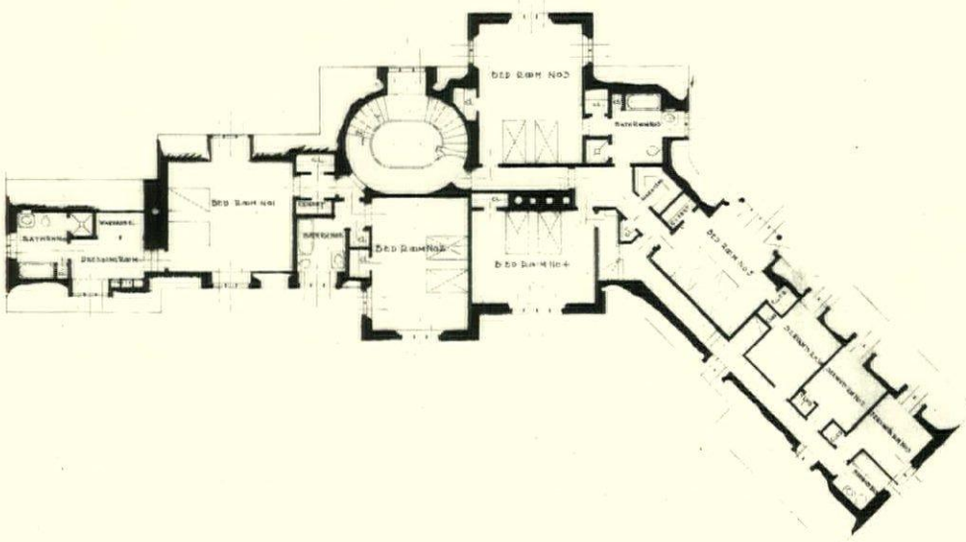


Plot Plan
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT
HAROLD C. SHOEMAKER, LANDSCAPE ARCHITECT

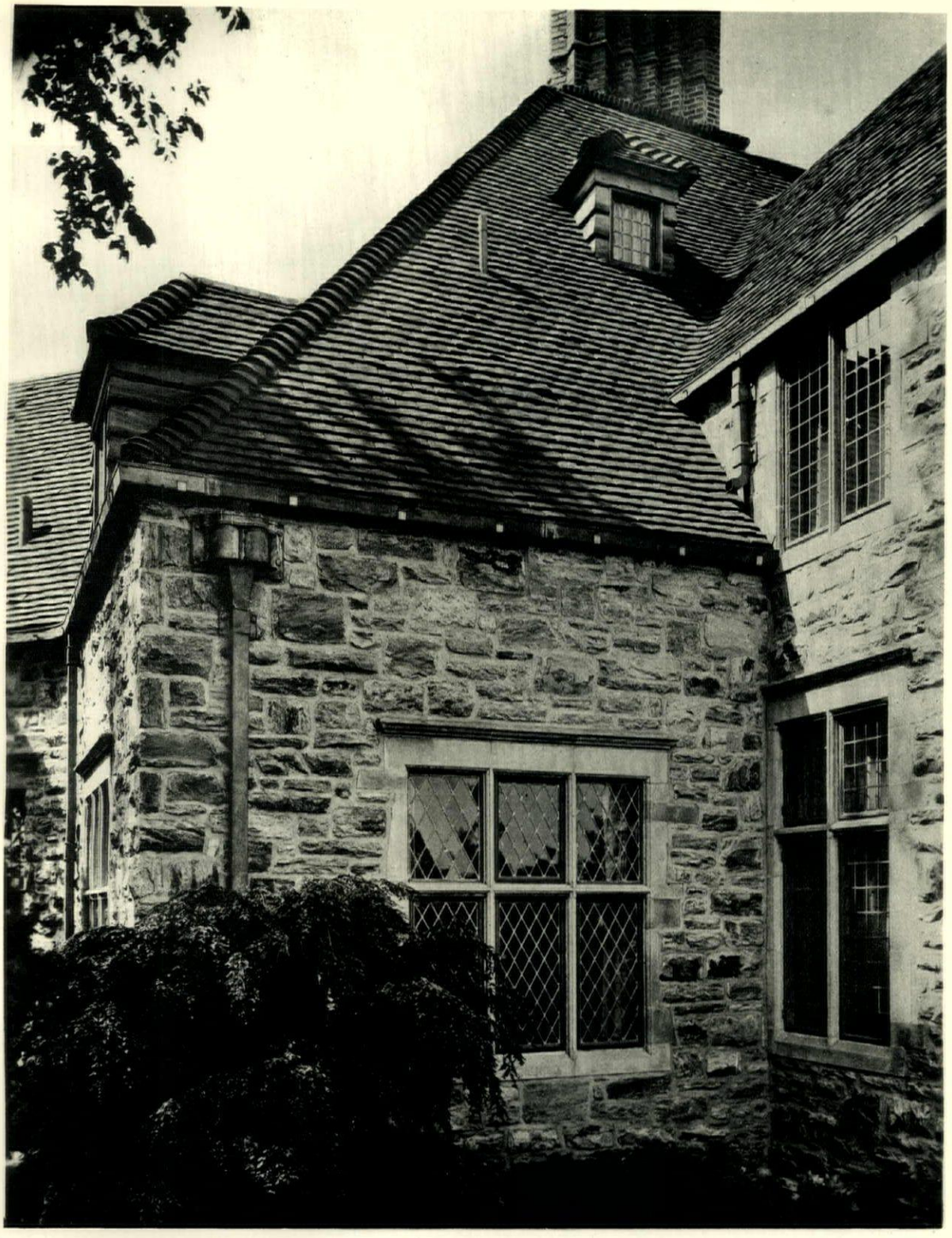
View From Entrance Driveway
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT



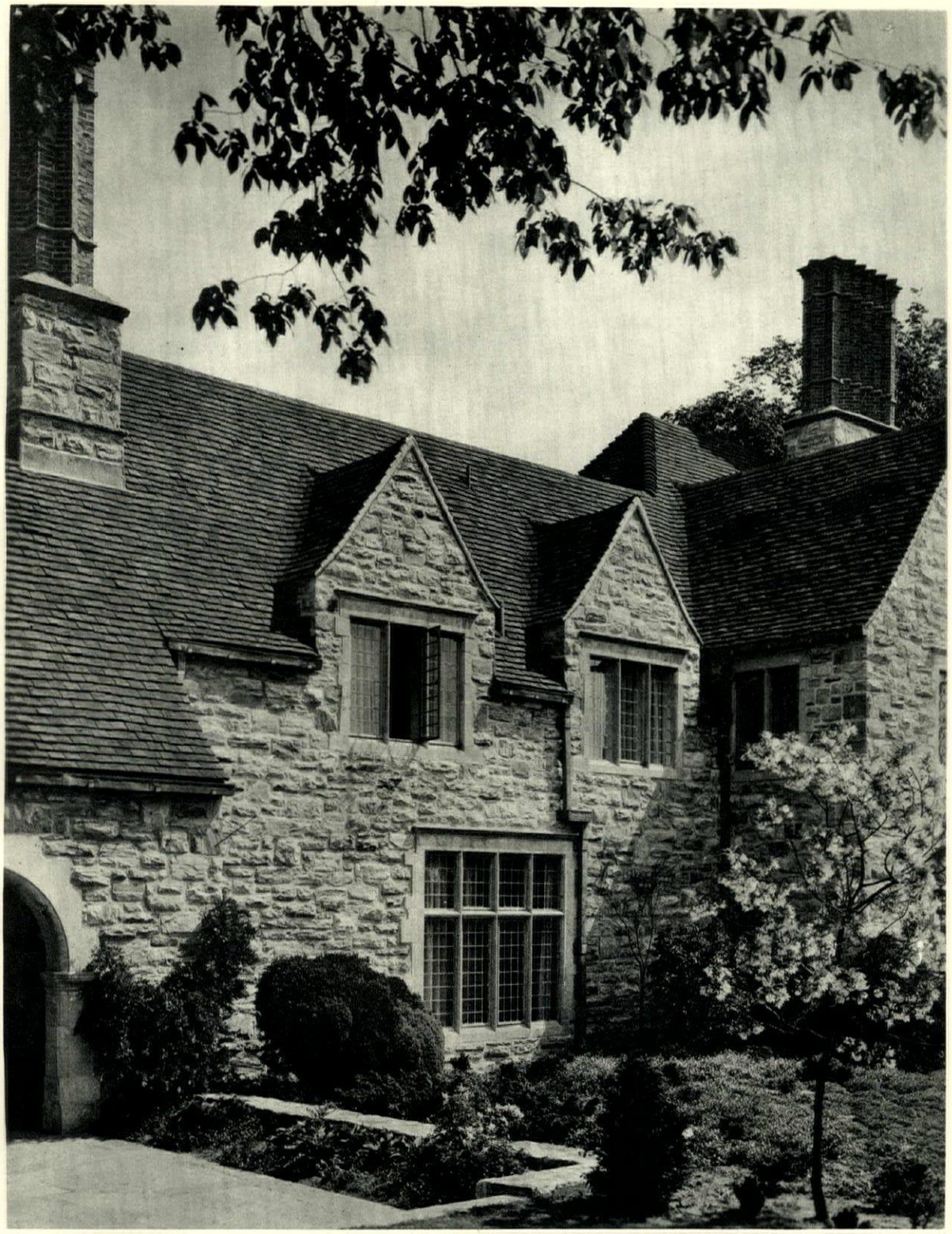
Ground Floor Plan



Second Floor Plan
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT



Angle Detail
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT



Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT

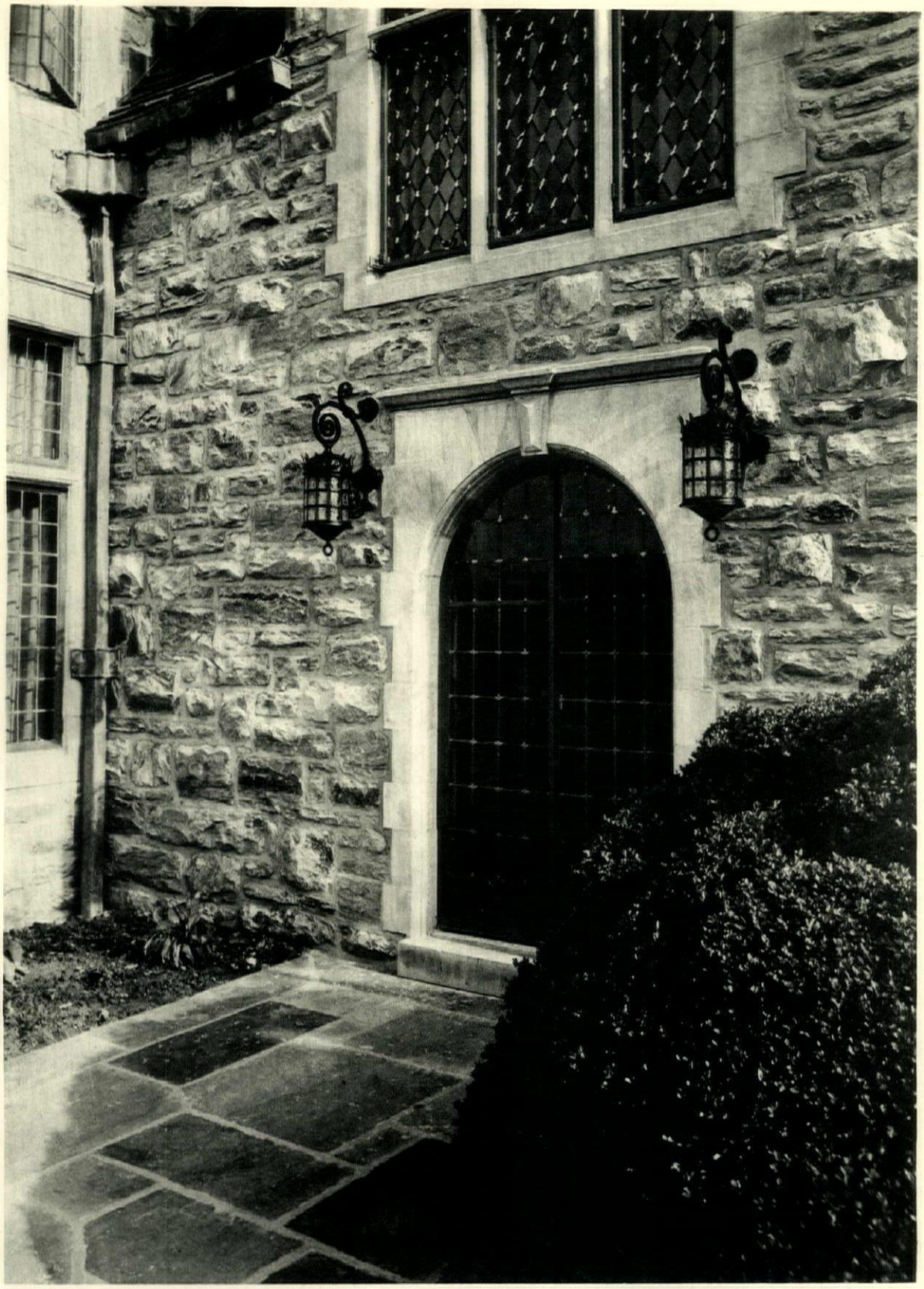


Photo. Gillies

Entrance Detail
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT

Photo. Gillies

Interior of Main Hall
Residence of Irvin F. Impink, Reading, Pa.
LEWIS BOWMAN, ARCHITECT

Photo. Rittase

Horn and Hardart Building, Sixteenth and Chestnut Streets, Philadelphia
RALPH B. BENCKER, ARCHITECT

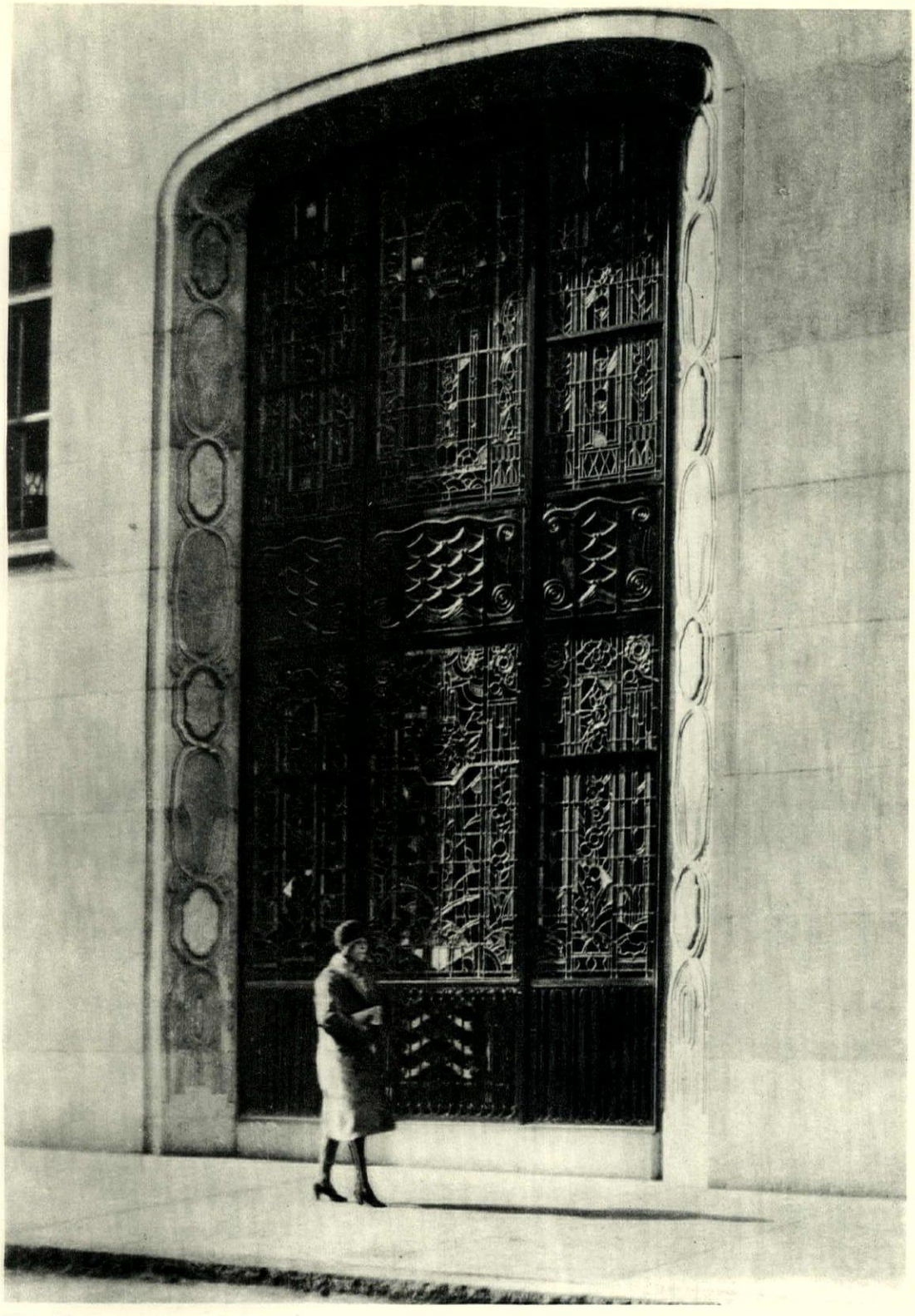


Photo. Rittase

Detail of Bay
Horn and Hardart Building, Sixteenth and Chestnut Streets, Philadelphia
RALPH B. BENCKER, ARCHITECT

Photo. Rittase

Stairway
Horn and Hardart Building, Sixteenth and Chestnut Streets, Philadelphia
RALPH B. BENCKER, ARCHITECT

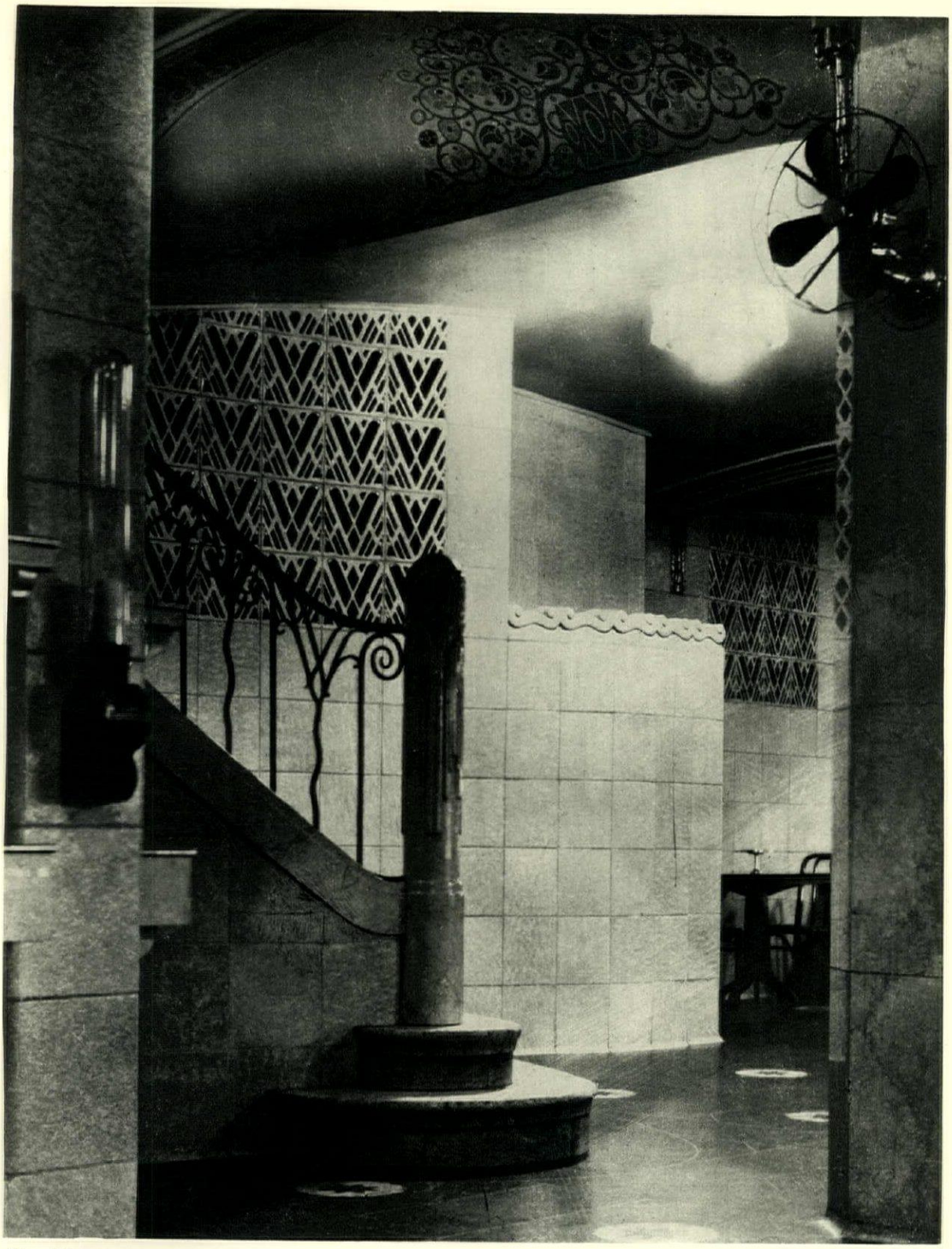


Photo. Rittase

Stairway
Horn and Hardart Building, Sixteenth and Chestnut Streets, Philadelphia
RALPH B. BENCKER, ARCHITECT

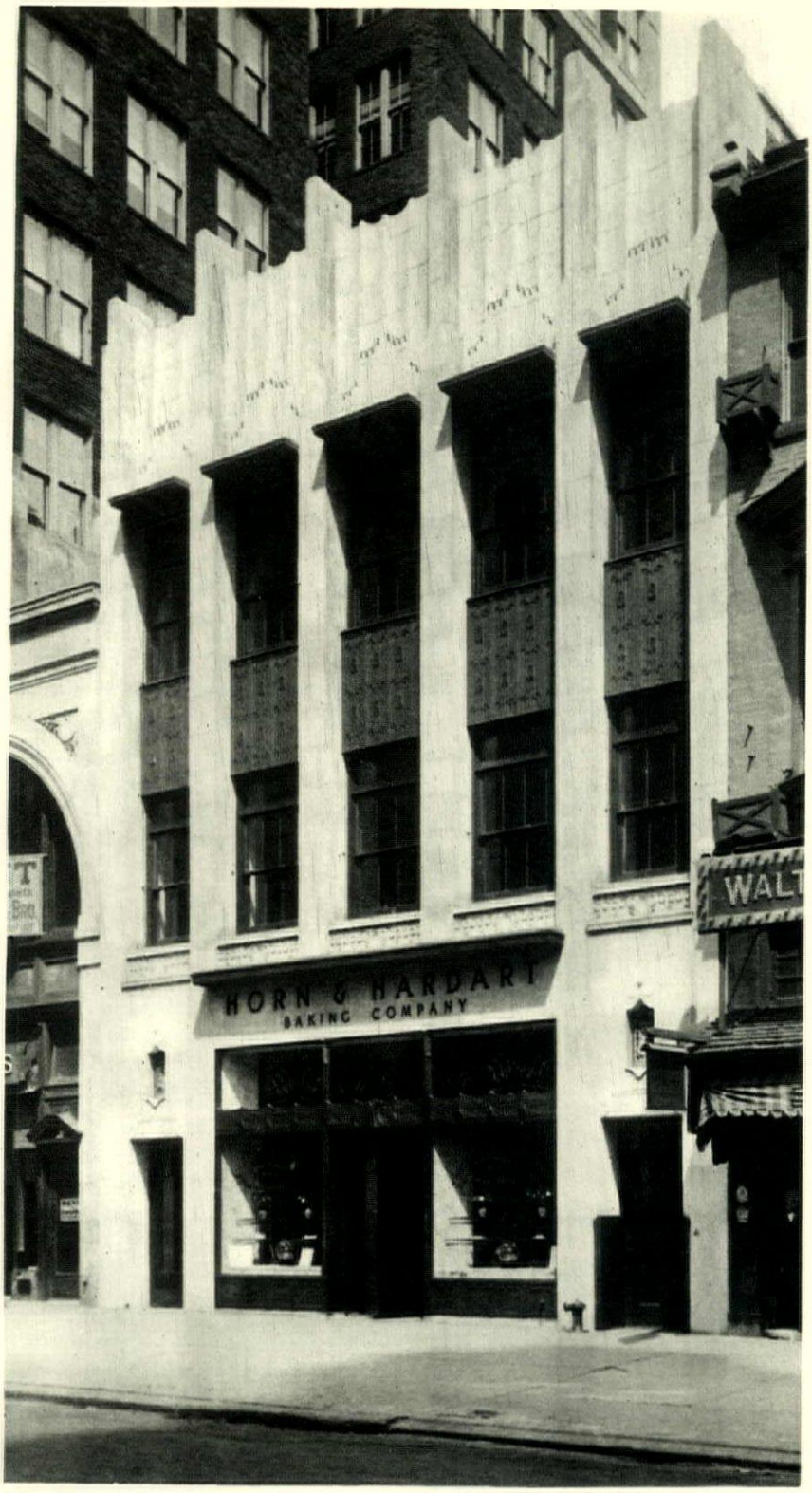
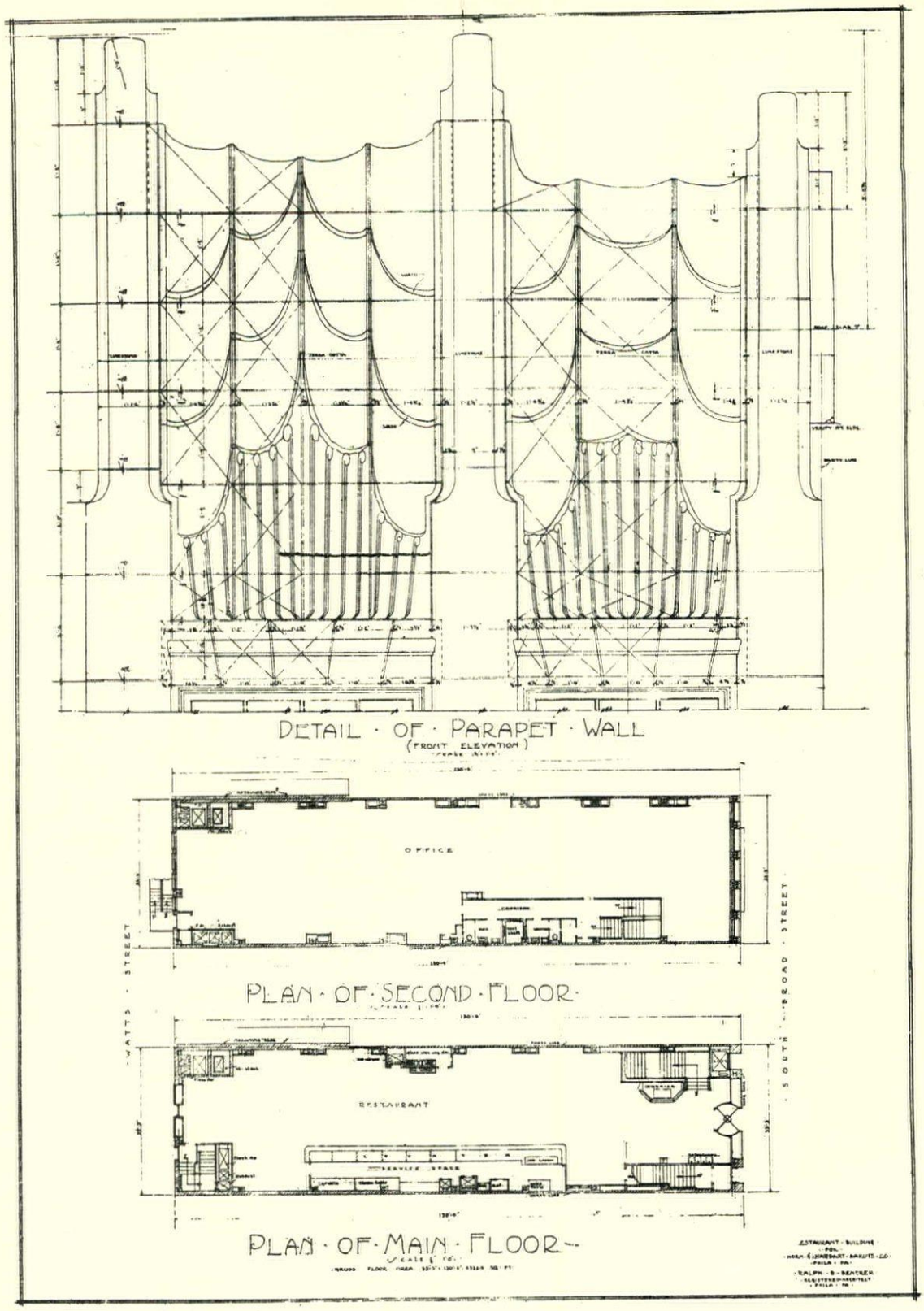


Photo. Pearce

Horn and Hardart Building, Broad Street, Philadelphia
RALPH B. BENCKER, ARCHITECT


DETAIL · OF · PARAPET · WALL
(FRONT ELEVATION)
OFFICE
PLAN · OF · SECOND · FLOOR
WATTS · STREET
SOUTH · BROAD · STREET
RESTAURANT
SERVICE · STAIR
PLAN · OF · MAIN · FLOOR

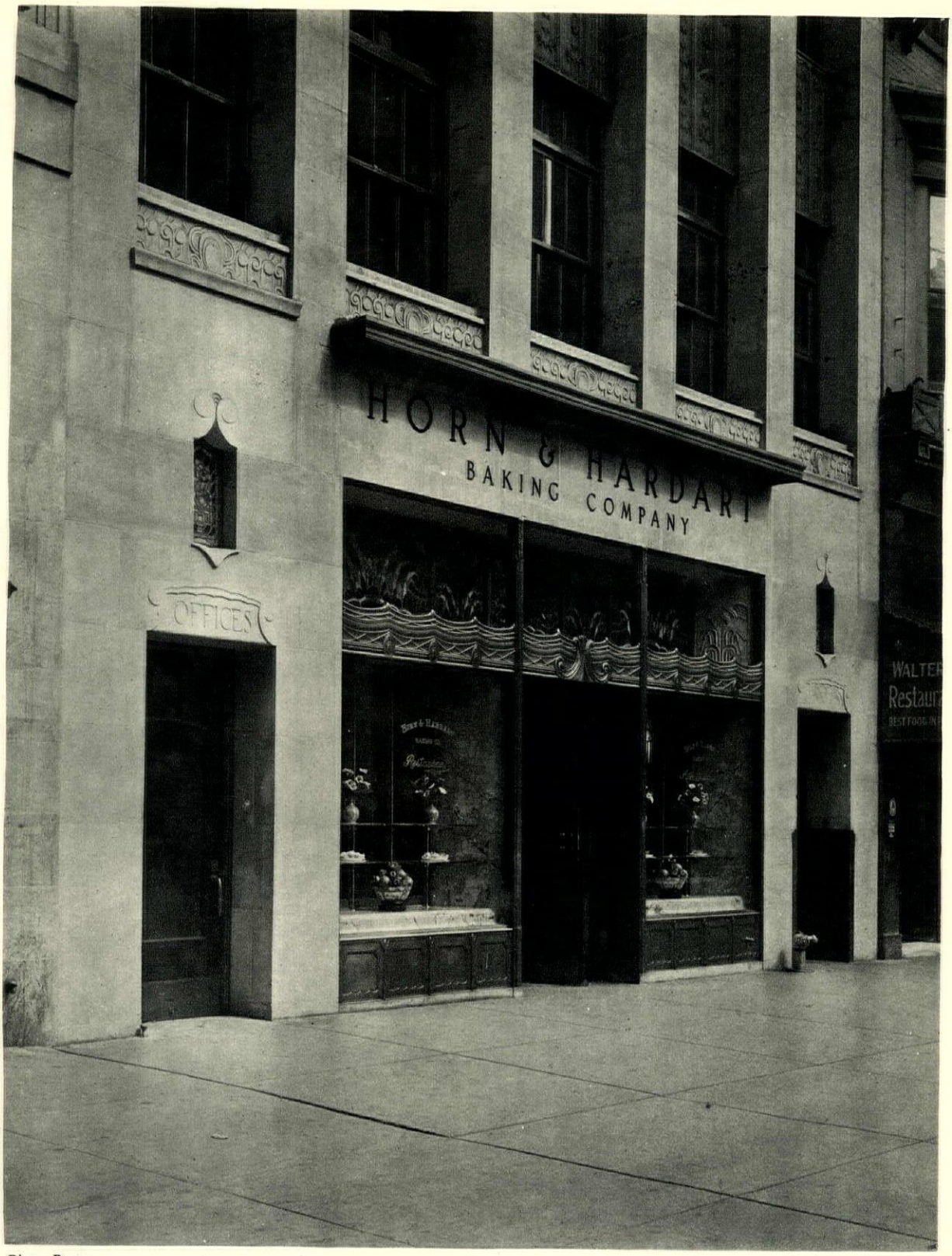
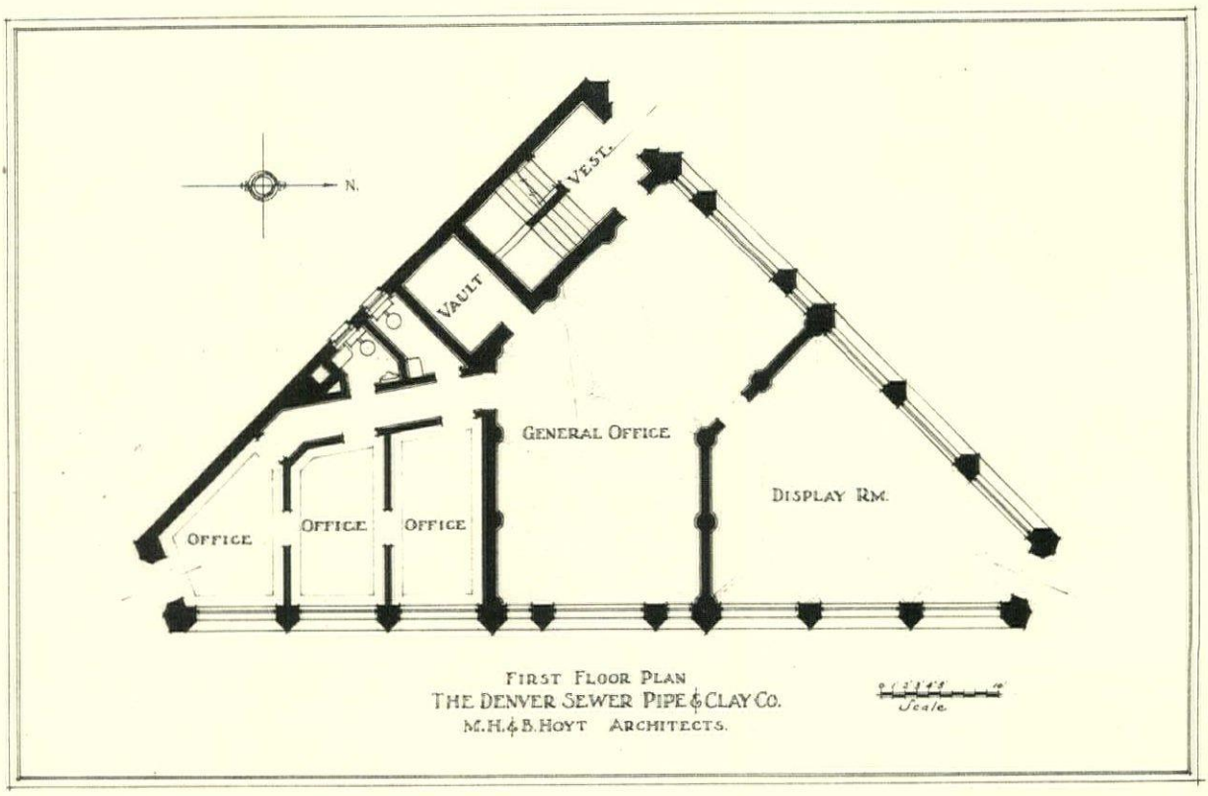


Photo. Pearce

Horn and Hardart Building, Broad Street, Philadelphia
RALPH B. BENCKER, ARCHITECT

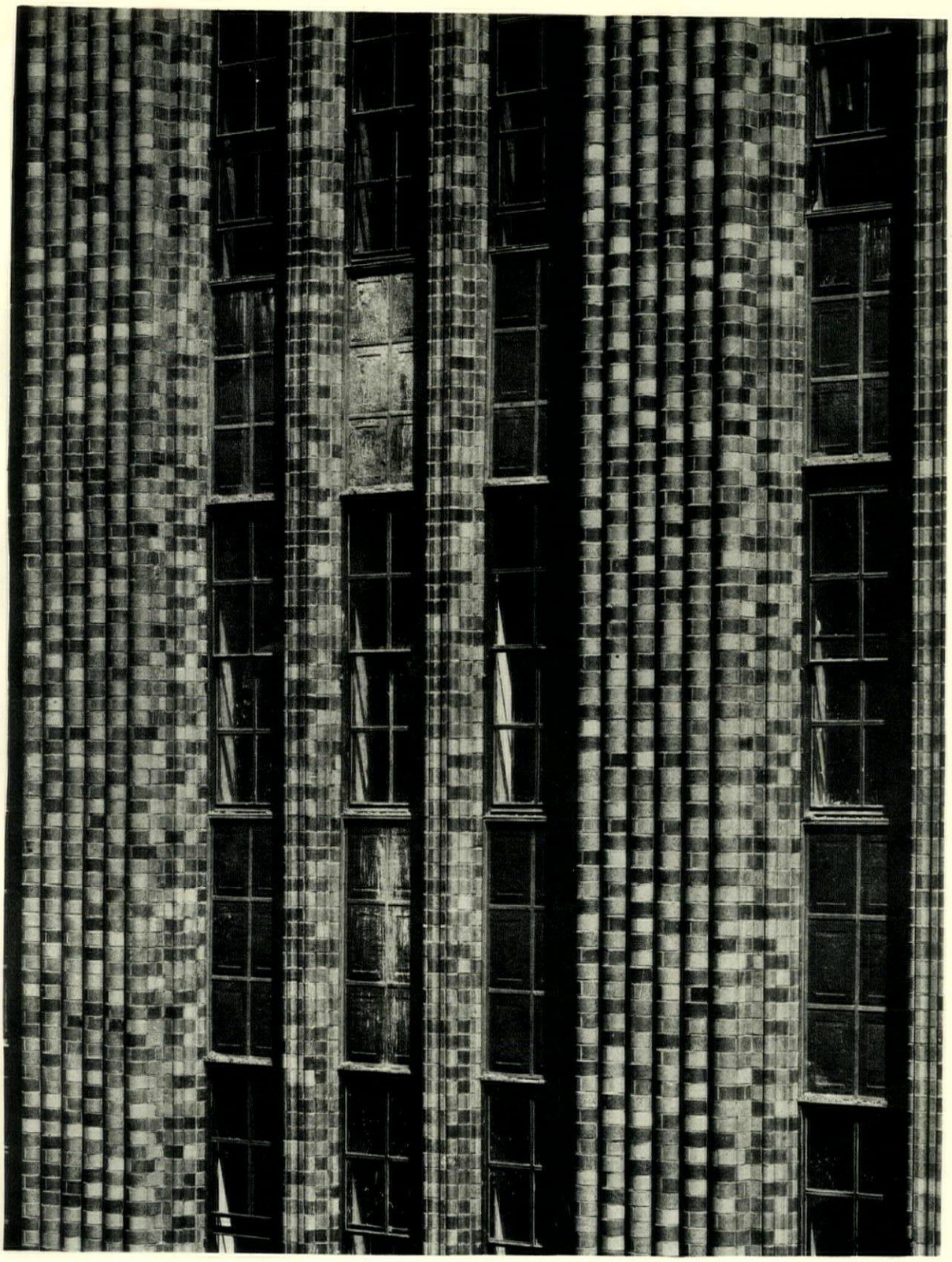
Entrance to Display Room
The Denver Sewer Pipe and Clay Co. Building
M. H. AND B. HOYT, ARCHITECTS



FIRST FLOOR PLAN
THE DENVER SEWER PIPE & CLAY CO.
M. H. & B. HOYT ARCHITECTS.

Entrance to Vestibule
The Denver Sewer Pipe and Clay Co. Building
M. H. AND B. HOYT, ARCHITECTS

Abraham and Straus Building, Brooklyn
STARRETT AND VAN VLECK, ARCHITECTS



Detail of Brickwork
Abraham and Straus Building, Brooklyn
STARRETT AND VAN VLECK, ARCHITECTS

NORTH ITALIAN BRICK CHIMNEYS

BY MYRON BEMENT SMITH

PART II

In the preceding article reference was made to the Baroque chimneys of the Palazzo Ducale at the Certosa of Pavia. The measured drawings in this article, plates IV and V, show two more of these Certosa chimneys, the photographs of which appear as figures 19 to 22. It was my good fortune, on the first trip to the Certosa, to see the pair of chimneys marked figure 19 undergoing a restoration by Signor Silvio Nicchi, the gentleman in figure 20. *Signor* Nicchi has been at the Certosa since his youth, he told me as we sat on the ridge tile one day enjoying the view over the flat Lombard water-meadows. In the course of these years he has taken down and rebuilt nearly all the chimneys in addition to doing the general repair work for the many buildings that form the Certosa group. His natural courtesy, modesty and serene disposition do not entirely conceal the secret pride with which he regards his work.

To take down and rebuild this pair of chimneys occupied *Signor* Nicchi and an assistant for three weeks. Each piece was marked as it was taken off, the broken bricks carefully matched and replaced by new, the whole laid out along the roof and, when all was ready, relaid again, ending by threading the finials in their iron rods and at last flying the pennants. After a scrubbing with stiff brushes, a last coat of white gesso and its fresco decoration was laid on. A few days later I took the photograph and went over the dimensions. Not a figure had changed appreciably from the original measurements made before the reconstruction. In a few years no one will guess that this brickwork has been touched, except for necessary repointing, within the three hundred years since it was originally laid.

The next illustration, figure 22, is interesting in that it gives a view of the vents which here show clearly as the curtain wall has been removed from its corbels. By referring to the section view of plate IV it is noticeable that any down draft which might be caused by a wind against the chimney is balanced by an up-draft through the openings between the corbels. Italian chimneys do three things: they let smoke out by a natural draft, they prevent back drafts and they keep rain from washing soot down the inside of the flue. The varied solutions of these problems result in the interesting forms of which this series can show but a few. When one recalls the high, open Italian fireplace with its wide throat and lack of damper it is not hard to see why the chimney top is given this exacting consideration.

The most picturesque *parti* for this problem was found in the village of Pisino, inland on the Istrian peninsula (See figure 23). Note the form of the tile plates that cover the side openings and then the scale given by the vertical louvres and the smaller vents above with their minute sills. This chimney, like most of those illustrated, was designed by a village mason working in a tradition yet seemingly not hampered by it.

The next page of four illustrations, figures 24 to 27, show fantastic creations which were popular in the Gothic period. These Bergamo chimneys are all on the same old palace and are so unusual that the Italian government has declared them *Monumenti Nazionali*, thus putting their preservation under the control of the min-

FIG. 19. CERTOSA OF PAVIA

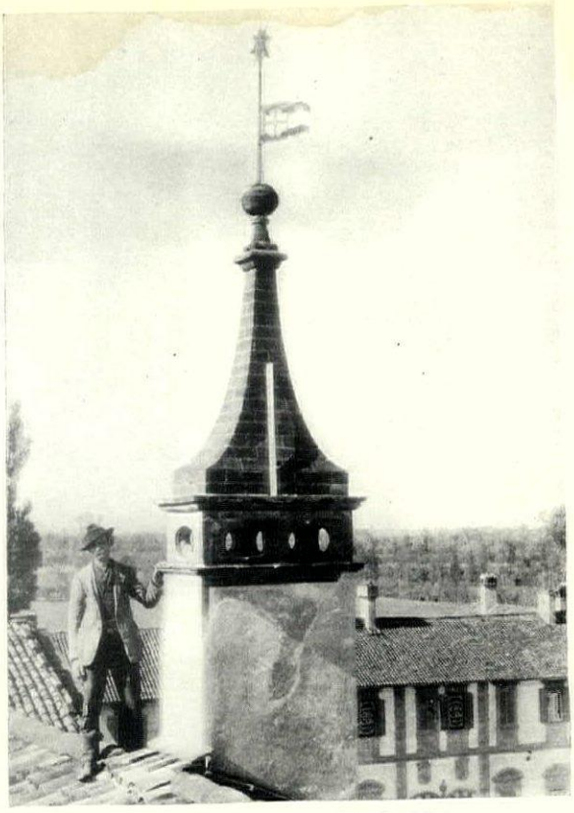


FIG. 20. CERTOSA OF PAVIA

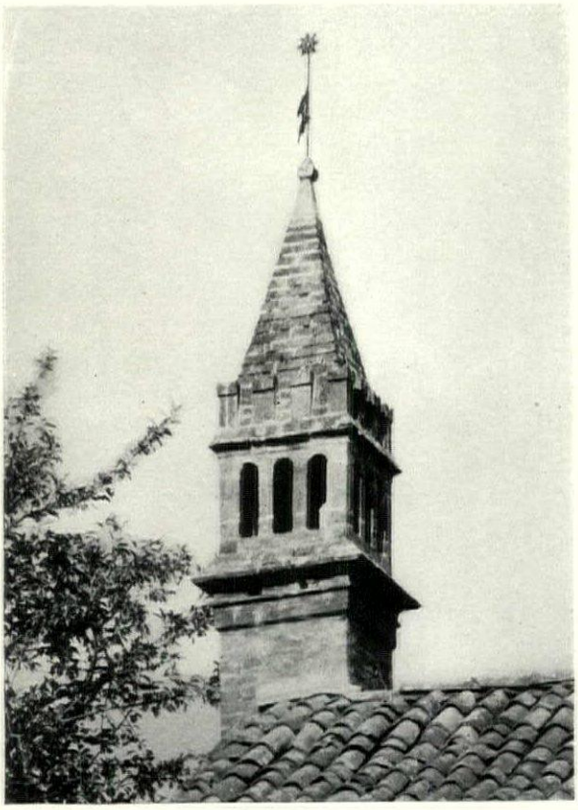


FIG. 21. CERTOSA OF PAVIA

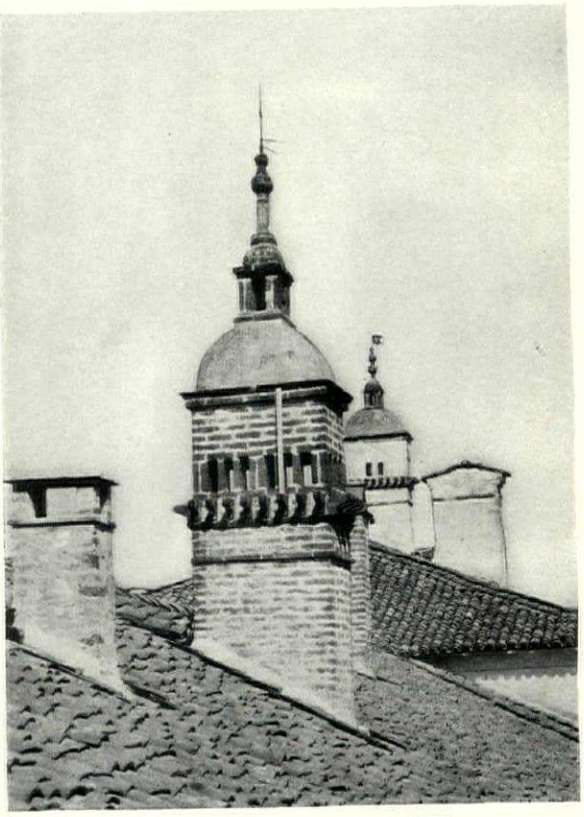
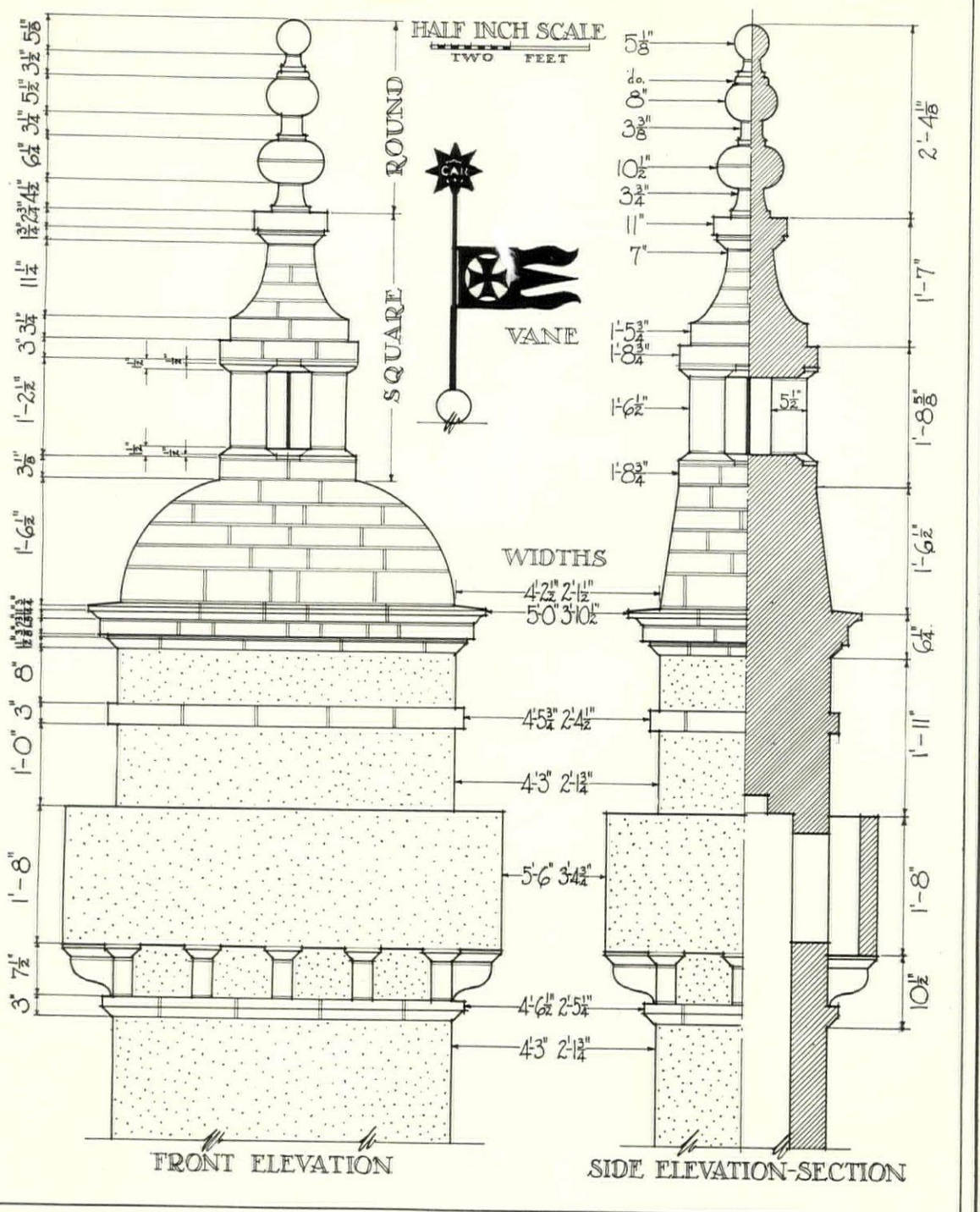


FIG. 22. CERTOSA OF PAVIA



NORTH ITALIAN BRICK CHIMNEYS

PLATE IV

FROM THE CERTOSA OF PAVIA

MEASURED AND DRAWN BY
MYRON BEMENT SMITH

FIG. 23. PISINO, ISTRIA

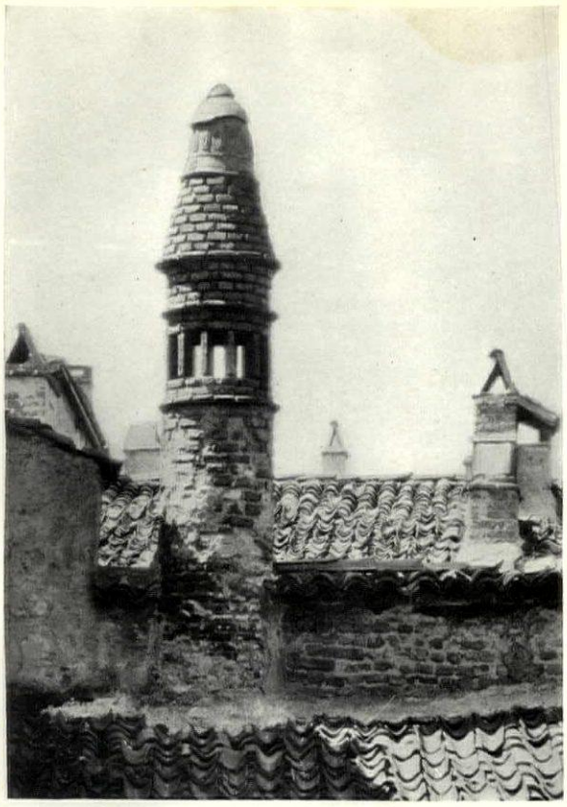


FIG. 24. S. EUSTORGIO, MILANO

FIG. 25. BERGAMO

FIG. 26. BERGAMO

FIG. 27. BERGAMO

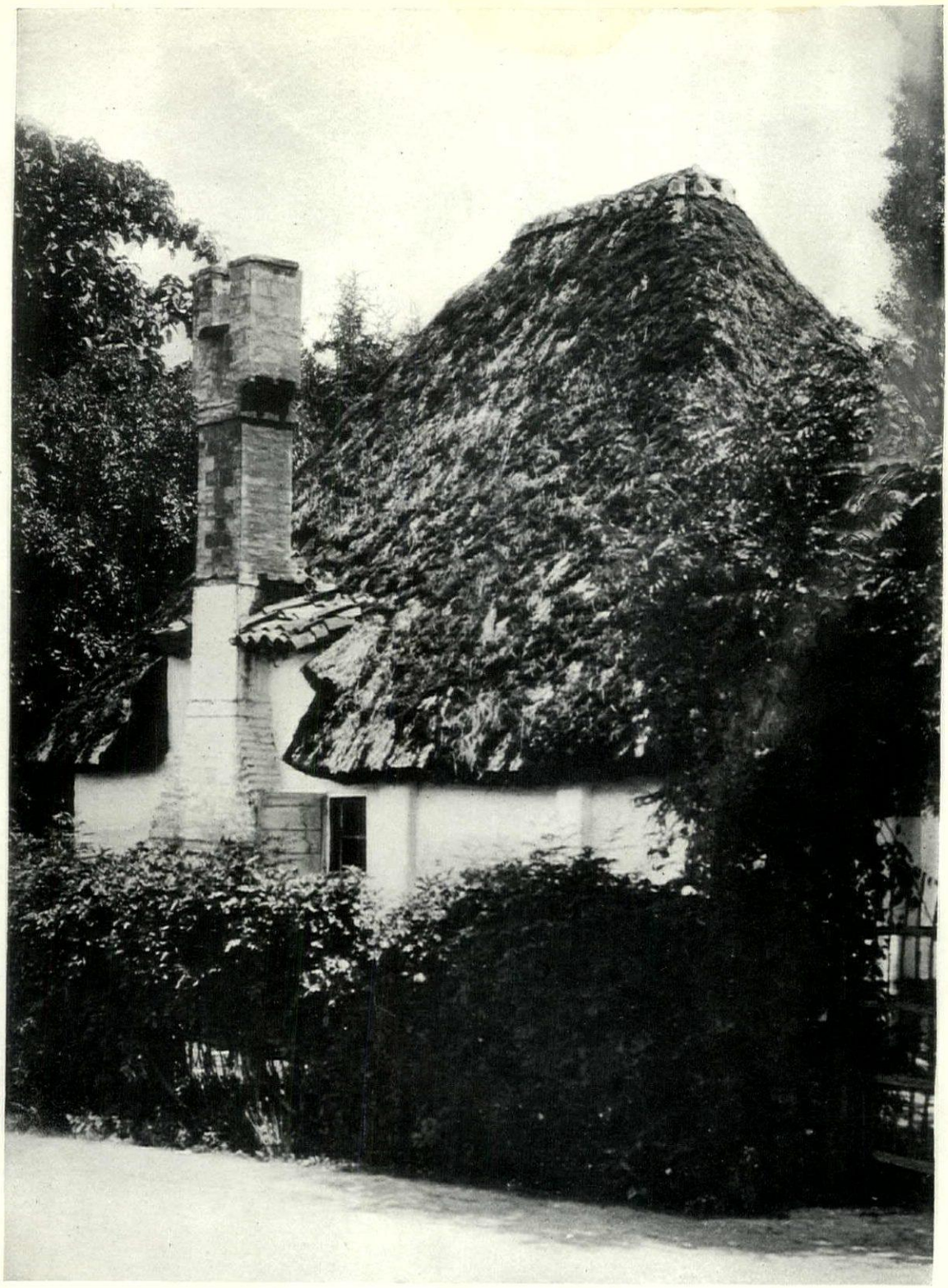


FIG. 28. MIRA, VENETIA

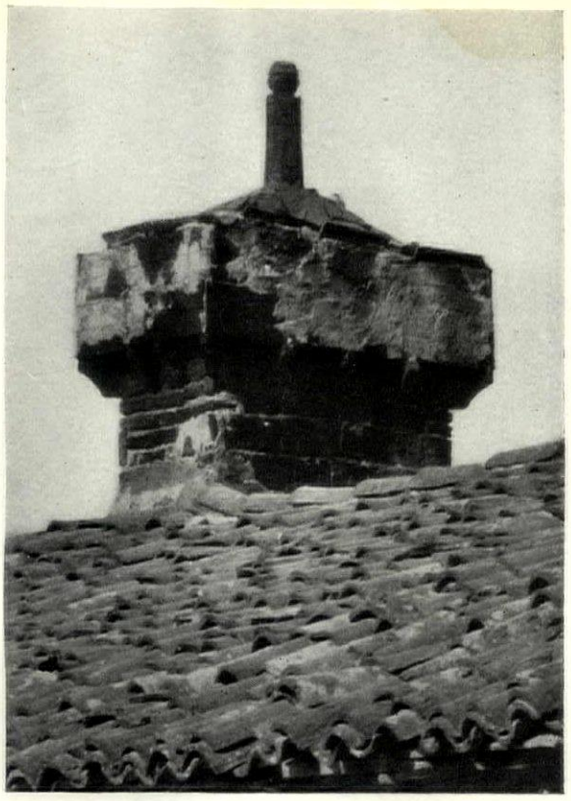


FIG. 29. TORRIANO, NEAR MILANO

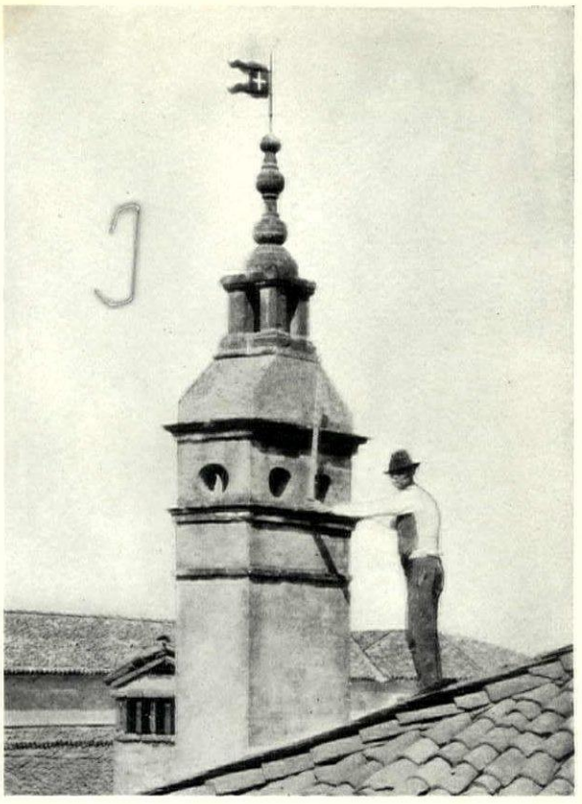


FIG. 30. CERTOSA OF PAVIA

FIG. 31. S. LANFRANCO, PAVIA

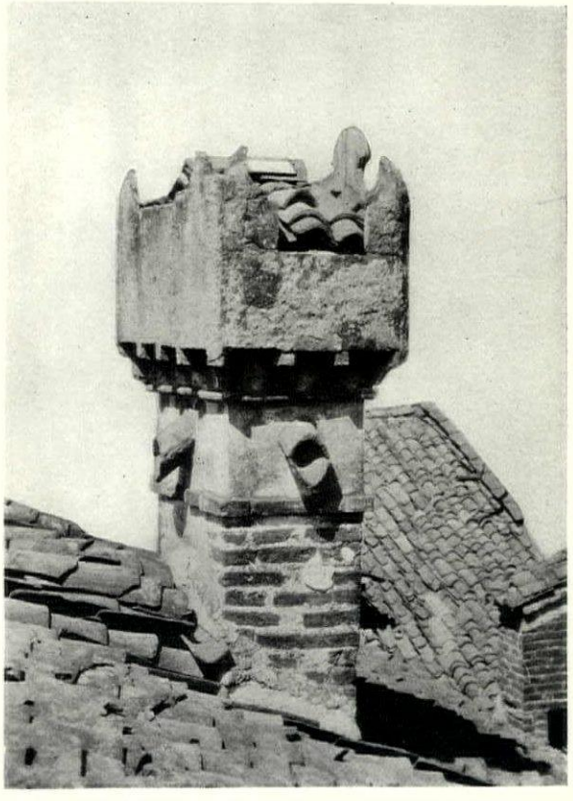


FIG. 32. S. LANFRANCO, PAVIA

FIG. 33. NEAR CARAVAGGIO, MILANO

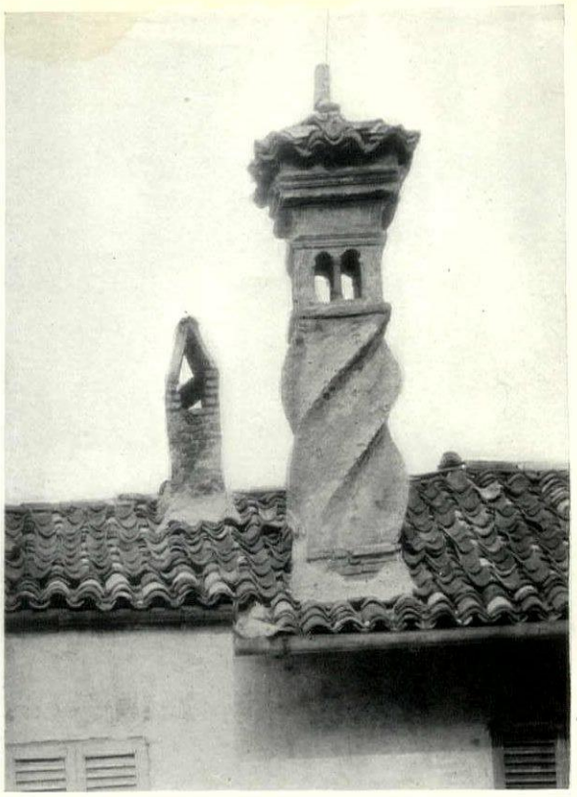


FIG. 34. MILANO

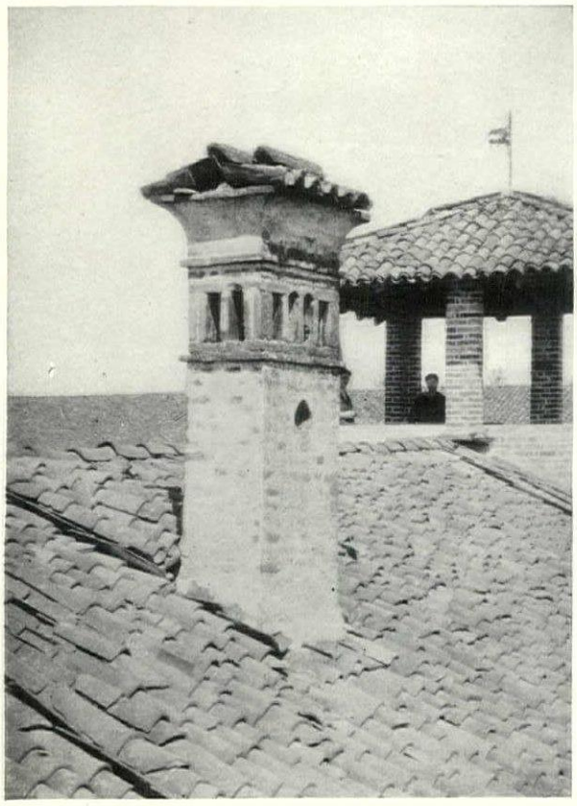
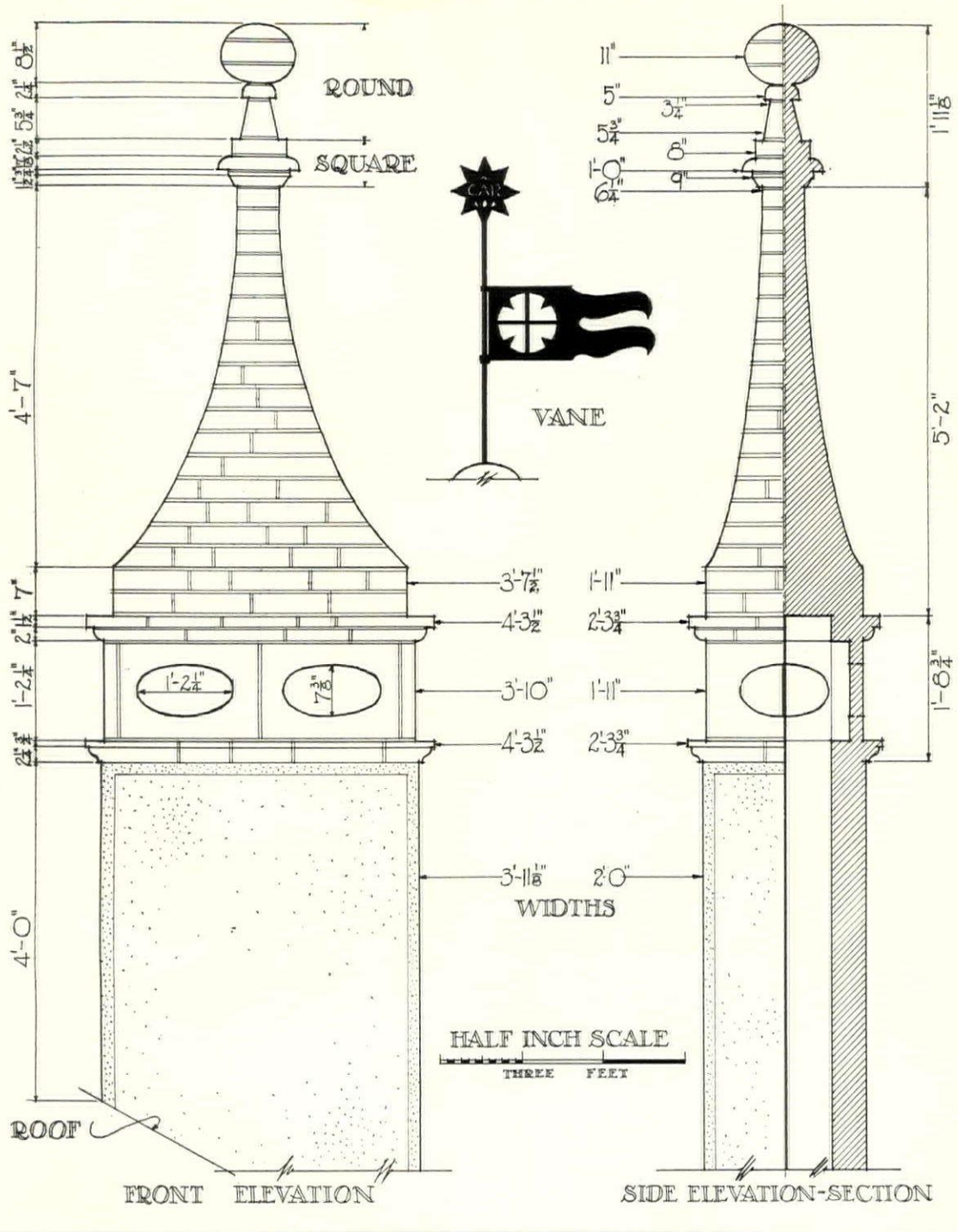


FIG. 35. S. LANFRANCO, PAVIA

FIG. 36. VERONA



NORTH ITALIAN BRICK CHIMNEYS

PLATE V

FROM THE CERTOSA OF PAVIA

MEASURED AND DRAWN BY
MYRON BEMENT SMITH

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The steep thatched roof and whitewashed walls of the cottage at Mira (figure 28), might be in an English countryside were it not for the characteristic divided Venetian chimney which, due to the hip roof, stands out from the slope. But for the interesting up-thrust of white wall with its break of pitch in the thatch the chimney might lack sufficient attachment to hold it as part of the composition. The sides of the flue are faced with thin paving bricks with flat side to the weather. This was done for economy as well as to keep the stack from being top-heavy.

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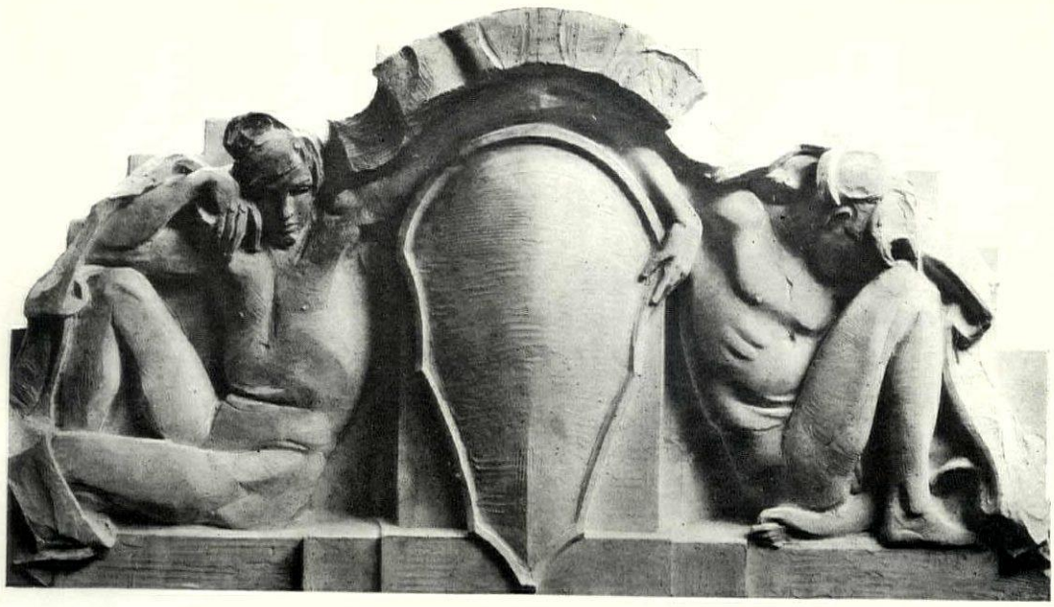
(To be continued.)

ALLIED ARTS

AND

CRAFTSMANSHIP



OVER-DOOR SCULPTURE, UNIVERSITY MUSEUM, PHILADELPHIA
A. STIRLING CALDER, SCULPTOR
WILSON EYRE AND McILVAINE, AND ASSOCIATES, ARCHITECTS

Featuring
INTERIOR DECORATION
SCULPTURE
LANDSCAPE ARCHITECTURE
MURAL DECORATION
METAL CRAFTS

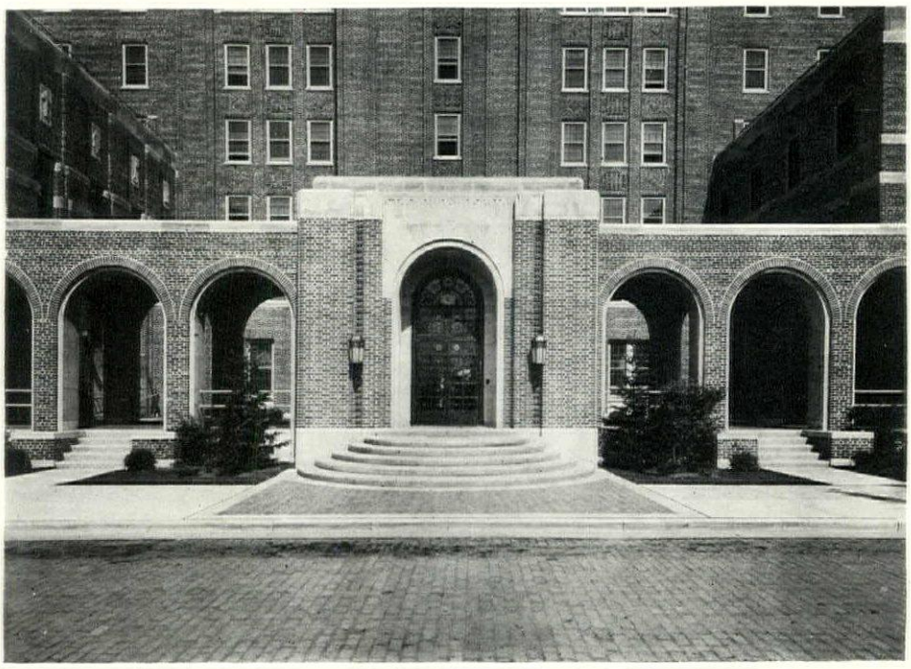
Herbert Photos., Inc.

A BUTCHER SHOP
FELICE CASORATI, DESIGNER

Photo. Fischer

LIGHTING FIXTURES IN SMALL DINING ROOM, CENTRAL PARK CASINO
JOSEPH URBAN, ARCHITECT

TECHNICAL NEWS AND RESEARCH



ENTRANCE LOGGIA
ST. CLOUD HOSPITAL, ST. CLOUD, MINN.
SCHMIDT, GARDEN & ERIKSON, ARCHITECTS

Featuring

HOSPITAL SOUND INSULATION

SOUND PROOFING THE HOSPITAL

BY CHARLES F. NEERGAARD*

Noise has become a major problem in our cities. In the hospital where the comfort and even the life of the patient demands quiet, the situation is particularly acute. After every critical operation the first demand of the surgeon is absolute quiet for his patient. Yet in our structures we seemingly do all we can to make this impossible. The density and rigidity of fireproof building materials produce an interior finish which is a perfect reflector of sound, and vibrations are carried through monolithic construction with little loss of intensity.

It is a common tragedy for a new hospital, architecturally beautiful, skillfully planned and radiating color and warmth, to prove a bitter disappointment to its creators, because of intolerable noise, when opened to patients. Low voices are intensified and echoes from the crash of a carelessly dropped utensil penetrate throughout the structure.

I. SOURCES OF NOISE

A. NOISE FROM WITHOUT.

Noises, ever on the increase, indicate the importance of locating new hospitals in a quiet neighborhood. The open window welcomes every rattle and rumble of passing truck or trolley, the raucous automobile horn, and all the clamor and din of our busy communities. Hospital zones of quiet, usually more honored in the breach than in the observance, may help, but generally there is no relief for the patient except to keep the windows closed, install sound filters at the window, or see that these outside sound waves are promptly and effectively absorbed as they enter.

B. NOISE FROM WITHIN.

The inside noises incidental to hospital operation are many and varied. We may divide them into four groups.

1. Avoidable Noises. Among these are loud talking and laughter in rooms and corridors, thoughtless acts of which everyone is guilty at times. Given rigid enforcement of the rule "Be Quiet" and a proper hospital morale, these can largely be controlled. Accidental noises resulting from dropping of dishes and pans and shifting of chairs on the hard floor, theoretically avoidable, call for constant care on the part of all.

Many a sufferer can testify how numerous are mechanical noises. Windows rattle, shades flap, radiators gurgle and pound, valves hiss, faucets drip, doors slam and latches chatter with every passing draft. Such disturbances are inexcusable. Regular inspection will obviate them to a considerable extent. Rigid control of avoidable disturbance will result in marked improvement in any institution. Unfortunately the superintendent has too many other things to think of.

2. Unavoidable Noises. Groans and screams of delirious sufferers and cries of infants and children are perhaps the most disturbing psychologically. Many of these conditions can be isolated, walled off in quiet rooms.

Noisy work rooms should be segregated in planning, yet we often see the rooms of patients immediately adjoining an elevator or diet kitchen. When food is served and dishes washed on each floor, the resulting clatter is a major source of annoyance and can be overcome by a centralized food service.

3. Vibration. Vibration through the pipes and frame of the building is more readily avoided than corrected. In one hospital, through unwise economy, the power plant was placed in the sub-basement, although there was ample space for a separate building. In the night a patient on the top floor at the far end of the building, 175 feet horizontally and 70 feet vertically away from the engine room, could hear the pumps pounding as if in the next room. Alongside they did not seem noisy. Faulty engineering had failed to take the simple precaution of insulating the pump foundations from the floor slab.

4. Sound Transmission by Pipes. Another hospital went to considerable expense to fur all ceilings in the patients' rooms, but gave no heed to the steam risers which passed through five floors. An unprotected one-inch pipe, it is found, will transmit more sound than 150 square feet of unfurred ceiling. More quiet at less cost might have been secured if the ceilings had been left unfurred and the pipes covered with felt.

*Reports of the Bureau of Standards at Washington and publications of many recognized acoustical authorities have been consulted. Architects, engineers and builders, who have given special thought to architectural acoustics, have contributed much. The engineering departments of the various firms whose systems are here discussed have given cordial coöperation. Ten hospitals and twenty other buildings using acoustical measures were inspected, and the effectiveness of the treatment and difficulties of cleaning carefully investigated. See also "Sound Proofing Apartments," pp. 290-8, The Architectural Record, March, 1929.

II. ACOUSTICAL TREATMENTS COMPARED

Sound is controlled in two ways, both of which are needed to secure quiet: *Acoustical Treatment*, the covering of ceilings and walls with soft or porous materials to absorb the sound waves at the source, and *Sound Insulation*, the setting up of barriers against the transmission of noise from one room to another.

Acoustical treatment is the major line of defense against noise. Until comparatively recently most of the problems presented to acoustical engineers have been in connection with the even distribution of sounds of different pitch throughout an auditorium, to so control and disseminate them that they would reach each auditor without loss of tone or character. Churches, lecture rooms, theatres and concert halls have all suffered from echoes and poor acoustics, the correction of which has largely stimulated research in the past. Quiet in a room is accomplished by the same scientific principles.

In the hospital the aim is to eliminate sound rather than to control its distribution, "to convert our corridors from megaphones to mufflers," as an acoustical advertisement is phrased.

The conventional hospital room and its furnishings could hardly be worse if deliberately designed to intensify noise. Rigid walls, bare floors and uncovered furniture offer no check. How unlike conditions in a home or hotel!

The furnishings of a hotel room 12′ x 15′, usually not found in the hospital, would provide quieting results equivalent to 72 square feet of open window.*

1 carpet, 80 sq. ft. ozite lining 25% absorption.....	45 sq. ft.
1 easy chair, 8 sq. ft. upholstery 100% absorption....	8
2 side chairs, 1½ sq. ft. cushion each 75% absorption..	2.2
1 pair heavy curtains, 28 sq. ft. 60% absorption.....	16.8
	72 sq. ft.

*Based on Prof. Floyd R. Watson's "Table of Sound Absorbing Coefficients for Materials."

CORRIDOR CEILING OF *NASHKOTE B*

A. ACOUSTICAL MATERIALS.

These may be divided into two groups: *organic*,—felts and fibres; and *inorganic*,—plasters and tile. Ten different makes using hair felt, hair and asbestos, cane fibre, wood fibre, flax, gypsum and cement were considered. The felts and fibres are cemented or nailed to walls and ceilings and variously finished; the plasters are applied over brown mortar.

Since all the available systems of acoustical treatment utilize soft or porous materials, it would seem difficult, if not impossible, to maintain the traditional standards of cleanliness. Can we safely introduce in the structural surface of the hospital a material whose nature imposes any restrictions on cleaning and painting? Can it be kept sterile to bacteria and vermin?

By the process of elimination, which took into consideration all the factors that the hospital must weigh in making its investment, the study focused on five different types of acoustical treatment. These are products of firms long and successfully identified with hospital problems and will serve as examples. Other similar systems are available and it is not necessarily a reflection on their value that they are not discussed in detail. The treatments identified by their trade names may be briefly described.*

Nashkote A consists of one inch of hair and asbestos felt which is applied to the ceiling or wall and finished with a muslin membrane cemented to the felt and painted with a special water color paint. It has an absorption efficiency of 42% and costs 70¢ a square foot applied.

Nashkote B consists of one inch of hair and asbestos felt, covered with a light surfaced oilcloth cemented to the felt. The oilcloth is thickly perforated with "pinholes," about 7½% of the felt being exposed to the air. The surface of the felt is of white hair so that the holes are barely perceptible at a distance of

*The authorities for the coefficients of absorption used will be found in table on page 185. The cost naturally varies with the size and location of the job.

NORTH ITALIAN BRICK CHIMNEYS

BY MYRON BEMENT SMITH

PART II

In the preceding article reference was made to the Baroque chimneys of the Palazzo Ducale at the Certosa of Pavia. The measured drawings in this article, plates IV and V, show two more of these Certosa chimneys, the photographs of which appear as figures 19 to 22. It was my good fortune, on the first trip to the Certosa, to see the pair of chimneys marked figure 19 undergoing a restoration by Signor Silvio Nicchi, the gentleman in figure 20. *Signor* Nicchi has been at the Certosa since his youth, he told me as we sat on the ridge tile one day enjoying the view over the flat Lombard water-meadows. In the course of these years he has taken down and rebuilt nearly all the chimneys in addition to doing the general repair work for the many buildings that form the Certosa group. His natural courtesy, modesty and serene disposition do not entirely conceal the secret pride with which he regards his work.

To take down and rebuild this pair of chimneys occupied *Signor* Nicchi and an assistant for three weeks. Each piece was marked as it was taken off, the broken bricks carefully matched and replaced by new, the whole laid out along the roof and, when all was ready, relaid again, ending by threading the finials in their iron rods and at last flying the pennants. After a scrubbing with stiff brushes, a last coat of white gesso and its fresco decoration was laid on. A few days later I took the photograph and went over the dimensions. Not a figure had changed appreciably from the original measurements made before the reconstruction. In a few years no one will guess that this brickwork has been touched, except for necessary repointing, within the three hundred years since it was originally laid.

The next illustration, figure 22, is interesting in that it gives a view of the vents which here show clearly as the curtain wall has been removed from its corbels. By referring to the section view of plate IV it is noticeable that any down draft which might be caused by a wind against the chimney is balanced by an up-draft through the openings between the corbels. Italian chimneys do three things: they let smoke out by a natural draft, they prevent back drafts and they keep rain from washing soot down the inside of the flue. The varied solutions of these problems result in the interesting forms of which this series can show but a few. When one recalls the high, open Italian fireplace with its wide throat and lack of damper it is not hard to see why the chimney top is given this exacting consideration.

The most picturesque *parti* for this problem was found in the village of Pisino, inland on the Istrian peninsula (See figure 23). Note the form of the tile plates that cover the side openings and then the scale given by the vertical louvres and the smaller vents above with their minute sills. This chimney, like most of those illustrated, was designed by a village mason working in a tradition yet seemingly not hampered by it.

The next page of four illustrations, figures 24 to 27, show fantastic creations which were popular in the Gothic period. These Bergamo chimneys are all on the same old palace and are so unusual that the Italian government has declared them *Monumenti Nazionali*, thus putting their preservation under the control of the min-

FIG. 19. CERTOSA OF PAVIA

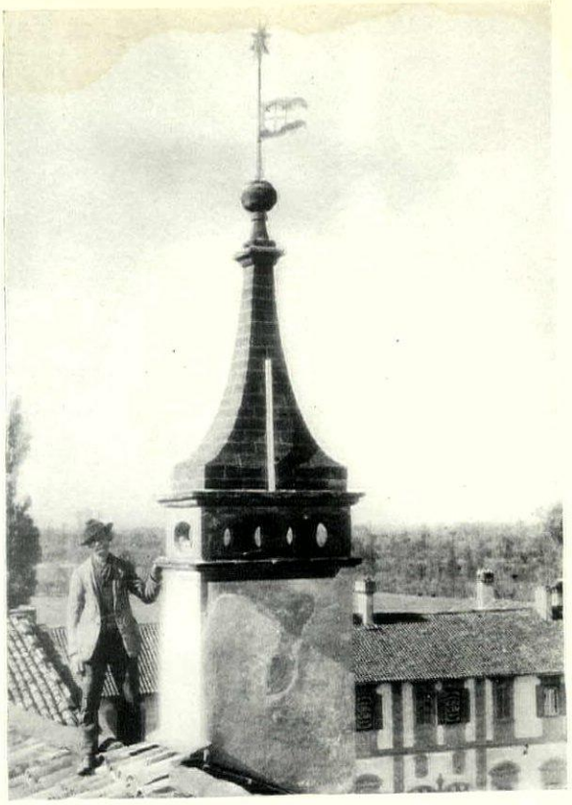


FIG. 20. CERTOSA OF PAVIA

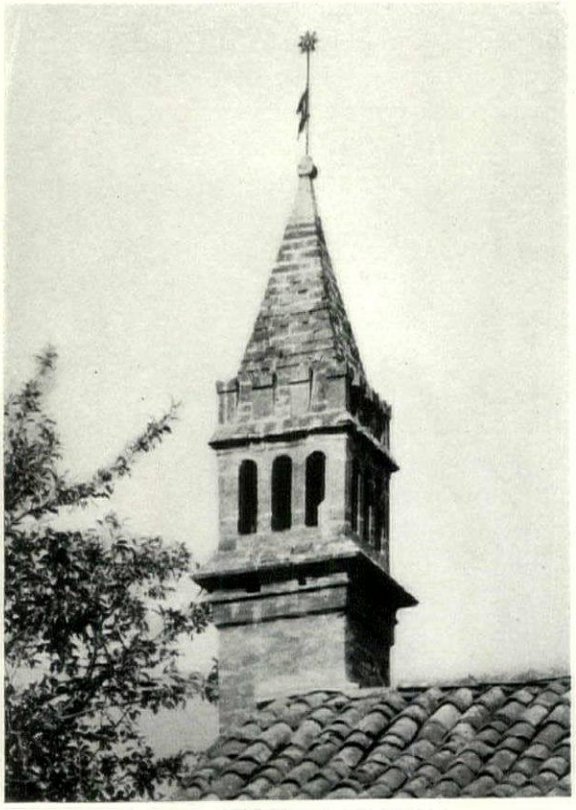


FIG. 21. CERTOSA OF PAVIA

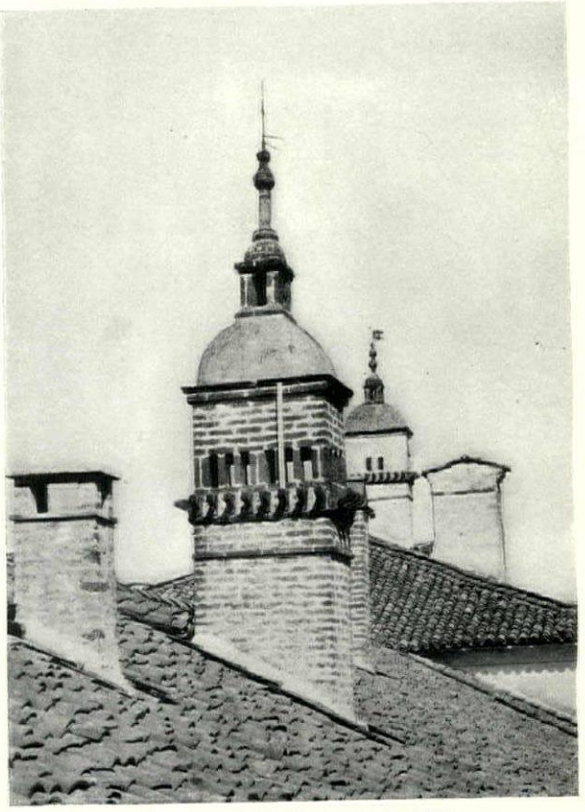
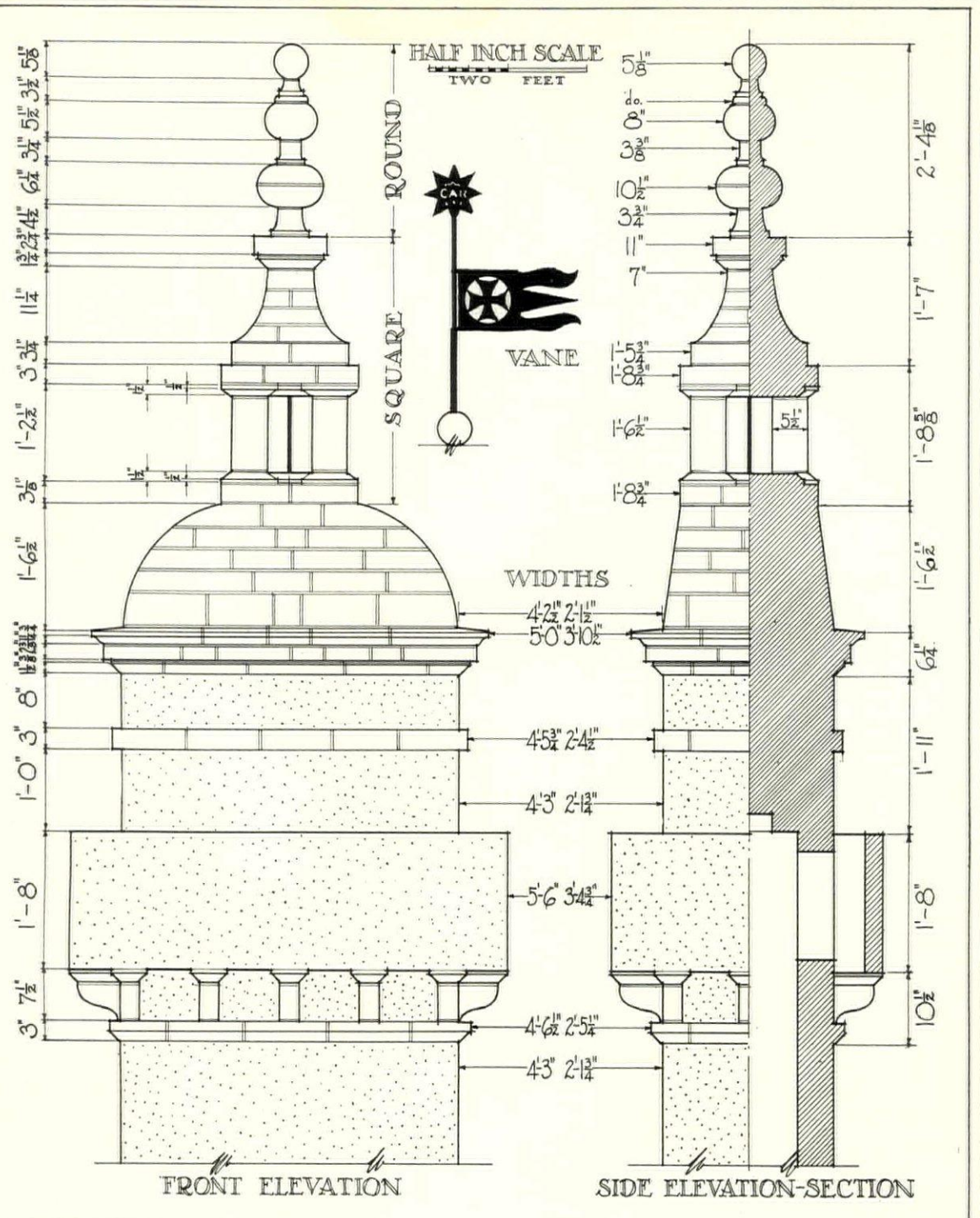


FIG. 22. CERTOSA OF PAVIA



NORTH ITALIAN BRICK CHIMNEYS

PLATE IV

FROM THE CERTOSA OF PAVIA

MEASURED AND DRAWN BY
MYRON BEMENT SMITH

FIG. 23. PISINO, ISTRIA

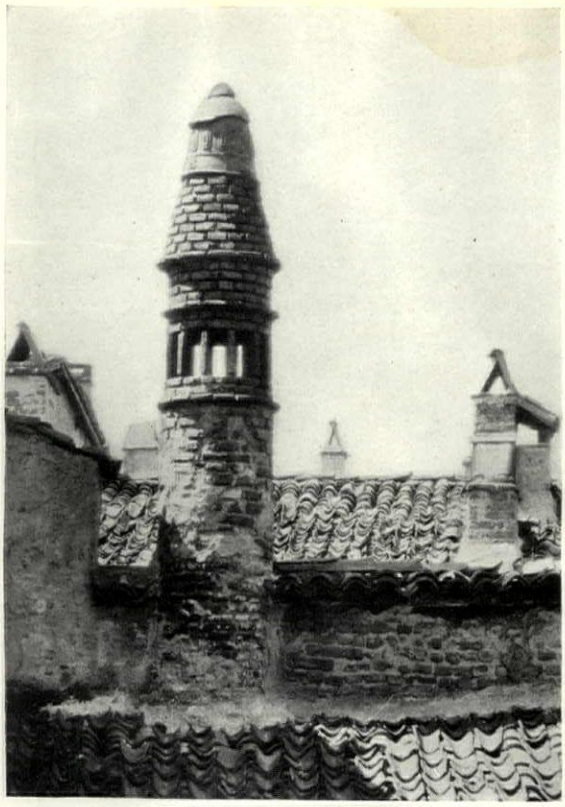


FIG. 24. S. EUSTORGIO, MILANO

FIG. 25. BERGAMO

FIG. 26. BERGAMO

FIG. 27. BERGAMO

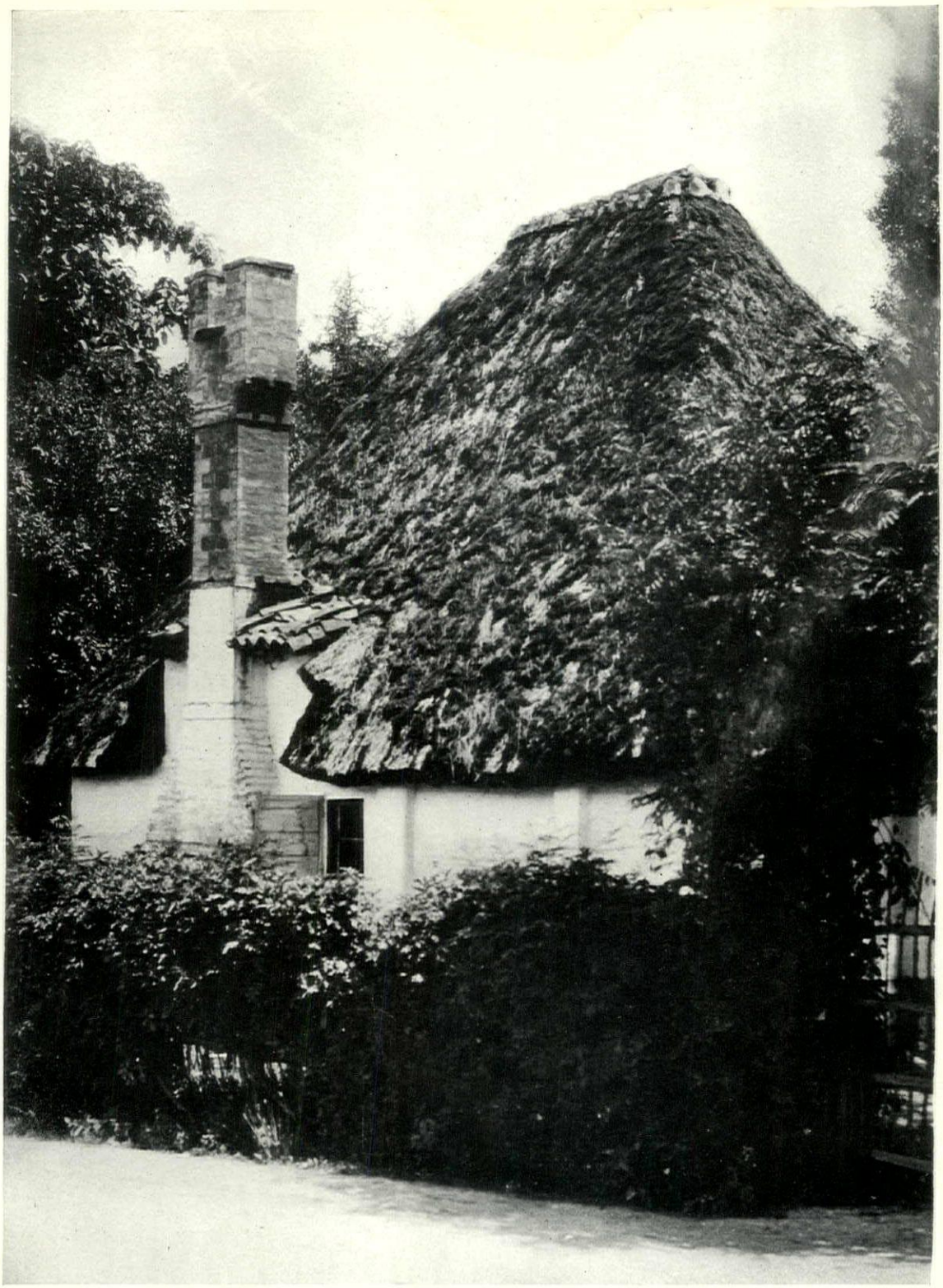


FIG. 28. MIRA, VENETIA

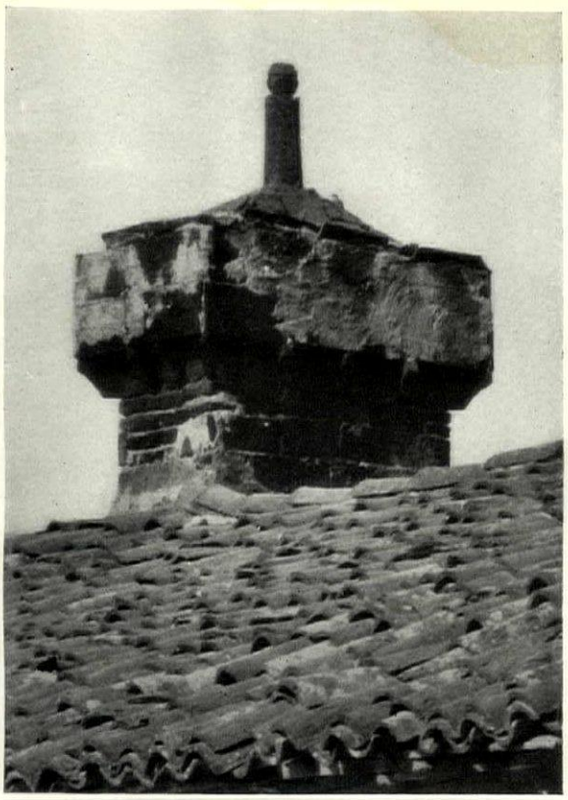
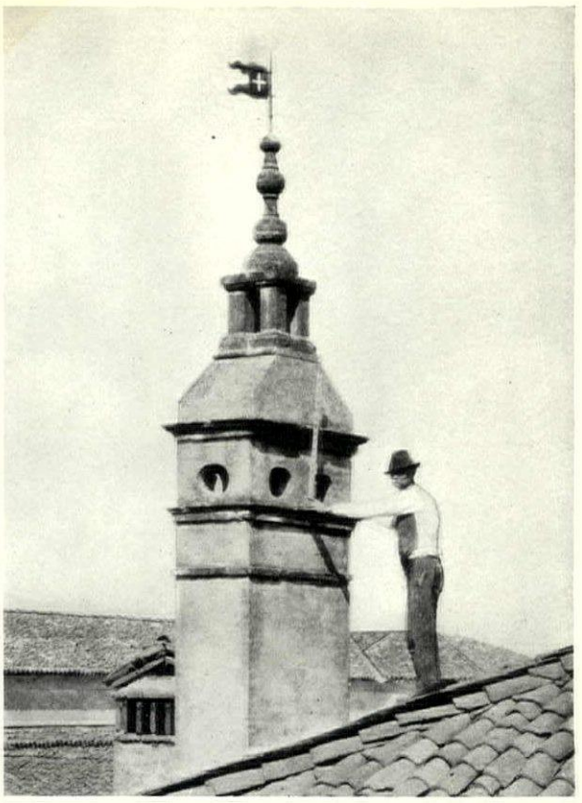


FIG. 29. TORRIANO, NEAR MILANO



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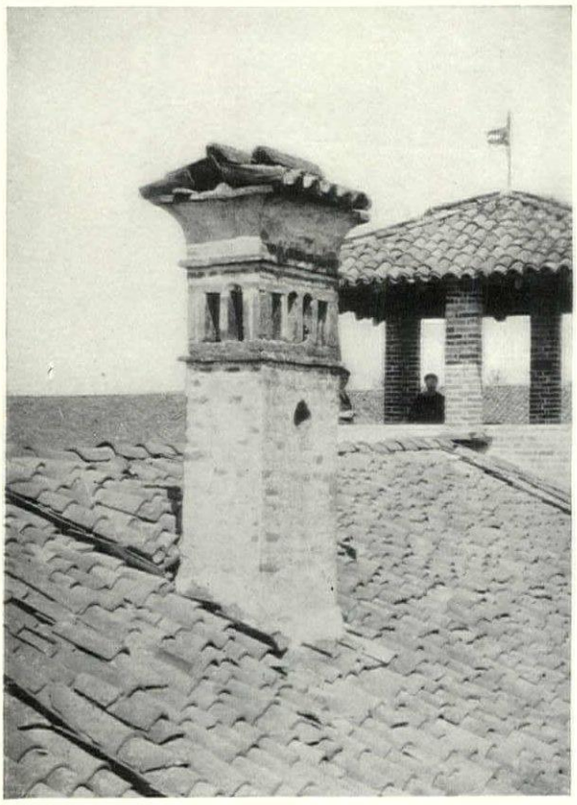

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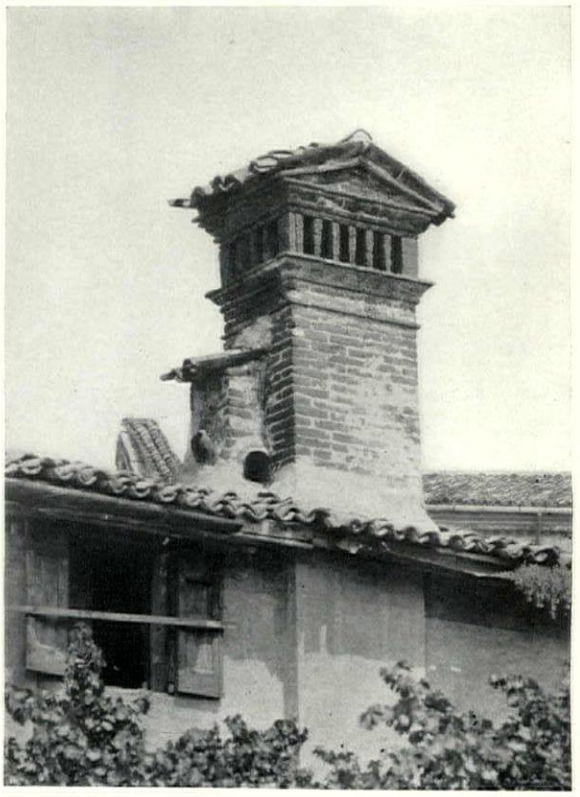

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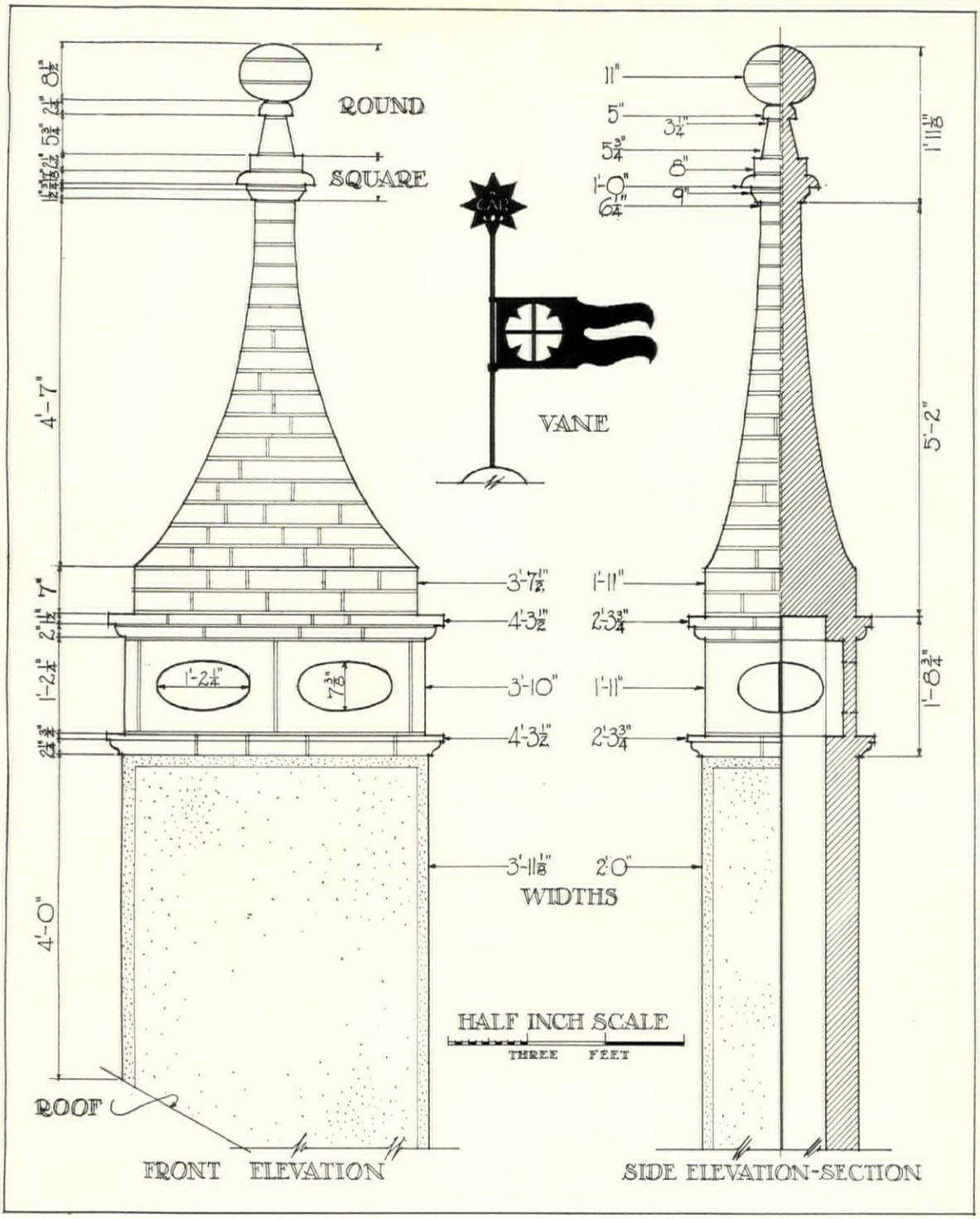

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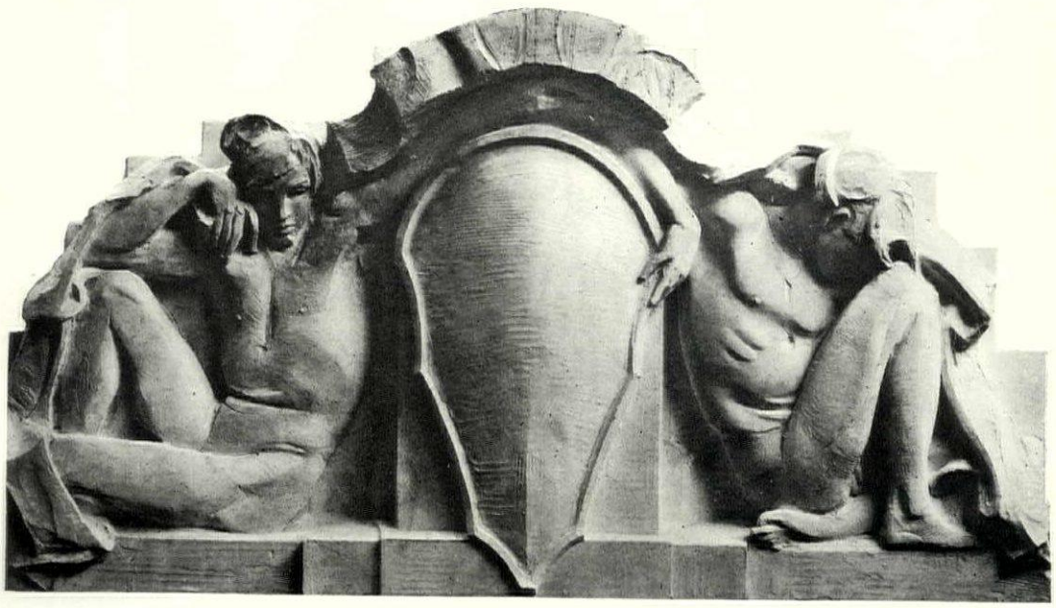

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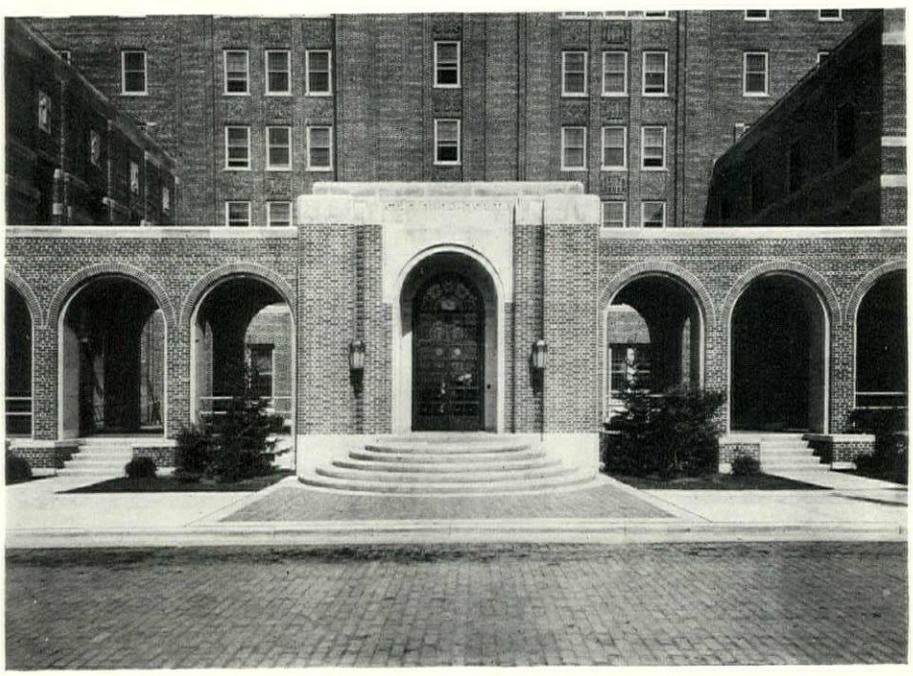

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Noisy work rooms should be segregated in planning, yet we often see the rooms of patients immediately adjoining an elevator or diet kitchen. When food is served and dishes washed on each floor, the resulting clatter is a major source of annoyance and can be overcome by a centralized food service.

3. Vibration. Vibration through the pipes and frame of the building is more readily avoided than corrected. In one hospital, through unwise economy, the power plant was placed in the sub-basement, although there was ample space for a separate building. In the night a patient on the top floor at the far end of the building, 175 feet horizontally and 70 feet vertically away from the engine room, could hear the pumps pounding as if in the next room. Alongside they did not seem noisy. Faulty engineering had failed to take the simple precaution of insulating the pump foundations from the floor slab.

4. Sound Transmission by Pipes. Another hospital went to considerable expense to fur all ceilings in the patients' rooms, but gave no heed to the steam risers which passed through five floors. An unprotected one-inch pipe, it is found, will transmit more sound than 150 square feet of unfurred ceiling. More quiet at less cost might have been secured if the ceilings had been left unfurred and the pipes covered with felt.

*Reports of the Bureau of Standards at Washington and publications of many recognized acoustical authorities have been consulted. Architects, engineers and builders, who have given special thought to architectural acoustics, have contributed much. The engineering departments of the various firms whose systems are here discussed have given cordial coöperation. Ten hospitals and twenty other buildings using acoustical measures were inspected, and the effectiveness of the treatment and difficulties of cleaning carefully investigated. See also "Sound Proofing Apartments," pp. 290-8, The Architectural Record, March, 1929.

II. ACOUSTICAL TREATMENTS COMPARED

Sound is controlled in two ways, both of which are needed to secure quiet: *Acoustical Treatment*, the covering of ceilings and walls with soft or porous materials to absorb the sound waves at the source, and *Sound Insulation*, the setting up of barriers against the transmission of noise from one room to another.

Acoustical treatment is the major line of defense against noise. Until comparatively recently most of the problems presented to acoustical engineers have been in connection with the even distribution of sounds of different pitch throughout an auditorium, to so control and disseminate them that they would reach each auditor without loss of tone or character. Churches, lecture rooms, theatres and concert halls have all suffered from echoes and poor acoustics, the correction of which has largely stimulated research in the past. Quiet in a room is accomplished by the same scientific principles.

CORRIDOR CEILING OF *NASHKOTE B*

In the hospital the aim is to eliminate sound rather than to control its distribution, "to convert our corridors from megaphones to mufflers," as an acoustical advertisement is phrased.

The conventional hospital room and its furnishings could hardly be worse if deliberately designed to intensify noise. Rigid walls, bare floors and uncovered furniture offer no check. How unlike conditions in a home or hotel!

The furnishings of a hotel room 12′ x 15′, usually not found in the hospital, would provide quieting results equivalent to 72 square feet of open window.*

1 carpet, 80 sq. ft. ozite lining 25% absorption.....	45 sq. ft.
1 easy chair, 8 sq. ft. upholstery 100% absorption....	8
2 side chairs, 1½ sq. ft. cushion each 75% absorption..	2.2
1 pair heavy curtains, 28 sq. ft. 60% absorption.....	16.8
	72 sq. ft.

*Based on Prof. Floyd R. Watson's "Table of Sound Absorbing Coefficients for Materials."

A. ACOUSTICAL MATERIALS.

These may be divided into two groups: *organic*,—felts and fibres; and *inorganic*,—plasters and tile. Ten different makes using hair felt, hair and asbestos, cane fibre, wood fibre, flax, gypsum and cement were considered. The felts and fibres are cemented or nailed to walls and ceilings and variously finished; the plasters are applied over brown mortar.

Since all the available systems of acoustical treatment utilize soft or porous materials, it would seem difficult, if not impossible, to maintain the traditional standards of cleanliness. Can we safely introduce in the structural surface of the hospital a material whose nature imposes any restrictions on cleaning and painting? Can it be kept sterile to bacteria and vermin?

By the process of elimination, which took into consideration all the factors that the hospital must weigh in making its investment, the study focused on five different types of acoustical treatment. These are products of firms long and successfully identified with hospital problems and will serve as examples. Other similar systems are available and it is not necessarily a reflection on their value that they are not discussed in detail. The treatments identified by their trade names may be briefly described.*

Nashkote A consists of one inch of hair and asbestos felt which is applied to the ceiling or wall and finished with a muslin membrane cemented to the felt and painted with a special water color paint. It has an absorption efficiency of 42% and costs 70¢ a square foot applied.

Nashkote B consists of one inch of hair and asbestos felt, covered with a light surfaced oilcloth cemented to the felt. The oilcloth is thickly perforated with "pinholes," about 7½% of the felt being exposed to the air. The surface of the felt is of white hair so that the holes are barely perceptible at a distance of

*The authorities for the coefficients of absorption used will be found in table on page 185. The cost naturally varies with the size and location of the job.

10 feet. It has an absorption efficiency of 64% and costs 80¢ a square foot applied. The oilcloth can be stippled with washable oil paint without affecting the absorption, provided no film of paint is left over the holes, which requires care on the part of the painter.

Acousti-Celotex is composed of compressed sugar cane fibre, in the form of large tiles, 1¼" thick and drilled with ¼" holes 1" deep, 441 to the square yard. It is cemented and nailed to the ceiling. The surface can be painted with a brush and oil paint, without loss of effectiveness, provided the paint does not cover or enter the holes. The absorption is 70% and the cost 75¢ per square foot applied.

Acoustical Plasters are available in two forms, precast tile, and plaster mixed and applied on the job. The plaster is usually composed of irregular grains of pumice bound together by cement or gypsum where the points touch. This leaves a multitude of very fine intercommunicating voids in which the sound waves are throttled. The surface is rough. Coloring can be done by mixing pigments in the aggregate. Laboratory tests indicate that the various makes of plasters, ½" thick, have an absorption value varying from 8% to 32%. Two brands of plaster were studied. *Akoustolith plaster* uses pumice particles graded to approximately uniform size with a Portland cement binder. Its absorption is 32% and the cost 44¢ a square foot applied. *Sabinite plaster* (New Brighton) uses pumice grains bound with gypsum. Its absorption is 30% and the cost 30¢ a square foot applied.

B. RELATIVE COST AND VALUE OF MATERIALS.

To illustrate in a practical way the relative cost and value of the different materials, let us consider them as applied to a nursery 15′ x 30′ with a 10′6″ ceiling height. The side walls, to a point 7′6″ above the floor, must be hard finished to withstand daily scrubbing, which leaves available for acoustical treatment the ceiling with an area of 450 square feet, and the upper 3 feet of wall, or a maximum of 720 square feet. To secure the greatest possible quiet, the three treatments having low efficiencies are applied to both upper walls and ceiling, the other two on the ceiling only. The sixth column (Table I) shows the

NURSERY WITH *ACOUSTI-CELOTEX* CEILING
ST. JOHN'S HOSPITAL, TULSA, OKLA.
WIGHT & WIGHT, ARCHITECTS

net additional cost for acoustical treatment of the room, allowing for the omission of finished plaster; the seventh column the net cost for each unit of absorption, which one buys actually. All the materials are applied over a coat of brown mortar. The percentage of absorption is based on C4 pitch, as determined by various authorities. (See TABLE A, page 185.)

TABLE I gives the cost of variously providing for the effective absorption of sound in a nursery. A room acoustically treated by one of these methods will be noticeably less noisy than an adjoining room not treated, but at the present time we must take largely on faith to what extent the quiet contracted for in terms of units of absorption is actually delivered.

TABLE I

Material	Per cent of absorption per sq. ft.	Total number of absorbing units	Cost for each sq. ft.	Total cost	Finished coat of plaster saved	Net extra cost of acoustical trearment	Net cost for each absorbing unit
Nashkote A, 1″ felt muslin membrane, 720 sq. ft....	45%	324	70¢	$504.00	$57.00	$447.00	$1.38
Nashkote B, 1″ white felt, oil cloth membrane pinhole perforations, 450 sq. ft.....	64%	288	80¢	360.00	57.00	303.00	1.05
Acousti - Celotex, 1¼″ oil painted, 450 sq. ft.....	70%	315	75¢	337.50	57.00	280.00	0.89
Akoustolith plaster, ½″, 720 sq. ft.....	32%	230	44¢	316.00	57.00	259.00	1.13
Sabinite plaster (New Brighton), 720 sq. ft....	30%	216	30¢	216.00	57.00	159.00	0.74
Sanacoustic Tile,* 250 sq. ft.	74%	333	70¢	315.00	57.00	258.00	0.78

**Sanacoustic Tile* was developed subsequent to these studies and is therefore not included in the other tables.

The result of acoustical treatment is something intangible, and has not been measured in the past except by its effect on the human ear. In the reverberation test commonly used, a note of known pitch is sounded in a closed room and the length of time taken for the sound to diminish to inaudibility is measured by a listener with a stop watch. An expert familiar with this technique can make the test in any small room and determine the effectiveness of the absorption of acoustical treatment, using as a basis, a similar room untreated. This test is not practical in corridors.

Since the motion picture industry has been brought face to face with the acoustical problem through the necessity for proper sound control in studios where "talking movies" are made, experiments furthering those of the acoustical engineers are being carried out. These tests should soon result in a mechanical device for recording sound conditions in a room without dependence on the human equation.

Noise as it reacts on the human ear is measured by the physicist in sensation units which are of so fine a gradation that a difference of a unit is barely perceptible to normal hearing. The reduction of sensation of loudness from reverberation in a room, by acoustical treatment, is not directly proportional to the amount of absorption, but is proportional to the logarithm of the absorption. To illustrate, if a nursery has 100 units of natural absorption in its bassinets, blankets, mattresses and other surfaces, the addition of 200 units of absorption will reduce the loudness by 5 sensation units. Reduction of 10 sensation units would require 900 additional absorption units. It has been shown in the cost table that these absorption units cost, when applied, about $1 a unit.

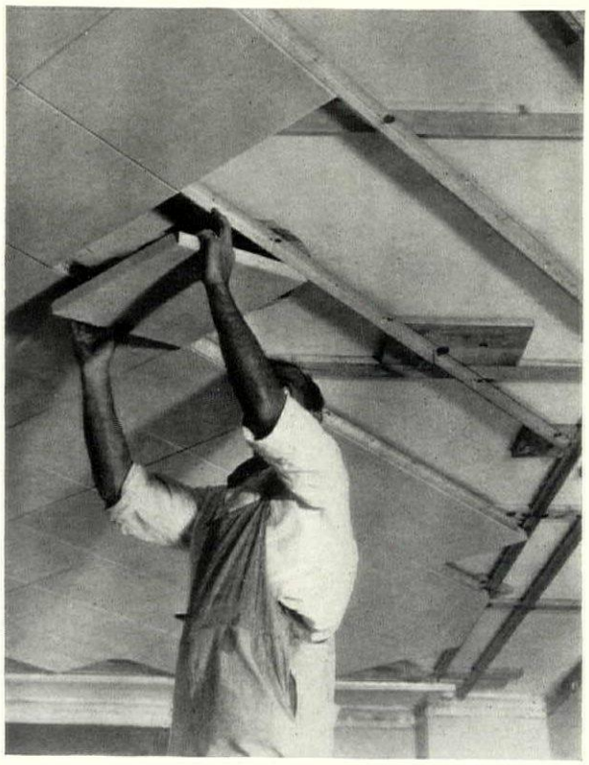
Scientists have determined the relationship between loudness and absorption, but the question, "When does loudness become annoyance?" is still the subject of research. In a hospital the aim is to bring loudness outside the border line of annoyance, which for a sick and nervous patient is obviously lower than for a healthy individual.

C. MAINTENANCE OF ACOUSTICAL MATERIALS IN THE HOSPITAL.

If we spend $200 or $300 extra to make a nursery quiet, we desire naturally to know how long the treatment will last, what effect frequent cleaning and repainting will have on its efficiency, what the cost of maintenance will be, how the material will be affected by leaks and whether it is sterile to bacteria and vermin. When the manufacturers were asked for

answers to such practical questions, little substantiated data could be obtained. The admitted lack of definite knowledge is no discredit to them, but rather an indication of the need for more research and experimentation in the new factors introduced by an exacting hospital technique. Since so many points were unsettled, a number of studies were undertaken to see what could be found. The results of these are given in the following tables.

1. Frequency of Cleaning and Painting. First an attempt was made to establish some standards. How often should hospital walls and ceilings be washed and painted? Local conditions and individual theories and practice necessarily govern these procedures. Eighteen hospital superintendents gave their routine for cleaning and painting corridors, nurseries, delivery rooms and the like. In the nurseries, three wash the ceilings every month, nine every three months and two find it necessary to clean them only every other year. Four paint the ceilings annually, thirteen every two years (Table C). From this widely varying practice, we have assumed that quarterly cleanings and biennial painting will represent a reasonable maximum. Several architects and acoustical engineers have criticized such frequent cleaning as extreme. Perhaps this may be so, but the hospital will naturally seek products which measure up to its peculiar needs, rather than compromise its standards.



CONSTRUCTION OF
SANACOUSTIC TILE CEILING*

2. Effect of Painting. The following comments of Professor F. R. Watson are significant. Note that the matter of washing is not touched:

"A very important consideration is the painting or decoration of acoustical materials. If such painting closes the pores of the material, or if painting a membrane stiffens it, the absorbing efficiency is reduced. The effect of spraying paint is not as serious as that of applying it with a brush. Acoustical plasters may be sprayed with paints without serious effect. *Acousti-Celotex* appears unique in this respect, because it may be painted in any way, even with oil paint with a brush, without appreciable effect on the absorption. This is due to the perforations which allow sound to penetrate to the interior, where absorption takes place, even if painted. Porous membranes over materials do not have a marked effect, because sound passes through the open work in the mesh. Such membranes can be painted only with caution, because closing the open mesh will prevent sound from getting to the material underneath for effective absorption."

Evidently the maintenance of acoustical material will add another problem requiring constant watchfulness to the superintendent's daily work. If a painter puts even a single coat of paint or enamel on an acoustical surface in the wrong way, its value is largely lost. Wherever a room is treated acoustically a small metal plate giving proper instructions for cleaning and painting should be fastened to the material in a conspicuous place.

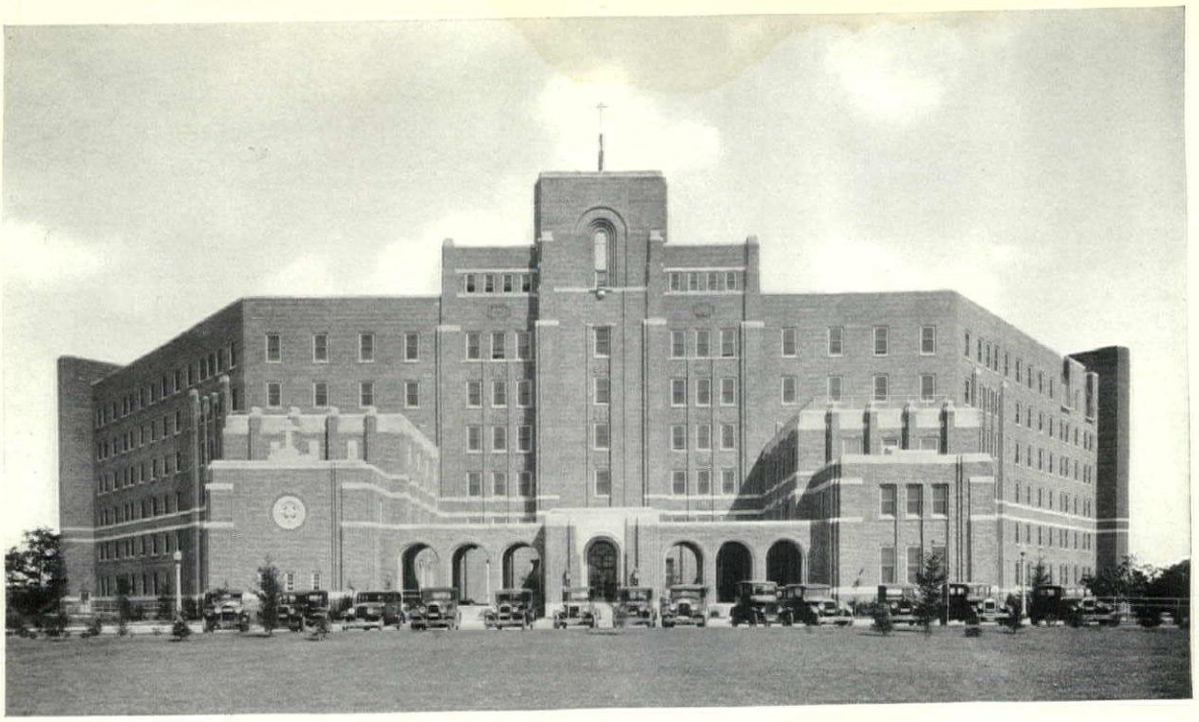
3. Effect of Washing. A sample of each material was scrubbed with soap and water ten times, allowing sufficient intervals for drying. The average amount of water absorbed increased the weight of samples as follows:

Nashkote A, felt with muslin membrane	30%
Nashkote B, felt with perforated oilcloth membrane	18%
Acousti-Celotex, oil painted	13%
Akoustolith plaster	6%
Sabinite plaster	11%

These tests were not made under actual service conditions. Samples only were available. These were scrubbed on a table, not inverted as they would be on a ceiling, so the absorption of water is naturally exaggerated.

To determine the effect of leaks, samples were immersed in water for an hour. The gain in weight and

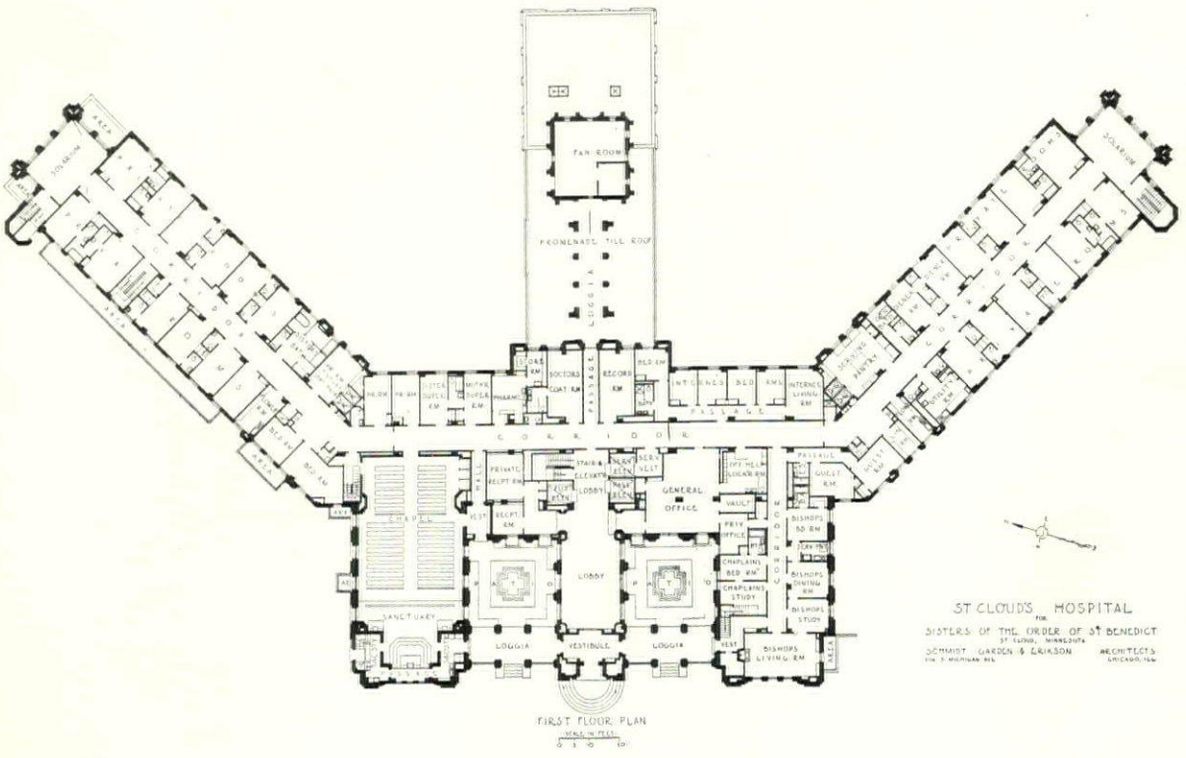
* Since this study was conducted a new material has come on the market which simplifies the problem of cleaning and painting. *Sanacoustic Tile*, shown in the illustration on this page, has a painted or enameled surface which will permit washing without any reduction in acoustical value.



ENTRANCE FAÇADE

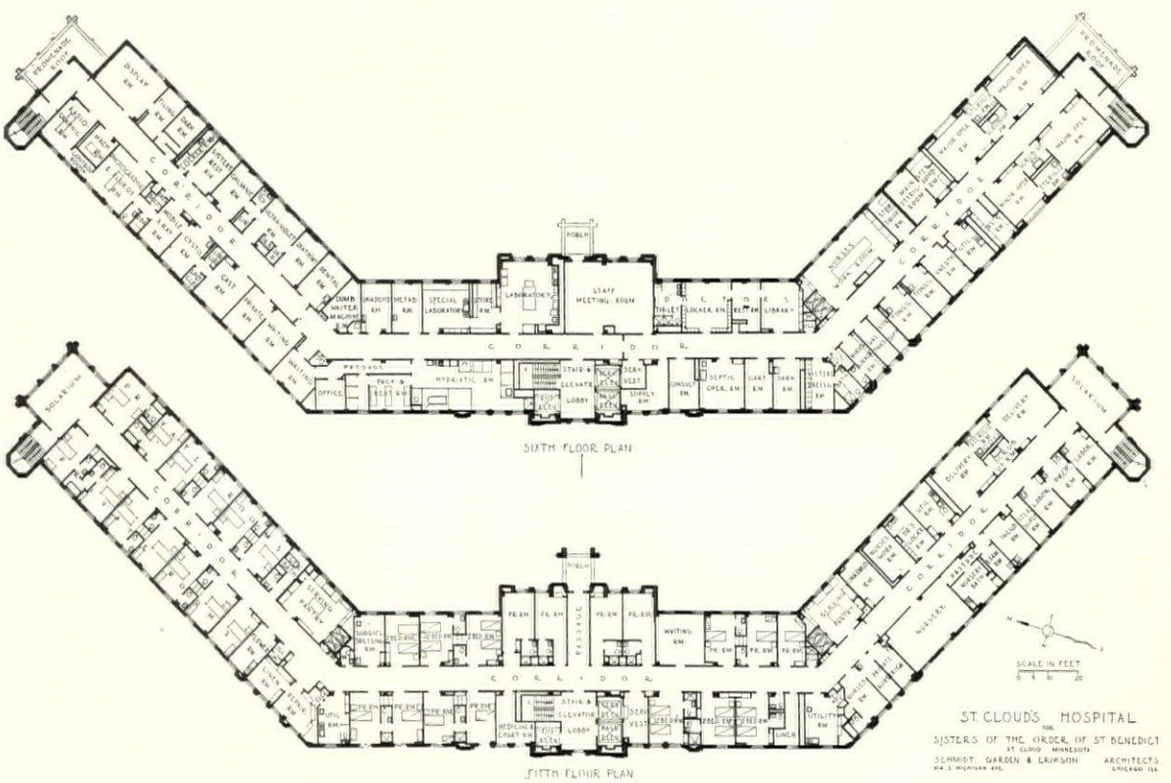
ST. CLOUD HOSPITAL, ST. CLOUD, MINN.

SCHMIDT, GARDEN & ERIKSON, ARCHITECTS



FIRST FLOOR PLAN

REAR ELEVATION
ST. CLOUD HOSPITAL, ST. CLOUD, MINN.
SCHMIDT, GARDEN & ERIKSON, ARCHITECTS



thickness and the condition after 72 hours were as follows:

	Gain in Weight	Gain in Thickness	Weight after 72 hours drying
Nashkote A	75%	10%	Normal
Nashkote B	100%	10%	Plus 25%
Acousti-Celotex	6c%	7%	Plus 2c%
Akousticlith plaster	14%	0	Normal
Sabinite plaster	2c%	0	Normal

The results of these experiments are admittedly, more suggestive than conclusive. The vital question the loss of absorption value after years of frequent washing and painting, can be determined only in an acoustical laboratory where the progressive changes, resulting from similar tests on large areas, can be accurately and comparably measured.

4. Cost of Cleaning and Repainting. To reduce the maintenance factor to definite terms, we will use the same nursery and consider the cost of cleaning and painting the various materials, as previously applied to its walls and ceiling (50 square yards of ceiling, or 80 square yards when the ceiling and upper 3 feet of walls are treated). The cost of cleaning and repainting naturally varies widely, whether done by contract with union labor or by hospital employees. The unit cost figures used here represent a fair average of a number of estimates from contractors, hospital and hotel managers. The important deductions to be made from Table II are the relative costs of maintenance for the different materials.

D. SUMMARY.

On the basis of the two computations, *Nashkote A* would seem to be barred because of the high cost of both installation and maintenance, and yet it has been the most widely used of all the felt treatments in hospital practice. The assumption that the muslin membrane must be replaced every five years, and the oilcloth of *Nashkote B* every eight years

PATIO FOUNTAIN
ST. CLOUD HOSPITAL, ST. CLOUD, MINN.
SCHMIDT, GARDEN & ERIKSON, ARCHITECTS

would seem conservative. In the cleaning test, the cement by which the membranes are attached to the felt lost its strength after six or eight severe washings.

The choice would seem to narrow down to *Nashkote B*, *Acousti-Celotex* and the plasters. Both organic materials are incompatible with hospital standards, the one exposing its felt and the other its many deep holes to the air. Both are to a limited extent combustible.

TABLE II

			Annual Cost	Cost per Sq. Yd.
Hard-finished Plaster—Normal conditions				
50 sq. yds. Cleaning (sponging) @ 5¢ per sq. yd.	$ 2.50			
Four times a year		$10.00		
Repainting every 2 yrs., 2-coat work @ 27¢	13.50			
Annual cost ½		6.75	$16.75	$0.34
Nashkote A—Muslin membrane, water color painted, which must be repainted after each washing.				
80 sq. yds. Cleaning (sponging) @ 6¢ per sq. yd.	4.80			
Four times a year		19.20		
Repainting @ 30¢ per sq. yd.	24.00			
Four times a year		96.00		
Replacing membrane every 5 yrs. @ 36¢	28.80			
Annual cost 1/5		5.76	120.96	1.51
Nashkote B—Oilcloth membrane painted.				
50 sq. yds. Cleaning (sponging) @ 6¢	3.00			
Four times a year		12.00		
Repainting every 2 yrs. (stippled) @ 27¢	13.50			
Annual cost ½		6.75		
Replacing membrane every 8 yrs. @ 36¢	18.00			
Annual cost ⅛		2.25	21.00	0.42
Acousti-Celotex BB—Finished in oil paint.				
50 sq. yds. Cleaning (sponging) @ 6¢	3.00			
Four times a year		12.00		
Repainting every 2 yrs. (stippled) @ 27¢	13.50			
Annual cost ½		6.75	18.75	0.38
Acoustical plasters—Sprayed with special washable paint.				
80 sq. yds. Cleaning (careful scrubbing and sponging) @ 8¢	6.40			
Four times a year		25.60		
Repainting every 2 yrs. (spray—1 coat) @ 18¢	14.40			
Annual cost ½		7.20	22.80	0.41

These figures represent approximately maximum conditions in rooms where the ceilings and upper walls are washed four times a year.

1. PLASTER. Theoretically, acoustical plaster should be ideal. It is inorganic and introduces no new or unusual material into the building. However, unless it is applied in strict conformity with the manufacturers' directions, its use is fraught with uncertainty. It is a comparatively simple matter to make uniform samples in the factory which will be tested successfully in the laboratory, but it is quite another thing to get the average plasterer on the job to put on each square foot perfectly. If too much pressure is applied, and it is instinctive for the mason to use pressure when he smooths his work with a float or a darby, the moisture is squeezed out to the surface and forms a film over the pores. It is, therefore, imperative that acoustical plaster be installed under the supervision of the manufacturer who can then insure and guarantee results in providing in each room the necessary number of absorbing units determined by the acoustical engineer.

The cleaning and maintenance of the plaster present some difficulties. The coarse granular surface, while pleasing in appearance, from its very texture will collect dust, which is of course the case with the felt fibre. It can be thoroughly cleaned only by the use of a brush. The nature of the plaster aggregate is such that surface grains will loosen to some extent in cleaning. Although this will not affect the absorption, the tendency of the particles to flake off

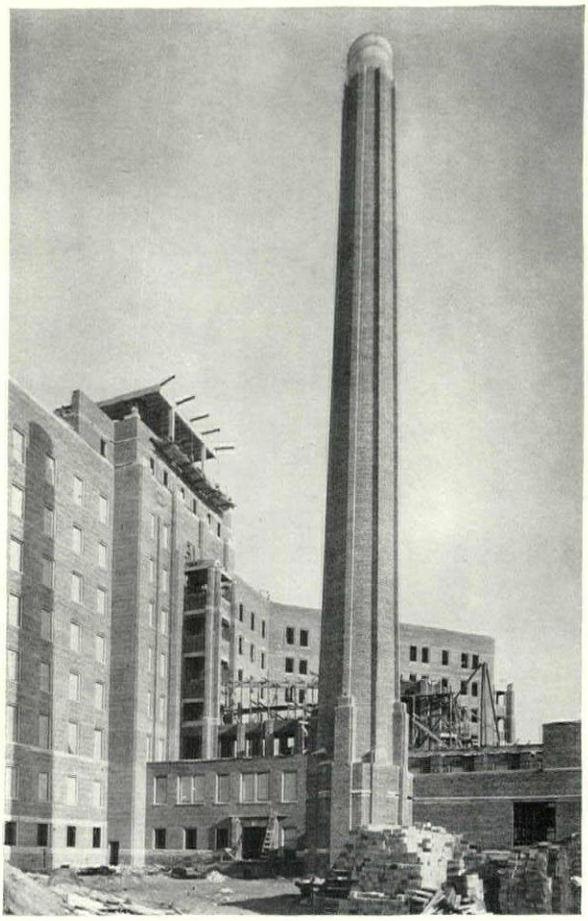
raises a question of the advisability of its use on the ceilings of nurseries, labor and delivery rooms. Given proper installation, plaster would seem, in spite of its low percentage of absorption, the most appropriate material for corridors, utility rooms and diet kitchens, where flaking will not be a menace to the patients.

Authorities state that the plasters can be sprayed with a special acoustical paint without materially affecting the absorption value. It seems logical, however, that each successive film of paint, combined with the dust which cannot be reached, must lessen the size and number of the apertures, with the result that the investment will return steadily decreasing dividends in quiet.

2. NASHKOTE B. The type here considered represents the latest development in a long series. The use of a white-surfaced felt and the reduction of the perforations in the oilcloth to pinhole size have overcome the aesthetic objections to the older installations. There are no data to indicate how long the oilcloth will last or what effect exposure to the air will have on the resiliency of the felt over a period of years. The weak link in the chain —a serious matter—is the cement which soon lost its strength in both washing and soaking tests. However this treatment possesses a material advantage over both *Celotex* and the plaster since the surface can be renewed through replacement of the membrane at a cost of 4¢ a square foot,* with only a slight loss of absorption through the successive applications of cement. When leaks occur a large percentage of water is absorbed but soon evaporates with apparently no ill effect to the felt. Theoretically, *Nashkote B* should represent a permanent form of treatment and should withstand the severe hospital conditions for many years.

3. ACOUSTI-CELOTEX. In all the buildings visited this material had either an unfinished or a stained surface, neither of which is washable. When stained and stencilled a very attractive appearance is secured, but unfortunately such a surface cannot be washed. *Celotex* seemingly offers the easiest and most economical maintenance of any of the materials. Oil paints can be put on with a brush in the ordinary way without measurable loss of absorption, provided the holes are not filled. Although the painted surface can be washed, dust will not be reached in the deep holes and can be removed only by a vacuum cleaner. To what extent successive coats of paint entering the holes will close the pores and lessen the effectiveness is undetermined.

Celotex tends to warp when damp. Its surface is somewhat rough and the many holes give it the appearance of a huge inverted cribbage board. Experiments with various colored paints are being carried on to determine how the perforations may be most effectively camouflaged.



STACK
ST. CLOUD HOSPITAL, ST. CLOUD, MINN.
SCHMIDT, GARDEN & ERIKSON, ARCHITECTS

4. SANACOUSTIC TILE. There has been recently brought on the market a material known as *Sanacoustic Tile*, which apparently meets the hospitals' exacting specifications. This consists of a perforated sheet metal container, the surface of which is finished in baked enamel. It has a high light-reflecting value and may be cleaned easily with a damp cloth or sponge. The claim is made that it can be repainted without affecting the sound-absorbing efficiency in any way.

The metal tile is filled with a sound-absorbing element of rock wool, a fibrous stone not open to any doubts as to cleanliness and sterility which have been raised against vegetable felts and fibres.

Sanacoustic Tile comes in different sizes, 12″ x 12″,

*The manufacturers state that in a room of average height they are prepared to replace the membrane of *Nashkote B* at 4¢ a square foot at the present cost of labor and maintenance.

12″x 24″, 24″x 24″, and filled with the sound-absorbing element is snapped into steel supporting T's. These are attached to the existing ceiling in an old building, or in new construction the supporting T's may be wired to the furred ceiling members and all metal lath and plaster omitted. This form of acoustical treatment may be applied directly to hollow tile, concrete slab or joist construction. It is evident that it will qualify economically for hospital purposes as neither the metal tile nor wool filling will suffer from either cleaning or repainting. Furthermore, the tile or sound-absorbing element cannot be injured in cleaning or repainting. The Underwriters' Laboratories report that *Sanacoustic Tile* does not contribute to the fire hazard of a building.

Where acoustical treatment is needed in sterilizing rooms, kitchens, diet kitchens and utility rooms and escaping steam is present, continual exposure to excessive moisture will rust the supporting T's. For these conditions, Sanacoustic Tile and all supporting T's and clips can be furnished in aluminum, giving a non-corrosive finish.

E. BETTER ACOUSTICAL MATERIALS NEEDED.

While none of the materials and methods now on the market seem to measure up wholly to the hospitals' exacting standard of maintenance, the manufacturers realize that the ideal is yet to be achieved and are spending many thousands of dollars each year in acoustical research. We hope that out of their efforts will come an improved specific for sound absorption. It should be an inorganic, highly porous tile, smooth-finished, even glazed perhaps, and tinted, never needing to be painted, and washable. It should have more absorption than the present plasters with at least a 50% efficiency. Surely this is an achievement not impossible to our miracle-working industrial chemists and resourceful engineers. Such a tile sounds expensive, but given the formula or process the cost will be based on volume of production. While we are specifying, let us set a price limit of 50¢ per square foot installed.

The purpose of this study is to emphasize the importance of *building quiet into the hospital structure* and no deductions should be drawn from anything said that acoustical treatment, even in its present stage of development, is impractical for hospital purposes. On the contrary, the achievement of quiet surroundings for the patient is so vital that it far outweighs the cost and care involved in installation and upkeep.

TABLE A

COMPARISON OF VARIOUS ACOUSTICAL MATERIALS

Trade Name	Cost per sq. ft. applied	Co-efficients of absorption	Gain in weight following scrubbing	Gain in weight following soaking	Fire resisting	Appearance
1. *Nashkote A*, 1″ felt, muslin finish	70¢	45%d	30%	75%	Yes	Fair
2. *Nashkote B*, 1″ felt, white oilcloth, pinhole perforations	80¢	64%d′	18%	100%	Yes	Good
3. *Flax-li-num*, 1″, muslin finish	85¢	61%a		150%	Smoulders	Poor
4. *Balsam Wool*, 1″, perforated steel membrane	65¢	47%a	Entirely Disintegrated		No	Poor
5. *Acoustibloc*, 1¼″, painted	42¢	43%b		17%	No	Fair
6. *Fibrofelt*, 1″, muslin membrane	65¢	38%b		211%	No	Fair
7. *Acousti-Celotex BB*, 1¼″, oil painted	75¢	70%a	13%	60%	No	Fair
8. *Acoustex*, 1″, poplar excelsior, magnesite binder	55¢	37%e	28%	58%	Yes	Fair
9. *Akoustolith plaster*, ½″	44¢	32%c	6%	14%	Yes	Good
10. *Sabinite Plaster*, ½″, (New Brighton)	30¢	30%d	11%	20%	Yes	Good

The coefficients of absorption used (i.e., percentage of sound absorbed as compared to one square foot of open window) are based on a pitch of 512 (C 4).

Source of Coefficients: a. Prof. F. B. Watson; b. Manufacturer; c. Bureau of Standards; d. Prof. Paul E. Sabine; e. Clifford M. Swan.

Cost figures cover material installed in the New York district. Prices necessarily vary with locality and quantity.

Scrubbing Test.—Each material was scrubbed with soap, water and brush ten times, weighed before and after. The average increase in weight is the figure used.

Soaking Test.—To determine the effect of leaks, samples of each material were weighed, the thickness measured, and then immersed in water for one hour.

TABLE B

SOAKING TEST

Each material was weighed and its thickness measured. It was then immersed in water for one hour, weighed and measured again after the drip had stopped. After three days each was weighed again.

	WEIGHT			THICKNESS			WEIGHT
	Before	After	% of Gain	Before	After	% of Gain	After 72 hours
FELTS							
1. *Nashkote A*	4 oz.	7 oz.	75%	5/8"	11/16"	10%	Normal
2. *Nashkote B*	4 oz.	8½ oz.	100%	5/8"	11/16"	10%	Plus 25%
3. *Flax-li-num*	3 oz.	7½ oz.	150%	7/16"	9/16"	28%	Plus 33%
4. *Balsam Wool*	2 oz.	Entirely Disintegrated					
5. *Acoustibloc*	6 oz.	7 oz.	17%	1½"	1½"	0	Normal
6. *Fibrofelt*	4½ oz.	14 oz.	211%	1"	1⅛"	125%	Plus 70%
FIBRES							
7. *Acousti-Celotex*	10 oz.	16 oz.	60%	7/8"	15/16"	7%	Plus 20%
8. *Acoustex*	12 oz.	19 oz.	58%	17/16"	17/16"	0	Plus 25%
PLASTERS							
9. *Akoustolith*	10% oz.	12 oz.	14%	6/8"	6/8"	0	Normal
10. *Sabinite*	5 oz.	6 oz.	20%	5/8"	5/8"	0	Normal

After one hour soaking, the membranes of *Nashkote A* and *B* were noticeably loosened.
After a second hour of soaking the cement had entirely lost its strength.

STEAM STERILIZATION TESTS IN HOSPITAL AUTOCLAVES

	Akoustolith	*Sabinite*
Weight of sample before testing	269	122 Grams
Weight of sample after 30 minutes sterilization at 180 degree dry heat	265	115 "
Weight of sample after steam sterilization of 15 lb. pressure for 30 minutes at 121 degrees	265	115 "
Weight of sample 3 hours after the test	265	115 "

After these tests were made the appearance of the *Akoustolith* sample was the same, and there seemed little if any tendency for the material to crumble or disintegrate.

The *Sabinite* showed slight softening after dry heat, but not after steam.

TABLE C

Reports from hospitals in various cities showing the frequency of washing and painting the ceilings and upper walls in certain rooms where acoustical materials should be used.

Hospitals	HOW FREQUENTLY WASHED				HOW FREQUENTLY PAINTED			
	Corridors	Nurseries	Labor Rooms	Delivery Rooms	Corridors	Nurseries	Labor Rooms	Delivery Rooms
	Every	Every	Every	Every	Every	Every	Every	Every
1. N. Y. City	6 mos.	3 mos.	3 mos.	3 mos.	1½ yrs.	1 yr.	1 yr.	1 yr.
2. N. Y. City	24 mos.	24 mos.	6 mos.	6 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
3. N. Y. City	12 mos.	3 mos.	3 mos.	3 mos.	3–4 yrs.	3–4 yrs.	3–4 yrs.	3–4 yrs.
4. Brooklyn	6 mos.	1 mo.	4 mos.	4 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
5. Brooklyn	6 mos.	3–4 mos.	3–4 mos.	3–4 mos.	3 yrs.	3 yrs.	3 yrs.	3 yrs.
6. Brooklyn	6 mos.	1 mo.	6 mos.	3 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
7. Brooklyn	3 mos.	3 mos.	3 mos.	1 mo.	1 yr.	1 yr.	1 yr.	1 yr.
8. Port Chester	3 mos.	3 mos.	3 mos.	3 mos.	1 yr.	1 yr.	½ yr.	½ yr.
9. Rochester	1 mo.	3 mos.	1 mo.	1 mo.	3 yrs.	1 yr.	½ yr.	½ yr.
10. Utica	24 mos.	24 mos.	24 mos.	24 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
11. Buffalo	6 mos.	6 mos.	6 mos.	6 mos.	2-3 yrs.	2-3 yrs.	2–3 yrs.	2–3 yrs.
12. Valhalla	12 mos.	3 mos.	3 mos.	3 mos.	4 yrs.	2 yrs.	2 yrs.	2 yrs.
13. Boston	12 mos.	12 mos.	12 mos.	12 mos.	2–3 yrs.	2–3 yrs.	2–3 yrs.	2–3 yrs.
14. Boston	12 mos.	1 mo.	12 mos.	12 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
15. Providence	1 mo.	1 mo.	1 mo.	1 mo.	3 yrs.	3 yrs.	3 yrs.	3 yrs.
16. Pittsburgh	6 mos.	4 mos.	4 mos.	4 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
17. Erie	12 mos.	3 mos.	3 mos.	3 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.
18. New Haven	6 mos.	3 mos.	3 mos.	3 mos.	2 yrs.	2 yrs.	2 yrs.	2 yrs.

(Continued on page 148 adv. section)

NOTES AND COMMENTS

APPLICATION OF APARTMENT HOUSE DATA TO AN ACTUAL LAYOUT

IN RESPONSE to the arguments advanced by Mr. Henry Wright in his article, "The Modern Apartment House,"* and which emphasize the greater net return possible when less ground is covered owing to a decrease in the hall space required, a reader writes him, and with a specific case in mind inquires as follows:

"We shall take a northwest corner because of the morning and afternoon sunshine, size 100 feet facing east and 150 feet facing south. On this we shall erect to best advantage, as stated in your article, a 5-story apartment house. Would you make it a "U"-shape with the light court facing south? What width should the court be, 40 feet or 50 feet? The apartments will be two and three rooms. The main floor will cover the entire property except where the side and back are set back. The main floor is to be separate from the apartments above and will have its own entrance near the corner on the 100-foot side, the apartment entrance being at the other end. At the far end of the 150-foot side will be another entrance for the apartments.

"The set-back is 10 feet on the 100-foot side, 10 feet above the main floor; the 150-foot side has to be set back 8 feet, 8 feet up from the ground.

"The ground value is about $40,000. The apartments would rent for $50 a month for two rooms and $75 for three rooms.

"The cost of construction is 35 cents, or a trifle less, a cubic foot. The basement will be 8 feet under sidewalk level with a 12-foot basement ceiling. The apartments may have any ceiling height desired.

"The building should be of reinforced concrete, sound proof, and containing every thing that will make it rentable. How can this space be divided to best advantage? What features must these apartments have in order that they may be rented ten years hence?

"How would an efficient typical floor plan appear when divided into two and three room apartments The halls can be 4 feet 6 inches according to our building code, and are required to run to light.

"I should like to know what could be built and what the earnings on a financing proposition would be."

Mr. Wright has prepared, in reply to these inquiries, a comparative analysis of the possibilities in developing the site. Three schemes are illustrated: the customary solution of covering a maximum ground area, and two solutions covering less ground area but so planned that the apartments will have a minimum of corridor space. In explanation of his analysis of comparative costs, Mr. Wright's comments to his correspondent are as follows:

"An archaic plan is proposed for consideration. Many persons conclude that because the tenement law says you must not cover more than 70% of your land nor go nearer to the side and rear lot lines than 8 and 10 feet, the first thing to do is to proceed to these maximum conditions and then, in order to use all the space, to fill your building with wasteful halls.

"After mentioning such requirements as more morning and afternoon sunshine and facing south, you suggest a plan in which at least two apartments on every floor will face north on only an 8-foot light court with no communication through which they can get south, east or west sunshine, breeze and outlook. Two more apartments on each floor will have only a west exposure on a 10-foot court; these would of course get sunlight and a breeze from the west until a building is erected on the property next door.

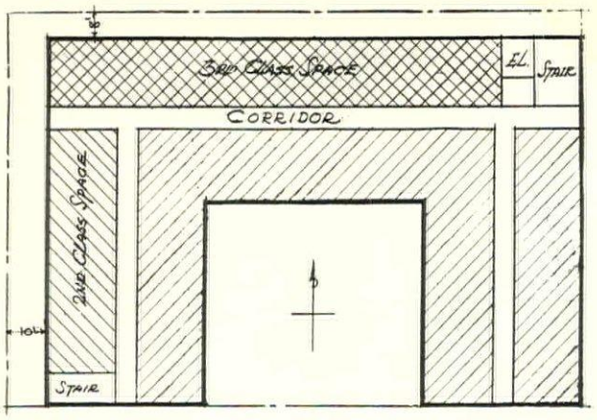
"You speak of apartments so planned that they will be rentable ten years hence. Let us hope that builders as well as tenants will begin to appreciate the tremendous economic loss in dark inside court apartments by then, in which case at least 40% of such buildings as the one you suggest will be vacant as they deserve to be.

"I shall not attempt to offer any suggestions for a typical efficiency plan or a building required to be sound proof, and to contain everything that will make it rentable. It would take more than labor-saving accessories to make the kind of building you propose,—and there are hundreds of them planned, particularly in Western cities,—really rentable to people who appreciate the comforts of sunlight, outlook and quiet. Fortunately for builders, only a few people ever insist on these essentials. Others will accept as substitutes gaudy foyers, gas fireplaces, humidified air and elevators.

"My suggestion to you is to employ the best architect in your city. Ask him for an economic analysis of the problem. Some stupid building laws may have to be changed if they require you to fill the plans with halls and place stairs on all the best outside exposures. Such cities as New York and Chicago have changed their laws within the last year so that for walk-up fireproof apartments only one stairway and no fire escapes to each section of an apartment building with two or more stair groups are required. The Michigan Boulevard Gardens,* for

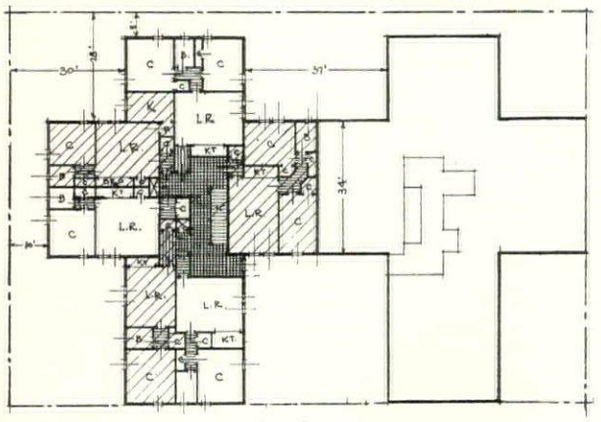
* See the March, 1929, issue of The Architectural Record, pp. 213–245.

* Klaber and Grunsfeld, Architects. See the March, 1929, issue of The Architectural Record, p. 223.



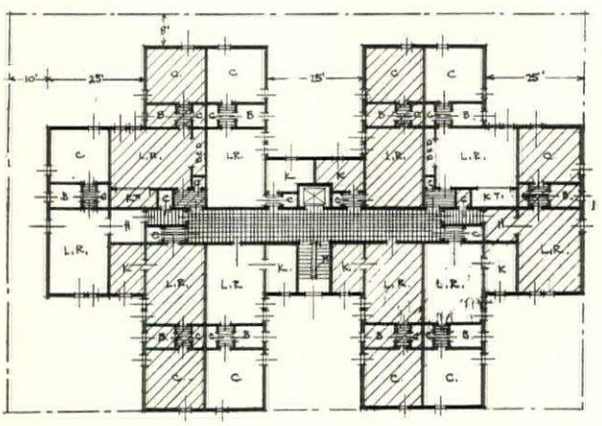
A-66⅔%

Plan "A" 35 Rooms on each floor		
6 floors Total Cost of Building		$288,000
	Room Area	Floor Area
Net	**224** Sq. Ft.	7822 Sq. Ft.
Stairs and necessary hall	20 " "	678 " "
Excess hall	42 " "	1500 " "
Area	286 Sq. Ft.	10,000 Sq. Ft.
	Room Cost	Bldg. Cost
Room rental $25.00 a month	$300.00	$63,000
Carrying charges	285.07	59,864
Profits	$ 14.93	**$ 3,136**



B-58⅓%

Plan "B" 35 rooms on each floor		
4 floors Total Cost of Building		$180,960
	Room Area	Floor Area
Net	**229** Sq. Ft.	8022 Sq. Ft.
Stairs and necessary hall	19 " "	678 " "
Area	248 Sq. Ft.	8700 Sq. Ft.
Annual Expenses and Return		
	Room Cost	Bldg. Cost
Room rental $25.00 a month	$300.00	$42,000
Carrying charges	270.62	37,887
Profit	$ 29.38	**$ 4,113**



C-60%

Plan "C" 28 rooms on each floor		
8 floors Total Cost of Building		$371,772
	Room Area	Floor Area
Net	**297** Sq. Ft.	8308 Sq. Ft.
Stairs and necessary hall	24 " "	672 " "
Area	321 Sq. Ft.	8980 Sq. Ft.
Annual Expenses and Return		
	Room Cost	Bldg. Cost
Room rental $27.50 a month	$330.00	$73,920
Carrying charges	313.20	70,158
Profit	$ 16.80	**$3,762**

APARTMENTS COVERING LEGAL LIMITS OF LOT SHOW LESS PROFIT

	Type	*Lot Coverage*	*Light and Air*	*Corridors*
"A"	Ordinary	Maximum	Deficient	Wasteful
"B"	Efficient	Desirable	Satisfactory	Economical
"C"	Efficient	Satisfactory	Ample	Reasonable

which I was consulting architect, are five stories high, fireproof and based on this single exit plan.

"According to your plan, you fill the lot to the maximum side line restrictions with hall entrance apartments, leaving a court about 56′ x 52′ toward the south street. You then cover 10,008 of the 15,000 square feet, or 66⅔% of the lot. My article plainly states that it is uneconomical to cover more than about 50% on land costing less than $5.00 a square foot. Your land is to cost $2.66 a square foot. Roughly estimating, you should be able to pay the carrying charges with a four-story building covering between 55% and 60% of the property or with a five-story building covering 50%.

"The plan without halls will be actually more flexible than one with halls so a greater efficiency and better room sizes should be secured. The comparison of the two plans follows:

	A. Submitted Plan 6 Stories	B. Small Hall Plan 4 Stories	C. Larger Rooms 8 Stories
Rooms	6 x 35 = 210	4 x 35 = 140	8 x 28 = 224
Floor area in square feet	10,000	8,700	8,980
Height in feet	72	52	92
Cubic contents	720,000	452,400	826,160
Cost at 40¢ a cubic foot in each case (no extra cost assumed for elevator)	$288,000	$180,960	$371,772
Add 12% financing and carrying charges and multiply 11½% annual charges*	$34,560	$21,715	$37,738
$40,000 site cost and $10,000 carrying charges, etc. Multiply by 9% annual charge	4,500	4,500	4,500
Maintenance and vacancies (No elevator $72; 6-story elevator $78; 8-story elevator $80)	16,380	10,080	17,920
Annual charges	57,974	37,887	71,158
Allowing for 3% more vacancies on account of lack of proper light and air	1,890	.....	.....
	$59,864		

Why do you desire elevators? As owner of anything less than five or ten such apartments you cannot afford to bother with the extra care of an elevator. "Secondly, why halls? Do you need them to get a good loan? Banks have been known to make loans on useless dead air space before now. A hall 140 feet long should be at least 6 feet wide to appear well-proportioned or to give the children a proper place to roller skate and play ball.

"The cubic area of these halls for 6 floors is over 120,000 cubic feet. Properly finished they will cost about as much as other space, less the mechanical equipment, or about 30¢ a cubic foot, thus adding at least $40,000 and probably $50,000 to the cost of the building. A building with two simple stairways and no elevators can be readily designed and for the same net room area it will have about 1300 square feet less gross area on each floor.

"Even ignoring the supposition that a large part of the A plan is absolutely second class space and allowing $25 monthly rental for each room in each case, we have nearly as much surplus from the four-story scheme as from the six-story plan (see table). If your plan develops 3% more vacancies owing to a part of the building opening on a court 16 feet wide, you would lose 3% of $63,000, or $1,890, which reduces the surplus profit to $3,136, which is $977 less than the profit on the revised plan.

	Rooms	Yearly Rental	Total Rent	Carrying Charges	Surplus Profit
Plan A	210	$300	$63,000	$57,974	$5,126
Plan A with allowance for increased vacancies	....	....	63,000	($57,974 + $1,890)	3,136
Plan B	140	300	42,000	37,887	4,113
Plan C	224	330	73,920	70,158	3,762

"I have omitted altogether consideration of stores in either case. If the ground rental from stores is only $5,000 a year more than the carrying charges this would allow a reduction in the case of the A plan of $2.40 a month for each room, whereas in the B plan it will permit a $3.50 reduction and keep the same net return.

"The whole fallacy is that by borrowing more money and building larger buildings we think we obtain a greater net return, whereas the opposite is often true. All our zoning laws are about 30% too lenient for the good of the owner as well as the public."

* Carrying charges under A, B and C without the surplus provide for 6% on the equity besides the amortization of 2½% of the total building cost, so that the owner in 10 years at a moderate vacancy would have paid off ⅓ of this original cost and be receiving an additional return equal to 6% on this retired amount.

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BOOK REVIEWS

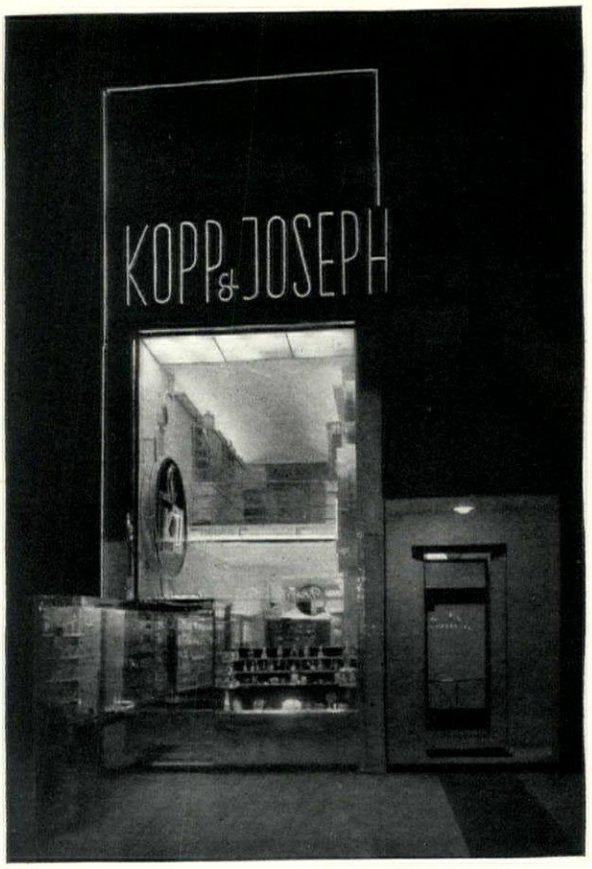
GLAS IM BAU

KORN, ARTHUR

Glas im Bau und als Gebrauchsgegenstand. Berlin: Ernest Pollak

"GLASS for Building and Objects of Use" contains 187 excellent illustrations chosen from the most advanced German point of view. It is divided in four parts. Each division is preceded by an article explaining the technique of the materials illustrated: opaque glass, prism glass and glass brick, mosaic and glass painting, and glass for illuminating. The articles contain more than mere information; they are written with enthusiasm. The leading article by Herr Korn, the compiler of the book, is an almost ecstatic appreciation of new uses for glass in building.

Glass is the material which encloses space without the appearance of its being there. It is a skin between man and the elements which lets pass the benefits of light and controls for us sound, air, dirt, heat, cold and the rain. Open your walls to floods of sunlight and build your rooms inside with the daylight of the street permeating the very partitions. Let the anatomy of your building show not between banks of glass but through great areas of cantilevered crystal. Such are the office building by Mies van der Rohe and the work shops at Dessau. Put your store on the street like an oriental bazaar behind a great sheet of plate glass which makes the store beyond at once part of the street and apart from the street, as in Korn's apothecary shop. Use tremendous areas of glass to be flooded by night with illumination. Place neon light lettering against these backgrounds for night advertising, and by day profit from the light diffused through a glass wall as in the stair shaft by Krayl. New methods have made glass strong enough for use as furniture and proof against heat



VIEW BY NIGHT
SHOP OF KOPP & JOSEPH
A. KORN AND S. WEITZMANN, ARCHITECTS

VIEW BY DAY
SHOP OF KOPP & JOSEPH
A. KORN AND S. WEITZMANN, ARCHITECTS

for cooking. Look at these recent developments in the glass technique and conjecture the possibilities of glass used fully as a building material.

The choice of illustrations show the latent powers in glass which fascinate Korn. How far these possibilities are discernible in present expressions, how much new technical achievement is put to the test; these are the qualities he seeks to show. Underlying his thought is always the realization of building as space and volume, part of which must be enclosed in glass.

The German sense of carrying an idea to completion tends toward a substitution for windows of areas entirely of glass; their love of cleanly expressed ideas and uninterrupted space results in what people of of another mind call hardness and bareness. They have caught the artisan's sense of the material itself and its intrinsic nature more purely than any other contemporary nation and are expressing this sense on an unprecedented scale. As the articles by Deutsch, Liese, Gehrich and Osram show, they are a progressive and enthusiastic body of technicians. Their artists and manufacturers are eager to impart the qualities and limitations of their products in order to establish a right use of them and a fuller appreciation. A book exhibiting coöperation on such a geographic and industrial scale as does *Glas* comes as an inspiration; it cannot be regarded as illustrating an arbitrary whim but must be held as an index of a powerful current in design.

SHEPARD VOGELGESANG

GROPIUS, WALTER

Internationale Architektur. Bauhausbucher I. Second edition. Munich, 1928

WHILE the activities of the *Bauhaus Institut* of Dessau are various it is perhaps in architecture that the most significant work is done. In the excellent series of small, inexpensive and well illustrated books which the *Bauhaus* issues, the two devoted to architecture, that of Gropius on *Internationale Architektur*, and that of Oud on *Hollandische Architektur*, have been perhaps the most valuable, with covers and typography designed by Lucia Moholy Nagy as modern and as interesting as the buildings illustrated within. The first of these has very naturally been exhausted in the three years since its first appearance. The present second edition makes it again possible to obtain what is perhaps the finest epitome of modern architecture and provides for the inclusion of certain work that has been executed since the book first appeared.

The full list of additions includes the designs of Honnes Meyer (of the *Bauhaus*) and Hans Witwer (of Basel) for the Palace of the League of Nations in which the frame is of aluminum covered steel; two Russian public markets, one by Ginsburg and Wladimiroff, the other by Mielnikoff, both in Moscow; two Dutch factories, one by Mart Stam, the other by van der Vlugt; the hangar at Orly in France by Freyssinet; a Russian factory by Norwert in Moscow; a design for a skyscraper by Neutra from his "Wie Baut Amerika;" a hospital project by Tony Garnier; the new houses of the *Bauhaus* professors by Walter Gropius; a country house by Krezcar of Prague; a house by Mart Stam of Rotterdam; steel houses by Georg Muche and Richard Paulick of the *Bauhaus*; the housing development at Pessac near Bordeaux by Le Corbusier and Pierre Jeanneret; a steel house by Marcel Breuer of the *Bauhaus;* houses by Oud at the Hook of Holland; houses in rows at Dessau by Walter Gropius; and finally apartments outside Frankfurt by Ernst May. Considering that these new examples are but representative of types, the new preface by Gropius, which the reviewer feels may well be quoted, is fully borne out.

"Since the appearance of the first edition (in 1925) the modern architecture of the various lands of western culture has followed the line of development indicated by this book with a surprisingly rapid tempo. Then but an idea, it is today a solid fact: the appearance of the modern buildings as they are shown in the innumerable publications of German, Slavic and Latin lands, is in general more than inspiring. As once Gothic, Baroque, Renaissance were current all over Europe, so the new spirit in building of our technical epoch begins more and more to cover the entire civilized world, borne by the intense standardization of international technique. The increasing interest of the general public in the development of the new theory of architecture points with certainty the sense of the new building: Provision for the demands of life. . . . Dessau, July, 1927."

HENRY-RUSSELL HITCHCOCK, JR.

KITCHEN MANAGEMENT

DAHL, J. O.

Kitchen Management. Harper & Brothers, New York. $5.00

THE location of the kitchen in the plan of a hotel, restaurant, or other building with food service, is obviously of concern to the designer, but too often it is placed as an afterthought in space "left over" after the dining and other rooms have been determined. That there is now a book on the kitchen, written for architects and hotel managers, is an indication of its importance and that there is something to be said about it.

In this volume the writer deals with the subject of waste resulting from poor planning; of the best kinds of kitchens for all types of institutions; of materials to use in floors and walls; of the position of pantries, store-rooms and dishwashing departments in relation to the main kitchen. Mr. Dahl is well known as a hotel, restaurant and club consultant.

YERBURY, F. R.

Modern European Buildings, First Series, 144 plates. Payson and Clarke. $19.00

MR. YERBURY was the co-editor, with Mr. Howard Robertson, of a volume on Modern French Architecture previously reviewed in THE ARCHITECTURAL RECORD. He is Secretary of the British Architectural Association, and spends most of his time now traveling over Europe in search of material for architectural publications. He has been largely responsible in England for the more general spread of interest in modern architecture and its developments since the Great War.

The strongest impression one gets from Mr. Yerbury's plates is simplification, the elimination of non-essentials. This, he thinks, has been mainly due to economic depression and the high cost of building. These have to force the architect into new experimental lines.

Mr. Yerbury may be partly right in seeing a more clearly developing national architecture in England than in most continental countries, but I do not find the evidence for it in the plates. The more creative, the more striking at least, in respect to design seem to be Finnish, Swedish, Danish, German, Dutch. It would seem also that, apart from the towering of our new American structures, European architects are bolder than ours; American architects are relatively conservative, if not timid. The main stream of creative art still flows in Europe. But Europe has not a unity. There is a European culture, but the adjective "European" in such connection is not geographical. Like the adjectives "Latin" or "Greek," it has long overflowed its borders. America is an essential part of that culture. Culturally, we are all Europeans, just as France or Spain is as Latin as Latium. It remains to be seen whether America will take advantage of its detached geographical position to evolve a national expression free from "styles" that have so long been associated with cultural attributes.

ARTHUR W. COLTON

A CORRECTION

THE interiors of the Jay-Thorpe Store illustrated in the June issue of THE ARCHITECTURAL RECORD were incorrectly attributed to Buchman & Kahn. While Buchman & Kahn were architects for the building, Whitman & Goodman were the architects solely responsible for the design of the interiors illustrated. The interiors are significant of the recent trend in the design of shops for women's wear in which luxuriously appointed *salons* serve as the setting for the display of models and the exhibition of garments. Counters and display racks are entirely eliminated.

Photo. Gottscho

JAY-THORPE, INC.
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Buildings along McKinlock Campus, Northwestern University, Chicago, Ill.

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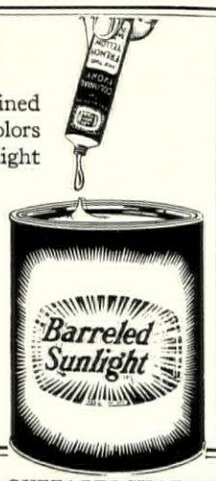

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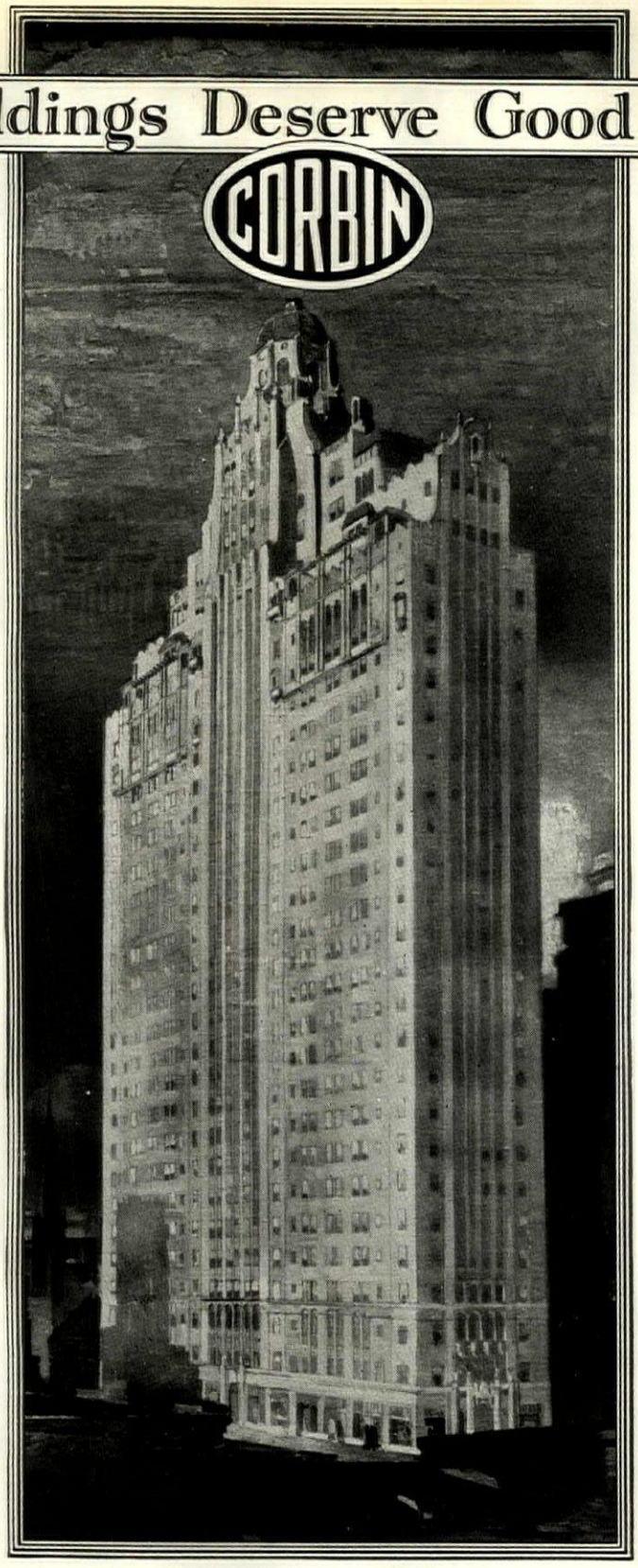
Good Buildings Deserve Good Hardware



Drake Apartment Building, Philadelphia. *From the painting by George Harding.*
Architects—Ritter & Shay, Philadelphia
Contractors—Murphy Quigley & Co., Philadelphia

WHAT do we see when we look down the corridor of an apartment building? Doors!—Guardians of valued possessions and privacy. But no door is stronger than its lock—which is one reason you see Corbin Unit Locks in so many fine apartments. For with Corbin there is no bargaining with protection—it is an integral part of every Corbin lock.

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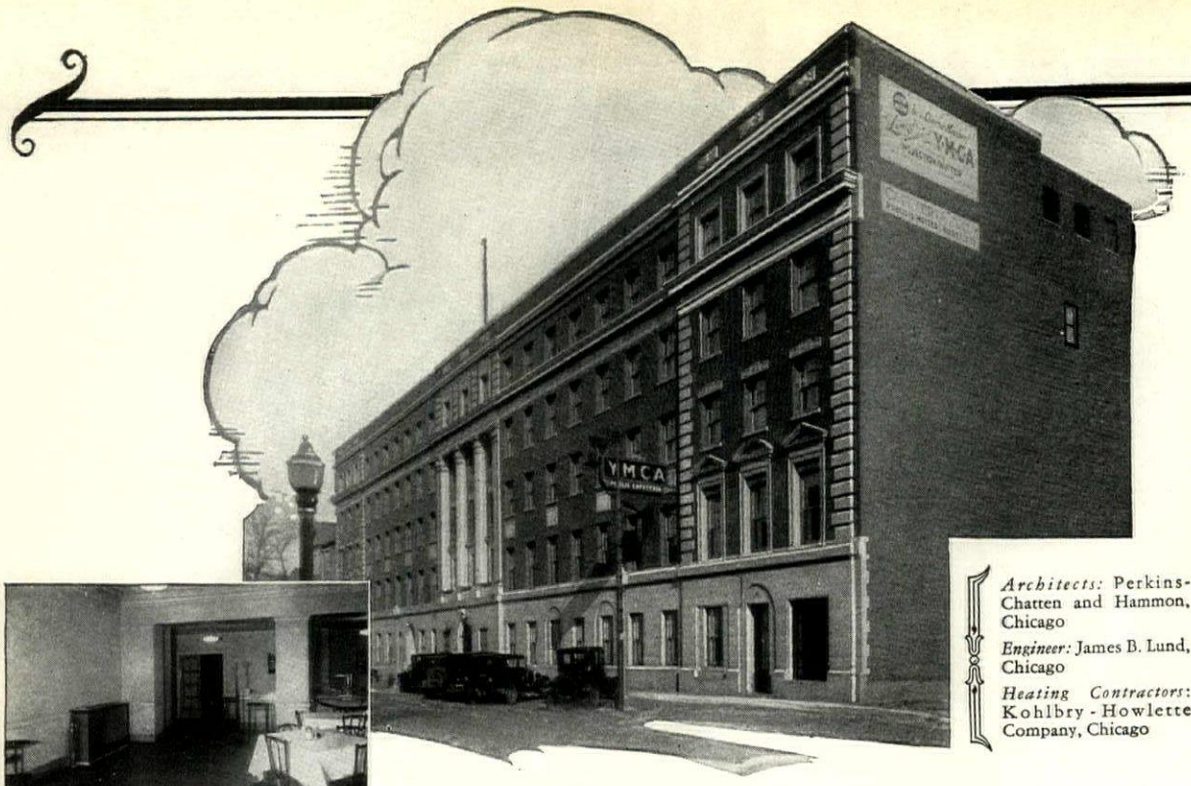
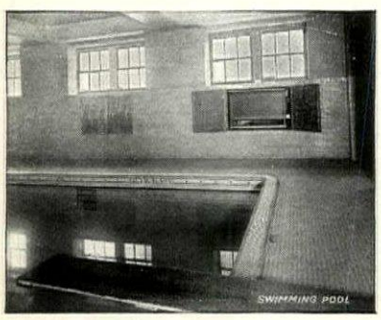
H. M. Bralowe Apartments	Washington, D. C.	Cathedral Apartments	San Francisco
		Overbrook Apartments	Washington, D. C.

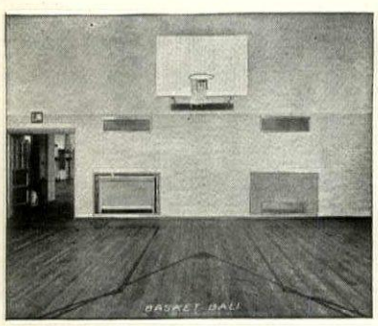


Architects: Perkins-Chatten and Hammon, Chicago

Engineer: James B. Lund, Chicago

Heating Contractors: Kohlbry - Howlette Company, Chicago





Chicago "Y" shows how Unit Ventilators should be used

As one engineer said, "It is one of the slickest unit ventilator jobs I have ever seen."

There are 27 Sturtevant Unit Heater-Ventilators in various parts of the building. In most cases they are "built in" and present a particularly good appearance. They are used for rapidly heating up rooms that are not continually in use . . . for bringing in outdoor air, filtering it clean and delivering it comfortably warmed (in winter) to the ever-popular "pool" . . . and for keeping "gym" and basket ball court at exactly the desired temperature without taking up an inch of space or making any obstruction.

Sturtevant Unit Heater-Ventilators offer to Architects, Engineers and Contractors a flexible system of heating and ventilation easily adopted to almost every situation. They are compact, handsome in appearance and SILENT! They can be used in old as well as new buildings — no expensive duct work necessary.

It would be a pleasure to send you a new Data-Catalog showing many actual installations in schools, public buildings, clubs, churches, offices, showrooms, shops and residences. It is a helpful book . . . our nearest branch office will mail you a copy on request — no obligation whatsoever!

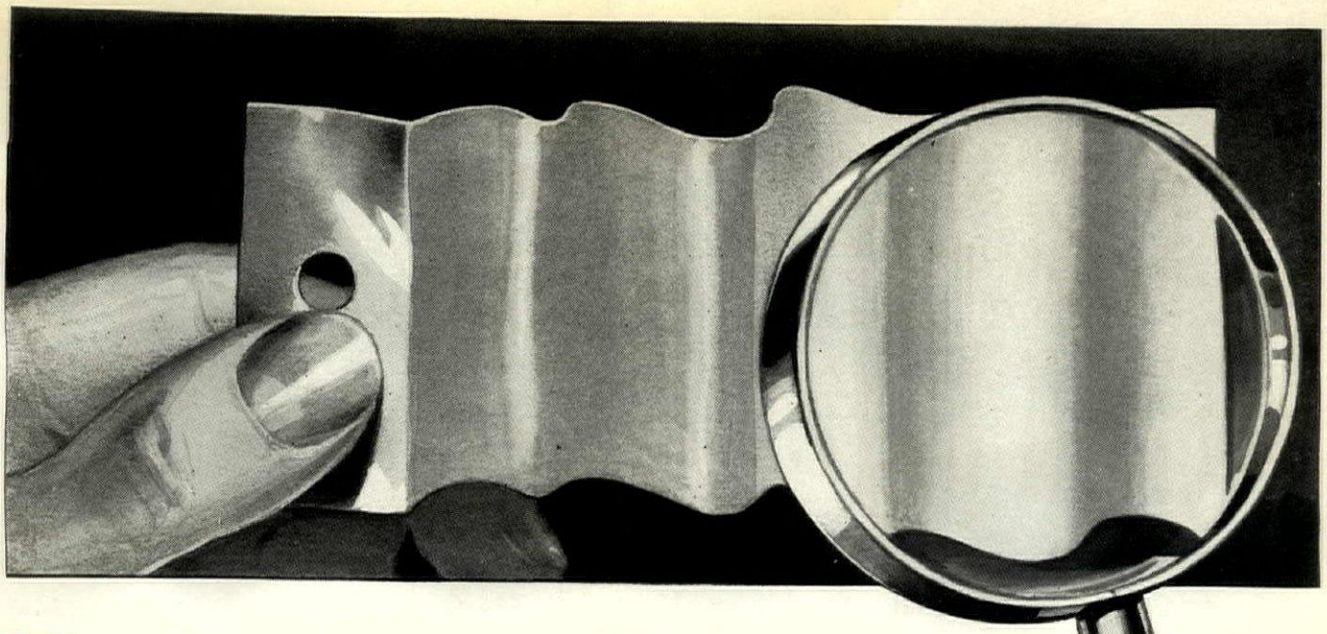
B. F. STURTEVANT CO.

Plants and Offices at: Berkeley, Cal., Camden, N. J., Framingham, Mass., Galt, Ontario., Hyde Park, Mass., Sturtevant, Wis. *Canadian Representative:* Kipp Kelly, Ltd., Winnipeg, *also Branches in Principal Cities and Agents in Foreign Countries.*

Sturtevant

REG. U.S. PAT. OFF.

The Silent Unit Heater-Ventilator



New type undercoater for flat wall paint!

HOLDS itself out so that it will not even stain through porous newspaper, yet so tenacious in adhesion, so elastic that coated tin can be bent and rebent without fracturing the film.

Velumina Wallhide
First Coater

—often saves as much as half the material on porous walls!

—seals, as no other product, against suction spot — lime — alkali, and moisture troubles!

—often can be re-coated in 4 to 6 hours, according to finishing material and condition of individual job!

Just a little use will show the painter how to make it a great time-labor and material-saver!

Specify it! Because no other material gives such sure insurance against suction spot, lime, alkali and moisture troubles—no other will insure such excellent high standard results in two coat work or offer the time saving possibilities in getting jobs done! Specification writers write for Booklet!

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FROM NON-FIREPROOF TO FIREPROOF

And a Floor Added Without Disturbing Work by Use of GYPSTEEL Pre-Cast Gypsum Slab Construction

APART of the Newark Evening News Building, after thirty years of service, had become antiquated. It was not fireproof. It increased the fire insurance on the main building. It really did not contain adequate floor space for the publisher's needs. The original steel work could not support an additional floor without reinforcement. Reinforcement meant interruption in the use of the building. What could be done?

By removing the old floor construction and installing the light-weight Gypsteel Pre-Cast Slab construction, the addition of another floor on the same supporting steel was practical. A sound resistant, fireproof floor and ceiling construction was obtained throughout. The Gypsteel System provided a construction that could be laid at the owner's convenience without interrupting work on the same floor or on the floor above or below.

THE NEWARK EVENING NEWS BUILDING, Newark, N. J.
Henry D. Scudder, Jr., *Architect and Engineer*

There were no forms to get in the way, no drip to harm the presses or annoy the workers. There was no wait for the material to dry and set. The finished floor was laid almost immediately after the Gypsteel workers left.

The building was redeemed, added to, and improved at a cost so small that the owners took absolute satisfaction in the job. The insurance rate was materially lowered.

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Easily Kept Like New

90 West Street Building, New York, N. Y. Cass Gilbert, Architect. Erected in 1906. Cleaning 23 years afterwards renews original appearance.

New structures most easily attract tenants. The importance of building for permanent newness is therefore obvious.

Terra Cotta with its impervious finishes does not absorb dirt. Being largely self-cleaning it is extremely slow to acquire grime.

The cleaning process for Terra Cotta—soap and water—in no way injures the surface. A Terra Cotta exterior can accordingly be cleaned just as often as necessary to keep the building in a permanently attractive condition to prospective tenants and always at minimum cost.

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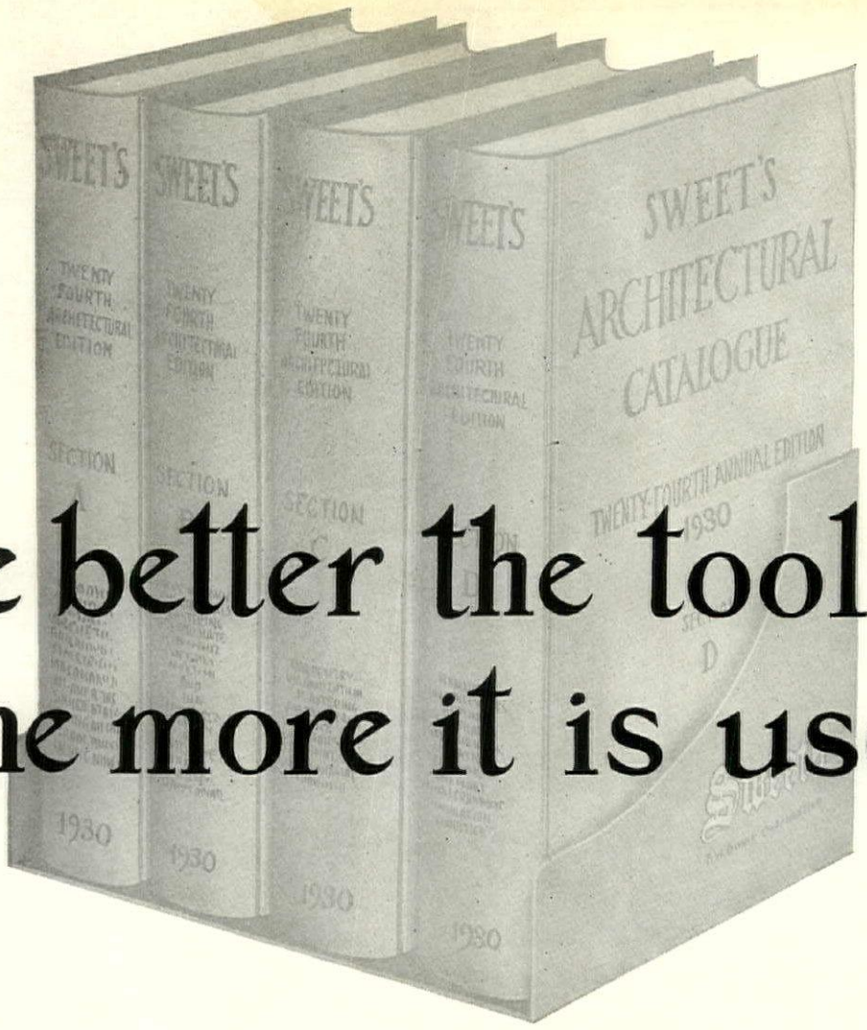
NATIONAL TERRA COTTA SOCIETY
230 PARK AVENUE NEW YORK, N. Y.
(On behalf of the Terra Cotta Manufacturers throughout the United States)



The better the tool, the more it is used!

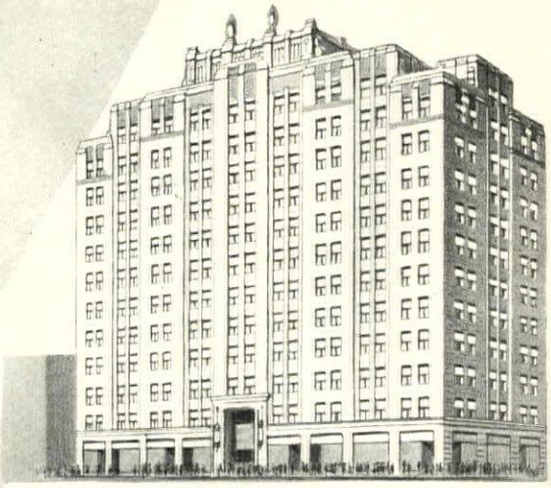
F.W. DODGE CORPORATION

SWEET'S Architectural Catalogues for 1930 ∿∿∿ 24th edition, now in course of preparation ∿∿∿ will, we expect, contain over 1,800 catalogues and more than 5,000 pages, and will be issued in FOUR volumes ∿∿∿ furthermore, it will contain a greatly increased number of COMPLETE catalogues ∿∿∿ making it a better working tool for the architect than ever before ∿∿∿ and for all this we very sincerely thank the architects of America ∿∿∿ who have told both manufacturers and ourselves what kind of catalogue they prefer and use ∿∿∿ and so have made it easier for us to give them just what they require.

RUSSWIN *in Minneapolis*

Northwestern National Bank Building
Minneapolis, Minn.

Architects —
Graham, Anderson, Probst & White, Chicago
Contractors —
C. F. Haglin & Sons Co.
Russwin Dealers —
Janney, Semple, Hill & Co.



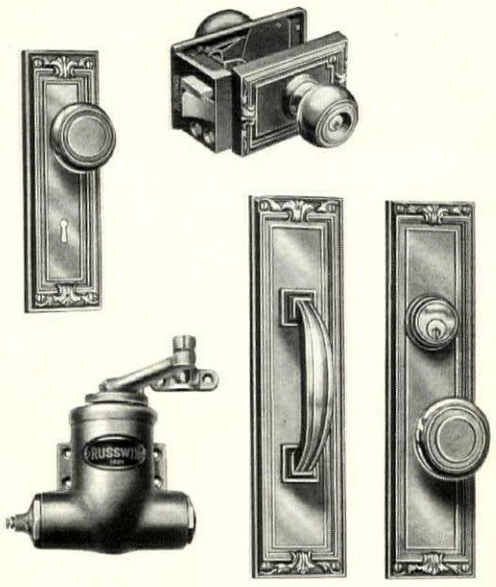
Hodgson Building — Minneapolis, Minn.

Architects - - S. N. Crowen and Associates, Inc., Chicago-Minneapolis
Contractors - Wells Brothers Construction Co., Chicago-Minneapolis
Russwin Dealers - - - Janney, Semple, Hill & Co., Minneapolis

MINNEAPOLIS, gateway to the Northwest, a progressive city of beautiful buildings, is the home of two new impressive structures to which it can point with architectural pride — the Northwestern National Bank Building and the Hodgson Building.

Both are equipped with Russwin Hardware, distinguished for originality of designs — modernistic and classic — as well as for enduring quality and the lifetime of trouble-free service which it renders.

A FEW RUSSWIN CREATIONS



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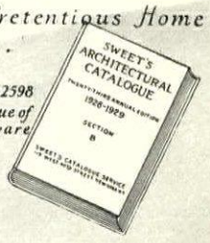

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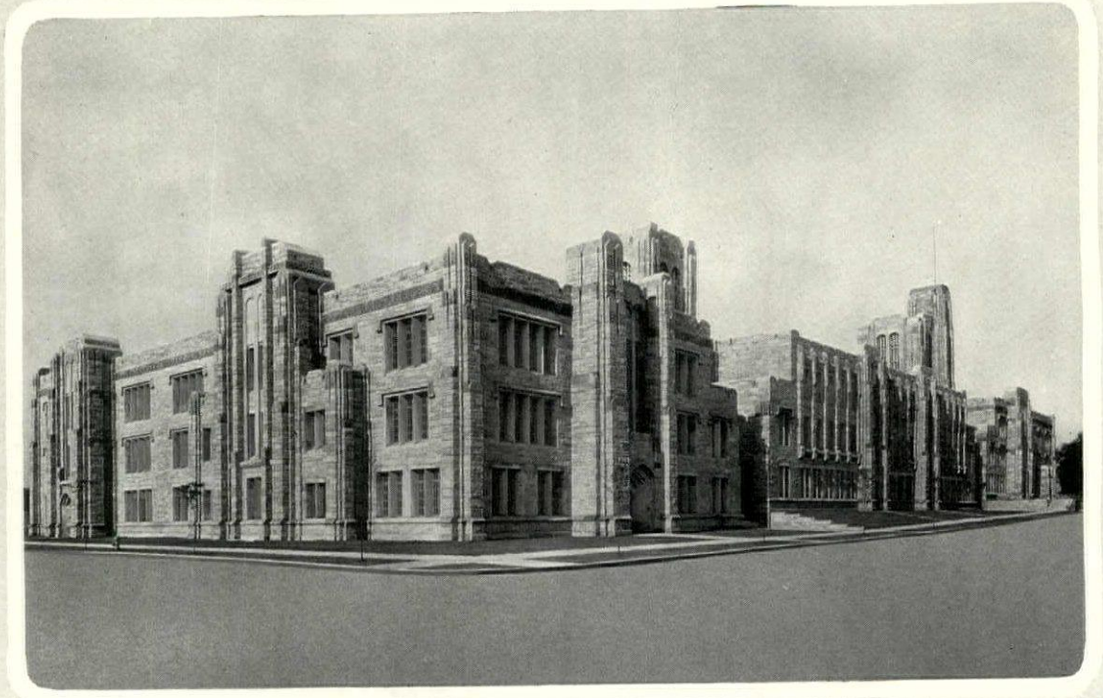

Butler University
Indianapolis, Indiana

Robert Frost Daggett, Thomas Hibben
Associate Architects

CASEMENT WINDOWS insure the maximum light and perfect, draftless ventilation so necessary to buildings devoted to educational purposes—and involve very slight cost for upkeep. * * * * Butler University, recently completed, is equipped with International Metal Casements, Custom-built.

Also Manufacturers of International Austral Windows

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Kohler Lavatory Fittings in the Dynamic Style. Plated with durable, easily cleaned Kohler Chromium Plate

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for a 100%-satisfactory installation

There are no weak links in an all-Kohler installation. Kohler enamel ware, vitreous china, and brass are all made *at Kohler* to one exceptionally high standard of excellence. They belong together, and when they are specified together the result is sure to be satisfactory to all concerned.

Consider the uncommon advantages that Kohler brass has to offer. It is *real red brass*, made up of a very high percentage of virgin copper—not loaded with zinc and other cheaper metals. It is remarkably free from pin holes. The castings are cleaner, the passageways free from obstructions. It machines better, takes a cleaner thread, makes a tighter joint, and produces a better-looking, better-lasting job.

Kohler brass, used with Kohler fixtures, not only insures quality but also simplifies the work of preparing specifications. Responsibility is centered and deliveries facilitated. Large orders, as for apartments and hotels, can be shipped as needed, with brass fittings accompanying the fixtures, all ready to install. . . . Our representatives will be glad to explain in detail the advantages of *full Kohler service.*

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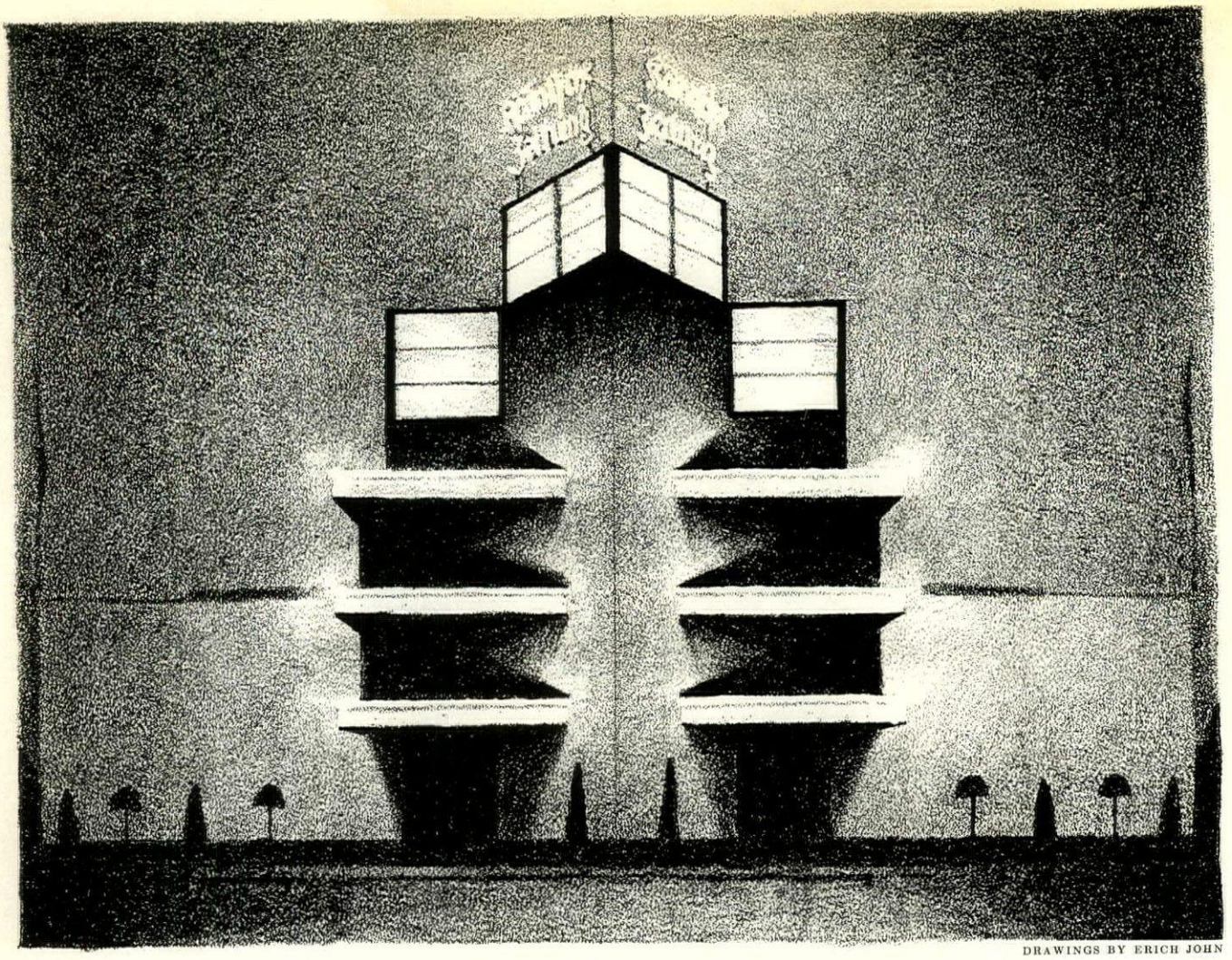
LOOK FOR THE KOHLER TRADE MARK ON EACH FIXTURE



DRAWINGS BY ERICH JOHN

The MODERN touch in great public services

No. 5 of a series

of interesting examples of the modernistic note in European architecture. The illustration shows a night view with novel flood-lighting effects of the Exhibition Pavilion of the Kölnische Zeitung in the 1928 Press Exposition at Köln. The Architects were Riphahn and Grod of Köln. The tower in the centre is sexagonal, and the pavilion itself is placed on the main axis of the House of Nations.

DODGE REPORTS, like that outstanding daily journal The Kölnische Zeitung whose Exhibition Pavilion in the modern manner is shown above, constitute a public service whose roots are fixed in the nation as a whole—for building is the second largest industry of America. In line with the modern trend towards still further perfected service, Dodge Reports are aimed toward the elimination of waste in time and money, for they make it at once easier for manufacturers to sell building products and easier for architects to specify and buy them.

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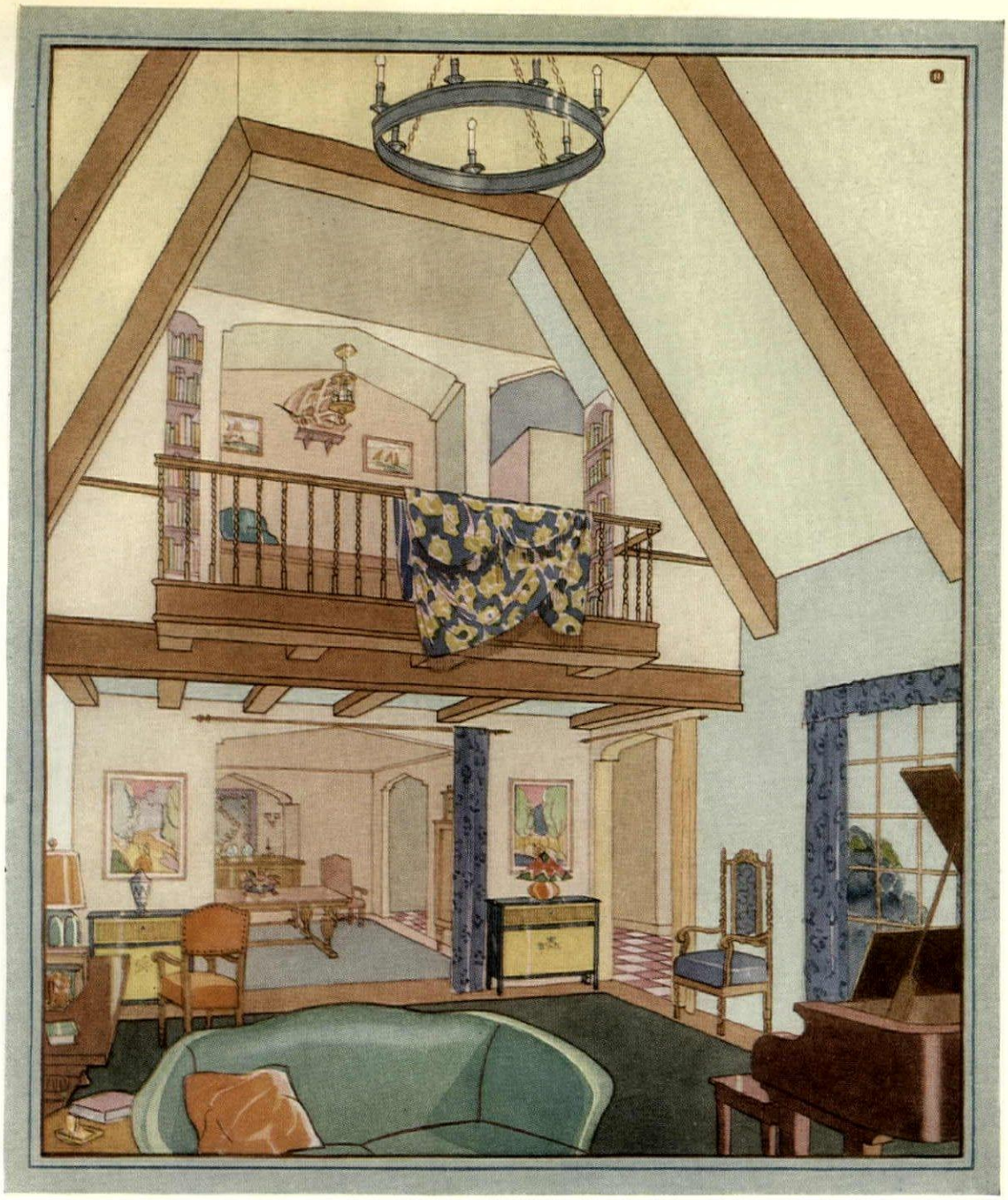

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in the modern Studio Living Room

THE modern heating equipment for modern rooms . . . harmonious, decorative and above all, wonderfully efficient . . . The fact that the Modine Cabinet Heater insures complete heating comfort in rooms that are recognized as hard to heat, recommends it to you for all rooms . . . Built in two models . . . Floor Type above equipped with efficient built-in humidifier . . . . Wall Type, only 5½ inches in depth and recommended where space is a most important factor as in apartments, offices, shops, etc.

Write today for our latest catalog in full color giving complete facts about Modine Cabinet Heaters.

Originators of
COPPER RADIATION

USED IN PLACE OF CAST IRON RADIATION SINCE 1922

Manufacturers of
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MODINE MANUFACTURING CO., (Heating Division) 1702 Racine Street, RACINE, WIS.
Branch Offices in all Large Cities . . . . . London Office: S. G. LEACH & CO. Ltd., 26-30 Artillery Lane.

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The KERNERATOR is made by a permanent, solidly organized and successful company, which introduced flue-fed incineration some sixteen years ago. Not a side line—this company's entire efforts and plants have always been devoted to the study, development and construction of incinerators.

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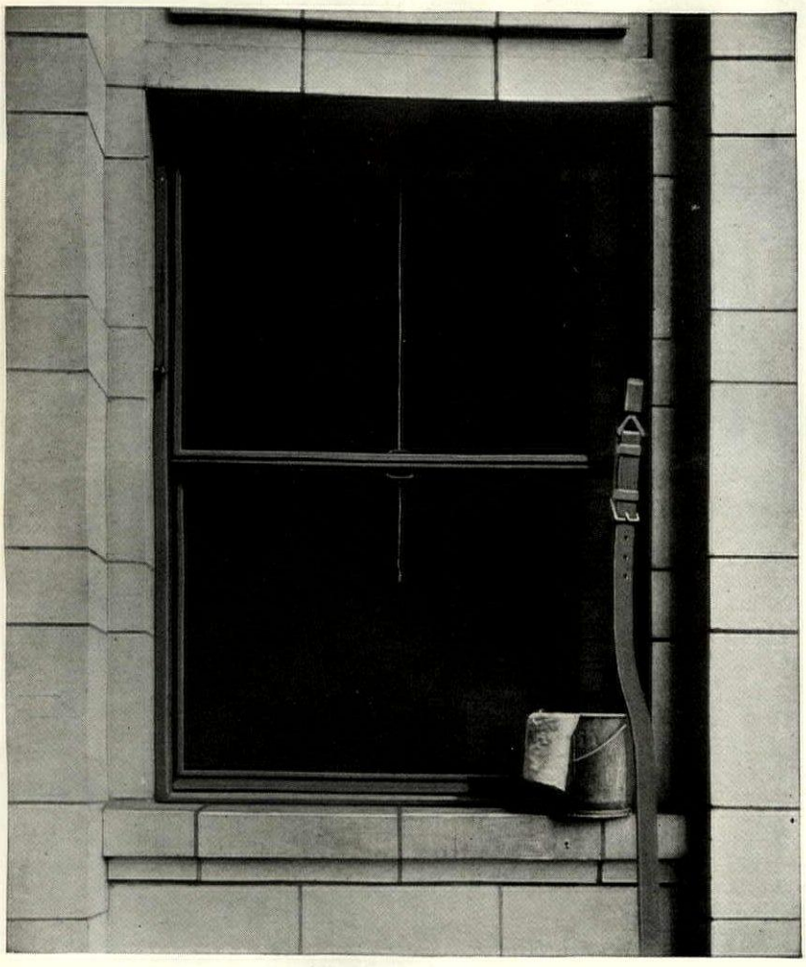
A Bucket... A Chamois... and a Dangling Strap...



Man Plunges to Death While Cleaning Window

Falls From Twenty-fifth Floor of Bank Building When Safety Belt Fails Shortly After Leaving Wife and Children.

"Good bye, mother, when I come home tonight we'll have some real music," called back Henry Kroeger, 39, to his wife, Elizabeth, as he left home for work yesterday morning.

Kroeger had bought a radio to cheer and brighten his wife and three step-children in his little home at 1308 Tell street, Northside. He was going to take it back to the store to get a different loud speaker during his lunch hour for the one he had wasn't satisfactory.

But fate intervened. For while cleaning a window on the twenty-fifth floor of the First National Bank landed in the banking room on the fifth floor.

His broken body was picked up by bank employes and rushed to Mercy Hospital where he died two hours later without regaining consciousness.

Kroeger, a printer by trade, had taken the window cleaning job temporarily about a year ago and was waiting for the opportunity to resume the printing work.

"We had been planning for our birthday party soon," sobbed Mrs. Kroeger, "Henry and I had the same birth date. He was so happy about it."

Williams Reversible Window Equipment Would Have Averted This

Grim tragedy menaces every move of the window washer who cleans from the outside. Scores of fatalities every year, resulting from carelessness or failure of safety equipment make window cleaning one of the most hazardous of industrial occupations.

The cost of one fatal window cleaning accident can wipe out the profits of years of successful operation of a building. The window cleaner knows the dangers of his job and justly demands a premium wage for the risk he takes.

Williams Reversible Window Equipment permits the regular building employees to clean windows from the inside safely and rapidly. Recent tests have shown that Williams Equipped Windows can be cleaned safely in 40 to 50 per cent less time than is required to clean ordinary double hung windows of equal size.

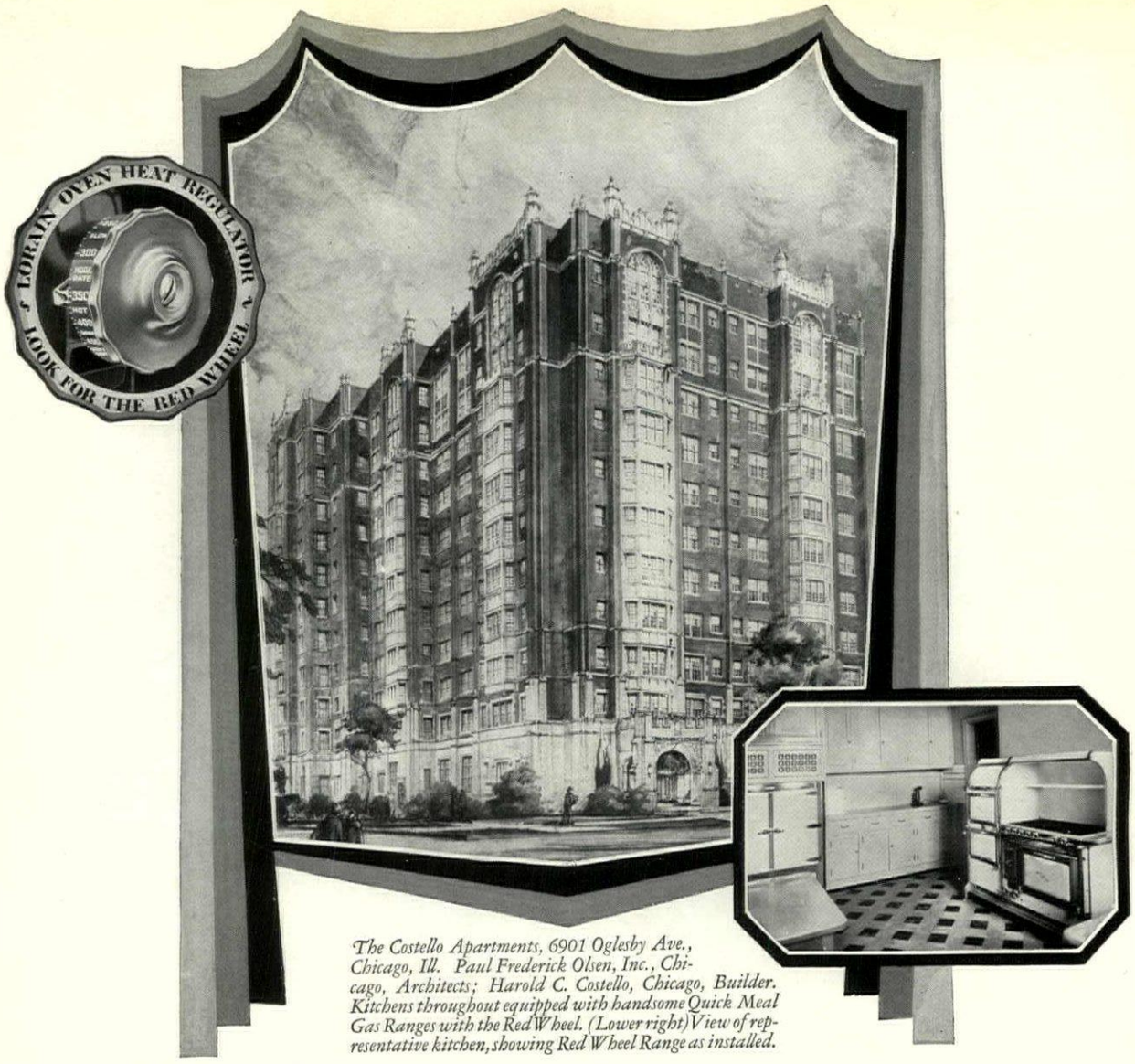
THE WILLIAMS PIVOT SASH COMPANY

For twenty-five years manufacturers and installers of reversible window equipment

E. 37th St. at Perkins Ave., Cleveland, Ohio

WILLIAMS REVERSIBLE WINDOW EQUIPMENT

Clean Your Windows from the Inside



The Costello Apartments, 6901 Oglesby Ave., Chicago, Ill. Paul Frederick Olsen, Inc., Chicago, Architects; Harold C. Costello, Chicago, Builder. Kitchens throughout equipped with handsome Quick Meal Gas Ranges with the Red Wheel. (Lower right) View of representative kitchen, showing Red Wheel Range as installed.

"*There is Nothing* BETTER!"

There is nothing better—once you install Lorain Red Wheel Gas Ranges in your apartments you can offer prospective tenants the utmost in modern cookery equipment.

There is nothing better—all-enamel finishes are attractive, durable, easy to keep clean; capacious ovens and efficient broilers produce deliciously cooked foods; the Red Wheel gives hours of leisure to the home-maker, watching the baking while she is miles away; hundreds of sizes and styles to choose from.

There is nothing better—ten years of continuous advertising in well-known national magazines have made these gas ranges best known to women everywhere; over 2800 schools and colleges use these ranges to instruct classes in cookery.

There is nothing better—six famous lines to select from: ***Dangler, New Process, Quick Meal, Reliable, Clark Jewel, Direct Action.*** All are made by American Stove Company. See Sweet's Catalog, 23rd Edition. Pages C4009-4018.

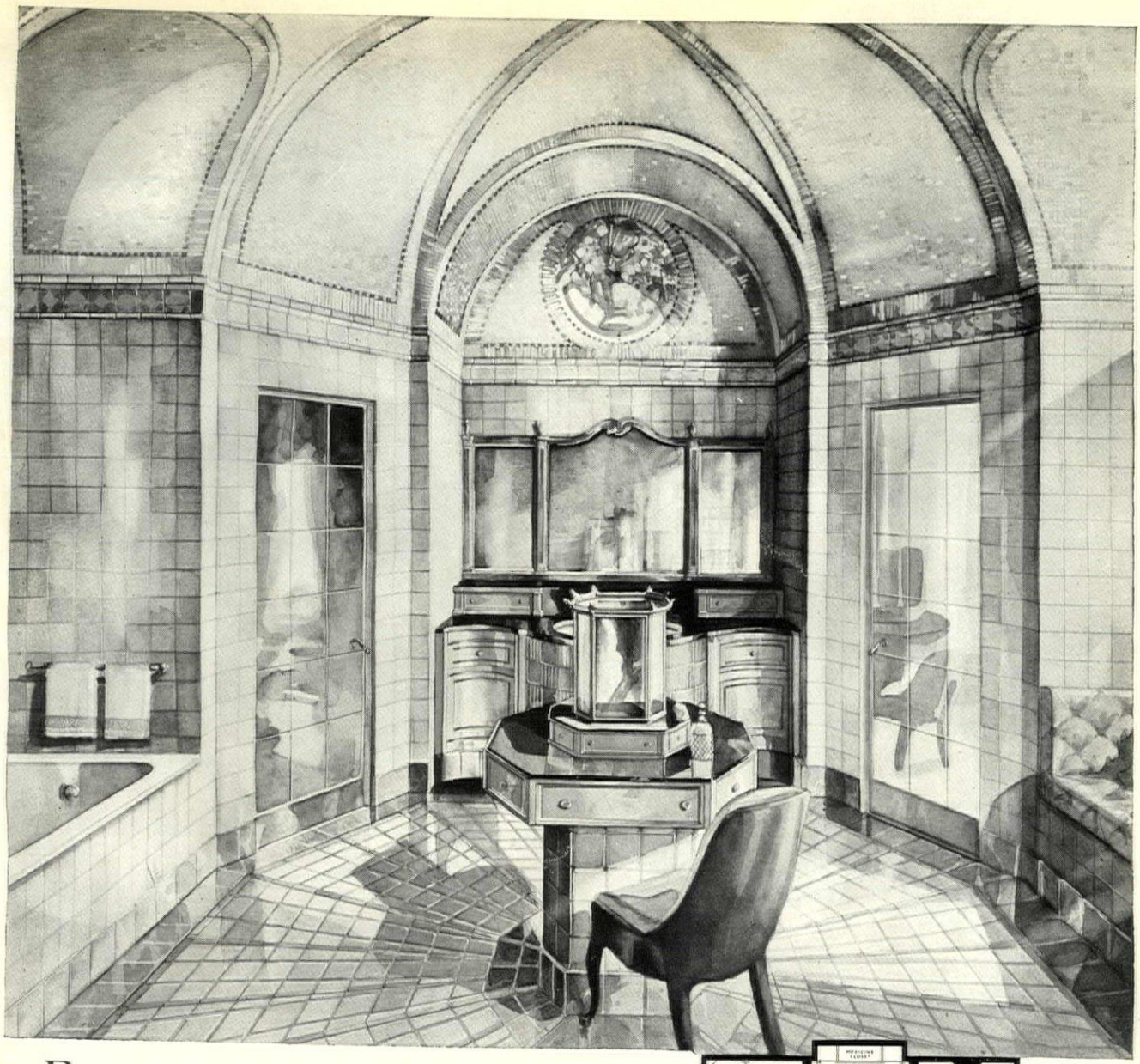
For data regarding models to meet unusual requirements write to

AMERICAN STOVE COMPANY, 555 *Chouteau Avenue, St. Louis, Mo.*
LARGEST MAKERS OF GAS RANGES IN THE WORLD

UNLESS THE GAS RANGE HAS A

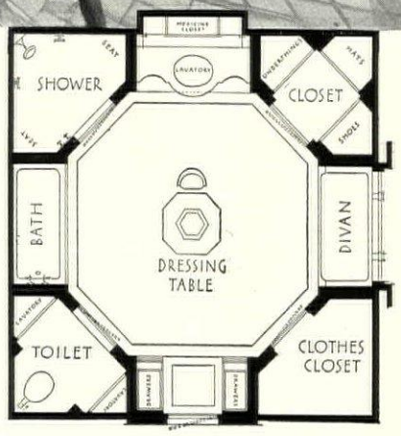
RED WHEEL

IT IS NOT A
LORAIN



FREDERICK G. FROST designed this bath-dressing room. Ceiling, walls, floor and dressing table are constructed with Keramic Tiles . . . real tiles . . . in a color scheme of gold, gray and orchid. The floor plan is shown at the right.

Keramic Tiles offer you a most flexible medium for interpreting your designs. Colors, shapes and their combinations make possible the fullest expression of your ideas. Are you using this enduringly beautiful material to full advantage?



YOU DERIVE the greatest benefit from Keramic Tiles when the tiles are set by experts. Their skilled workmanship is instantly apparent. Select your tiling contractor on the quality of his work.

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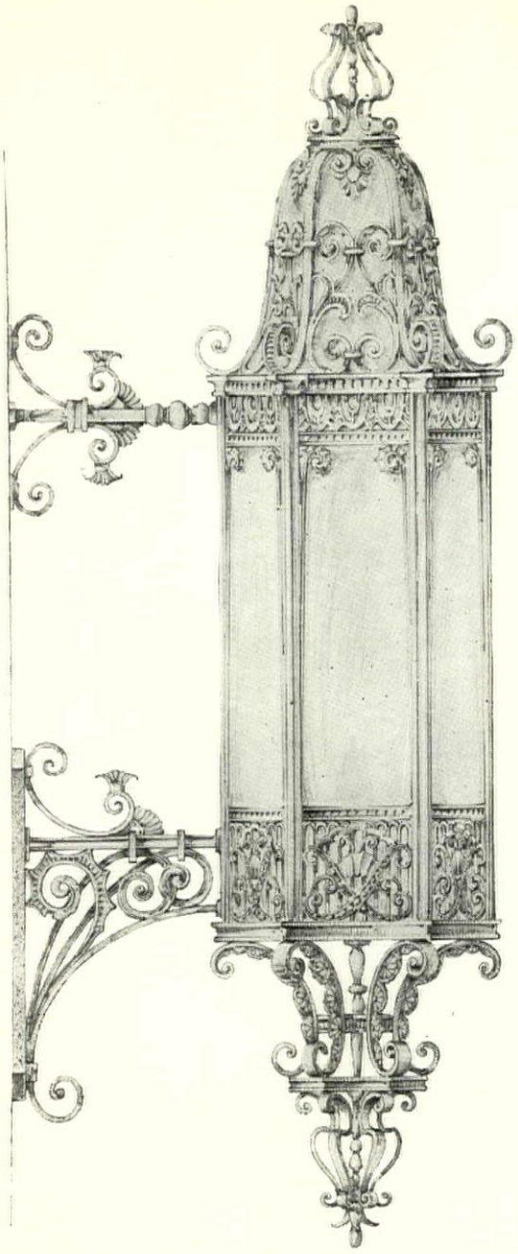
K E R A M I C T I L E S



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(Just around the corner from the Congress Hotel)

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Brochure of installations on request

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On Days When the Heat Waves Rise

Building owners and tenants will thank you if you have specified BURLINGTON VENETIAN BLINDS for window equipment.

They soften the glare of the sun and give draftless ventilation

BURLINGTON VENETIAN BLIND CO.

282 Pine Street, Burlington, Vt.

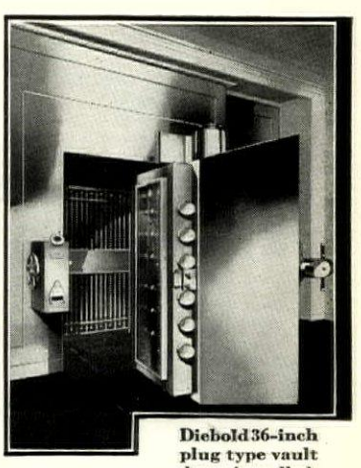
See Sweet's for details

PROTECTION CONSISTENT WITH NEED

Metropolitan Life Insurance Company Building, New York City.

SMALL Savings Banks, Building and Loan Organizations, great Insurance Companies and tremendous Commercial Banks all have a problem in protecting their money and securities. Each one's problem is different, depending as it does on many factors such as location, building, number of customers and amount of wealth. Each wants and should have protection consistent with their need.

Diebold's experience, manufacturing facilities and installations cover the complete range. It is our job to know what protection to recommend when given the conditions surrounding any vault. Let us co-operate with you.



Diebold 36-inch plug type vault door installed.

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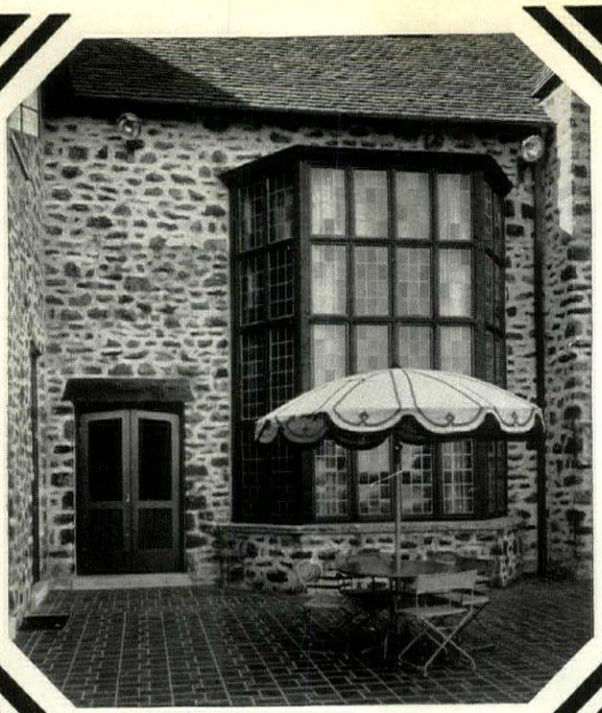
ASK YOUR BANKER



These Screens add Character to the Openings They Adorn

In the exclusive Aronomink Country Club near Philadelphia, Pa., (Chas. Barton Keen, Architect), the screens were individually designed by Higgin to add charm and character to every window and door.

Notice how the lines of the screen door emphasize the beauty of the entrance. The window screens, too, with their trim narrow frames and semi-invisible mesh, blend harmoniously with the openings they adorn -- allowing maximum sunlight and fresh air to flood the interior!

This screening job is typical of *all* Higgin work -- the result of thirty-six years' experience in cooperating with leading architects and builders.

Our representative in your locality, a thoroughly trained specialist, is at your service . . . always!

THE HIGGIN MANUFACTURING COMPANY
Fifth and Washington Avenues, Newport, Kentucky
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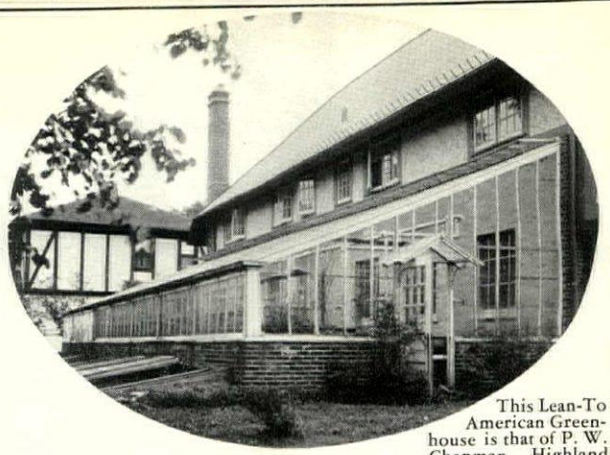
HIGGIN
ALL METAL SCREENS

Refer to Sweet's for complete data on Higgin All-Metal Frame and Rolling Screens, All-Metal Weatherstrips, Access Panels and Higgin Venetian Blinds.
AIA File No. 35PI -- Screens.



This Lean-To American Greenhouse is that of P. W. Chapman, Highland Park, Illinois.

Price no longer an obstacle

WHEN CLIENTS ARE GREENHOUSE MINDED

Many of your clients have often wished they could attach a conservatory to their home or have their own greenhouse. No doubt a false impression of the cost has made them hesitate. But now "American" can furnish conservatories at prices even less than $1000.

When you receive the beautiful 192-page book on "American" Greenhouses you will find included full price information on many styles and sizes. It will prove to be an invaluable reference when your client brings up the subject of glass covered gardens. It is yours on request with our compliments.

This beautiful 192-page catalog contains a number of specifications and blue prints in addition to 4-color plates and photographic illustrations

of privately owned greenhouses. To have it in your library is to have complete data when your client says "greenhouse."

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1311 West Randolph Street, Chicago

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"The Finest Under the Sun"

SPEED...plus *SIMPLICITY* of operation...

PEELLE Doors, plus automatic button control, offer the advantages of greater speed and simplified operation of freight shaft enclosures. Electrified... they open and close at the touch of the button switch... rendering quick, quiet, dependable service from any desired control point. Their superior efficiency and economy is proved by performance records... vertical traffic faster handled... time saved... labor lessened... increased safety to men and freight. Consult our engineering department... or a PEELLE Catalog will gladly be sent on request.

THE PEELLE COMPANY, Brooklyn, New York
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PEELLE Freight Elevator DOORS

"The doorway of America's freight elevator traffic"

An Astonisher!

—*for architects*

This idea of "no maintenance" is an astonisher for most architects in regards to the new FA Panelboards. Very few products in the up-to-date building can honestly make this claim —and make good on it!

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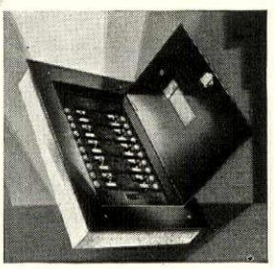

Do not overlook either that standardization of steel cabinet with the standardized panelboard reduces detail in specifying and installing and makes your panelboard job as simple as possible. Send for the new FA Catalog. Nothing finer has ever been prepared on panelboards.

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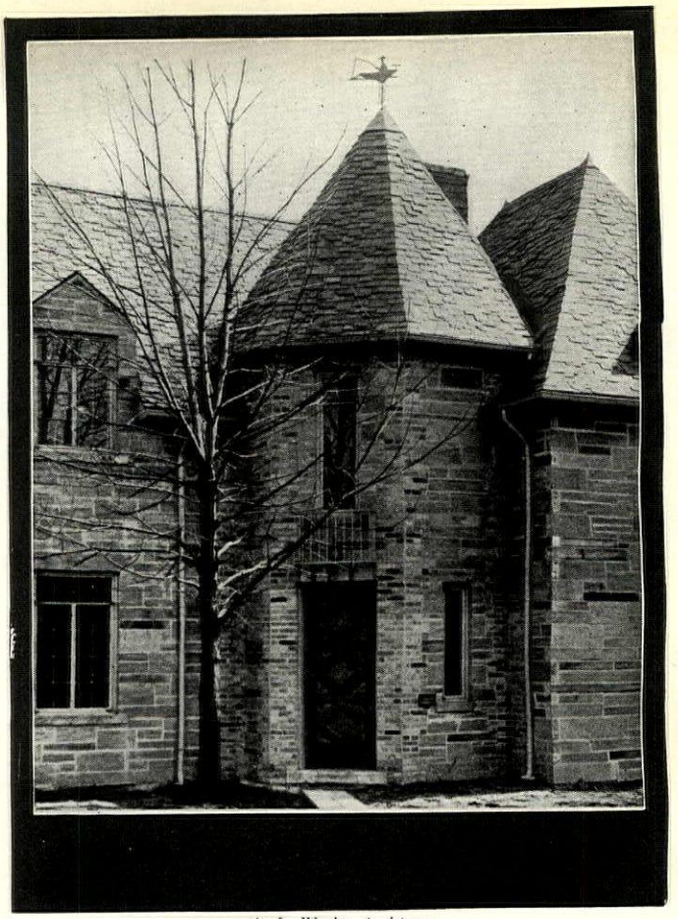

A. L. Weeks, Architect
Home, Birmingham, Michigan
An interesting combination of Briar Hill
Shot-sawed Ashlar and Stone Brick

Color Dominates the Age

During the past decade there has been a marked increase in the use of color. National merchandisers have capitalized on it, having found it to be a powerful reinforcement for their sales messages. It has entered the home in many new and attractive applications, creating a desired atmosphere of repose, friendliness and warmth. Medical science has enlisted its aid, with unquestioned success, in the treatment of nerve disorders and kindred ailments—demonstrating that it exerts a positive and favorable influence on the mind of man. Truly, it may be said that color dominates the present age.

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permanent and perfect
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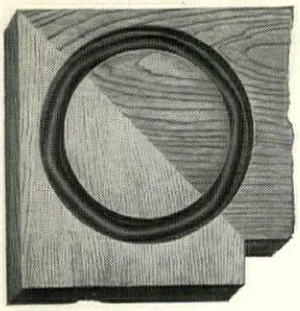

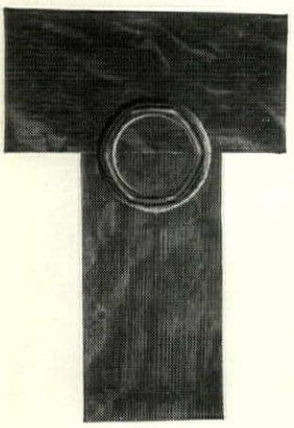

Our Model M Machine—(illustrated)—makes any single joint in fifteen seconds, cutting the groove and seating the locking ring without moving the stock on the table. One man operation, saving time and labor cost and turning out jointed woodwork ready for *immediate* use. The Model M handles stock from 3/8" to 2" in thickness, and uses 1½", 1¾" or 2" rings according to requirements. On your next job, have your woodwork contractor write us for sample joint, prices and terms for machine and rings.

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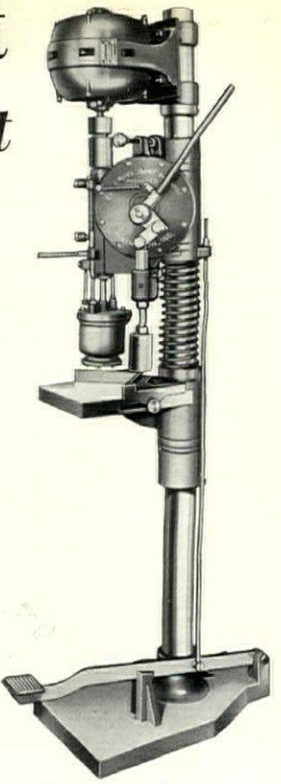

The above—Evans ring joint machine Model M, electrically operated—one man control.

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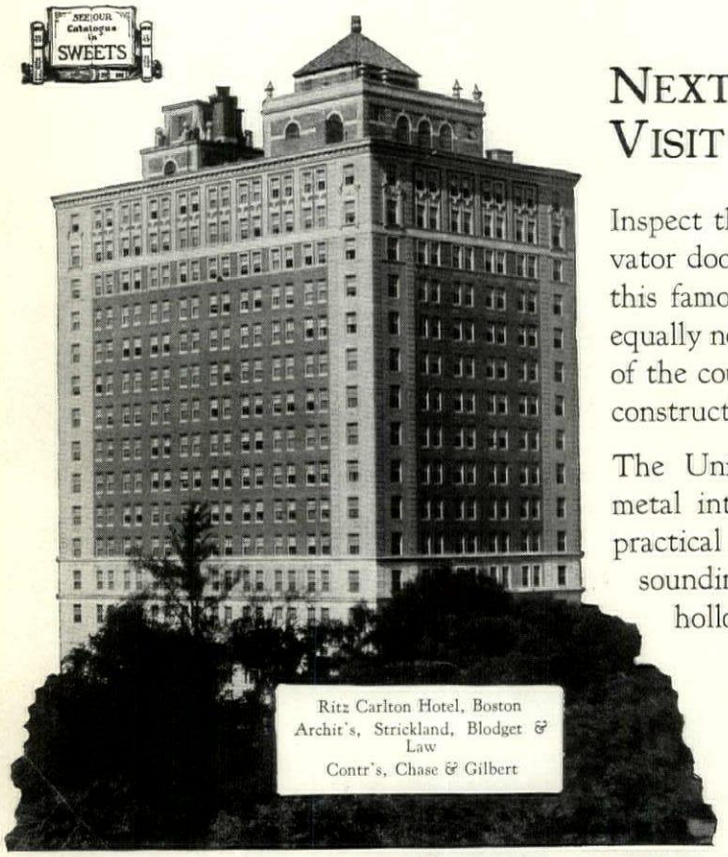

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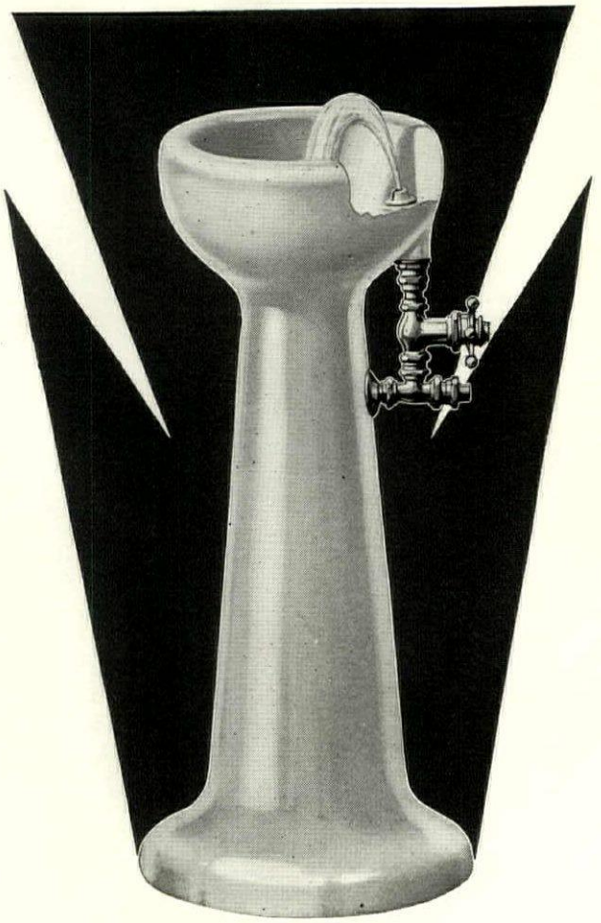

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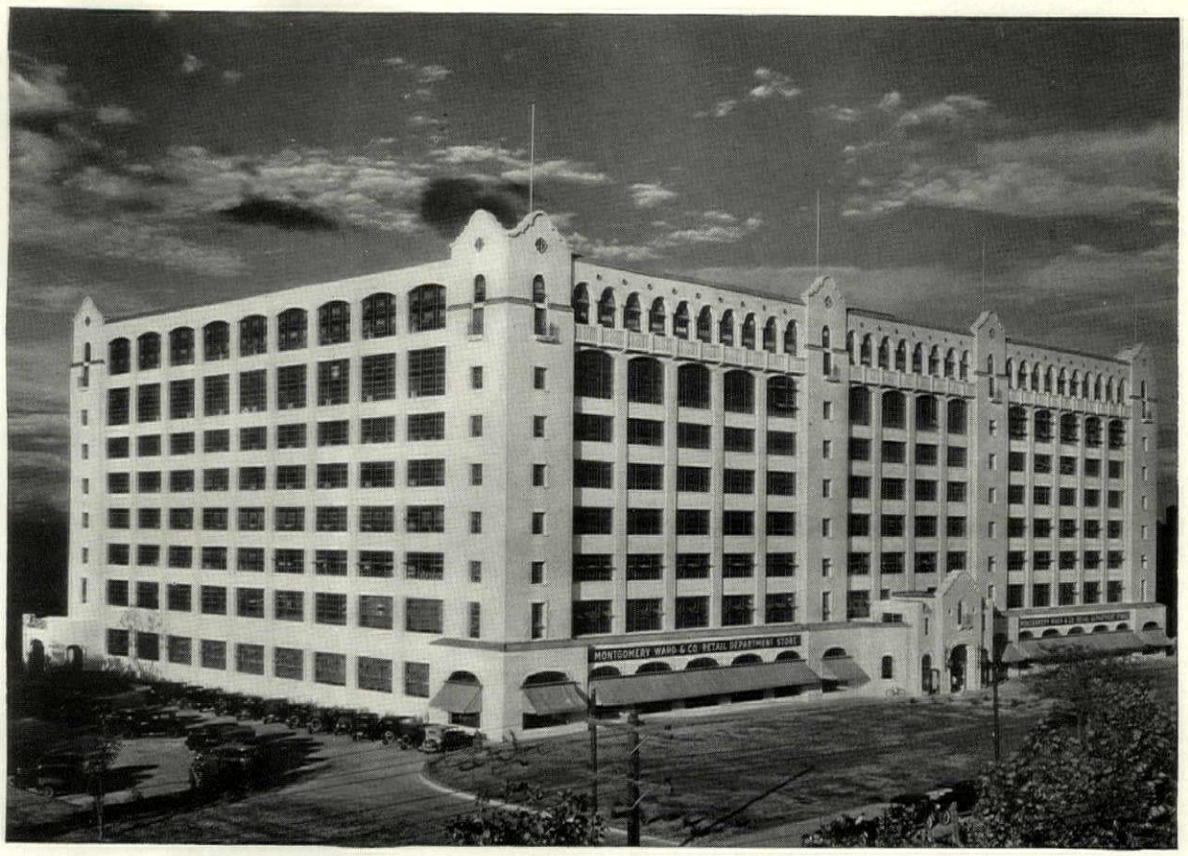

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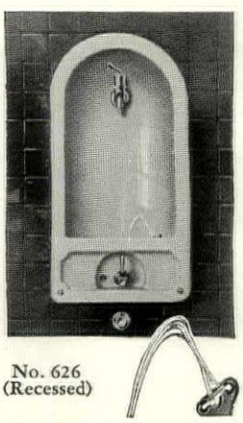

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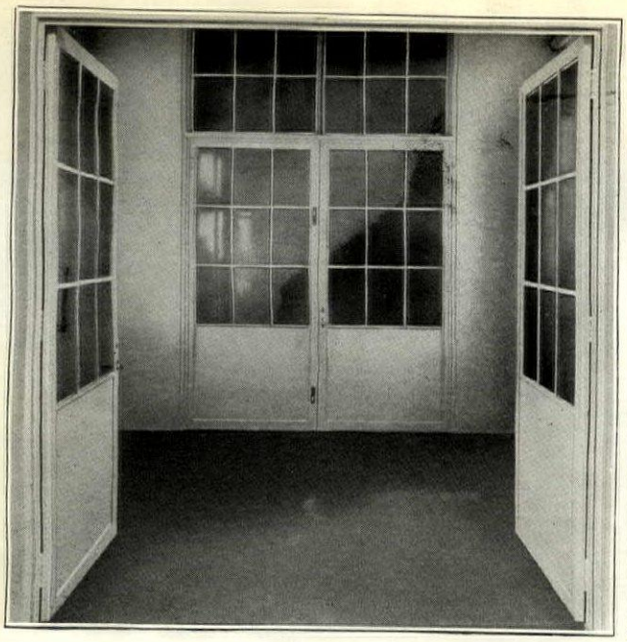

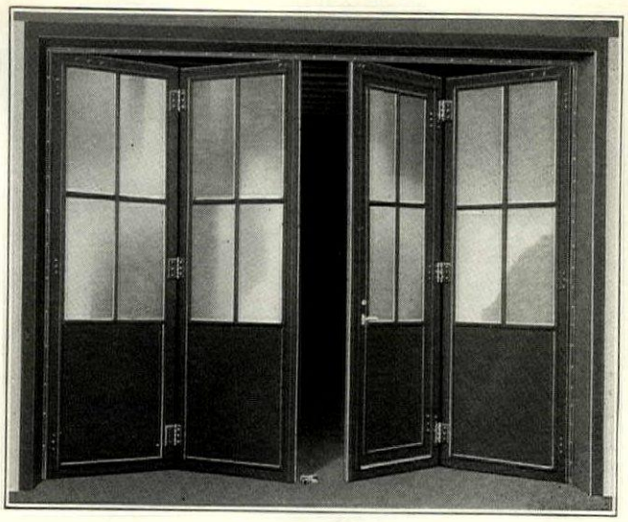

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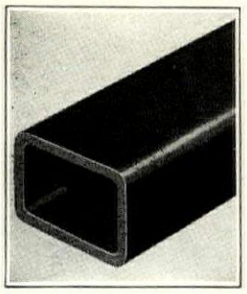
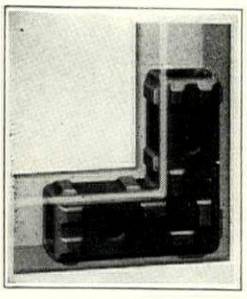


Welded Rectangular Steel Tube



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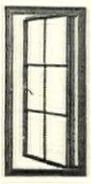

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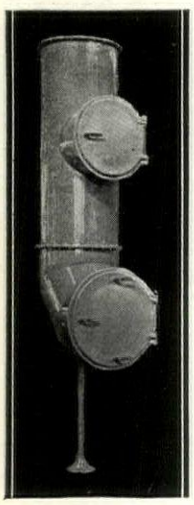

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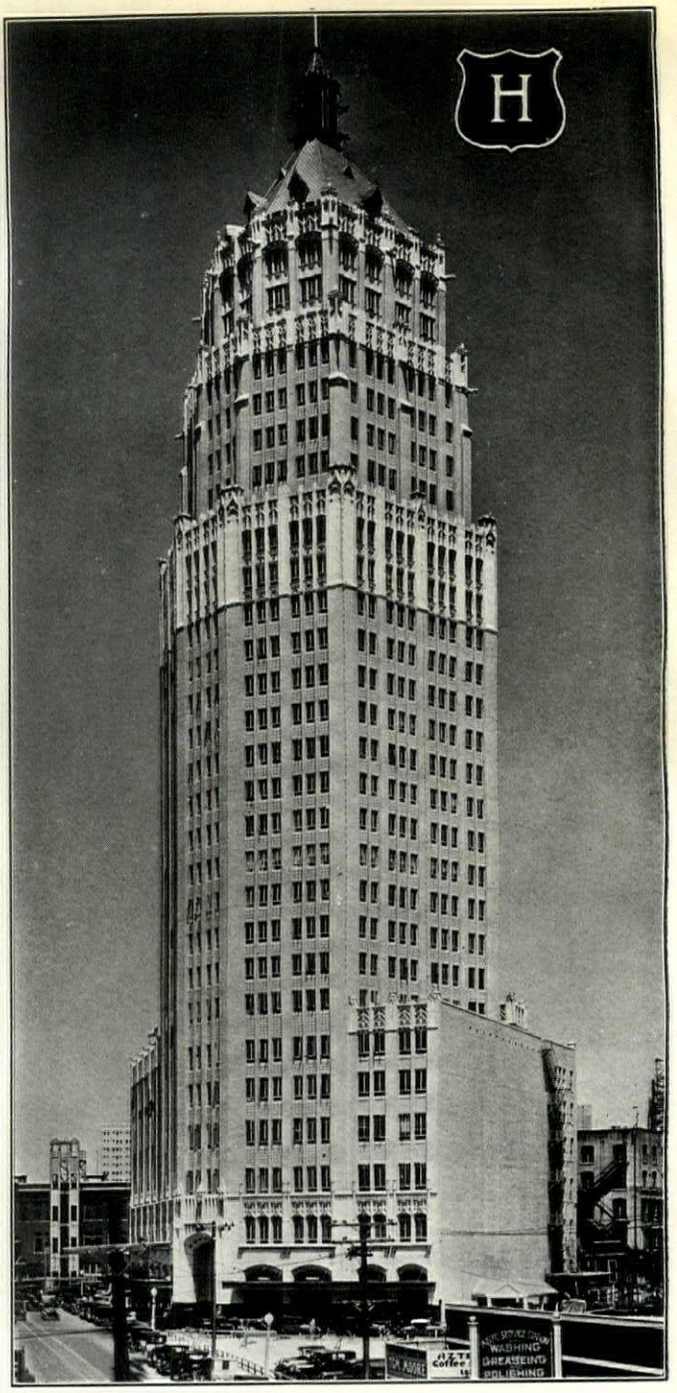

The services rendered in connection with this building—(the Smith-Young Tower at San Antonio, Texas)—by the Robert W. Hunt Co. consisted of shop inspection of structural steel. Albee B. Ayres and Robert M. Ayres were the architects, the Willard E Simpson Co., the engineers, and the McKenzie Construction Co. the contractors; all of San Antonio.

See Sweet's, A 4

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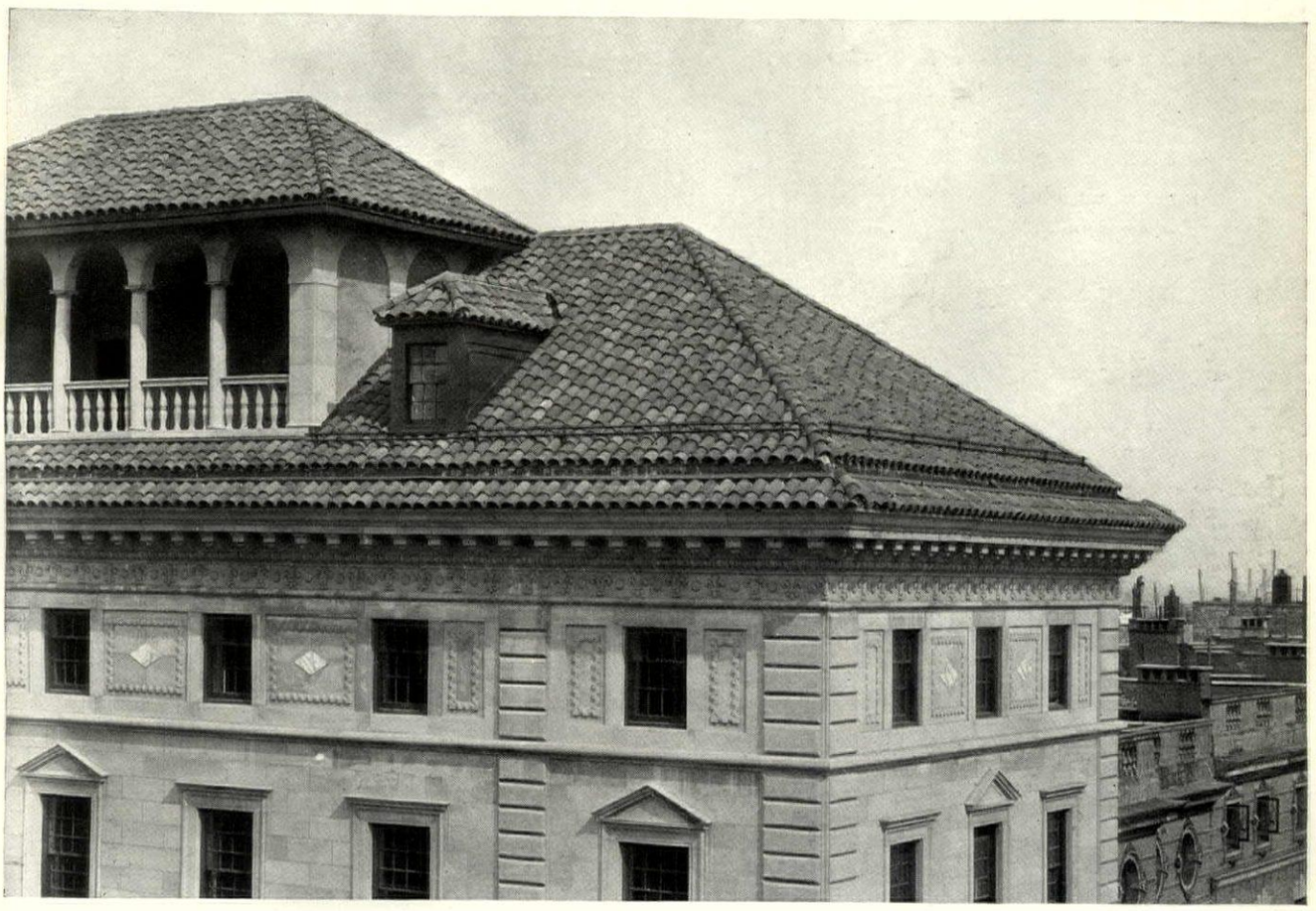

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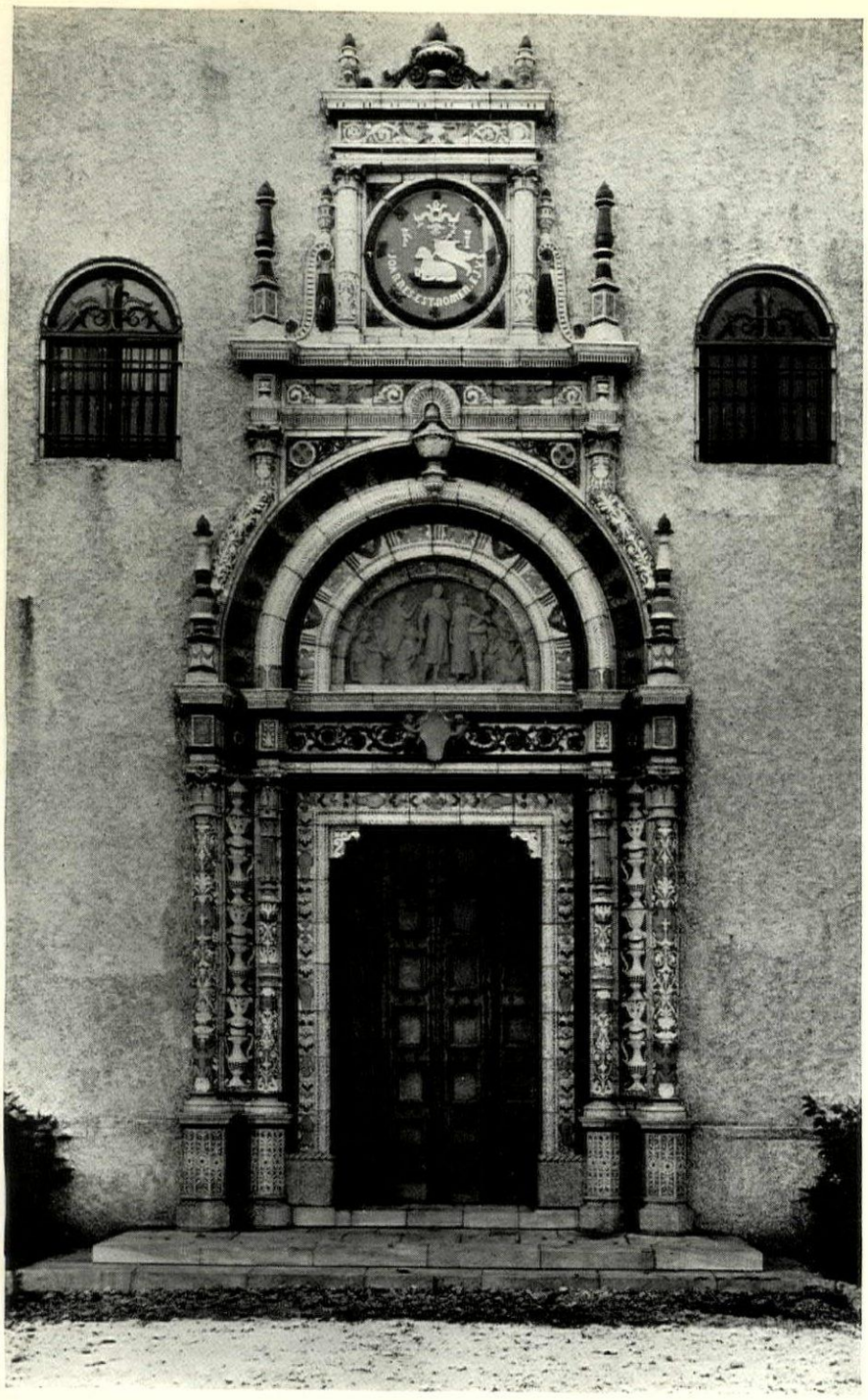

Main entrance, Psychiatric Hospital, Rio Piedras, Porto Rico. Rafael Comoerga, Architect, of the Porto Rico Dept. of the Interior . . . The exotic detail and the charming harmonies of blues, reds, browns and glazed greens and yellows are given full expression in Federal Seaboard Terra Cotta.

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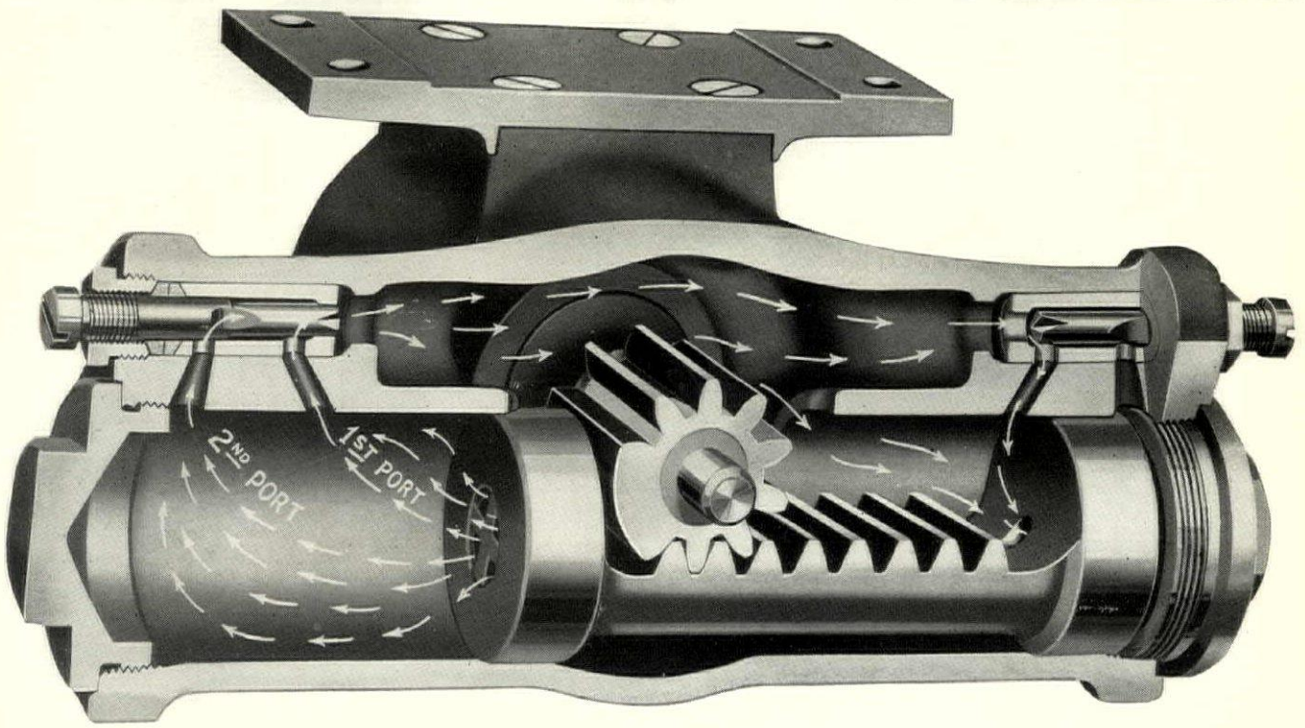
DOORS CAN'T JUMP with NORTON in control



The 2-speed control of the Norton Door Closer is essential to every door—two speeds, adjustable, controlled by one screw. The first speed operates to within three inches of the jamb, the second takes care of the actual closing. Quick to overcome a stiff electric latch or slow for the absolute quiet required in a hospital or school. Details of this two speed control may be clearly observed in the cut-open view of the famous Norton rack and pinion action. No other door closer but Norton offers this two speed control, an exclusive feature. Doors just can't jump with Norton in control. They must close safely and surely—without jar.

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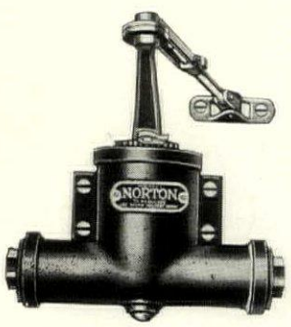
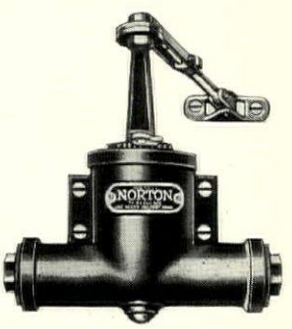


See full details in Sweet's, pages B2408-2412, or send for catalog.



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Division of The Yale & Towne Mfg. Co.

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Concrete Rib Floor Construction

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Consider the tremendous saving in concrete when Concrete Rib floors are specified. This cross section illustrates the saving in "dead weight" construction.

Dedicated to Public Service

Like the modern building, designed to serve the public, the Meyer Steelform method of concrete rib floor construction is dedicated to public service.

To the architect it makes possible exact adherence to ideals of beauty and requirements for strength. To the contractor it means high speed constructions and lower labor and material costs. The owner finds in it welcome economy and a finished structure perfectly adapted to his own or his tenant's needs.

Meyer Steelforms are installed and removed by an organization especially trained to render the greatest possible co-operation to both architect and contractor. Their use is based on a nominal rental charge—and warehouses located at strategic centers make possible immediate shipment to the job.

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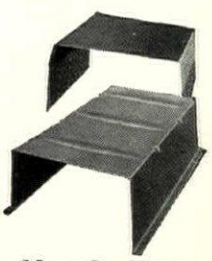

Meyer Steelforms are furnished in 1, 2 and 3 ft. lengths.

Standard widths are 20 in. and 30 in.; special widths —10 in. and 15 in.

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supplies a most economical and indestructible fireproof and vermin-proof guard

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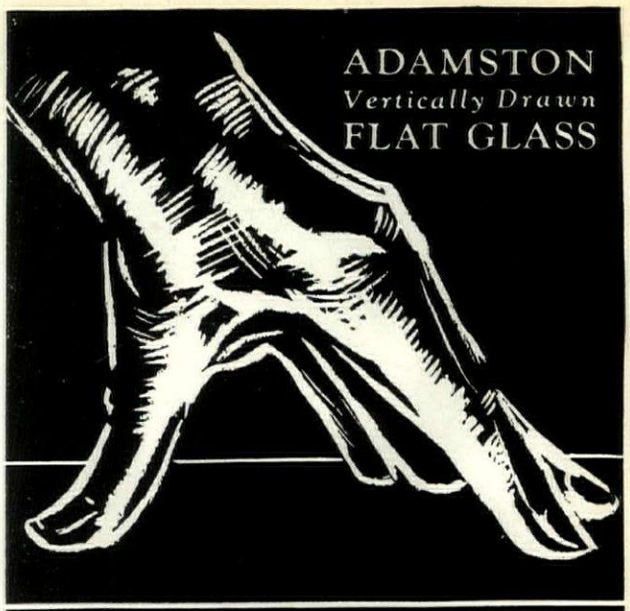

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In its perfected form is the outcome of long experience, and is designed to meet the requirements of public use under Postoffice Regulation. It is simple and substantial in design and construction, durable in finish, and has an Architectural quality which is appreciated and much commended by Architects.

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THE result of 20 years of practical roofing experience, Mahon Cast Iron Roof Sumps provide the ultimate in long, trouble-free service. Simplicity in design permits quick installation no springs, loose rings or bolts—dome locks in place by simple turn, and requires no elastic cement or solder.

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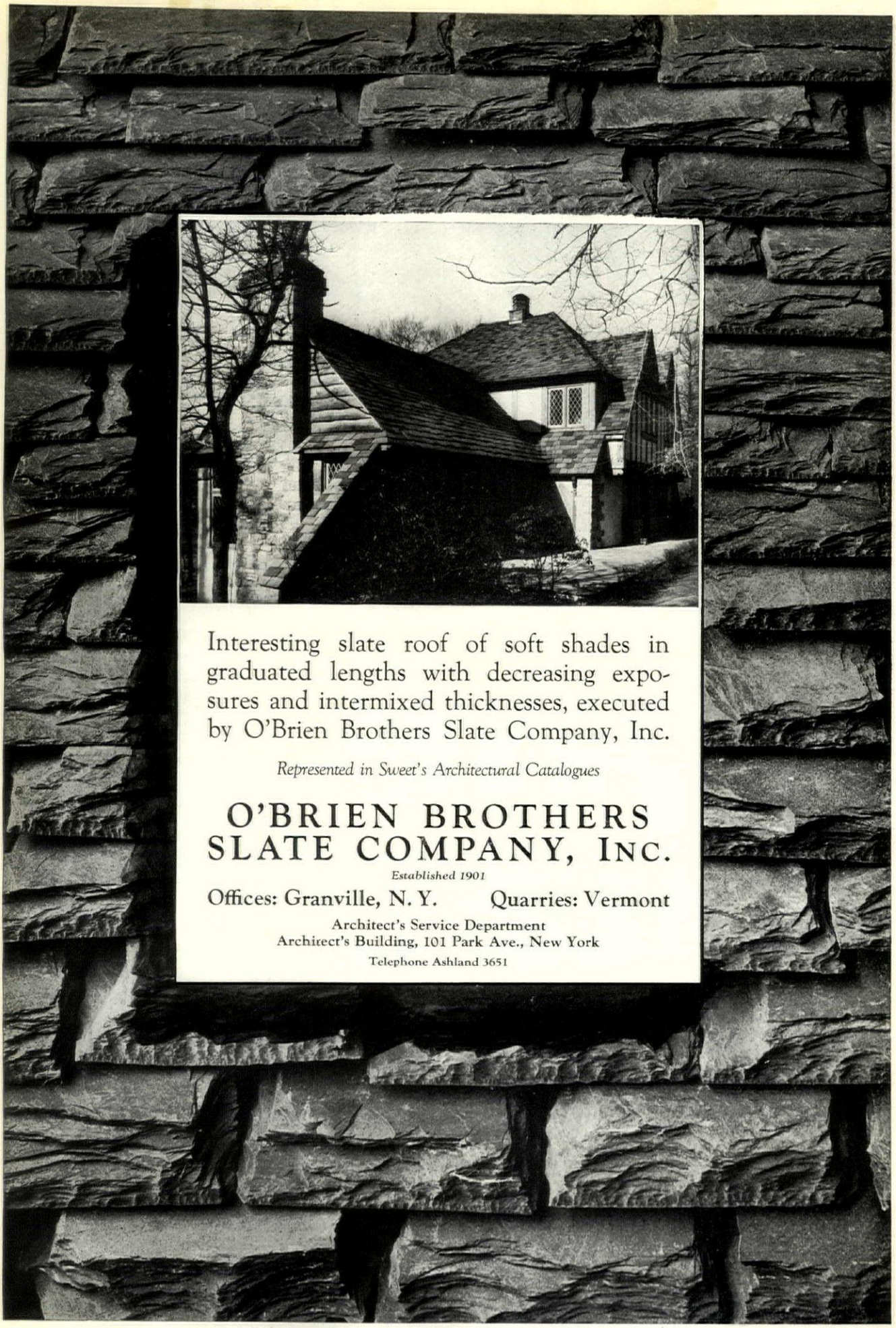

Interesting slate roof of soft shades in graduated lengths with decreasing exposures and intermixed thicknesses, executed by O'Brien Brothers Slate Company, Inc.

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Sweets, Pages B2605-B2609

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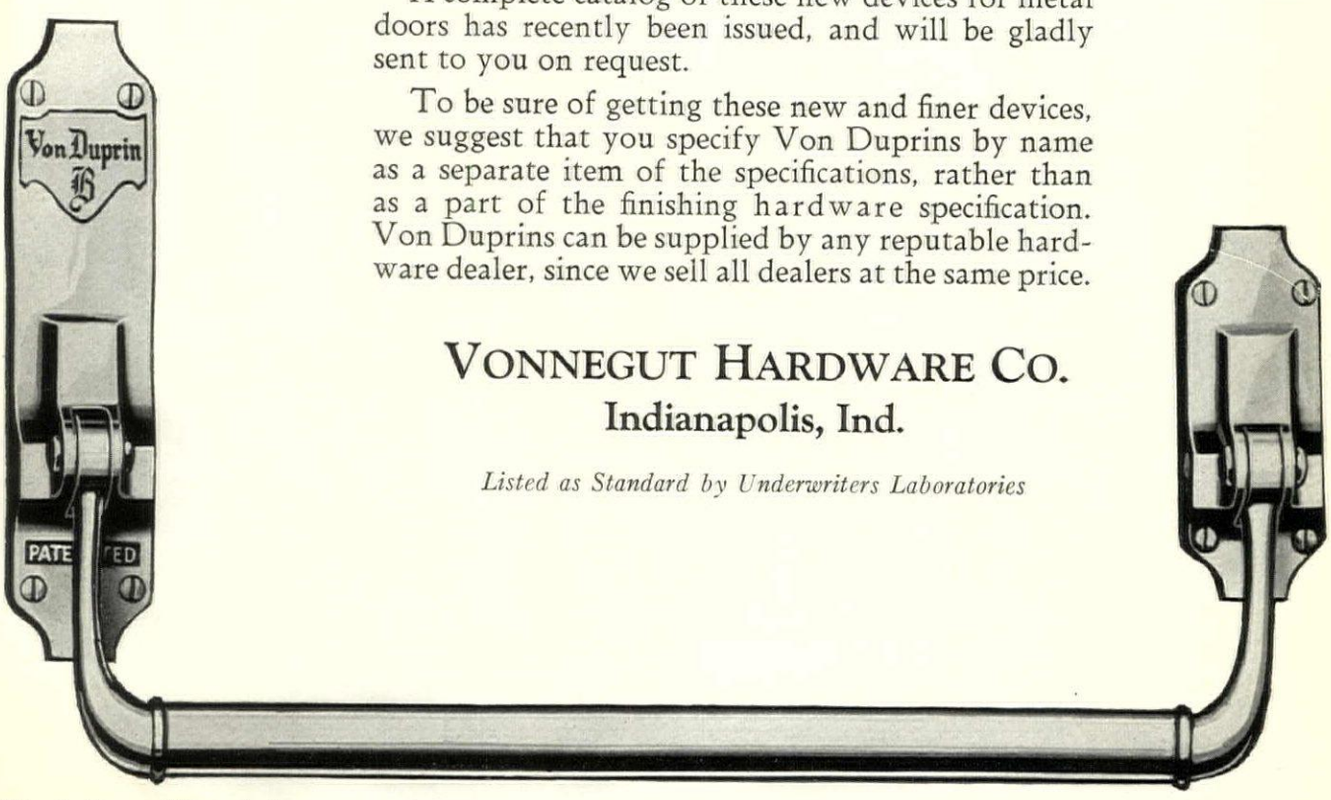

VONNEGUT HARDWARE CO.
Indianapolis, Ind.

Listed as Standard by Underwriters Laboratories

Figure No. 271
Acid Proof Bell and Spigot Pipe

GUARANTEED SATISFACTORY

KNIGHT-WARE

ACID-PROOF CHEMICAL STONEWARE

"IT IS THE MAURICE A. KNIGHT ACID-PROOF CHEMICAL STONEWARE BODY ITSELF"

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It doesn't take long for "Old Man" Corrosion running in the wastes from such establishments to get busy. In these cases he is generally in the form of iron perchloride and silver solutions and to say that he works diligently is putting it mildly. In fact he is so active that very few materials are available that will even hold him in check and only *one* against which his efforts are totally futile.

KNIGHT-WARE Acid Proof Chemical Stoneware is absolutely proof against the above corrosives and will withstand the action of all acids (hydrofluoric acid excepted), alkalies, chemicals and corrosive solutions and gases, weak or strong, hot or cold.

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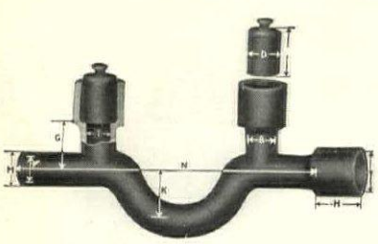

Figure No. 267-A
Acid Proof Running Trap with Cleanouts and Plugs

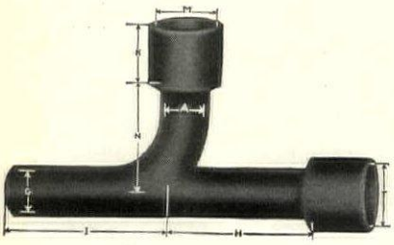

Figure No. 237-A
Acid Proof Sanitary Tee Fitting

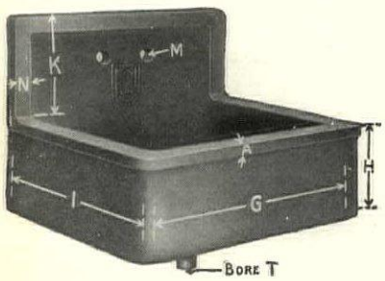

Figure No. 237
Acid Proof Laboratory Sink with Back

Besides Sinks and Pipe and Fittings, we are also in a position to manufacture and supply all kinds and designs of Photographic and X-Ray Tanks, Silver Baths, Etching Tubs and any special types of Acid Proof Tanks and Containers that might be needed.

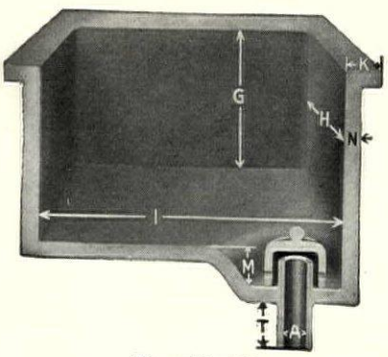

Figure No. 235
Acid Proof Laboratory Sink Without Back and with Lute Trap

Figure No. 226-B
Acid Proof Shallow Tank

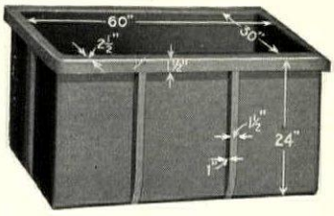

Figure No. 232
Acid Proof Tank with Reenforced Sides

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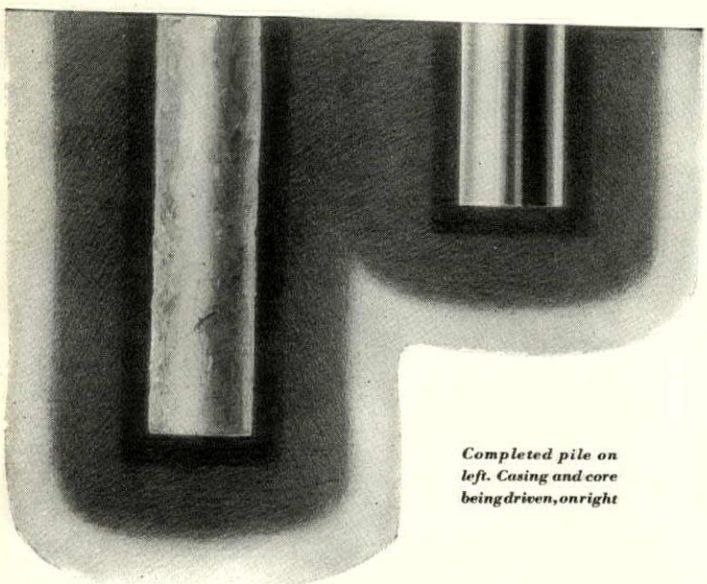
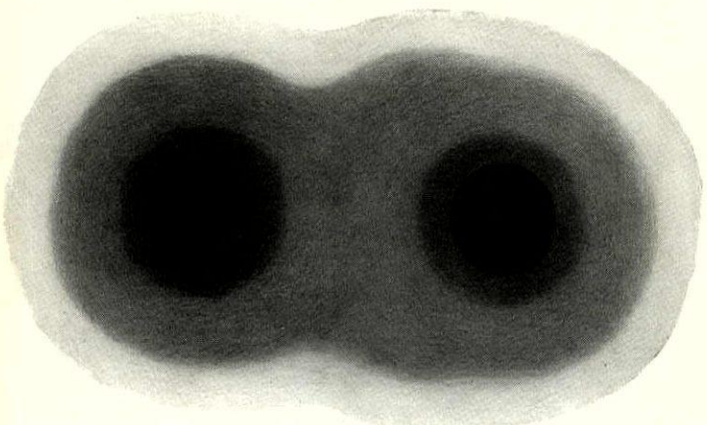
insures perfect concrete piles on close centers!



Completed pile on left. Casing and core being driven, on right



The "dry" concrete (just sufficient water to bond) in the completed pile, was compressed under a weight of seven tons while the casing was being withdrawn. Obviously, no back pressure ever equals that force. Also, the compression adds to the skin-friction created by the driving of the steel core and half-inch thick steel casing.

The soil being displaced by the pile in process of being driven will follow the line of least resistance, which is *away* from the highly compacted finished pile and the earth surrounding it, which is also compacted by the compression of the concrete.

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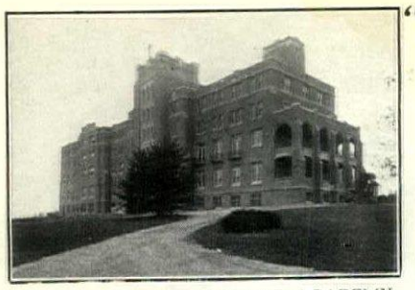

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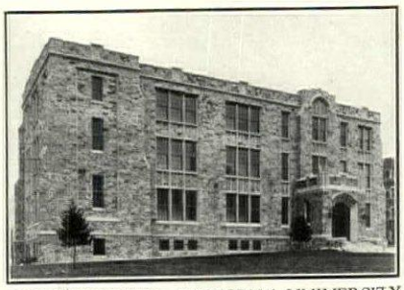

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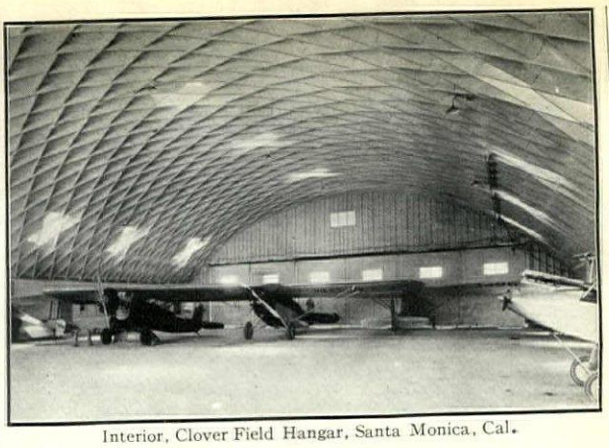

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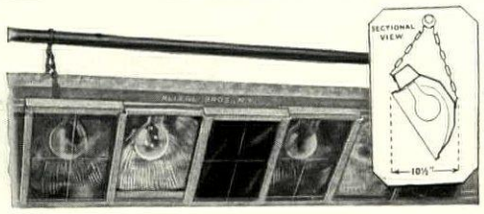

BORDERLIGHTS

ONE of the many types of borderlights manufactured by Kliegl is illustrated above. This model, No. 618, accommodates 100 to 200-watt Mazda lamps; a larger size is made for 300 to 500-watt lamps. Fitted with all-metal silvered reflectors—it is furnished completely wired for independent control of white, red and blue lights—with a splice-box for making feeder connections. Pipe batten with chains for hanging, and metal frames for gelatine color mediums, are also furnished.

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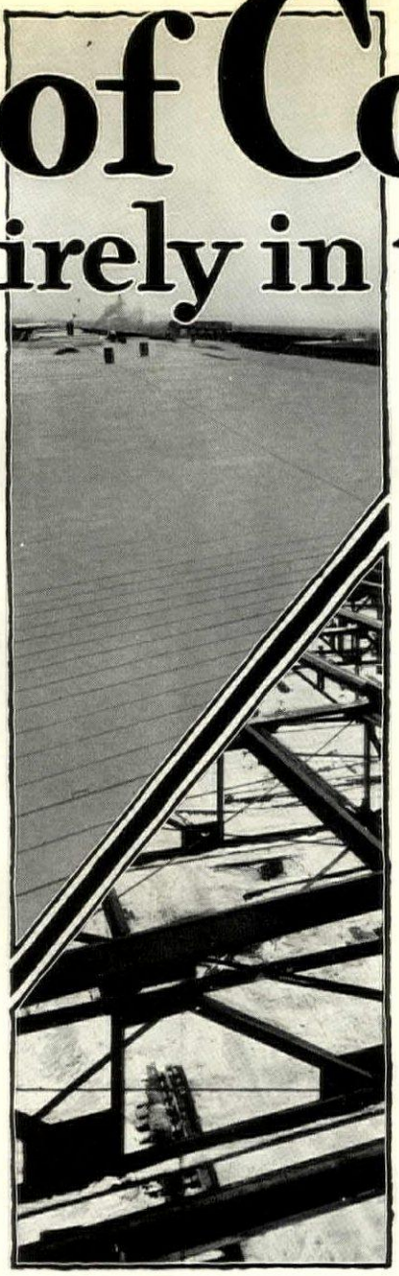
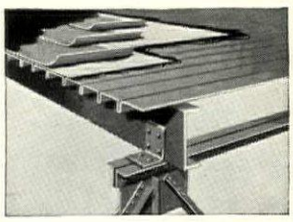
Roof Cost *is not* Entirely in the Roof



~~Weight is the Determining Factor



Cross section of Mahon Steel Roof Deck showing application of insulation and roofing material. The special galvanized copper-bearing alloy sheets, from which Mahon Deck Plates are rolled, provides a permanent light-weight roof deck which requires no painting or maintenance whatsoever.

Since all buildings must be designed to support whatever load the roof represents, roof weight becomes a significant factor involving structural design, and ultimately governing the cost of a building. ¶ Architects will find that it is possible, particularly in the design of industrial buildings or any building where long span trusses are employed, to save as much as 25% of the supporting steel through the use of Mahon Steel Roof Deck. This light-weight roof deck, manufactured from special, tight-coated galvanized copper-bearing steel, weighs only 5 lbs. per square foot — including insulation and roofing material . . . . it is fire-safe construction . . . . it is permanent, and it requires no painting or maintenance whatsoever. ¶ You, as a progressive architect, cannot conscientiously ignore the economy and the structural advantages incorporated in this modern roof construction . . . .Write today for complete catalog and our folder *"Facts and Figures."*

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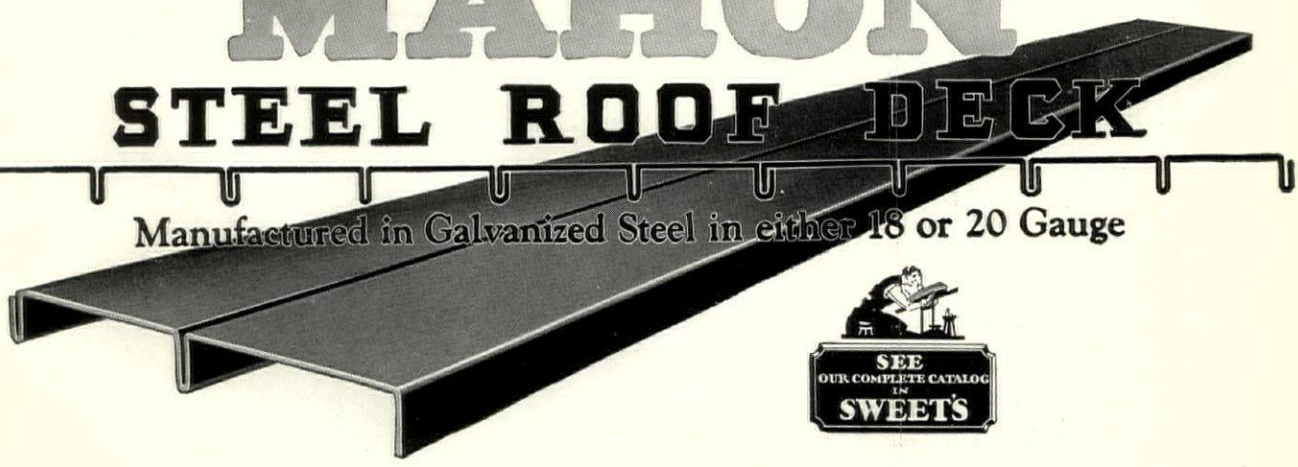

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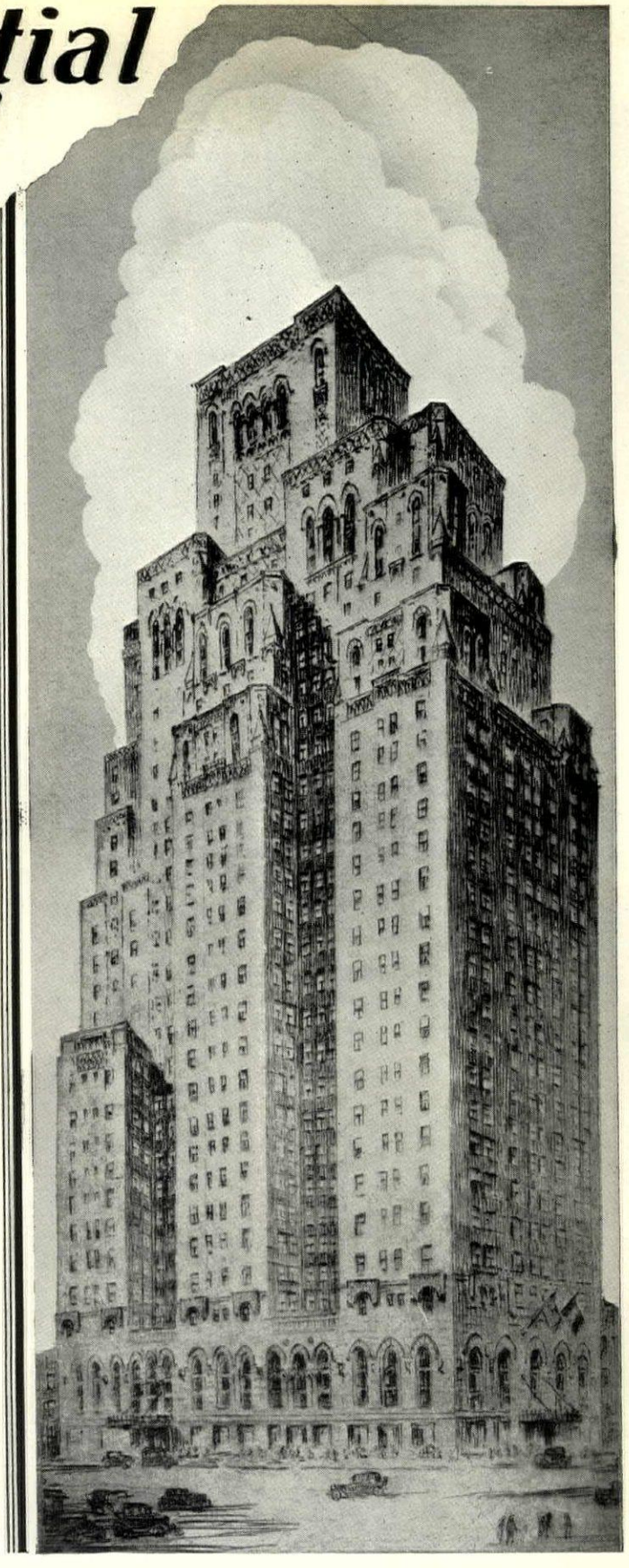

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General Contractor, Thompson-Starrett Co., New York City
Heating and Ventilating Engineers, Jaros & Baum, New York City
Plumbing Contractor, Frank B. Lasette, Inc., Long Island City, N. Y
Heating Contractor, Thompson-Starrett Co., New York City

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The Dunham Differential Vacuum Heating System

provides completely satisfying heat for the beautiful new

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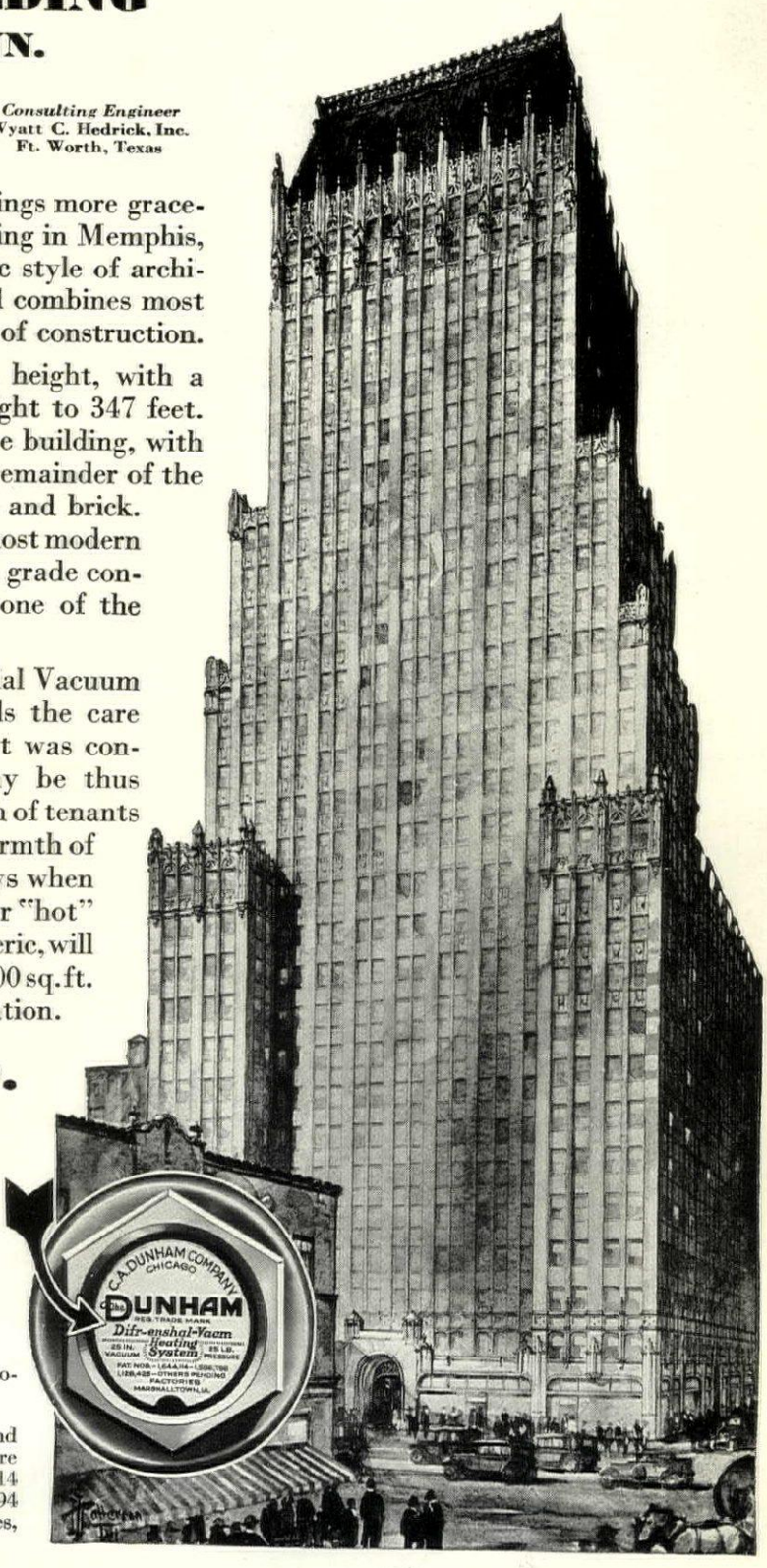

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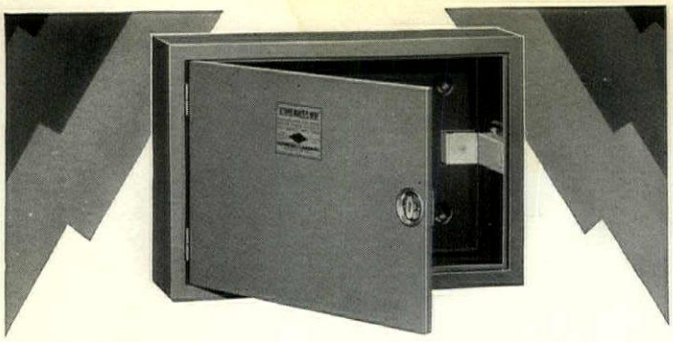

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RIGIDECK
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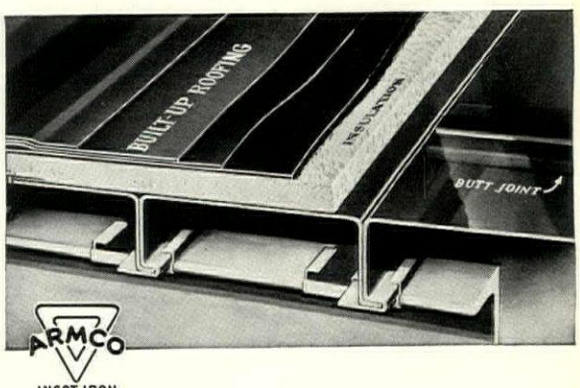

Rigideck—the new Armco Ingot Iron Roofdeck—is as easily laid as board. Its interlocking ribs occurring every six inches are securely attached to the purlins, providing a rigid, smooth, unperforated roof deck adapted to all buildings. Weight of completed roof approximately 5 pounds per sq. ft. Fireproof and economical.

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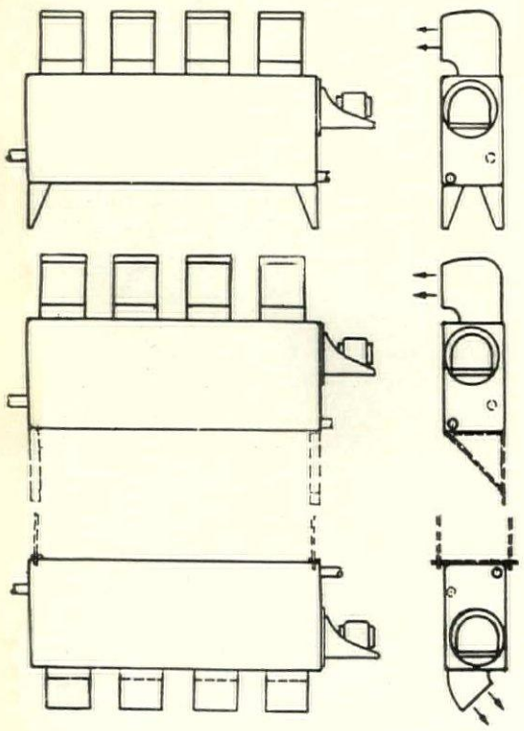

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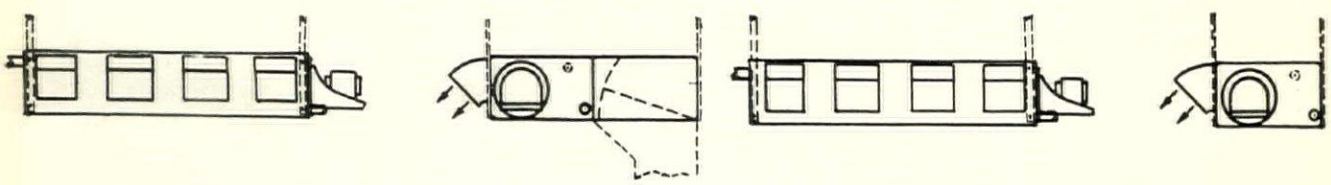


"Buffalo" "Highboy" and "Lowboy" Unit Heaters

Continued from page 186 Editorial

III. SOUND INSULATION AND COSTS

Sound Insulation is the setting up of effective barriers around noise centers to prevent the sound passing through walls, floors and ceilings to adjoining rooms, and to break up the continuity of the building which would otherwise carry the vibrations as readily as the air itself.

When we seek the most effective type of sound proof partitions and floors we are faced with the same situation that we found in trying to determine the best form of acoustical treatment to use,—data based almost exclusively on laboratory tests. The results of different investigators vary widely, due to different methods of testing and the conditions under which the experiments are conducted.

In building a hospital with the usual limited appropriation, a sane balance must be sought between expenditures for insulation and absorption, and sound judgment used in their application. Simple and comparatively inexpensive insulating precautions intelligently applied, so far as could be determined in these studies, offer nearly as effective protection as more elaborate methods and will provide the average hospital with as much "sound proofing" as it can afford.

EXAMPLE OF SOUND INSULATED HOSPITAL BUILDING.

Without going into further discussion of acoustics, we will outline the conclusions reached by describing precautions incorporated in the plans and specifications of a new maternity pavilion, soon to be erected in New York City. The hospital is in a quiet neighborhood, so there is no necessity of acoustical treatment to deaden noises which come from the outside when windows are open. This, for hospitals located in congested districts where there is heavy traffic, is a matter of major importance, too often neglected when new buildings are planned. In designing this new pavilion, service and administration noise centers were located as remotely as possible from the patients' quarters, and insulation and acoustical measures were provided only for sources of uncontrollable noise, nurseries, labor rooms, diet kitchens and corridors. Taking the same nursery described earlier in this article, we will complete the picture by outlining the special structural details adopted for insulation against the transmission of noise.

1. Floors. The floors throughout the building are of steel beam and girder construction with cinder concrete slab 4 inches thick. Over the slab are spread 2½ inches of dry coarse anthracite cinders which, because of their porosity, make a fairly effective sound deadening pad. On top are 2 inches of concrete mixed with a minimum of water, to serve as a binder and base for an inch of stiff mortar on which is placed the finished floor. One of the soft floors is used, a combination of cork, rubber and asphalt which can be scrubbed. Some engineers recommend the use of 2 inches of cork as a deadening pad. This costs 25¢ a square foot as compared to 10¢ for the cinders. The cinder pad will absorb some vibrations and will serve to insulate the partitions from the floor slab and it was our conclusion that the results should prove effective, with the added provision of a hung ceiling, in controlling the vertical sound waves.

2. Ceilings. Hung ceilings are used in all patients' rooms, supported on insulated hangers. These are made in two pieces with heavy felt between. If a hung ceiling is connected to the floor slab with rigid hangers it has little sound insulating value. While the special hanger adds about 12¢ a square foot to the cost of ceiling construction, it increases its insulating value 200% to 300% over the conventional type of construction.

3. Partitions. The partitions enclosing the room are formed of two separate walls of gypsum block with a clear, unbridged air space of two inches between. This, Professor Sabine has found, is as effective as the use of insulating materials between walls, either with or without air spaces. Obviously it is less expensive, although covering more floor area.

In erecting double walls care must be taken to avoid bridging. If there is any connection between them, even so much as one nail driven through, the vibration in one will be transmitted, as by a diaphragm, to the other and will set it in motion. The two walls should be laid on the dry cinder concrete and the top mortar floor brought up to them, not carried under. The walls should be laid simultaneously and precautions taken to keep loose mortar from dropping between them and forming a link at the bottom. To prevent this a wood strip hung between the blocks to fill the opening, and raised as each tier is laid, is effective.

4. Doors. The corridor door frame is anchored to the blocks and built solid, 6 inches of steel and masonry. The door, of furniture steel, is 2 inches thick and cork filled. It closes against felt gaskets on top and sides which stop vibrations and fill the cracks, with an expanding rubber strip to close the bottom space at the floor. Thus the cries of infants are barricaded on all sides except at the windows.

5. Windows and Ventilating Units. It was decided to keep the windows closed and to provide double sash. This is made practical by a combined heating and ventilating unit proven highly successful in schools. A small noiseless fan draws in fresh air through a vent in the outside wall, passes it through filter pads over a steam coil and blows it up to the ceiling, where it is distributed without drafts to all parts of the room. Clean air, perfect circulation and control of both temperature and air changes are insured. The device is not expensive to install or operate. It is simple in design with all parts readily accessible for cleaning. The problem of the open window is overcome and the ventilation of our nursery and labor rooms improved.

6. Insulation of Pipes. Further precautions provide for the covering of all pipes carried through the room or its walls with felt, and the filling of all cracks around pipes and conduits, where they pass through the floor slabs, with insulating fiber. The principle throughout is to break the structural continuity of walls, floors and pipes, and to minimize the sound carrying vibrations.

7. Acoustical Treatment. To supplement *Sound*

When you follow... *Andersen* FRAME details you *Specify Quality*

Why...

ARCHITECTS SPECIFY *Andersen* FRAMES

(1) Detailed and constructed to *merit architects' critical approval.*

(2) Genuine, clear *White Pine sills and casings.*

(3) Exclusive, patented *weather-tight features.*

(4) Perfect mill workmanship —absolute *accuracy and uniformity.*

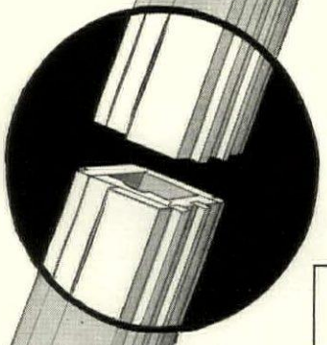
(5) A window or door frame *type and size for every architectural need.*

(6) The only standardized frame *adequately designed for wide blind-stop extensions,* permitting the use of narrow outside casings.

(7) Nationally distributed.

(8) Dependable because *guaranteed* by a reliable manufacturer.

(9) Equipped exclusively with the new *patented, noiseless, friction-reducing Andersen pulleys.*



Please check your special window and door frame requirements against the Andersen details and specifications. (See Sweet's Catalog—pages B1413 to B1435.)

Do not Andersen quality materials and Andersen provisions for weather-tight installation and sound construction equal any of the requirements you have for special frames?

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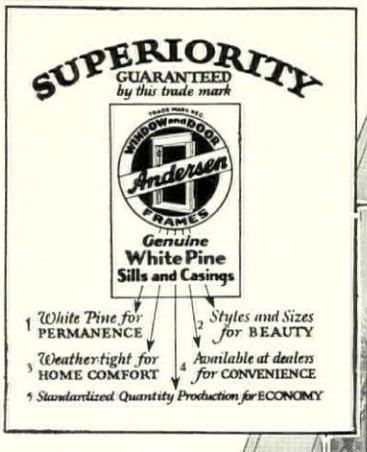
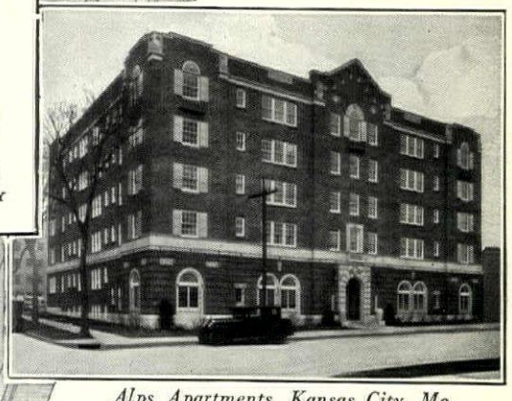
To be sure of quality, follow Andersen Frame details and specifications in Sweet's Catalog.





Alps Apartments, Kansas City, Mo.
Harry Foster Almon, Architect

***Andersen* Box Frames installed by John H. Kelley & Sons, Builders.**

See SWEET'S Catalog Page B-1413

Andersen FRAME CORPORATION., Bayport, Minn.

Insulation, and to blot out the myriad sound waves which the shrill cries of infants set in motion, we must have *Acoustical Treatment*. As a result of the investigations and experiments already described, alternate proposals for acoustical treatment are called for, specifying either *Nashkote B*, consisting of 1″ hair and asbestos felt covered with finely perforated oilcloth membrane; or *Acousti-Celotex*, 1¼″ thick. The final decision is to be based on appearance.

Acousti-Celotex costs less for upkeep and maintenance as well as having a lower installation cost per unit of absorption, and has therefore slight economic advantages for hospital purposes. The latest development of *Nashkote B*, using white felt under the membrane, however, is superior in appearance to the *Acousti-Celotex* with its many large holes. If the experiments now being carried on produce a color scheme which will successfully camouflage these holes without serious loss of light reflection the weight of evidence would be slightly in favor of the *Acousti-Celotex*. From the standpoint of absorption there is little difference. Each square foot of *Nashkote B* absorbs 64%, and of *Acousti-Celotex* 70%, of the sound waves which would pass out of a room through a square foot of open window.

For corridors, diet kitchens and utility rooms acoustical plaster with at least 30% absorption is called for.

8. Cost of Sound Insulation and Acoustical Treatment. The following table summarizes the cost of the various special structural items:

	Sound proof Items	Standard Construction
Nursery, 15′ x 30′, with 10′6″ ceiling; 315 sq. ft. of double partitions vs. single wall	$393	$254
2″ sound proof door with felt and rubber gaskets vs. ordinary hollow metal door	56	43
Additional inside steel sash; frames and transoms for three 4′ x 7′ windows	180	
The hung ceiling is standard in either case; additional cost for insulated hangers at 12¢ sq. ft.	54	
Univent heating and ventilating device substituted for an ordinary radiator	320	75
450 sq. ft. of acoustical treatment @ 80¢ vs. 3 coats ordinary plaster, less finished coat of plaster	360	57
Pipes are felt covered in either case	$1363	$429

Thus we are spending an extra sum of $933 to control the noises in one nursery.

The maternity pavilion under discussion is an addition to an existing hospital. It is a building of 4½ stories and basement with a maximum capacity of 75 beds on the three upper floors. The delivery suite is in a half story on the fifth floor. The building contains 388,500 cubic feet, or an average of 5,466 cubic feet a bed, which is comparable to the bulk of the modern compact type of general hospital. For this reason the cost of making this building quiet is fairly suggestive in its general application to hospitals.

When the preliminary budget for the new building was prepared, the sum of $10,000 was included for the control of noise. No attempt was made, as so often done, to insulate all partitions on the patients' floors, the treatment being limited to those around foci of uncontrollable noise which were in close proximity to the patients' rooms. Three nurseries, two labor rooms and two delivery rooms were designed like the nursery described before. Acoustical plaster was specified for the ceilings of the diet kitchens, utility rooms and 480 lineal feet of corridors on the patients' floors. According to the preliminary estimate of the builder, the total cost of the sound control measures will be $7,967. This represents an extra investment of $108 a bed. The cost per cubic foot is increased a trifle over 2¢, and the total structural cost about 2¼%, surely a moderate price to pay for permanent quiet.

Prevention rather than cure is a policy that applies to noise as well as to health. Adequate treatment which costs, say, $500 should last indefinitely, but let us assume its life is only ten years. The cost to the hospital in depreciation and interest, with an added $20 for extra expense in cleaning and painting is $72 a year, or 20¢ a day to insure freedom from disturbance from infant cries. If 20 beds are within hearing, the cost of relief is 1¢ a bed each day—certainly not an extravagant figure.

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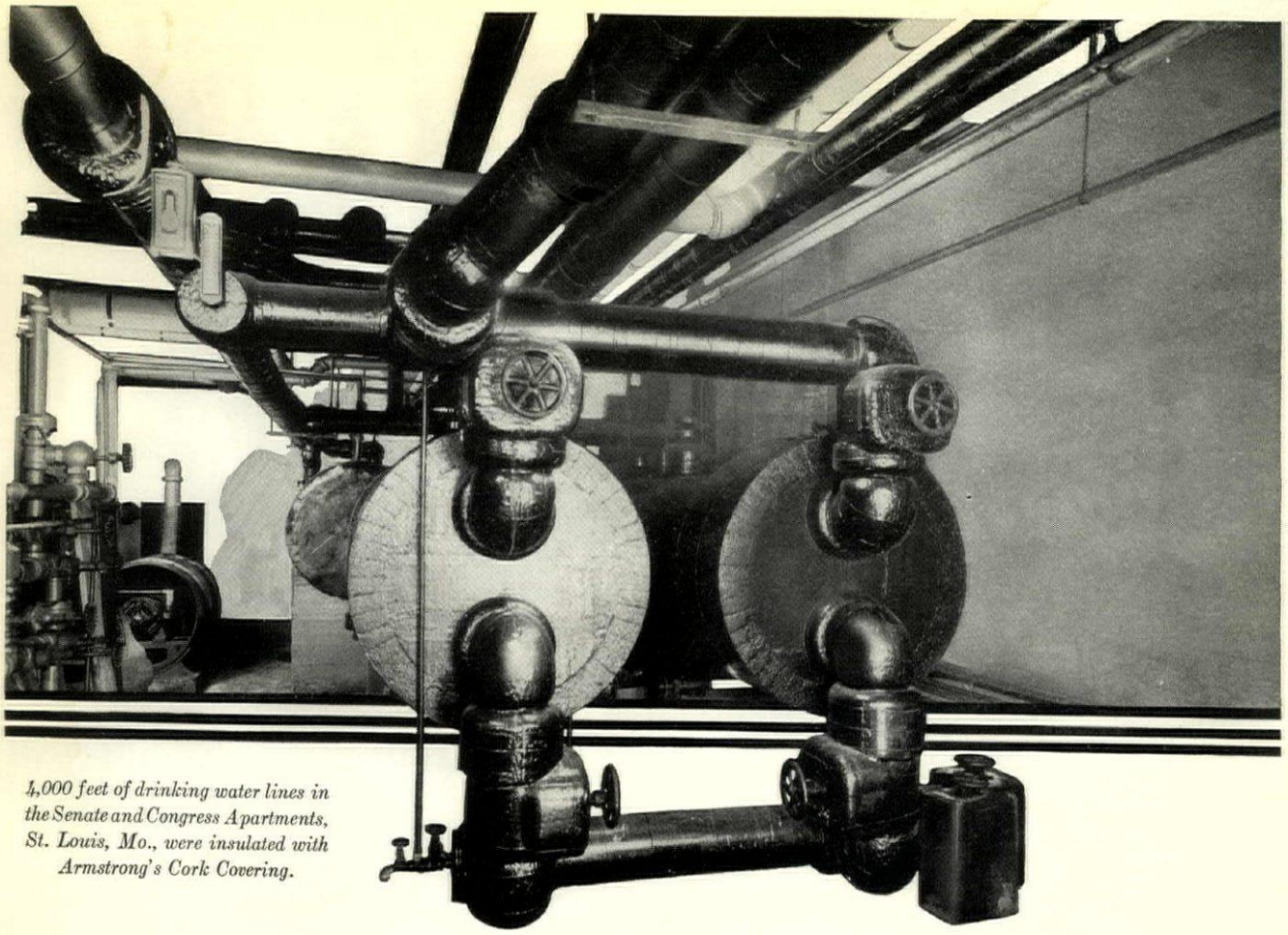

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The Armstrong engineering service offers to architects and engineers, free of cost, the benefit of years of experience in designing drinking water systems. Write for the book, "Refrigerated Drinking Water." Armstrong Cork & Insulation Company, 901 Concord Street, Lancaster, Pa.; McGill Building, Montreal; 11 Brant Street, Toronto.

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for Cold Lines, Coolers and Tanks

CONSTRUCTION STATISTICS

From the records of F. W. DODGE CORPORATION, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent. of the country's construction volume.

First Five Months, 1929

Classification	TOTAL CONTRACTS Number of Projects	TOTAL CONTRACTS Valuation	PLANNED BY ARCHITECTS Number of Projects	PLANNED BY ARCHITECTS Valuation	PLANNED BY ARCHITECTS Per cent. of Total
Commercial Buildings	10,267	$408,686,000	4,360	$298,594,300	73%
Industrial Buildings	2,855	324,036,700	1,012	78,097,500	24%
Educational Buildings	1,430	145,900,000	1,217	140,356,700	96%
Hospitals and Institutions	413	46,183,800	302	40,669,500	88%
Public Buildings	486	55,644,600	286	52,166,900	94%
Religious and Memorial	851	42,319,700	589	37,533,500	89%
Social and Recreational	1,058	62,485,100	639	49,818,300	80%
Residential Buildings	51,202	913,261,500	13,364	556,741,700	61%
Total Building	68,562	1,998,517,400	21,769	$1,253,978,400	63%
Public Works and Utilities	6,691	487,138,300	123	11,484,900	2%
Total Construction	75,253	2,485,655,700	21,892	1,265,463,300	51%
Total Construction, first five months, 1928	84,737	2,794,401,300	25,666	1,565,687,700	56%

COMPARATIVE CONSTRUCTION COSTS
44 Cities—March, 1929

(Index numbers based on New York City taken as 100)

City	Building Costs	Material Prices	Wage Scales
New York City	100	100	100
Atlanta	84	98	64
Baltimore	89	92	85
Boston	98	105	89
Buffalo	92	102	78
Chicago	88	85	92
Cincinnati	90	92	87
Cleveland	101	106	94
Columbus	86	97	70
Dallas	95	103	84
Denver	95	105	81
Des Moines	90	98	78
Detroit	89	100	75
Erie	99	118	73
Grand Rapids	85	98	68
Houston	90	95	84
Indianapolis	95	101	86
Kansas City, Mo.	89	94	81
Los Angeles	76	83	66
Louisville	91	101	77
Memphis	85	93	75
Milwaukee	79	82	76
Minneapolis	86	101	65
Nashville	81	99	57
New Haven	97	115	73
New Orleans	85	94	72
Norfolk	86	104	62
Oklahoma	85	97	69
Philadelphia	96	109	79
Pittsburgh	99	101	97
Portland, Me.	89	106	66
Portland, Ore.	85	88	81
Reading	91	107	70
Richmond	86	105	59
Rochester	92	103	78
Salt Lake City	92	110	68
San Francisco	88	99	74
Seattle	88	94	80
Sioux City	85	98	68
St. Louis	94	93	96
St. Paul	86	101	65
St. Petersburg	92	108	69
Toledo	89	99	75
Washington	89	91	87

The building cost index has been obtained by combining the material price index and the wage scale index, weighted in the proportion of 58 to 42. This ratio of material cost to labor cost was the result of recent research by the U. S. Bureau of Labor Statistics, as published in the January, 1929, issue of the Monthly Labor Review. The same weighting factors have been used for all cities.

A $600,000,000 Waste!

Are you responsible for a part of it?

The annual loss in the United States due to rust is estimated at $600,000,000. This figure is appalling—particularly when you realize that much of the loss is preventable by using equipment made from copper and its alloys.

Do you contribute to this waste by specifying equipment that can rust—for service where it is constantly exposed to dampness?

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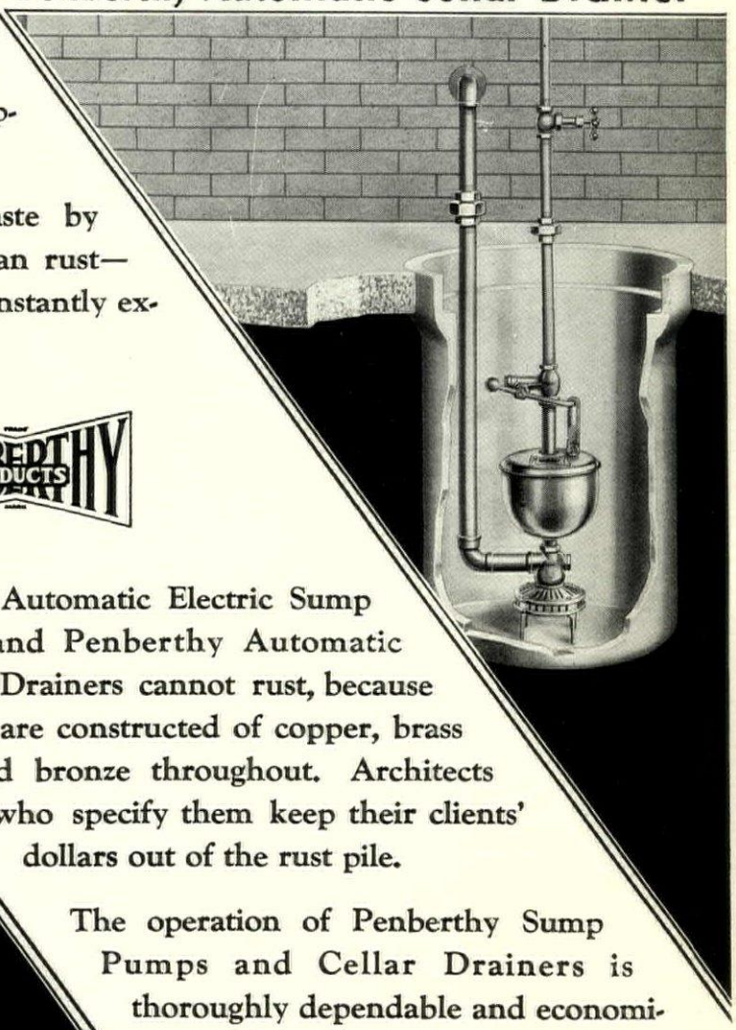

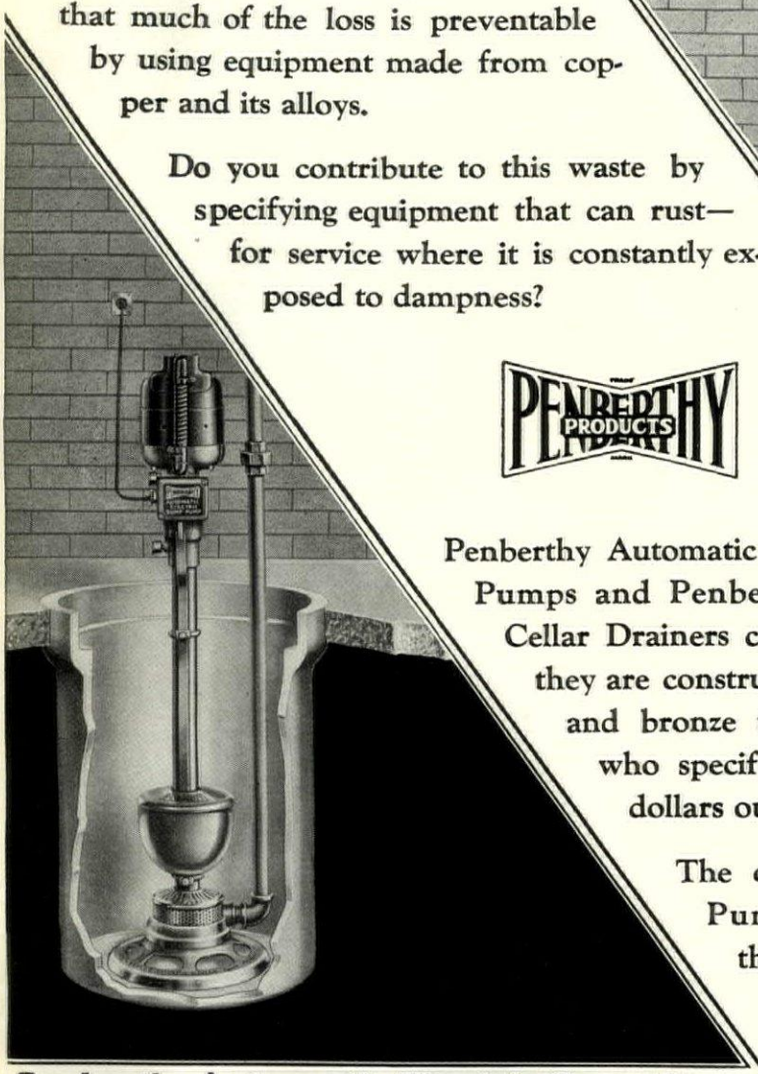

Penberthy Automatic Electric Sump Pump

PENBERTHY PRODUCTS

Penberthy Automatic Electric Sump Pumps and Penberthy Automatic Cellar Drainers cannot rust, because they are constructed of copper, brass and bronze throughout. Architects who specify them keep their clients' dollars out of the rust pile.

The operation of Penberthy Sump Pumps and Cellar Drainers is thoroughly dependable and economical. There is a size and type for every drainage requirement.

These Penberthy Pumps are quickly available—they are carried in stock by the leading jobbers throughout the country.

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DETROIT

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NEWS OF THE FIELD

STATEMENT—Regarding the advertisement in The Architectural Record, May 1929 issue, we have been advised by the Widmer Engineering Company that the St. Louis University High School building was originally designed by Barnett, Haynes & Barnett, architects, and that the Widmer Engineering Company reconstructed said building in 1927, at which time The Philip Carey Company put on a new roof over practically the entire roof area.—THE PHILIP CAREY COMPANY.

PAUL COSTE has been appointed Manager Flooring Department of the Sundries Department of the United States Rubber Company, New York City. Mr. Coste had been with the Goodyear Tire and Rubber Company at Akron, where he had been promoted to the post of Manager Flooring and Tile Sales.

THE STANDARD SANITARY MANUFACTURING COMPANY has remodeled and refurnished its show rooms at 18 East 45th Street, New York City; 375 Flatbush Avenue Extension, Brooklyn; 32-04 Northern Boulevard, Long Island City, and 528-534 Ferry Street, Newark, N. J. There is an interesting presentation of exclusive designs in fixtures and fittings, and a complete exhibit in attractive settings of Plumbing Fixtures in the new Standard colors. Any one interested in the display is cordially invited to visit the show rooms.

THE NEW YORK SOCIETY OF ARCHITECTS has established an Employment Bureau for the assistance of all architects. All draftsmen and juniors who are qualified are requested to file an application at the office of the society, 29 West 39th Street, New York City.

ANNOUNCEMENT is made of the refinancing of the Universal Sanitary Manufacturing Company of New Castle, Pennsylvania. The new officers of the company are W. Keith McAfee, President; K. K. McAfee, Vice-president; Clyde M. Whittaker, Secretary-Treasurer; Fred A. Glenn, Factory Manager. Although the company has been recapitalized, there has been no interruption in its operation at any time.

Mr. Kirk, the pioneer of the casting process of forming vitreous china plumbing fixtures, tunnel kilns, and numerous other improvements will still act in an advisory capacity.

THE TRUSCON NAILER JOIST is a new product of the Truscon Steel Company of Youngstown, Ohio. This Steel Nailer Joist is of the Open-Truss type and is designed for use in homes, apartments, stores, schools, and other structures where wood floors are to be used.

MR. CHARLES G. EDWARDS of Charles G. Edwards Co., 93 Worth St., New York, announces that Mr. Richard O. Chittick, until recently Executive Vice-President of the Real Estate Board of New York, is now associated in the real estate business with the Charles G. Edwards Co. Mr. Edwards was for three years President of the Real Estate Board of New York and is a past President of the National Association of Real Estate Boards. He is at present Chairman of the Committee of Ethics and Commissions and a member of its Arbitration Committee.

THE FEDERAL SEABOARD TERRA COTTA CORPORATION announces that it has established new headquarters at 10 East 40th Street, New York City, at which address it has brought together the sales and executive offices of the corporation.

THE TRIPLE INSULAIRE COMPANY, of Milwaukee, Wisconsin, manufacturers of Triple Insulaire, the recently developed insulation material which makes use of the scientific principle of "Caged Air" insulation, announces that Mr. W. G. Hollis, formerly joint Secretary-Manager of the Northwestern Lumbermen's Association and the Retail Lumbermen's Association, has become actively associated with that Company as Vice-President.

MOHAWK STUCCO COMPANY, INC., of Brooklyn, N. Y., announces the appointment of Thomas W. Higgins as head of its Technical Department. Mr. Higgins is a member of the American Society of Civil Engineers and for the past ten years has been connected with Atlas Portland Cement Company as a member of its technical staff and service department.

MR. H. W. KINGSBURY has resigned as Chief Engineer of the Peerless Unit Ventilation Company, Inc.

MITCHELL VANCE CO., INC., formerly at 503 West 24th Street, New York City, announces the establishment of sales and manufacturing headquarters at 70 Washington Street, Brooklyn, N. Y.

AT the general conference on the commercial standardization of Wallpaper which was held in Washington, D. C., May 25, 1929, they established a minimum standard of quality. In order to make the standard conform with the best current practice, the conference appointed a standing committee to consider comments and suggestions on the specifications, looking toward their revision if necessary, about January 30, 1930, when consideration will be given to a moisture resistance test, a fading test requirement for engraved paper, and other improvements in the specifications.

A TOTAL of 102 Simplified Practice Recommendations have been effected to date by American Industries, in the co-operative effort to eliminate waste through a reduction in the manufacture of superfluous varieties of staple articles, according to a report covering the activities of the Commercial Standards Group of the Bureau of Standards, United States Department of Commerce, for the first three months of 1929, just made public by Ray M. Hudson, Assistant Director of the Bureau, in charge of that group. This report reviews the progress made during the first quarter of this year.

GRANVILLE P. ROGERS, formerly managing director of the Artistic Lighting Equipment Association, New York City, is now with the Steel Founders' Society of America, 932 Graybar Building, New York City, in the same capacity.

RAMP BUILDING CORPORATION, garage engineers and consultants, announces from its general offices at 21 East 40th Street, New York, that Fred W. Moe has been elected President.

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ONCE IN A GENERATION a genius flashes across the firmament of art. The galleries of the world acclaim his work. Contemporaries study his technique, imitate his mannerisms. A new school of art is founded . . . . .

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FISKE & COMPANY, *Inc.,* 17 West 46th Street, New York City — 18 Newbury Street, Boston. Plants at Milton, Ridgway, and Darlington (Beaver County), Pennsylvania.

There is only one "Tapestry" Brick . . . Fiske makes it, and burns the name into each "Tapestry" Brick for your protection and the protection of your clients.

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RECENT TRADE PUBLICATIONS

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[These may be secured by architects on request direct from the firms that issue them, free of charge unless otherwise noted.]

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"Chase Copper Water Tubing and Red-Brass Fittings for Underground Service." Different kinds of pipe available for underground service. Materials used in the past; their advantages and disadvantages. Results of an investigation among water works engineers to find out their difficulties in the past; their suggestions. Method of installing and advantages of Chase Copper Water Tubing for underground service work. Specifications. Chase Red-Brass Fittings. Their alloy, manufacture and characteristics. Other uses. Chase Brass and Copper Company, Inc., Waterbury, Conn. 8⅛ x 10¾ in. 40 pp. Ill.

COPPER TUBE

Bulletin No. 15. Copper tube for copper plumbing. Tube sizes. Price lists. Specifications. 4⅜ x 7⅜ in. 15 pp.

Also Bulletin No. 10. Tube couplings. Specifications and instructions for the installation of "parker" tube couplings and Copper Tube in buildings, power plants and similar structures. The Parker Appliance Co., 10320 Berea Road, Cleveland, Ohio.

STAINLESS STEEL

"Enduro Nirosta." Enduro KA2. Chemical and physical properties. Altering physical properties. Charpy impact strength. Corrosion resistance. Fabrication of Enduro KA2. Instructions for working. Shapes and sizes. Uses. Theoretical weights. Tables. Central Alloy Steel Corporation, Massillon, Ohio. 4½ x 7½ in. 21 pp.

OIL CIRCUIT BREAKERS

"Roller-Smith Oil Circuit Breakers." Bulletin No. 600. General Information. General applications. Typical Roller-Smith small oil circuit breaker construction; design, advantages, application. Auxiliaries and attachments. Roller-Smith Company, 233 Broadway, New York City. 6 x 9 in. 10 pp. Ill.

HARDWARE

"Builders' Hardware" Trolley door hangers. Rails and joint splice bracket. Storm-proof door hangers and rails. Garage door sets; sliding and swinging. Bolts, chains and latches. Screen and storm sash hangers. Ornamental hinges and butts. Tables. National Manufacturing Co., Sterling, Ill. 7 x 10 in. 160 pp. Ill.

TERRA COTTA

"Top Stories and Roof Lines." Use of Terra Cotta for top stories and roof lines. Modern developments which have replaced the projecting cornice on large and small buildings. Examples of modern architecture and modern adaptations of classical Greek, Romanesque and Italian Renaissance. Atlantic Terra Cotta Company, 19 West 44th Street, New York City. 8½ x 11⅞ in. Ill.

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Tested in piers, its strength approaches that of straight 3-to-1 portland cement mortar. This makes it suitable for foundation, load-bearing or parapet walls and even for tall, free-standing stacks.

Since it is hydraulic, water-repellent and used without lime, it is ideal for walls below grade. . . . Since it helps prevent efflorescence and fading of mortar colors, it is especially desirable for use with face-brick. . . The economy resulting from its low cost and plasticity justifies its use in backing-up and in partition walls. . . Architect's handbook on request. Louisville Cement Company, *Incorporated,* Louisville, Ky.

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BRIXMENT

for Mortar and Stucco

The unusual plasticity of BRIXMENT *mortar makes it especially well suited for setting tile and block because of the long cross-joint used in such work.*

RECENT TRADE PUBLICATIONS—(Continued)

NAILING CONCRETE

"Nailcrete." Physical properties of and composition of Nailcrete. Its uses: for subfloors, roof coating, reinforced roof slab, floor-fill, etc. Nailcrete as a nailing base for wood floors. Specifications. Mixtures. Actual installations. The Nailcrete Corporation, 105 West 40th Street, New York City. 8⅜ x 11 in. 15 pp. Ill.

"INCOR CEMENT"

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ORNAMENTAL CAST WORK

With Atlas White Portland Cement Concrete. Wood molds—information, particulars and drawings. Plaster models and molds, flue molds, sand molds. Typical ornamental work. Cast concrete stone. Atlas Portland Cement Co., 25 Broadway, New York City, 8½ x 11 in. 20 pp. Ill.

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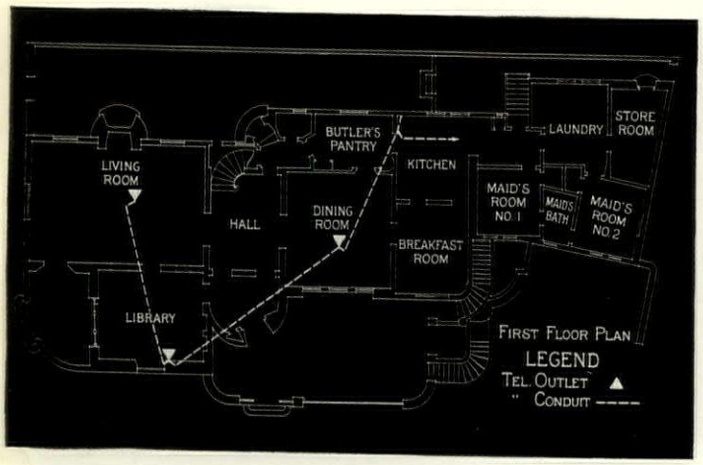
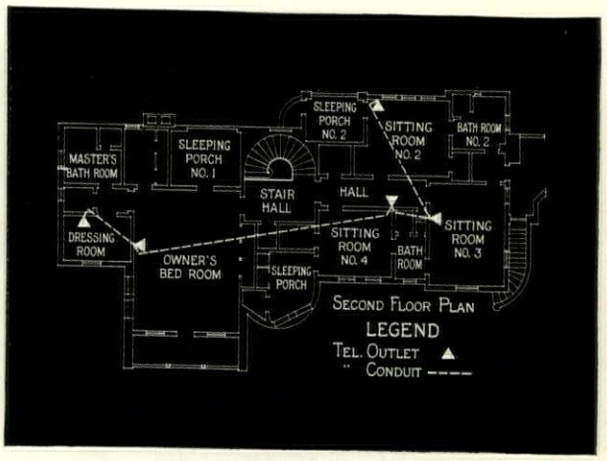
The Telephone needs of the Nation are Changing

The Piedmont, California residence of Mr. R. J. McMullen, with accompanying floor plans, showing the telephone outlets and conduit layout which provide for modern telephone convenience.—FREDERICK H. REIMERS, Architect.





WITH the growing appreciation of the important part communication plays in every-day life, there is coming a radical change in the telephone needs of the nation. Especially is this true as to the number and location of telephones within the home. Where previously one, or possibly two telephones were considered sufficient, people today want telephones throughout the house. . . . Particularly in those rooms most frequently used, so that calls may be made and answered without waste of time or effort.

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"TRANSFORMATION—From an Old House to a New Home." Several variations of treatment for each of eight old houses, each representing a style popular thirty-five or more years ago. Wide range of remodeling possibilities in old houses. National Lumber Manufacturers Association, 702 Transportation Building, Washington, D. C.

STEAM PLANTS, PAPER MILL

Treatise on the development in boiler room equipment. Diagrams. Graphs. Combustion Engineering Corporation, 200 Madison Avenue, New York City. 8½ x 11 in. 8 pp.

BRASS, BURNISHED STEEL

"Fenders and Dog Grates." Brass and burnished steel dog grates and andiron baskets. Various designs. Todhunter, 119 East 57th Street, New York City. 8⅜ x 11 in. 6 pp. Ill.

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Ventilating registers, ornamental grilles and heating specialties. Grilles from cast iron, cast bronze and wrot bronze in a wide variety of designs to harmonize with any type of architecture. Sanitary and special design registers. Wm. Highton & Sons, Division of Hart & Cooley Mfg. Co., New Britain, Conn. 8½ x 11 in. 48 pp. Ill.

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PANELBOARDS

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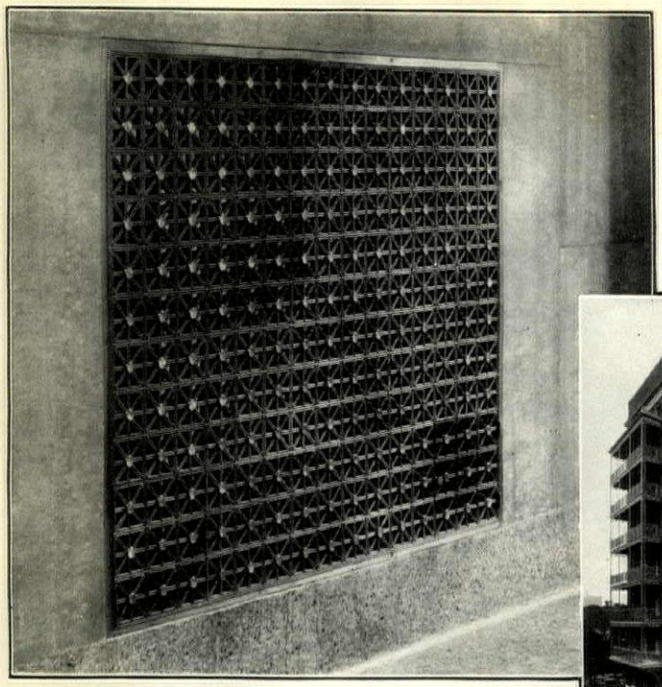

The Pennsylvania Hospital at 8th and Spruce Streets, Philadelphia, Pa. Zantzinger, Borie & Medary, architects. A. W. Binns, engineer. The Smyser-Royer Co. of Philadelphia, bronze contractors.

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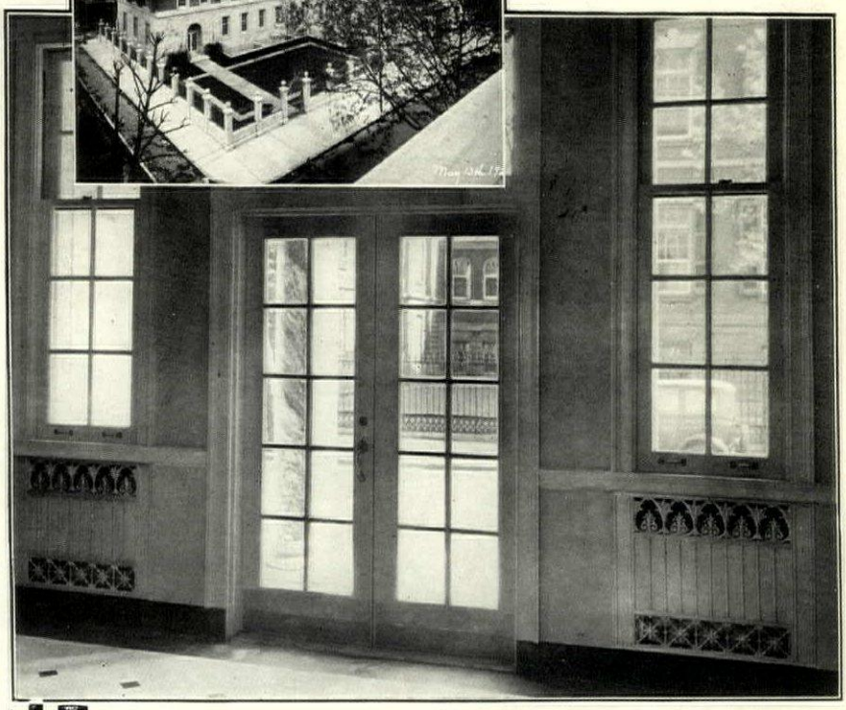

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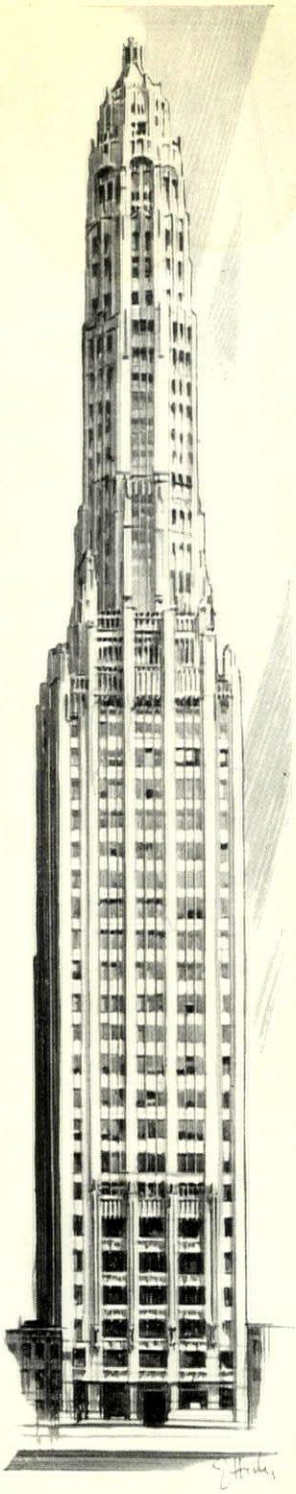

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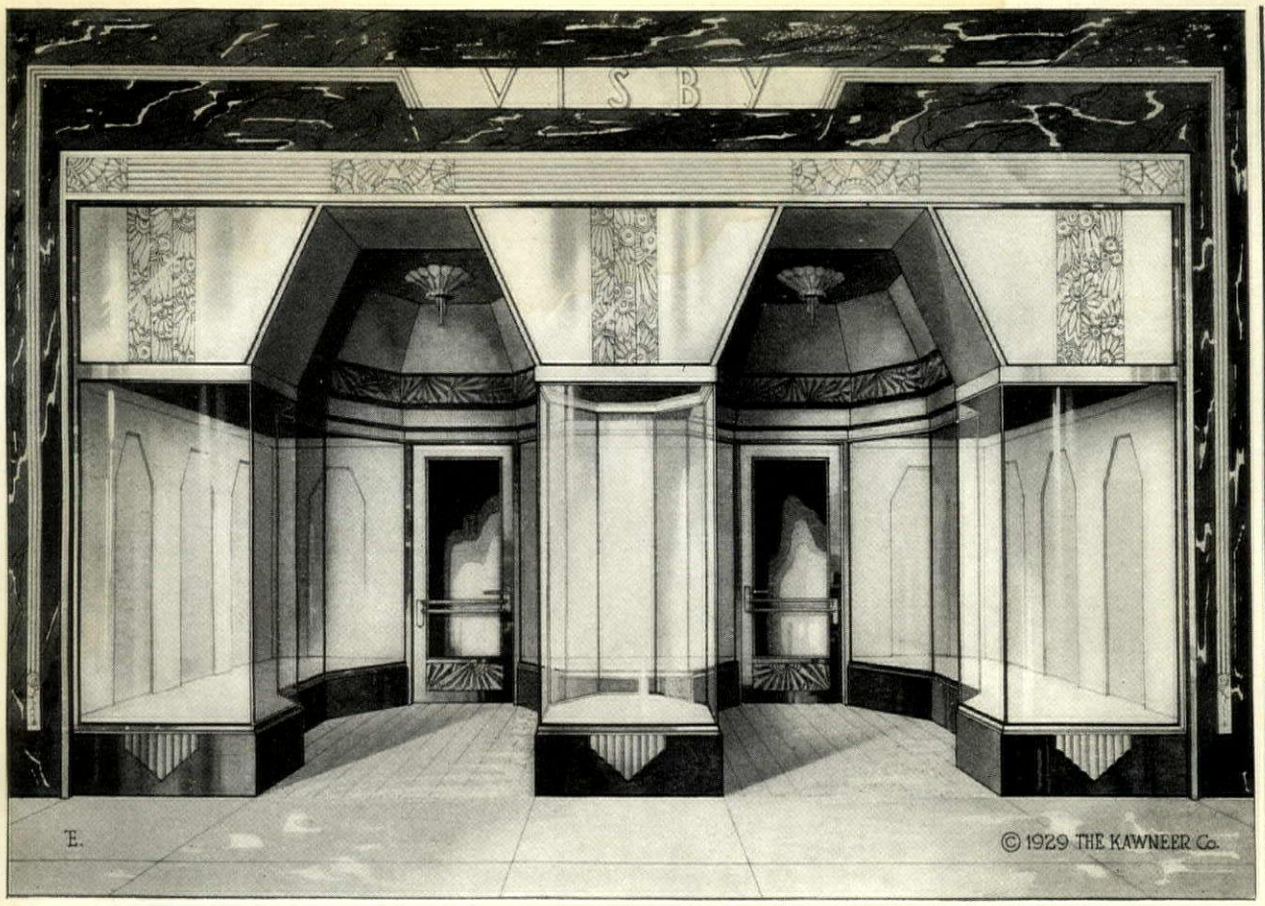

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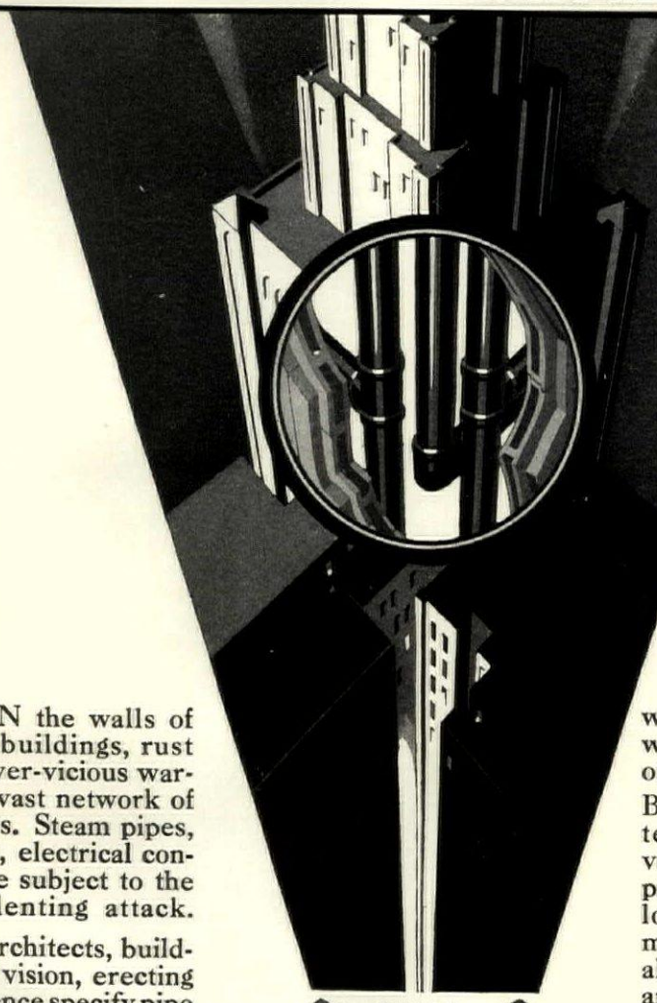

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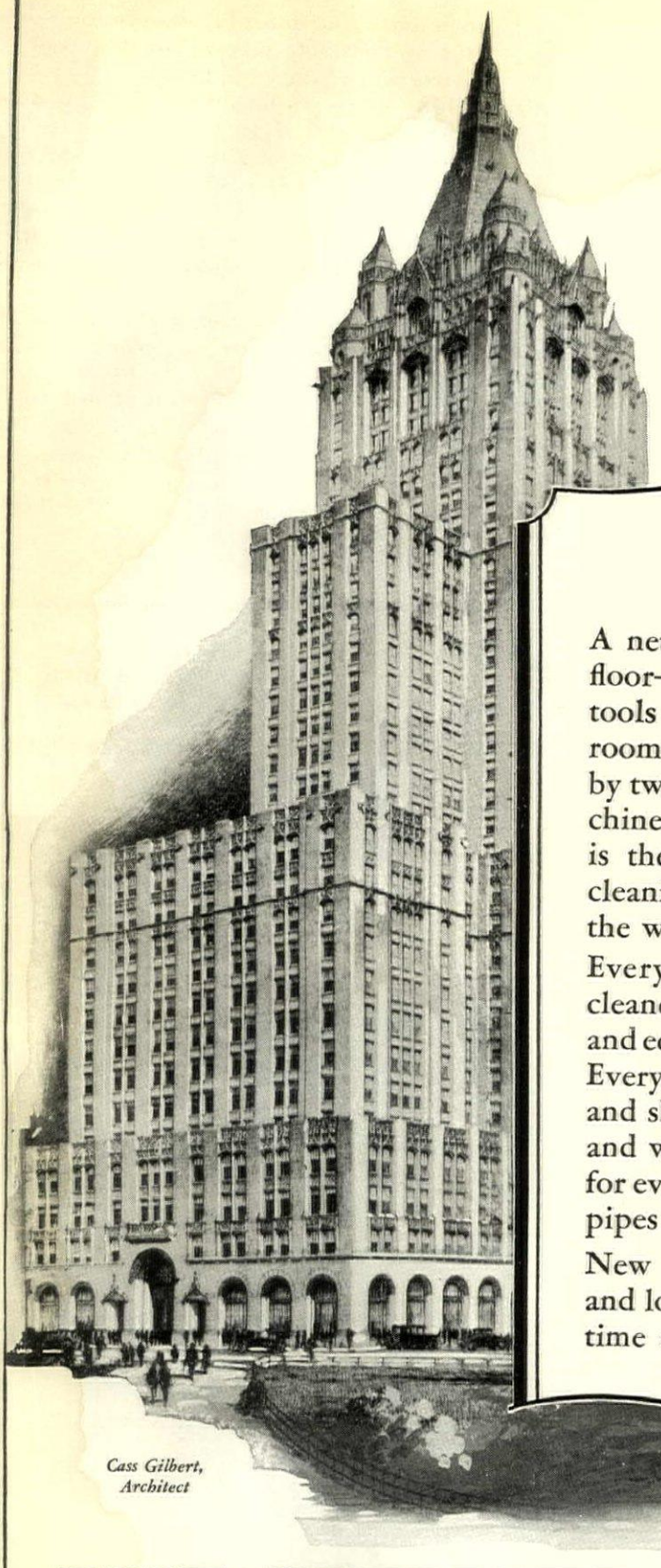

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Memorials—Church
American Seating Company
Metal Corner Bead
Genfire Steel Co.
Kalman Steel Company
Milwaukee Corrugating Co.
Truscon Steel Company
Wheeling Corrugating Co.
Mineral Wool—U. S. Mineral Wool Co.
Mortar—Kosmos Portland Cement Co.
Louisville Cement Co.
Nail—Non-Splitting
Stronach Nail Co.
Nurseries—Andorra Nurseries
Ornamental Metal Workers
Fiske, J. W., Iron Works
Highton, Wm., & Sons, Division of Hart & Cooley
Smyser-Royer Company
Paints—Arco Company
Berry Brothers
Cabot, Samuel, Inc.
Du Pont de Nemours, E. I., & Co., Inc.
Pittsburgh Plate Glass Co.
Pratt & Lambert, Inc.
U. S. Gutta Percha Paint Co.
United States Gypsum Co.
Panelboards
Adam, Frank, Electric Co.
Bull Dog Electric Products Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Partitions
Hamlin, Irving
Hauserman, E. F., Company
Mills Company
Sanymetal Products Co.
U. S. Gypsum Co.
Wilson, J. G., Corp.
Partitions—Toilet
Mills Company
Sanymetal Products Co.
Pencils—Drawing
American Lead Pencil Company
Pergolas—Hartmann Sanders Company
Piling—Concrete
MacArthur Concrete Pile Corp.
Raymond Concrete Pile Co.
Piling—Steel Sheet
Carnegie Steel Co.
Pipe—Bridgeport Brass Co.
National Tube Company
Reading Iron Company
Plate Glass—Pittsburgh Plate Glass Co.
Plaster Key
Vortex Mfg. Co.
Plaster—Lime
Ohio Hydrate & Supply Co.
Plaster—Ornamental
Jacobson & Company
Plumbing Fixtures
Abingdon Sanitary Mfg. Co.
Brunswick-Balke-Collender Co.
Crane Co.
Curtin, A. F., Valve Co.
Eustis, J. P., Mfg. Co.
Fiat Metal Mfg. Co.
Hoffmann & Billings Mfg. Co.
Kohler Co.
Penberthy Injector Co.
Rundle-Spence Mfg. Co.
Sanymetal Products Company
Taylor, Halsey W.
Pumps—Nash Engineering Company
Radio Planning
Radio-Victor Corporation of America
Radiator Cabinets
Tuttle & Bailey Mfg. Co.
Radiator Trap
Dunham, C. A., Co.
Radiators
American Radiator Co.
National Radiator Corp.
Nelson, Herman, Corp.
Rome Brass Radiator Corp.
Smith, H. B., Company, The

PROMINENT ARCHITECTS SPECIFY GRANITE

FOR

MEMORIALS,
MONUMENTS,
MAUSOLEUMS,

AND

BUILDINGS.

The Murtha Mausoleum
Woodbury Gray Granite
Woodlawn Cemetery, New York
Erected 1928 by
Farrington, Gould & Hoagland, Inc.

You are assured of this permanent and beautiful material in Woodbury Gray or Bethel White.

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WOODBURY GRAY ⟷ BETHEL WHITE

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CHICAGO—734 Builders Building

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Thompson Manufacturing Co.

Stain—Shingle—Cabot, Samuel, Inc.

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American Bridge Co.
American Institute of Steel Construction, Inc.
Bethlehem Steel Co.
Carnegie Steel Company

Stone—Artificial
Jacobson & Company
Rackle, George, & Sons Co., The

Stone—Granite
National Bldg. Granite Quarries Association
Woodbury Granite Co.

Stone—Limestone
Indiana Limestone Company
Victor Oolitic Stone Co.

Stone—Marble
Georgia Marble Co.
Vermont Marble Co.

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Stone Ware Chemical
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Detroit Show Case Co.
Kawneer Company, The

Stoves
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Terra Cotta
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National Terra Cotta Society
Northwestern Terra Cotta Co.

Thermostat
Johnson Service Co.

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Associated Tile Mfrs.
Batchelder-Wilson Co.
Carlyle-Labold Co.
Del Turco, L., & Bros., Inc.
Mosaic Tile Company
Norton Company
Olean Tile Co.
Stedman Products Co.
Structural Clay Tile Assoc.
Zenitherm Company, Inc.

Tile—Hollow Building
National Fireproofing Co.
Structural Clay Tile Assoc.

Tile—Roofing
Ludowici-Celadon Co.
Stedman Products Co.

Tile—Rubber
Stedman Products Co.
United States Rubber Co.
Wright Rubber Products Co.

Toncan Metal—Central Alloy Steel Corp.

Traps—Steam and Radiator—Dunham, C. A., Co.

21 Stories of HOT WATER

Furnished This Apartment by

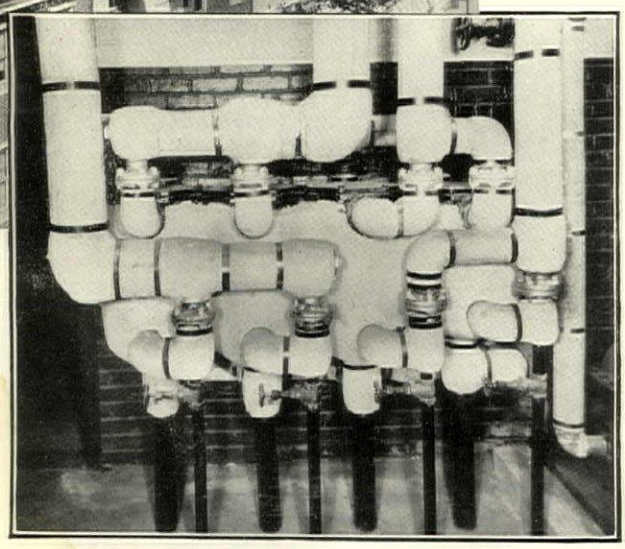
EXCELSO INDIRECT **WATER HEATERS**

What a Saving!

. . . every family in this huge apartment house supplied hot water of correct temperature, with the ***care and cost of separate heater for hot water eliminated.***

Four heavy duty, copper coil Excelso Water Heaters (in battery), connected to the steam boiler, take care of all domestic hot water needs at lowest possible cost.

Over 600,000 successful installations in residences, apartments, hotels, office and mercantile buildings. Write for catalog showing fourteen typical and tested Excelso installations. There is no substitute for Excelso in design or efficiency.



2031 Locust St. Apartment, Philadelphia.
Architects: McIlvain & Roberts;
Heating Contractor: A. McClintock & Sons;
Plumbing Contractor: Wm. Newell & Sons;
Heating System: Vapor Engineering Co.

Excelso Products Corporation

DIVISION OF AMERICAN RADIATOR COMPANY

67 CLYDE AVE. BUFFALO, N. Y.

SIZES TO HEAT WATER FOR ONE FAMILY OR ONE HUNDRED FAMILIES

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Crane Co.

Valves—Water Mixing
Leonard-Rooke Co.

Varnish—Arco Company
Berry Brothers
Du Pont de Nemours, E. I., & Co., Inc.
Pittsburgh Plate Glass Co.
Pratt & Lambert Co.
U. S. Gutta Percha Paint Co.

Venetian Blinds
Burlington Venetian Blind Co.

Ventilating Registers
Highton, Wm., & Sons, Division of Hart & Cooley Mfg. Co.

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Ventilators
Airolite Company
Ventilouvre Co., The

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Wall Coping
Clay Products Association

Wall Treatment
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Wardrobes
Evans, W. L.

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Motor Wheel Corporation

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Cabot, Samuel, Inc.
Genfire Steel Company
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Weatherstrips
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Window and Door Frames
Andersen Frame Corp.

Window Fixtures
Andersen Frame Corp.
Williams Pivot Sash Co.

Windows
Bayley, William, Company
Crittall Casement Window Co.
Detroit Steel Products Co.
Genfire Steel Company
International Casement Co.
Lupton's, David, Sons Co.
Truscon Steel Company
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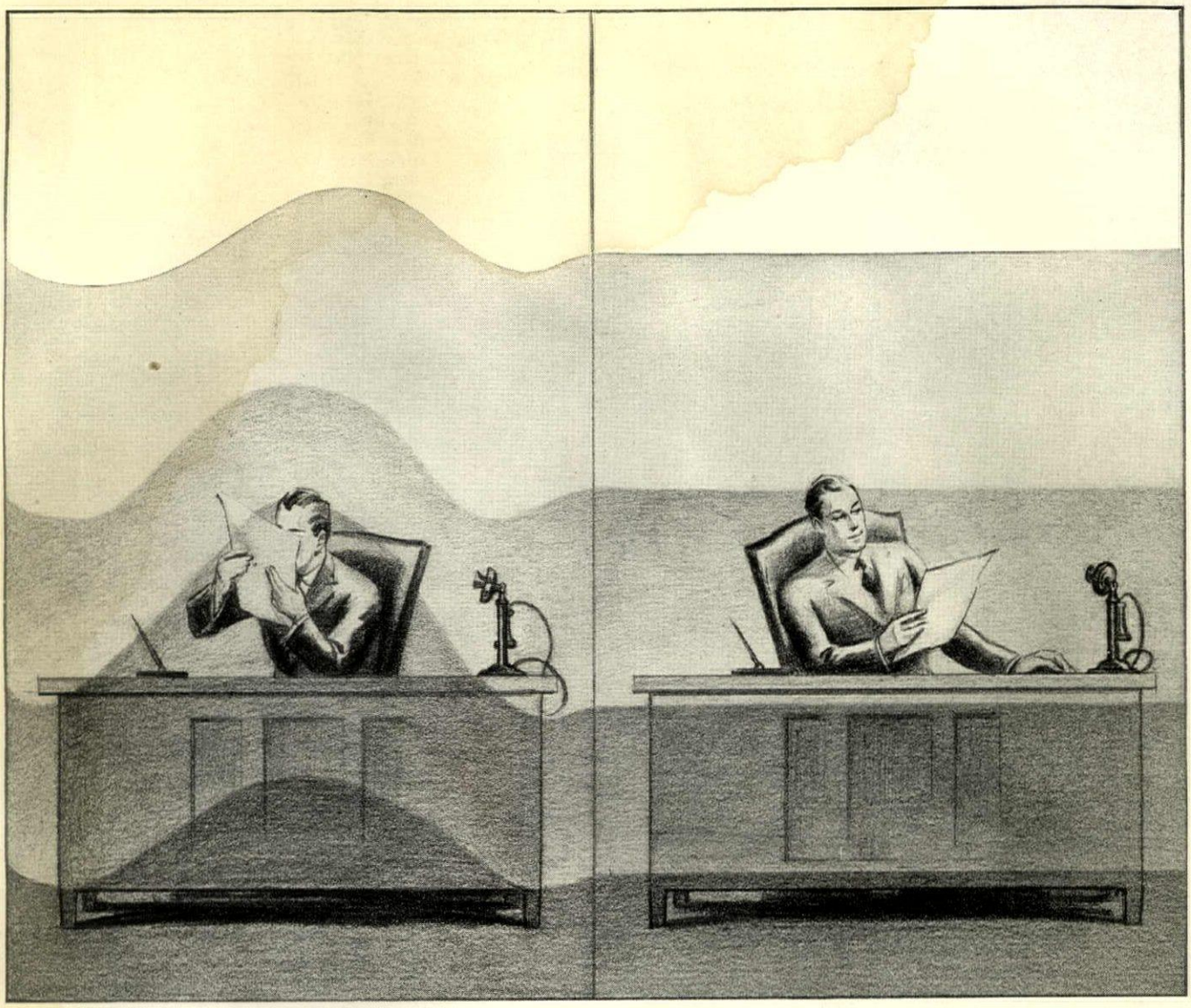
National Lumber Manufacturers Association
Oak Flooring Mfrs. Assoc. of U. S.
Southern Cypress Mfrs. Association
Western Pine Mfrs. Assoc.
Wheeler-Osgood Co.



STRANGE WHAT LIGHT WILL DO
if you don't have
BALANCED LIGHTING

Strange as it may seem, high efficiency lighting units do not necessarily guarantee good lighting.

Otherwise excellent lighting units may be so misapplied as to cause costly eye-strain and expensive errors—which is just what good lighting should *not* do.

But lighting, however, may be scientifically planned in advance to avoid these undesirable surprises.

Experience has shown the most useful lighting to be an adjustment of variable quantities—in a fixture, the *balance* of lighting factors against its requirements. Eight points are here involved, as the table shows.

FOR BALANCED LIGHTING, WEIGH:	
Horizontal Light *vs.*	Reflected Glare
Vertical Light *vs.*	Direct Glare
Shadow Depths *vs.*	Flat Shadows
Maintenance & Design *vs.*	First Cost

Showing how various factors balance, for best results in any given case

From this comes Balanced Lighting, the key-note of the Graybar Lighting Line — the yardstick employed by Graybar Lighting Engineers in selecting, from all types of fixtures, *the* best fixture for a given purpose.

Why not apply that yardstick to *your* lighting problems? See coupon below.

The Lincrest, with screw type holder. A popular, inexpensive fixture . . . but only one of many Graybar fixtures.

GraybaR

Successor to *Western Electric* Supply Dept.

BALANCED LIGHTING

COUPON

Graybar Electric Co., Graybar Building, Lexington Avenue and 43rd Street, New York, N. Y. A. R. 3

Gentlemen: We are interested in knowing more about BALANCED LIGHTING.

NAME..... ADDRESS.....

INDEX TO ADVERTISEMENTS

Classified Directory of Advertisers, Pages 162-178 Inclusive

Catalogues of concerns marked (S) will be found in the 23rd Edition of Sweet's Architectural Catalogue.

We Endorse and Agree to Support

with immediate action the **SAFETY RULES** and Recommendations as published by the **Bureau of Standards,** U. S. Department of Commerce in Handbook No. 7.

The Bull Dog Electric Products Company recognizes the inconsistency of recommending Safety Enclosed Switches and at the same time offering for sale dangerous Live Face Panelboards and Switchboards.

As a leading Manufacturer of Electrical Distributing and Controlling Apparatus we shall at once discontinue advertising or offering for sale such equipment or products not recognized or approved by this Safety Code.

Effective immediately we will no longer make the following:

1 — Live Face or Open Type Lighting Panelboards.

2 — Lighting Panelboards having Main Fuses (not switched) or fusible only sub-feeds on the Panels.

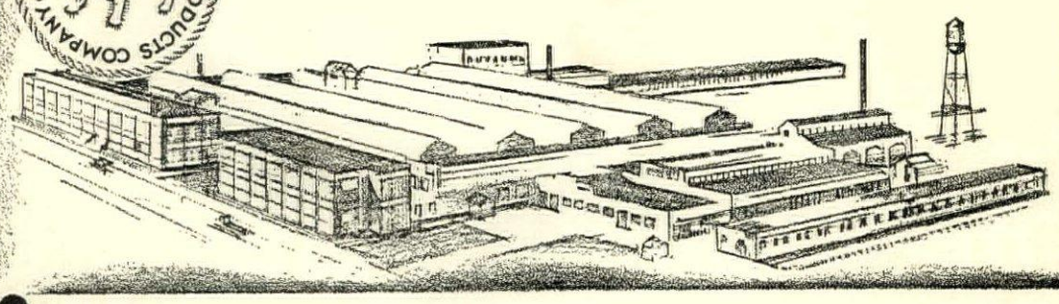
3 — Feeder or Distributing Panelboards having fuses only in the branches (not switched).

We believe that it is possible with modern manufacturing methods and conditions to produce apparatus to comply with this Safety Code at a minimum cost.

Our Salesmen will no longer quote prices or offer for sale any of the apparatus which we have heretofore manufactured that conflicts with these Safety Rules.

BULL DOG ELECTRIC PRODUCTS CO.
DETROIT, U. S. A.

OVER 25 YEARS OF RESEARCH AND DEVELOPMENT



THE NATIONAL ELECTRICAL SAFETY CODE OF THE U. S. BUREAU OF STANDARDS

for the prevention of injury and loss of life from electrical hazards has been approved by the *American Engineering Standards Committee comprising the following member bodies:

American Electric Railway Association
American Institute of Architects
American Institute of Electrical Engineers
American Institute of Mining, and Metallurgical Engineers
American Mining Congress
American Railway Association
American Society of Civil Engineers
American Society of Mechanical Engineers
American Society for Testing Materials
Association of American Steel Manufacturers
National Electrical Manufacturers Assoc.
Society of Automotive Engineers

Electric Light and Power Group, comprising the Association of Edison Illuminating Companies and the National Electrical Light Association

Fire Protection Group, comprising the Associated Factory Mutual Fire Insurance Companies, the National Board of Fire Underwriters, the National Fire Protection Association and the Underwriters' Laboratories

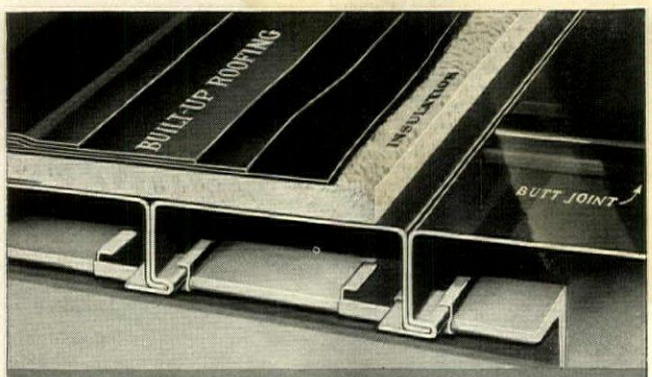
Gas Group, comprising the American Gas Association, the Compressed Gas Manufacturers' Association and the International Acetylene Association

Safety Group, comprising the National Bureau of Casualty and Surety Underwriters and the National Safety Council

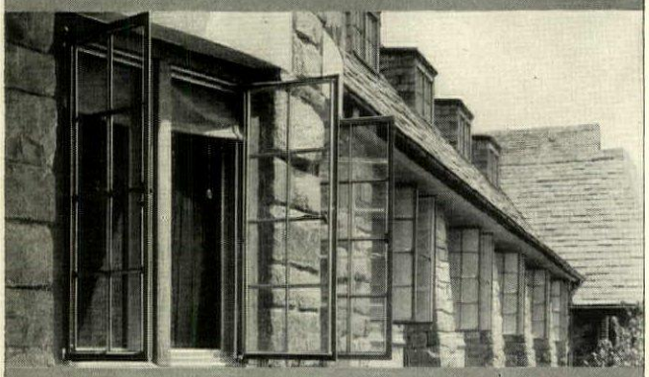
Telephone Group, comprising the Bell Telephone System and the United States Independent Telephone Association

United States Department of Agriculture
United States Department of Commerce
United States Department of the Interior
United States Department of Labor
The Panama Canal
United States Navy Department
United States War Department

*American Standards Association



GENFIRE FIRESAFE BUILDING PRODUCTS



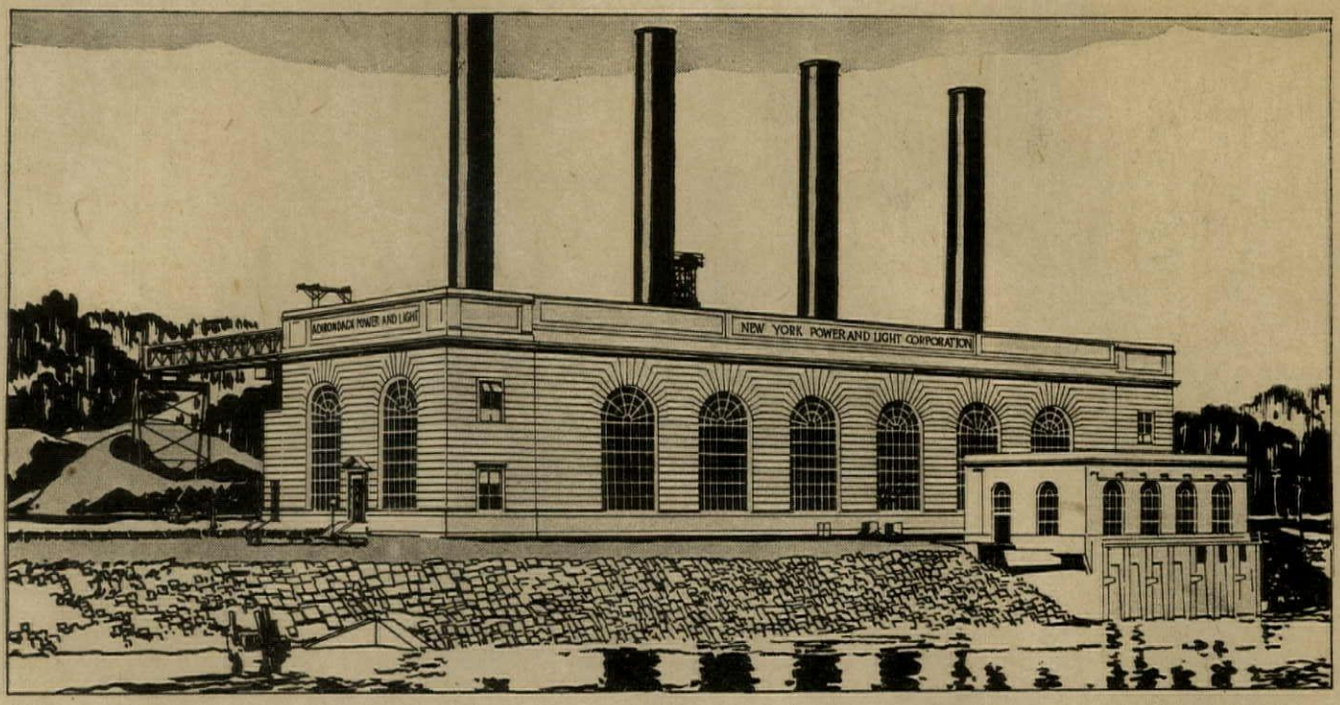
MORE THAN STEEL

Back of Genfire Firesafe Building Products is more than a quarter century's practical manufacturing experience. Constant development has perfected these products to combine economy in installation with high quality in results. Every single product has been designed to accomplish the function for which it is intended—coordinating the advantages of steel with a flexibility of use that allows the architect a wide latitude in his application in the structure.

GENFIRE PRODUCTS INCLUDE:

Standard Steel Casements
Pivoted Steel Windows
Projected Steel Windows
Double-Hung Steel Windows
Donovan Windows
Basement Windows
Pressed Steel Lintels
Steel Doors and Frames
Trussit
Steel Tile
Welded Steel Fabric
T-Bar Steel Joists
Plate Girder Steel Joists
Corner Bead
Nailer Joists
Self-Sentering
Expanded Metal
Interior Metal Trim
Herringbone Lath
Key Expanded Lath
Diamond Rib Lath
Genfire Sheet Lath
Duplex Steel Bridging
Armco Ingot Iron Lath
Cold-Rolled Channels
Rigideck
Waterproofing Compounds

GENFIRE STEEL COMPANY, YOUNGSTOWN, OHIO
Warehouses and Offices in all Principal Cities
Dealers Everywhere



Very Few Architects have ever done this

IN 1921 McKim, Mead & White, eminent New York architects, were commissioned to construct the pictured power house for the Adirondack Power & Light Corporation, Amsterdam, New York. Medusa Waterproofed White Portland Cement was used as it was the one structural material that would answer all requirements and still retain the massive dignity and clean, sharp-cut lines called for by the plans.

Later in 1924 an addition, using Medusa Waterproofed White, was made. Concrete walls throughout are from 12″ to 36″ in thickness.

Medusa Waterproofed White has the same tensile strength and setting qualities as any standard gray Portland cement. In addition, it is waterproof and the surface does not lodge foreign matter or discolorations. It is the ideal material for enduring and imposing construction.

We will be pleased to send at your request full information about Medusa Waterproofed White Portland Cement.

But any architect could do it—and be positive of the quality of the concrete

MEDUSA PORTLAND CEMENT CO., 1002 The Engineers' Bldg., CLEVELAND, O.

Manufacturer of Medusa Gray Portland Cement (Plain and Waterproofed); Medusa Waterproofing (Powder or Paste); Medusa White Portland Cement (Plain and Waterproofed); Medusa Portland Cement Paint and Medusa-Mix Masonry Cement

MEDUSA

APPLAUSE *for the* ARCHITECT!

BE proud of the small building—build for beauty and impression—it's *profitable*.

Early last year in New York City, the first prize for the finest new building was awarded by the Fifth Avenue Association to a five-story office building.

There's opportunity in the small building—size is not essential to a beautiful building.

The four or five-story building offers as much possibility for the architect and the owner, as does the skyscraper of sixty floors.

The first prize for new buildings—a gold medal and certificate—were awarded to the National American Building, No. 340 Madison Avenue, February, 1928.

Joseph H. Freedlander, architect and designer of the prize-winning building, recognized that it costs very little more to erect a beautiful structure than it does to build an "eyesore," and that proved equipment and good materials are far more economical in ultimate costs.

He recognized the value of attractive design and the importance of dependable equipment in assuring an impressive, paying building—naturally he did not overlook the investment value of a high-grade installation of elevator entrances and cars.