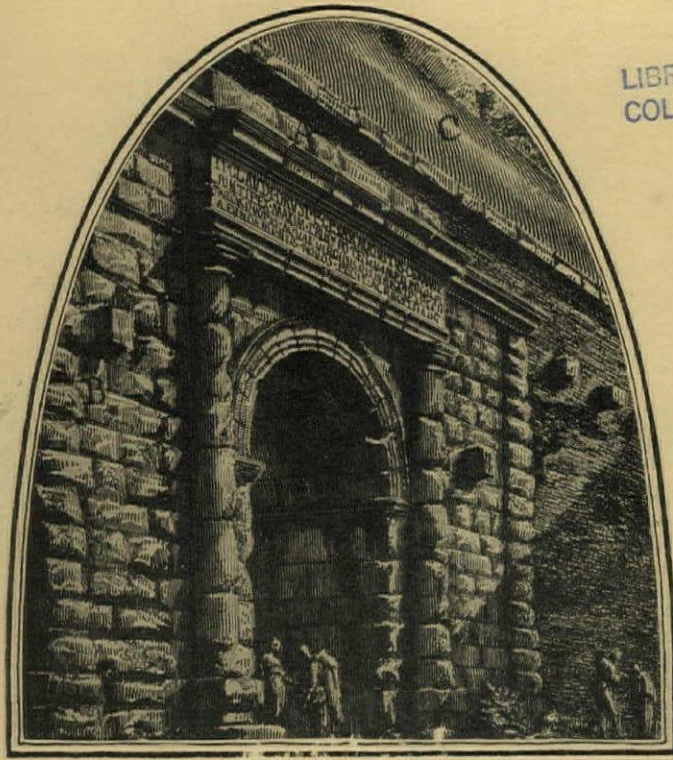


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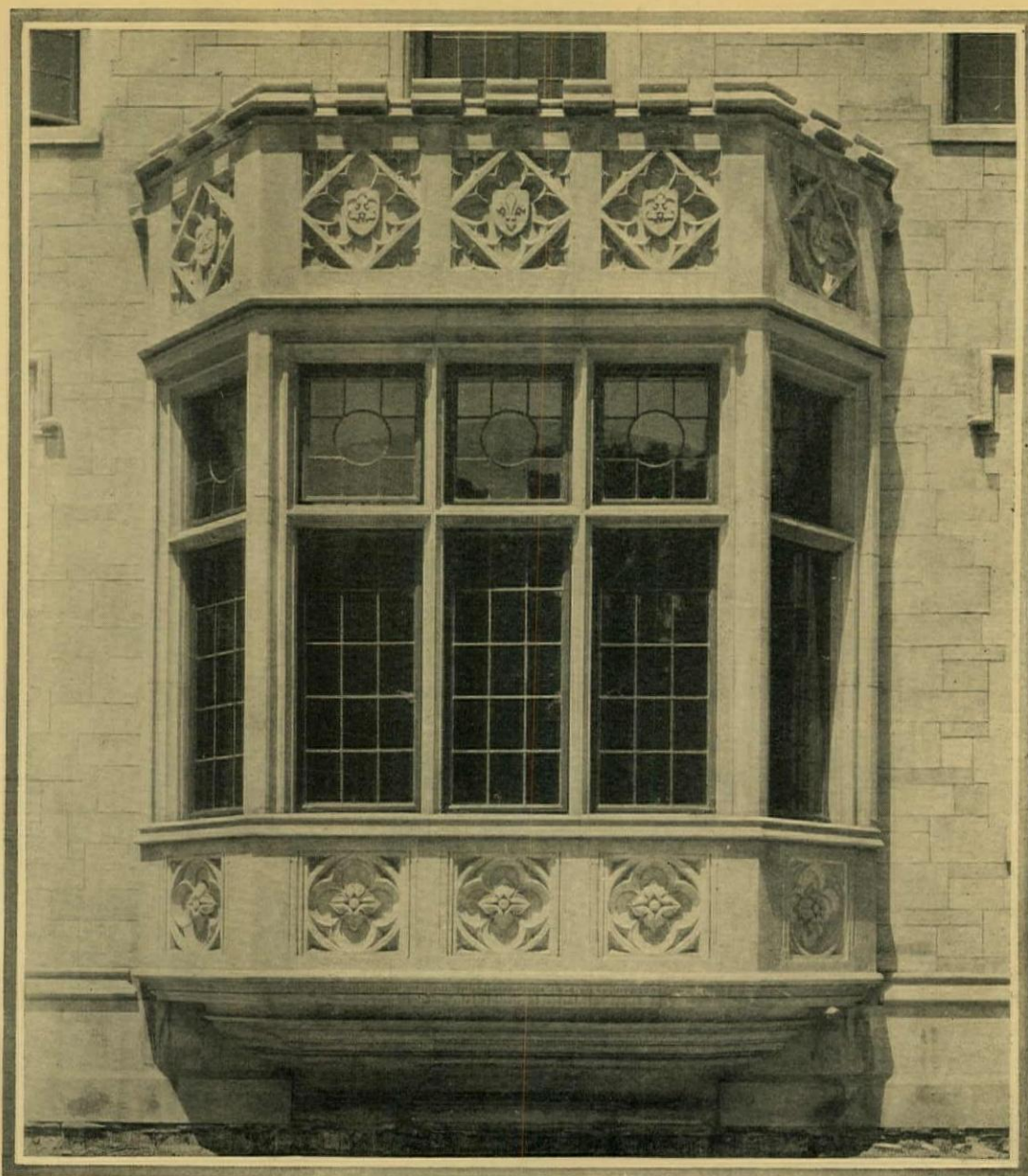
APRIL 1928

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*Detail, Oriole Bay Window, Dormitory, Marygrove College, Detroit, Michigan. D. A. Bohlen & Sons, Architects.
Rough sawed VARIEGATED Indiana Limestone Random Ashlar with buff trim*

POINTS ON RANDOM ASHLAR

THE increasing use of Indiana Limestone Random Ashlar construction in school, college and church buildings, for residences and other purposes, makes it particularly important that you receive the fullest information on this subject.

The Architect's Service Bureau of Indiana Limestone Company is organized for the express purpose of supplying the architectural profession—not with “advertising

matter”—but with information that will be genuinely helpful and which will keep important facts at your finger-tips.

Write us today and let us send you illustrated data on Indiana Limestone Random Ashlar. There will be no obligation. We will not solicit you further after receiving your inquiry unless you request it. Just keep the data for reference. Address Box 784, Service Bureau, Indiana Limestone Company, Bedford, Indiana.



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The All Terra Cotta Exterior

The Architect who designs for Atlantic Terra Cotta from sidewalk to roof has unlimited freedom in color, texture and modeled form.

He can avoid the dull monotony of the hackneyed type with base in one color, shaft in another and entablature that repeats the base.

He can include in his design the individual touches that add so much of charm—and that so often cost too much or are impossible in a less plastic material.

He can give his client a building above the usual welter of red and gray, attractive and unusual without being fantastic or bizarre.

In Atlantic Terra Cotta he has a modern, up-to-the-minute material that is thoroughly dependable, durable; the final word in weather and fire resistance; the final word in practical and actual economy.



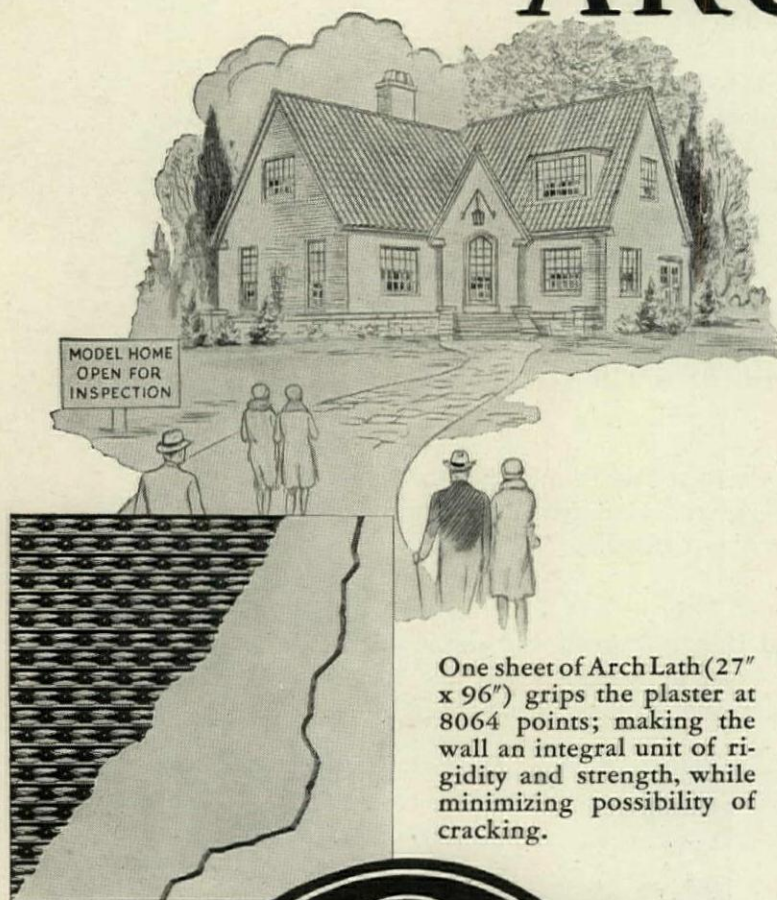
Atlantic Terra Cotta Company

19 West 44th Street, New York

Atlanta Terra Cotta Company

Atlanta, Georgia

Making Model Homes models of Safety with ARCH LATH



One sheet of Arch Lath (27" x 96") grips the plaster at 8064 points; making the wall an integral unit of rigidity and strength, while minimizing possibility of cracking.



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THE introduction of Wheeling Arch Lath has created new interest in metal lath. The reason is that Wheeling Arch Lath insures fire-safe construction at a cost comparable to that of inflammable types of lath.

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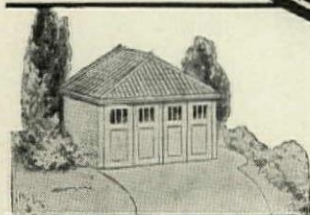
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Wheeling, West Virginia

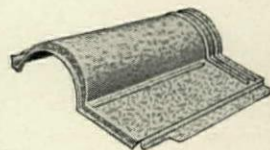
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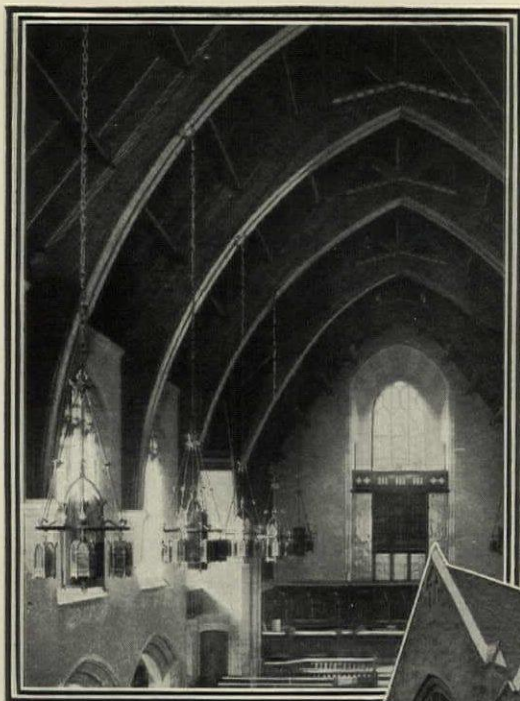


Wheeling Spanish Metal Tile

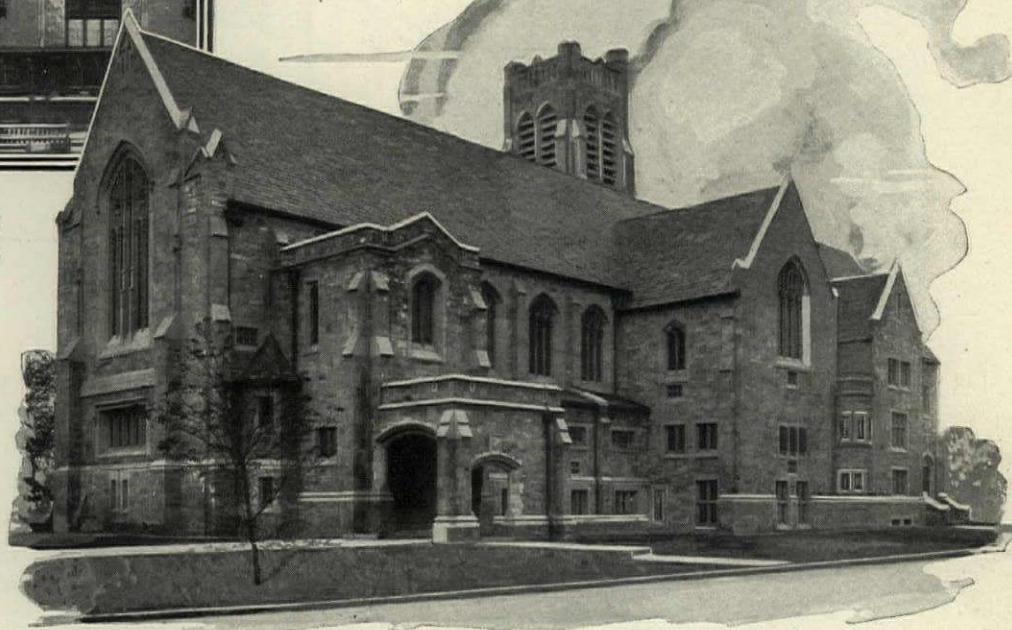
For a roof of enduring beauty at low cost, use Wheeling Spanish Metal Tile. It is proof against rust, leaks and

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Broadway Methodist Episcopal Church, Indianapolis, Ind. Foltz, Osler & Thompson, architects. Armstrong's Corkboard, one inch thick, applied on the ceiling for heat insulation and acoustic effect.



Cork Serves Double Purpose in this Church Installation

THE installation of Armstrong's Corkboard on the roof of the Broadway M. E. Church, Indianapolis, Ind., is an excellent example of the two-fold value of corkboard for the insulation of church roofs. It materially reduces the heat loss, which for such large areas is very great, and it serves the valuable acoustic purpose of correcting reverberation and echo.

In the Broadway M. E. Church, Armstrong's Corkboard was applied to the under side of the roof, and left exposed, the color and texture of the corkboard being admirably adapted to the interior decorative treatment.

Because of the intermittent use of church buildings and their high ceilings, heating is difficult and costly. The use of even one inch of Armstrong's Corkboard, as in this case, lessens the heat loss materially, making it possible to bring up the temperature in less

time and to maintain it comfortably and uniformly with less fuel.

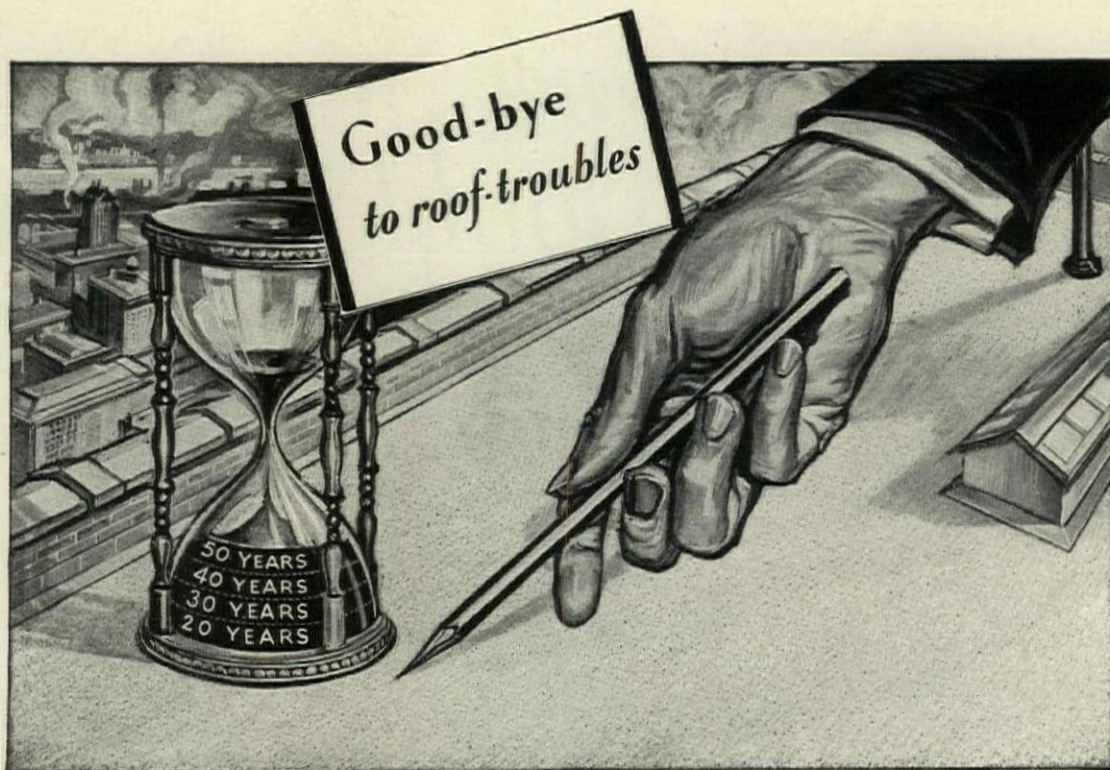
Armstrong's Corkboard has sound absorbing qualities that produce excellent acoustic effect, reducing reverberation and echo without deadening the intensity of the sound.

Armstrong's Corkboard is pure cork, non-absorbent and non-deteriorating. It does not decay or disintegrate, nor does it shrink, swell, warp or buckle. It is slow-burning, and will not ignite from sparks or embers. It is easily applied at a low cost for labor.

The counsel of Armstrong Engineers on the use of corkboard for either insulation or acoustic purposes is offered without charge to architects. Armstrong Cork & Insulation Company, 201 Twenty-fourth Street, Pittsburgh, Pa.; McGill Building, Montreal, Quebec; 11 Brant Street, Toronto 2, Ontario.

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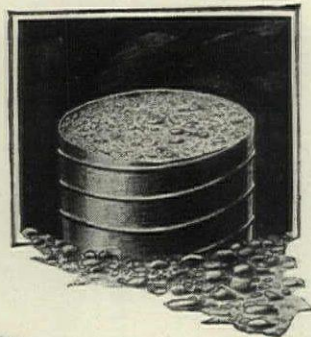
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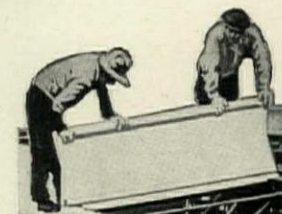
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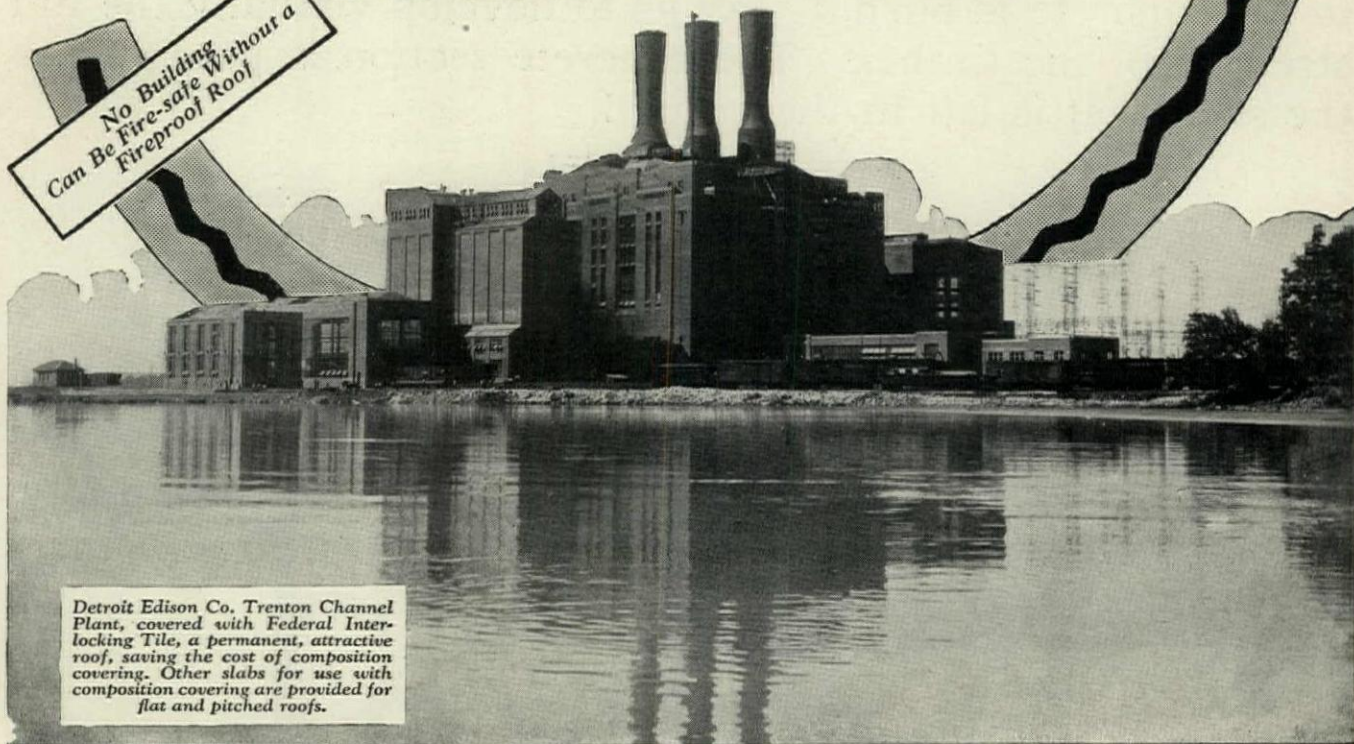


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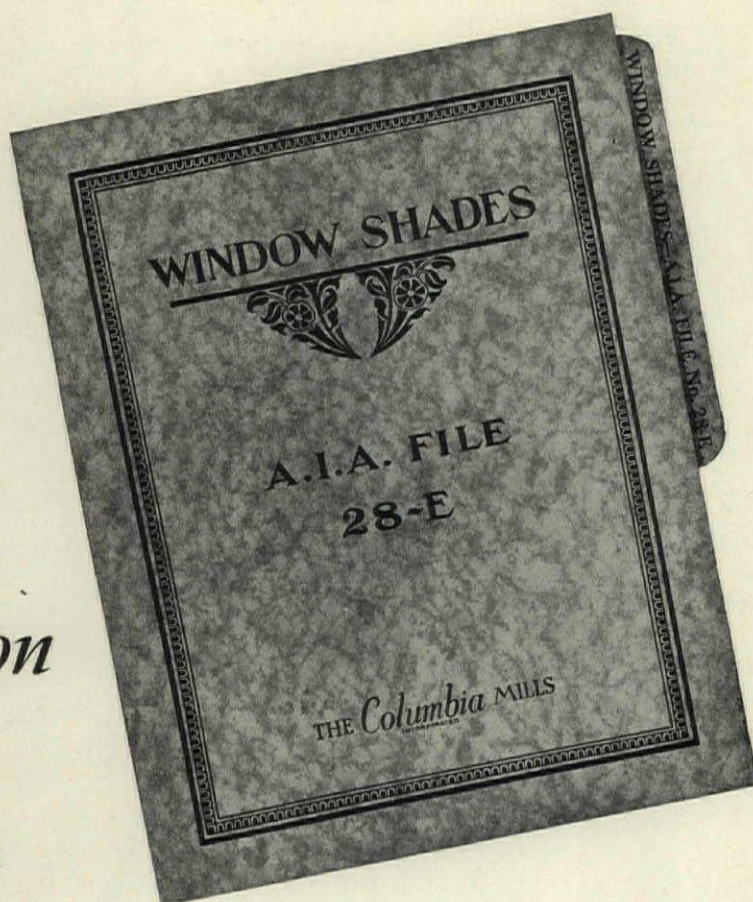
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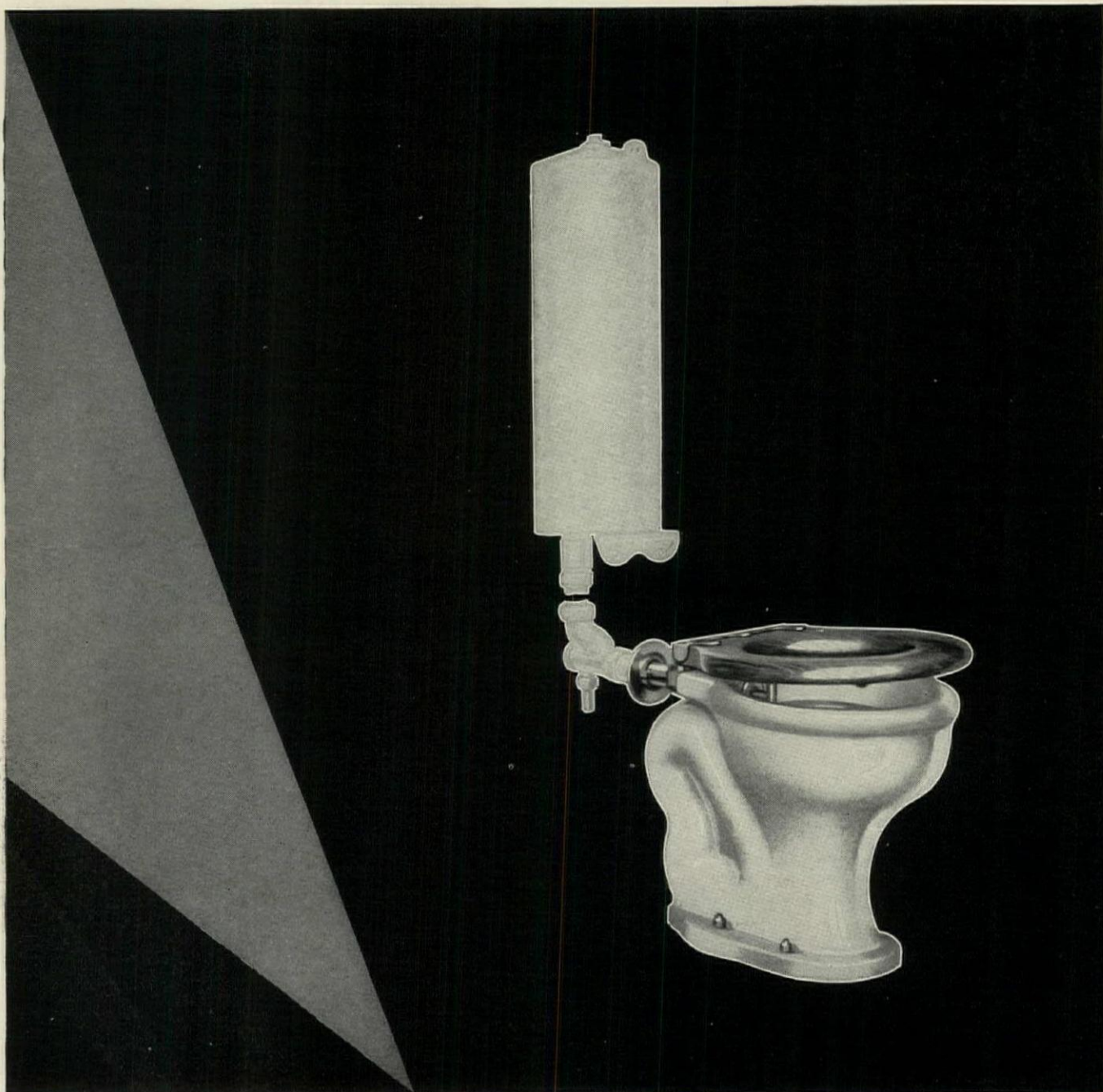
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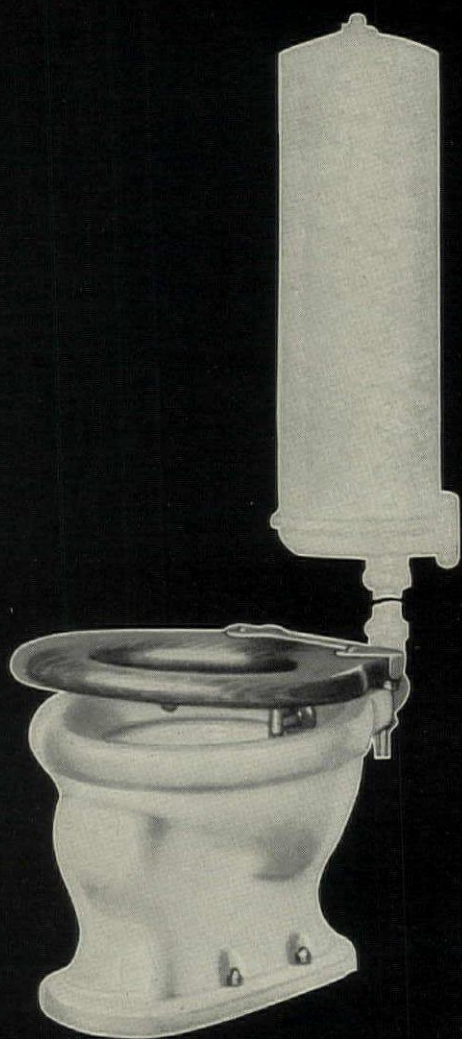
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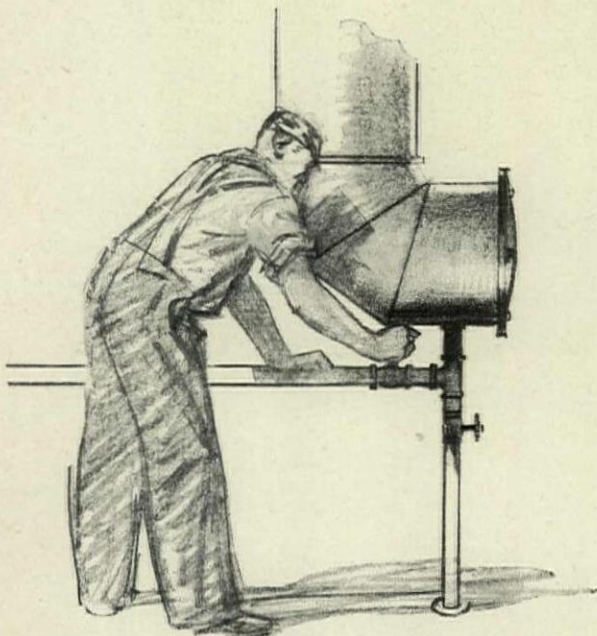
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stalled. 1928 —
repair bill after
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*Beautiful - Durable
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A remarkable transformation takes place when an "Edwards" Metal roof is properly applied to a house—all of the charm of the old Spanish Terra Cotta Roofing Tile is preserved, even to the color.

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Edwards Metal Roofings made to have the appearance of wood shingles, tile, slate, or any other roofing effect, and none of these fine artistic effects will cost any more than a plain, commonplace roof.

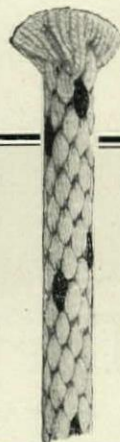
All Edwards Metal Roofing is easy to lay—no big expense for skilled labor—storms and winds will not wrench it loose. It is lightning-proof and fireproof—Reduces Insurance Rates.

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Let us send you
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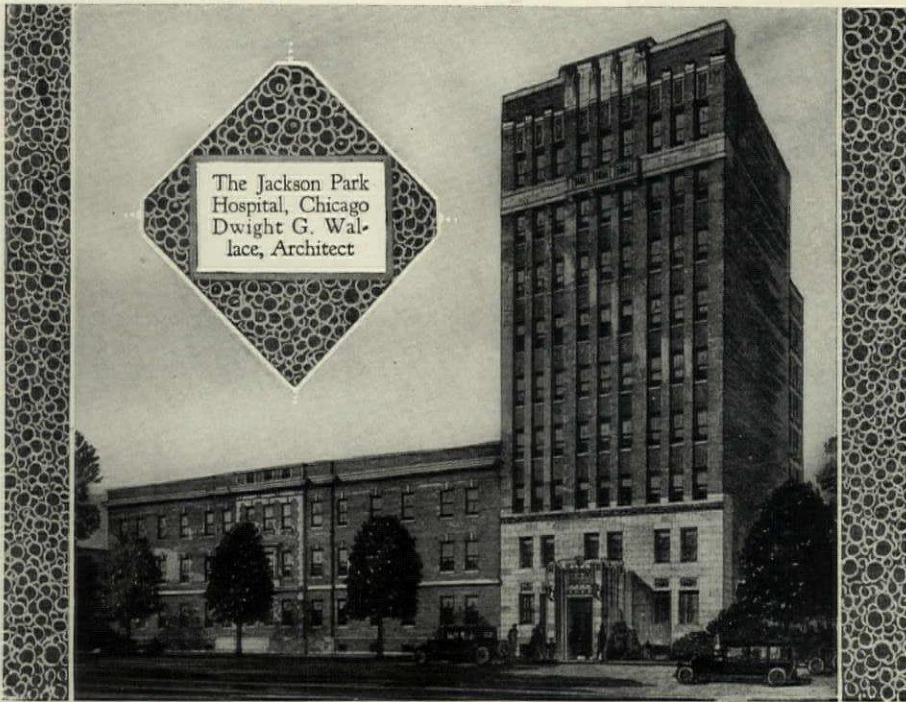
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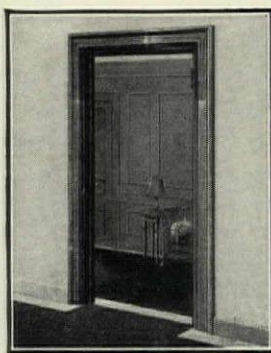
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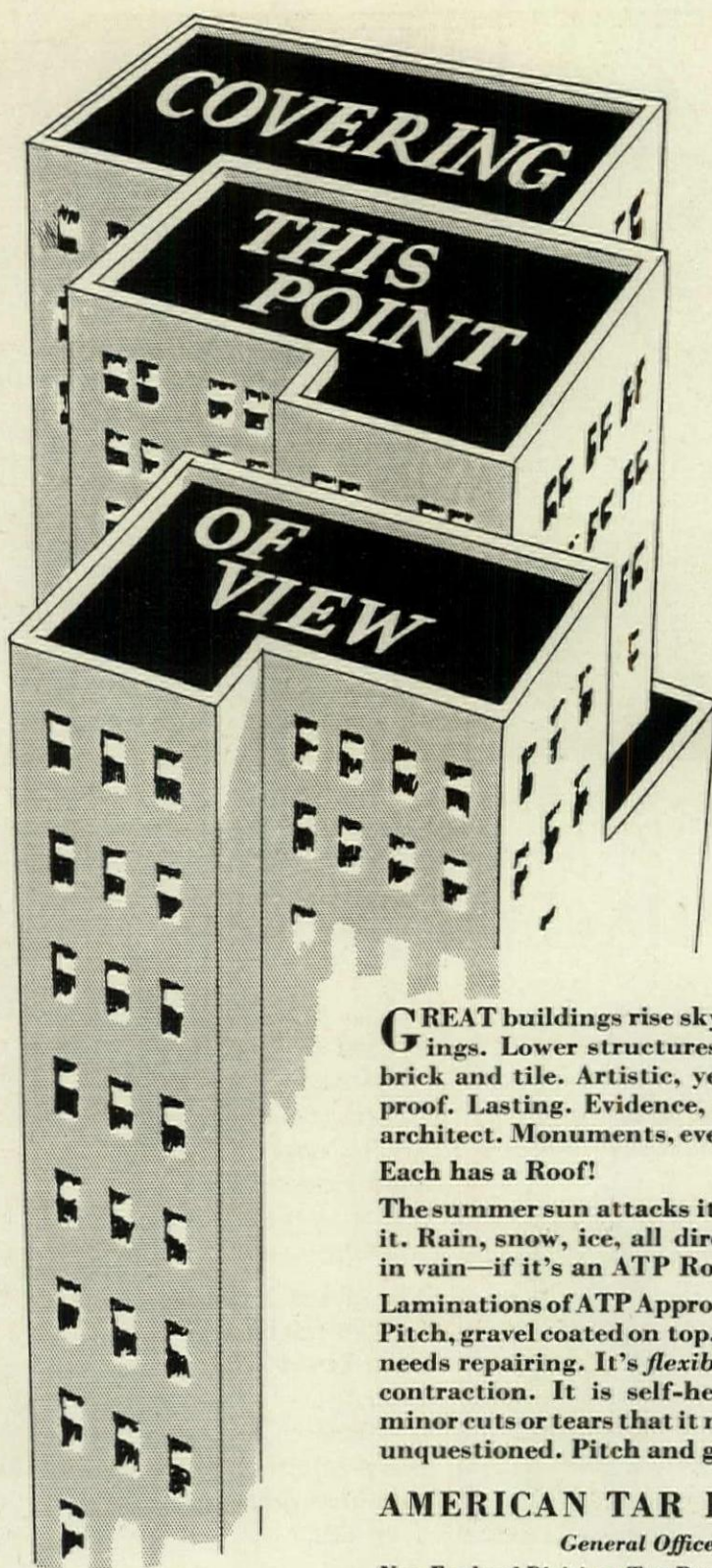
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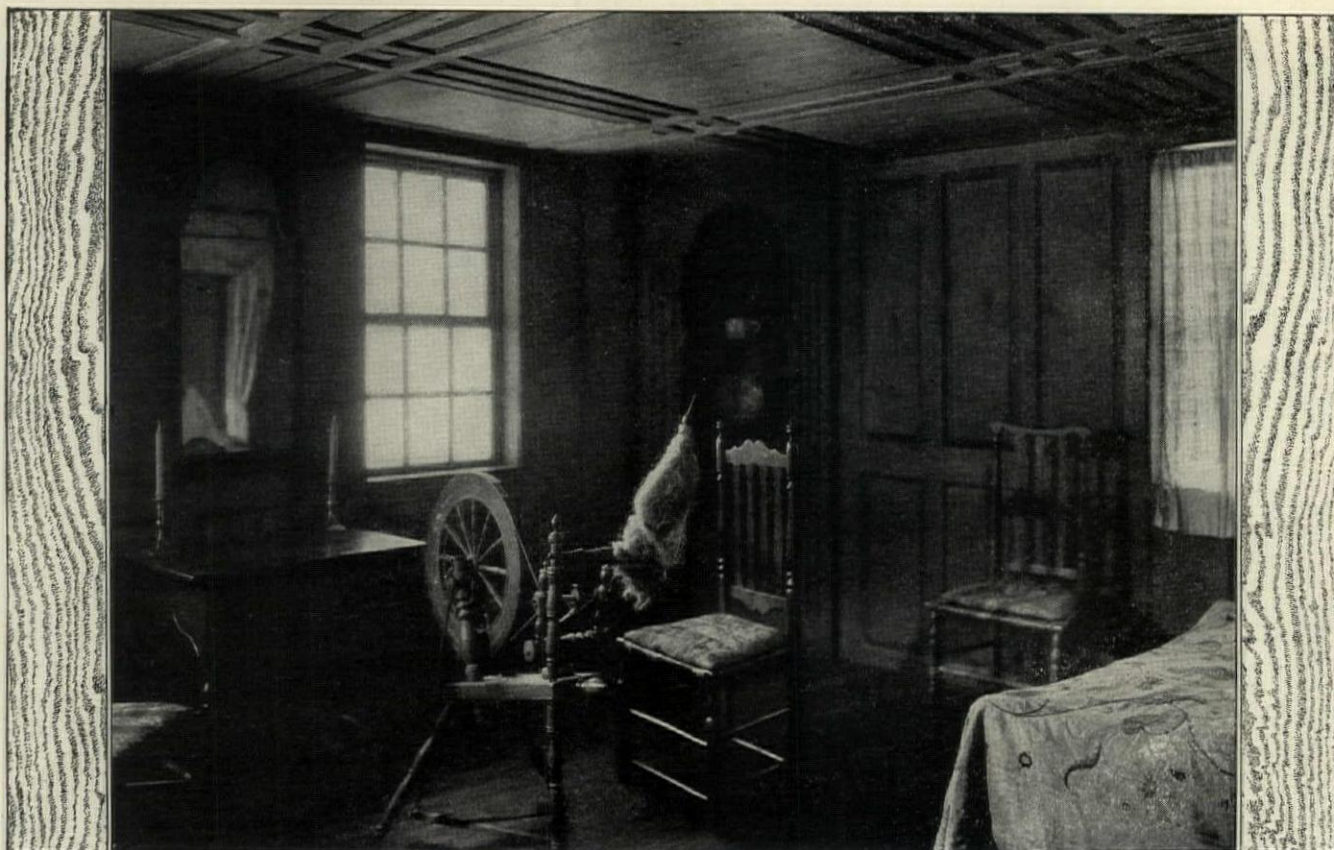
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Made of ATP Old Style Pitch and ATP Approved Tarred Felt—one quality only—the best—backed by a bond if you want it.



FRIENDLINESS

Metropolitan Museum exhibit demonstrates how simply the XVIII Century home-owner attained Beauty

IN THE American Wing of the Metropolitan Museum of Art is this early Colonial bedroom, transferred from a house in Hampton, N. H. It would seem that nothing could be added to or taken from this room without injuring its inherent character.

Yet, its owner, desiring to give it even greater beauty, added to its late XVII Century rugged simplicity all of the XVIII Century panelling here shown.

Can you visualize the room barren of the



panelling?—still a room, yet how much warmer, friendlier, more appealing that sheathing of carved wood makes it!

Only in wood—wood, the friendly, the “living” construction material—could that early Colonial builder express so simply and so harmoniously his sense of the beautiful . . . Wood is the natural resource which maintains its own abundance. You have but to order. The right wood for every purpose is available, to you, and to posterity.

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ANNOUNCING A Rug Design Competition

for prizes offered by
The Mohawk Carpet Mills

IN order to direct the attention of both amateur and professional designers to the fertile field of creative work offered by rug designing, the Mohawk Carpet Mills announces a Rug Design Competition to be held under the auspices of the Art Alliance of America.

This contest is now open. It will close on April 24th, at midnight, and the awards will be made known as soon as possible thereafter.

Prizes are as follows:

| | |
|-------------|---------|
| First..... | \$1,000 |
| Second..... | 500 |
| Third..... | 250 |

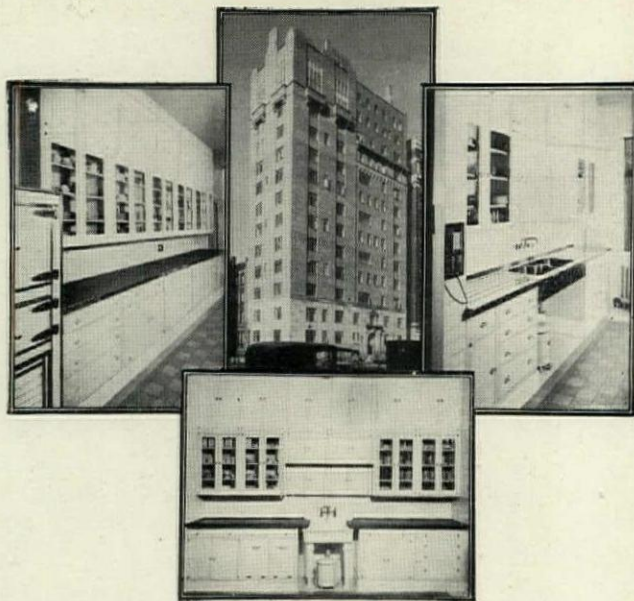
In addition, special prizes are offered for designs submitted by art students now registered in schools of design.

It is the wish of the Mohawk Carpet Mills to draw out designs which are distinguished by originality and which, without becoming bizarre, incline towards the expression of the modern spirit. Entries will be judged rather on this basis than upon the degree of technical precision manifest. In other words, while contestants must be familiar with the major limitations of rug design it is not intended that minor technical errors shall debar an otherwise brilliant conception.

Full information regarding both the main Rug Design Competition and the supplementary student contest is needed for intelligent participation. It can be obtained by addressing

THE SECRETARY

THE ART ALLIANCE OF AMERICA
65 East 56th Street
New York



WHITE HOUSE Installations in the apartment of
A. J. Kobler, 820 Park Avenue, New York City.
Harry Allen Jacobs, Architect.

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AFTER having compared WHITE HOUSE Units—made entirely of steel—with other types of kitchen and pantry equipment, you will see why architects of fine homes are unhesitatingly specifying these beautiful, enduring units for immediate installation.

Though costing a trifle more than old-fashioned wooden installations, they effect a real ultimate saving. Finished with three coats of baked enamel—white or in color. Absolutely sanitary and easy to keep spotlessly clean. Any space may be filled simply by combining units. Send in your plans for sketch and estimate. Catalog and additional information on request.

JANES & KIRTLAND, Inc.

Established 1840

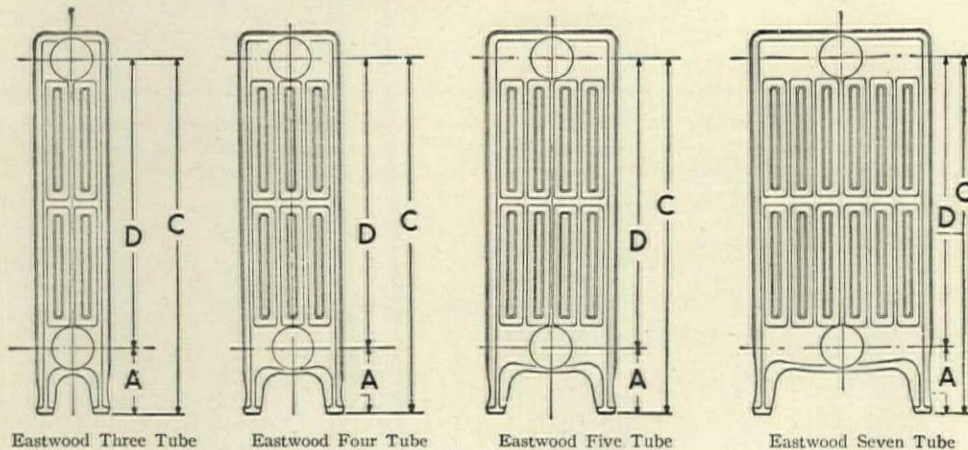
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The **WHITE HOUSE** *Line*
is made of Steel!

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DIMENSIONS



Eastwood Three Tube

Eastwood Four Tube

Eastwood Five Tube

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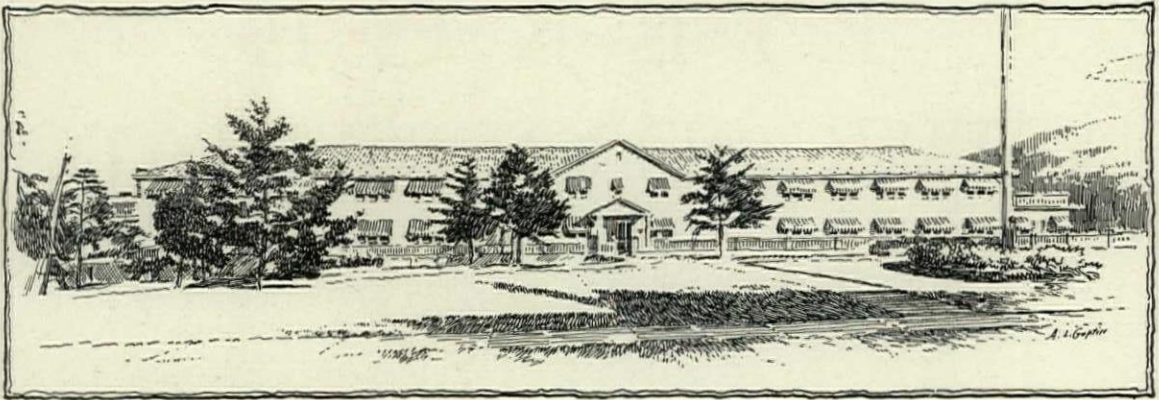
| Width of Section 5 1/8" | | | | Width of Section 7" | | | | Width of Section 8 7/8" | | | | Width of Section 12 5/8" | | | |
|-----------------------------------|-------|--------|--------|-----------------------------------|-------|--------|--------|-----------------------------------|-------|--------|--------|-------------------------------|-------|--------|--------|
| Length of Section in Stack 2 1/2" | | | | Length of Section in Stack 2 1/2" | | | | Length of Section in Stack 2 1/2" | | | | Length of Section in Stack 3" | | | |
| Ht. In. | A In. | C In. | D In. | Ht. In. | A In. | C In. | D In. | Ht. In. | A In. | C In. | D In. | Ht. In. | A In. | C In. | D In. |
| 38 | 4 1/2 | 36 1/4 | 31 3/4 | 38 | 4 1/2 | 36 1/4 | 31 3/4 | 38 | 4 1/2 | 36 1/4 | 31 3/4 | 38 | 4 1/2 | 36 1/4 | 31 3/4 |
| 32 | 4 1/2 | 30 1/4 | 25 3/4 | 32 | 4 1/2 | 30 1/4 | 25 3/4 | 32 | 4 1/2 | 30 1/4 | 25 3/4 | 32 | 4 1/2 | 30 1/4 | 25 3/4 |
| 26 | 4 1/2 | 24 1/4 | 19 3/4 | 26 | 4 1/2 | 24 1/4 | 19 3/4 | 26 | 4 1/2 | 24 1/4 | 19 3/4 | 26 | 4 1/2 | 24 1/4 | 19 3/4 |
| 20 | 4 1/2 | 18 1/4 | 13 3/4 | 20 | 4 1/2 | 18 1/4 | 13 3/4 | 22 | 4 1/2 | 20 1/4 | 15 3/4 | 22 | 4 1/2 | 20 1/4 | 15 3/4 |
| | | | | | | | | 20 | 4 1/2 | 18 1/4 | 13 3/4 | 17 | 4 1/2 | 15 1/4 | 10 3/4 |
| | | | | | | | | | | | | 14 | 4 1/2 | 12 1/4 | 7 3/4 |

NOTE the generous dimensions—particularly the width of the sections. The so called "square feet", the units in which radiators are sold, are correspondingly generous in size.

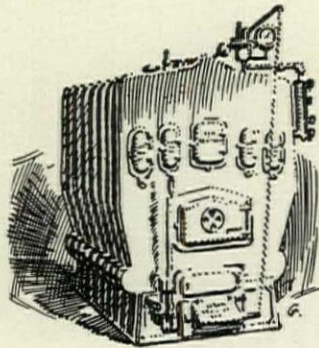
In the seven-tube series, the sections are spaced on 3-inch centers instead of 2 1/2 inch, as in the narrower patterns. This extra spacing preserves the effect of lightness and grace in the largest radiators. It also measurably increases the heating effect.

A Quality Product

PIERCE BUTLER & PIERCE
MANUFACTURING CORPORATION
41 EAST 42ND STREET • NEW YORK, N. Y.



This 230 foot Dormitory for Girls at Devitts Camp Tuberculosis Sanitorium, accommodating 48 patients, is heated by one S-36-9 Burnham Boiler, using oil as fuel and connected with a vacuumized one-pipe steam system. Other camp units are also Burnham heated.



Where Burnham Heat Is a Factor in Healing

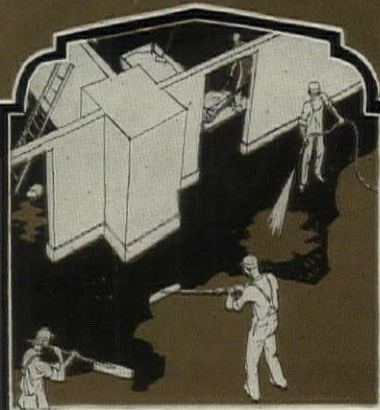
IN winning the fight against the great white plague, unfailing, easily controlled heat is next in importance only to clean, fresh mountain air and sunlight.

It is understandable that a Burnham S-36-9 should have been selected to heat this big girls' dormitory, which requires 2,345 square feet of direct radiation, during every hour of the twenty four.

Burnham Boiler Corporation

IRVINGTON, N. Y.

Representatives in all Principal Cities of the United States and Canada



STAINPROOF

*The Modern Curing and
Protecting Film*

Applied over the surface 36 hours after troweling Stainproof dries to a tough, air-proof film that prevents staining and marring and insures perfect curing of the concrete.

Easily removed after all danger of staining is passed.

All new Colormix Floors are protected with Colormix Stainproof.



*The Edmund Clark Furniture Company of Detroit, say of these Brown Colormix Floors—
"They were selected in place of carpet because they are not dust and moth shelters. Their brown mahogany finish is an ideal background for our furniture."*

STYLE

HERE in this exclusive decorator's shop Colormix Floors are used alongside of Faience Tile and Random Slate Flagging as display floors for costly rugs and fine furniture.

Now that the polished dustproof hardened finish of Colormix Floors is protected during the curing period by Stainproof no decorative hard type floor can equal them for spotless beauty at anywhere near their cost.

THE MASTER BUILDERS COMPANY
Cleveland, Ohio

Factories in Cleveland, Ohio,
Buffalo, N. Y., and Irvington, N. J.

Sales Offices
in 110 Cities

COLORMIX FLOORS

COLORMIX COLORED HARDENED CONCRETE

*When you recommend these **NEW***
American Radiator Products
.....you assure your client **PERFECT HEATING**
... AT LOWEST FUEL COST

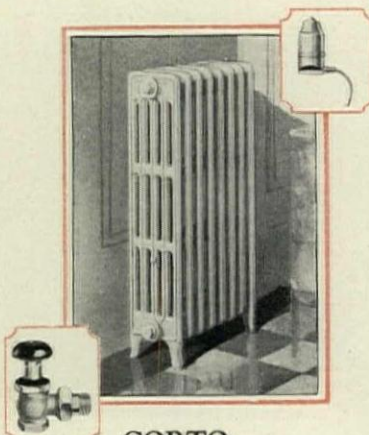


**The NEW Ideal
Redflash Boiler**

ARCHITECTS are sure to gain the instant and enthusiastic approval of their clients when they specify these new American Radiator Heating Products. For with these perfected products—the results of forty years of designing and manufacturing experience—the architect is adequately meeting the demands of modern home owners for heating equipment not only of the utmost mechanical perfection, but *beautiful* as well.

The NEW Ideal Redflash Boiler

This new Boiler is made in square design with long double flue gallery which retains the hot gases within the Boiler for the longest period of time, insuring the utilization of their heat in the highest degree. The Boiler is fully



CORTO
The "American" Radiator
Classic
with "American"
Precision Accessories.

These new heating products embody every refinement and improvement known to modern heating engineers. Yet they cost no more than ordinary equipment.

"American" Corto Radiator

The beautiful "American" Corto is well known among architects and home owners as the standard for heating efficiency and beauty. When you specify an Ideal Redflash Boiler with "American" Corto Radiators you are giving your client the very best in heating—at no extra cost.

Our extensive national advertising in leading magazines—and in local news-



**The NEW Ideal "Hotcoil"
Gas Water Heater**

papers—is creating a universal acceptance of these new products.

**The NEW Ideal "Hotcoil"
Gas Water Heater**

This is the lowest priced, completely equipped, automatic storage heater manufactured. It gives abundant hot water, day and night, and operates with the highest degree of economy practically attainable. And with green porcelain enamel top and base and pearl gray jacket it is as beautiful as it is efficient.

\$55.00

and up
according to size
plus installation
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and American Gas Association

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P.P.-4-28

Please send me descriptive material about your new line of heating and hot water supply products.

Name

Address

City State

AMERICAN RADIATOR COMPANY



BRIXMENT *for Stucco*

ARCHITECTS know by experience that the only stuccos that have successfully withstood the test of time are true-cement stuccos—that is, stuccos made with either portland cement or BRIXMENT.

It has been definitely proved, however, that the same characteristics that make BRIXMENT preferable to portland cement and lime for masonry make it equally preferable to these two materials when used for stucco.

Unusual Advantages Described in This New Handbook

All the unusual advantages of BRIXMENT for stucco have been clearly presented in this new, compact, conveniently-arranged book—strength, permanence, economy, water-resistance, uniformity, color, estimating data, specifications etc. "BRIXMENT for Stucco" will make a valuable and helpful addition to your data file.

BRIXMENT *for Perfect Mortar*

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Size, 8½ by 11 inches with A.L.A. file number for ready reference. Your copy will be promptly mailed you on request. The coupon below is for your convenience.

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LOUISVILLE CEMENT CO., Incorporated
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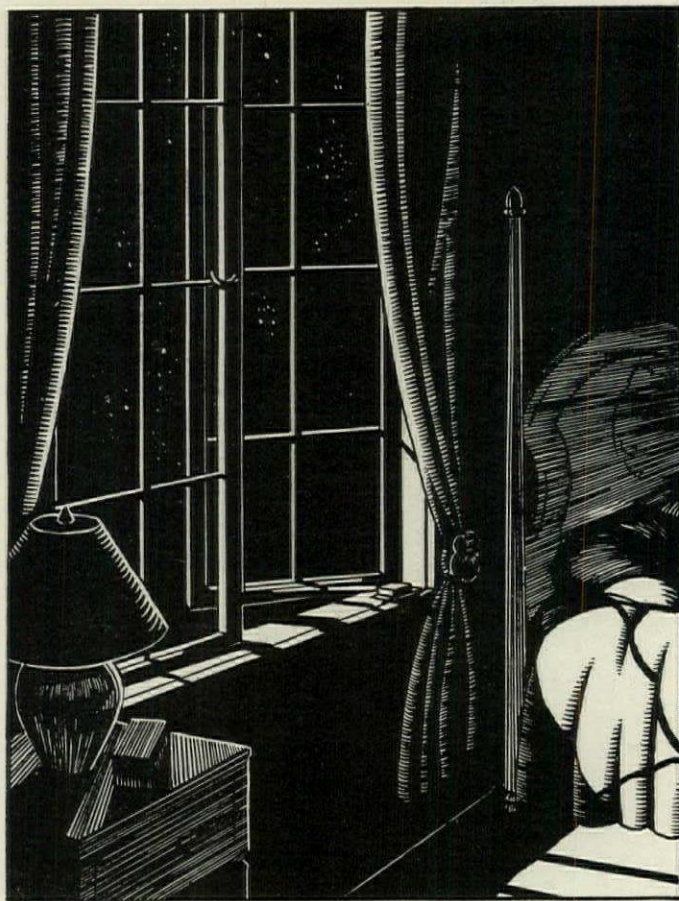
Send, without obligating me, copy of the new handbook, "BRIXMENT for Stucco".

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(Please check whether Architect ☐ or Contractor ☐)



Series 25 Operators come in all standard hardware finishes or can be painted to match trim. Several types of handles available. Fully concealed installations are readily effected

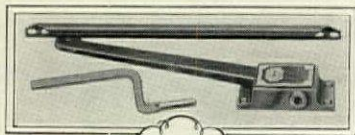
Against winds by day and prowlers by night, this casement is *secure!*

Give your clients, for all residential buildings, casements that are as secure and convenient as they are beautiful.

Win-Dor Series 25 Operator is mechanically right and architecturally harmonious. It works *through* inside screens, locks *automatically* in any position, gives full opening in four easy turns of the crank. The bearings will not corrode

even in damp, salt air. All leading makes of steel casements come punched to receive Win-Dor Operators. Easily applicable to all wood casements. Remarkably inexpensive.

May we send you our new 1928 catalog [fits A. I. A. File No. 27c2] showing our full line of specialized casement hardware? Without obligation, send for literature.



Win-Dor

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The Casement Hardware Co.

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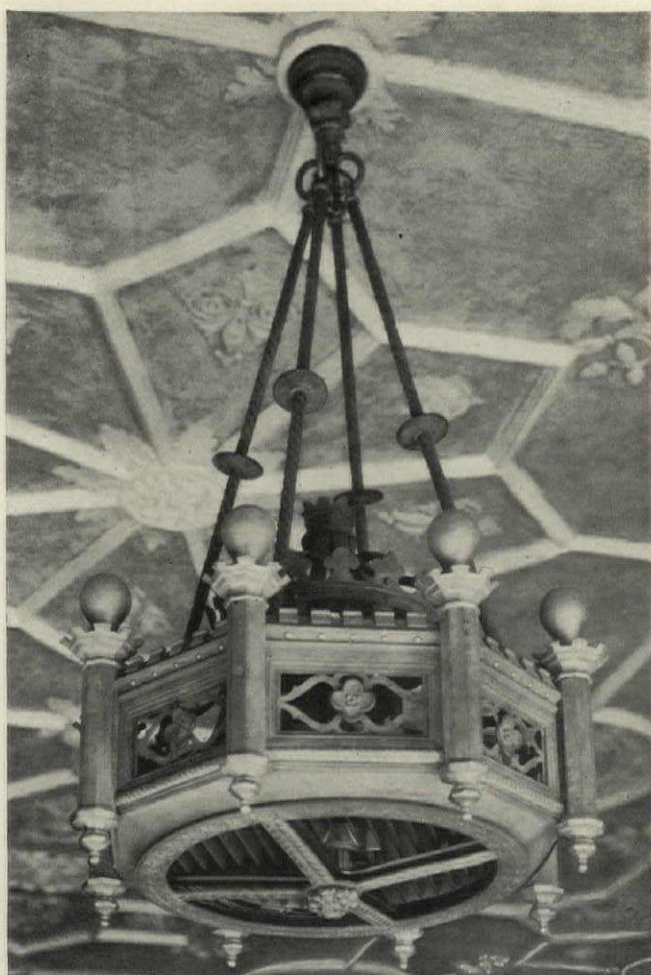
CASEMENT HARDWARE HEADQUARTERS

The Fandolier

A desirable combination

Cooling effectively combined with lighting, and both harmoniously combined with architectural and decorative thought.

Farrar and Watmough, architects for Hotel Lombardy, New York City, selected this desirable combination in Fandoliers for the dining room, here illustrated, from designs by Collins and Wagner Mfg. Co., New York.



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16 South Broad Street
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310 South Michigan Avenue
San Francisco

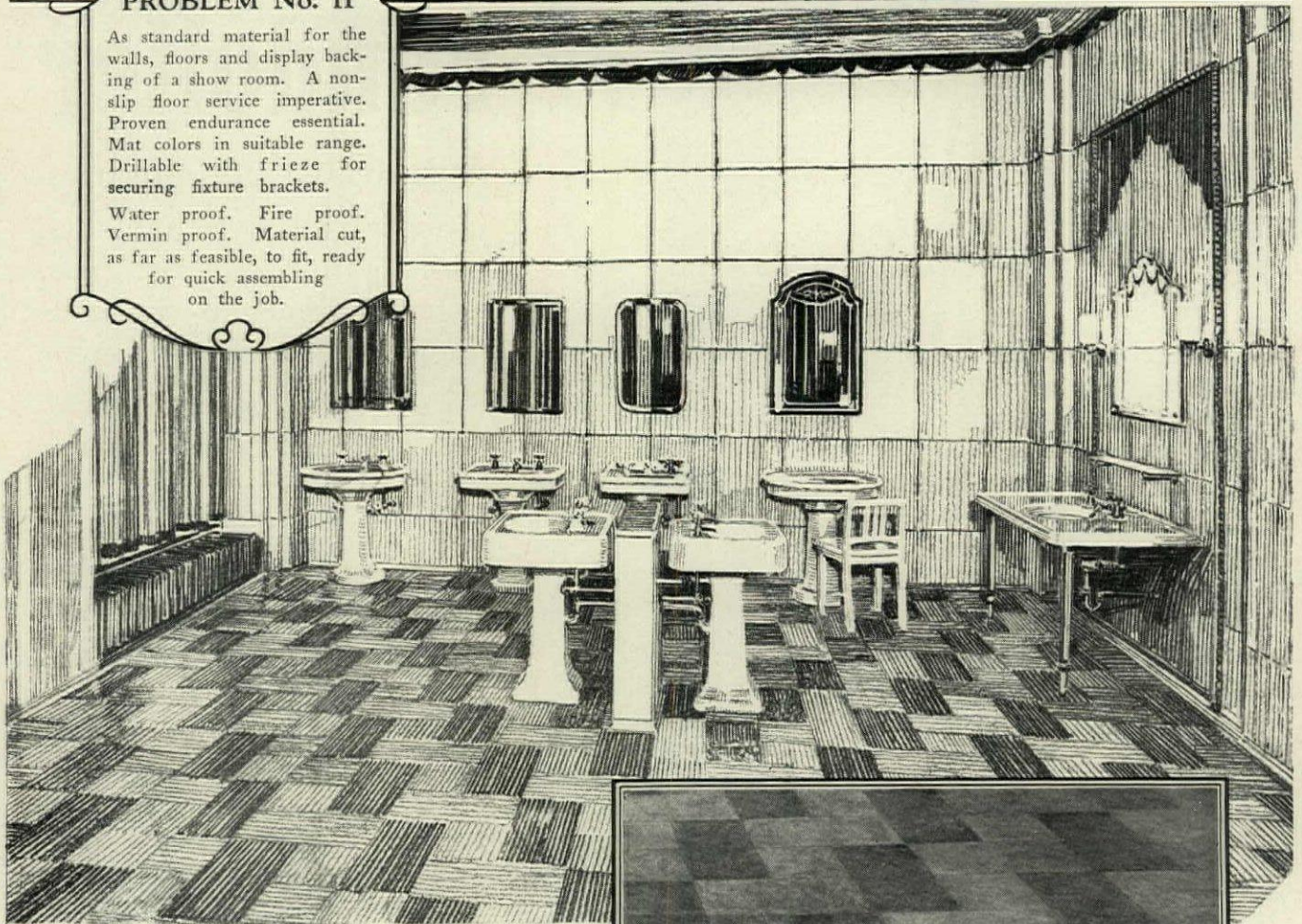


ZENITHERM

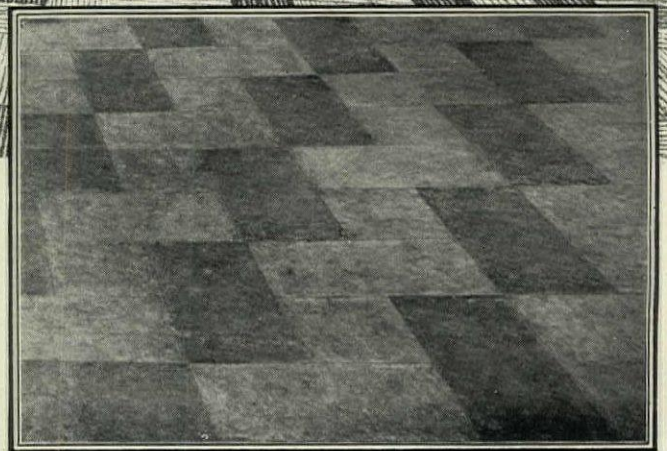
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As standard material for the walls, floors and display backing of a show room. A non-slip floor service imperative. Proven endurance essential. Mat colors in suitable range. Drillable with frieze for securing fixture brackets.

Water proof. Fire proof. Vermin proof. Material cut, as far as feasible, to fit, ready for quick assembling on the job.



The PROBLEM Solved



For a number of years the Crane Company, in doing over their branch offices, have used Zenitherm for floors and walls.

In this particular display room they have used for the floor, stone grey and light grey Zenitherm in pieces $8\frac{1}{2} \times 17$ and buff pieces $8\frac{1}{2} \times 8\frac{1}{2}$.

For the walls, Zenitherm in light grey and natural. For the frieze, black Zenitherm.

Drapery motive over mirror at right, brown.

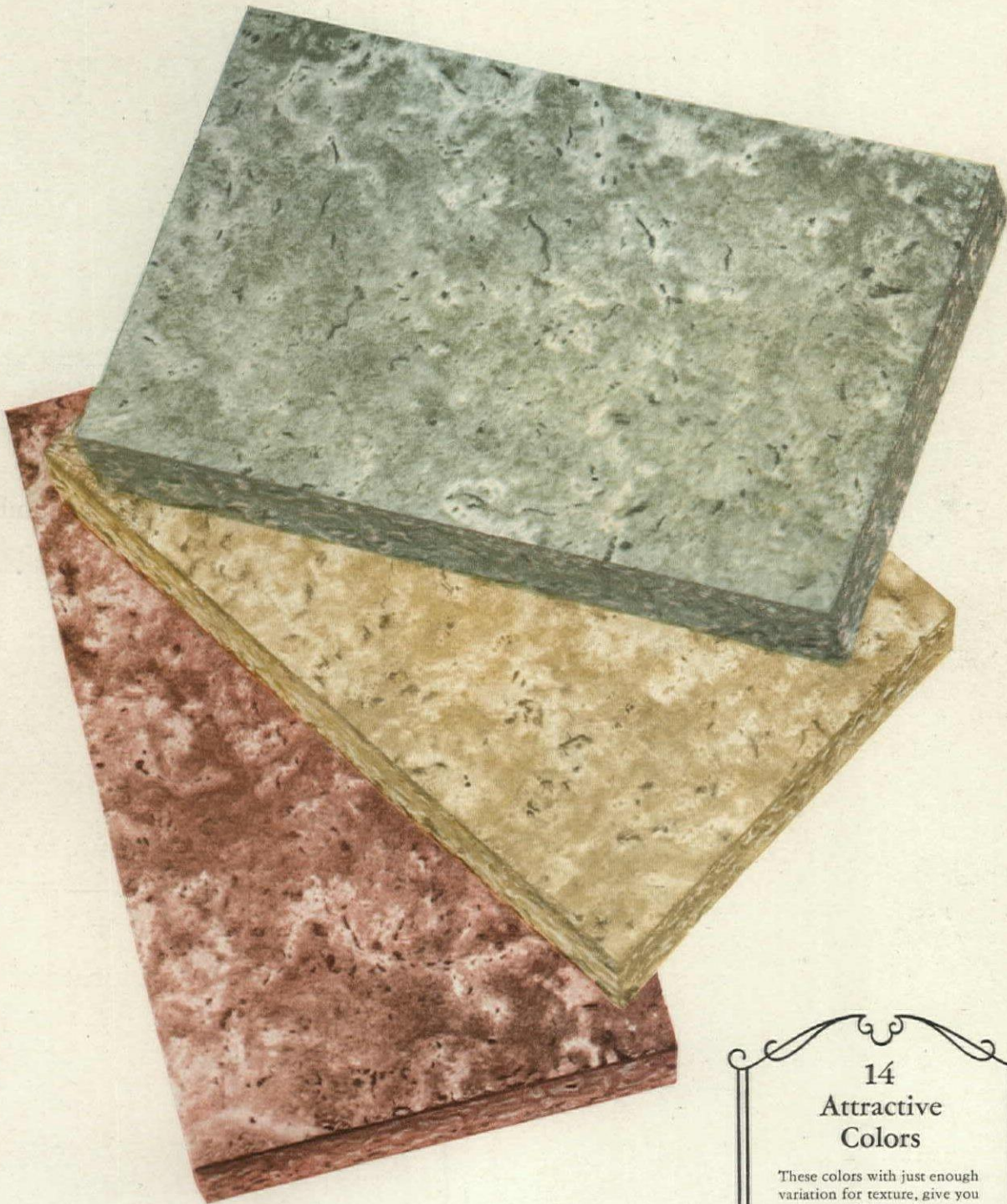
Crane Company's display
room at Philadelphia
Ralph B. Bencker Architect

A. G. H. Reinold
President

ZENITHERM COMPANY, INC. *General Offices* **NEWARK, N.J.**

110 East 42nd St., New York City ~ 612 North Michigan Ave., Chicago, Ill. ~ Zenitherm Sales Co. (Cal.) San Francisco

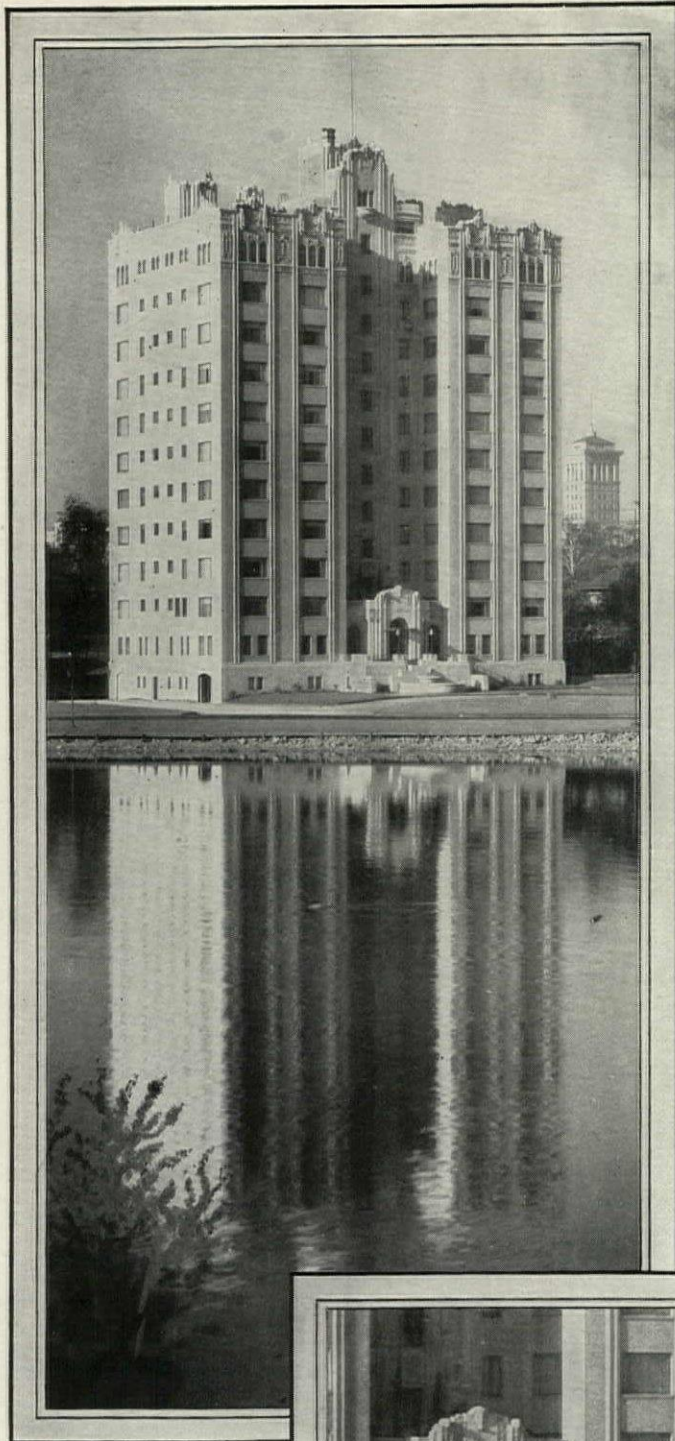
ZENITHERM



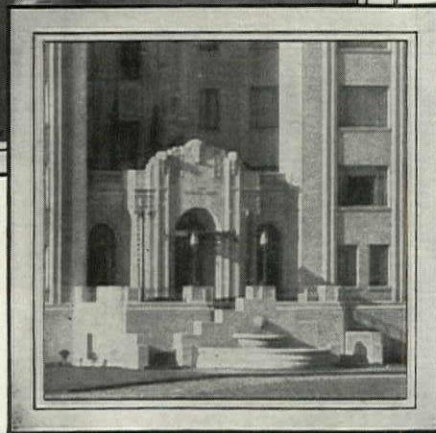
14 Attractive Colors

These colors with just enough variation for texture, give you endless possible combinations. Color schemes can be as conventional or as exotic as the selection requires. This range of colors gives you a Zenitherm color to harmonize with any other building material be it brick, marble or stone.

| | | | | | | |
|-------------|------|-------|-------|-------|------------|------------|
| Natural | Buff | Gold | Red | Pink | Drab | Dark Brown |
| Light Brown | Blue | Black | Green | Olive | Stone Gray | Light Gray |



*Lakeside Drive Apartments, Oakland, Calif.
Built in 1925. M. I. Diggs, Architect and Contractor.*



STRUCTURES *of* BEAUTY *and* DIGNITY



The Lakeside Drive Apartment building in Oakland, California, illustrates how ideally portland cement concrete can be employed to interpret the architect's dream of beauty and dignity.

This fine modern structure is built of reinforced concrete and has a portland cement stucco exterior with cast stone trim. The floors and walls are also of concrete, providing a high degree of fire-safety—an item of prime importance in buildings of this type.

The adaptability of concrete to ornamental design is exemplified by the entrance, which has unusual charm.

Concrete as a structural material for large buildings is rapidly growing in favor with architects throughout the country.

It merits consideration *for large and small structures alike* because of its strength, durability, ease and speed of construction, and low maintenance costs.

PORTLAND CEMENT *Association*

Concrete for Permanence

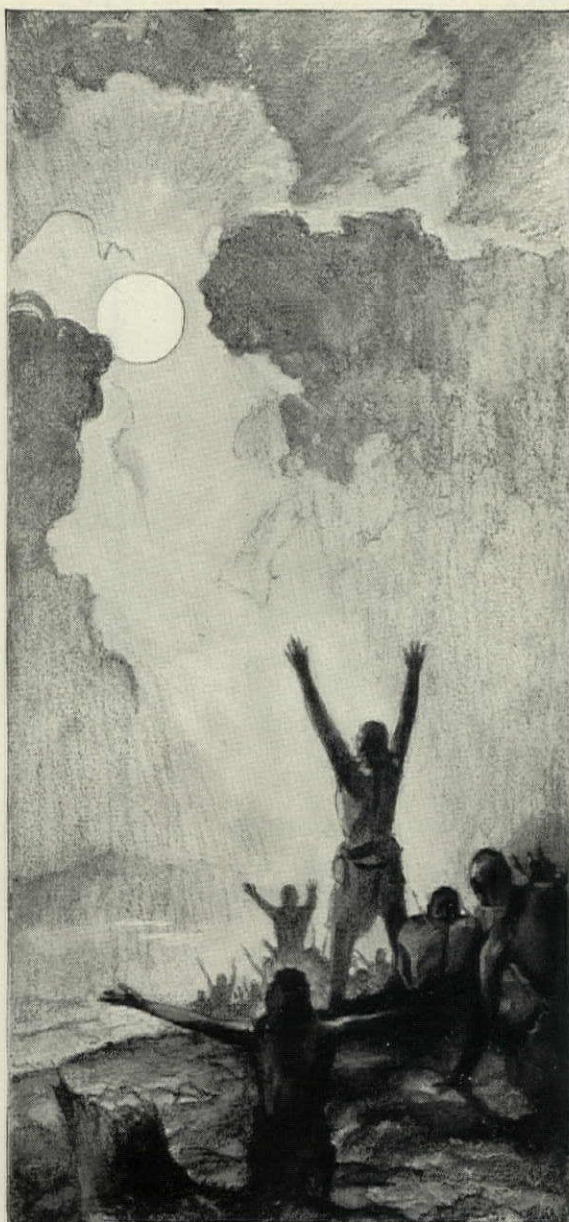
CHICAGO

The Evolution of CELESTIALITE

EVEN in the dark ages of our earliest ancestors, man cherished the sun as life itself. With each new rising of the celestial radiance fresh hope and new ambition formed—the horrors of darkness had been dispelled for another day.

How the world has advanced since those infernal days! First oil lamps, then candle lights, then flickering gas and now electricity. But, with the introduction of electricity came a new problem.

It was necessary that a lighting globe be created that would transform the strong, glaring electric rays into soft, natural light that would not hurt the eyes. Years of experimentation bore proof that only three special layers of

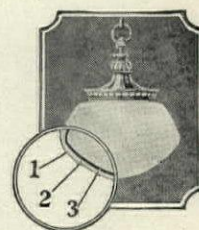


glass could produce a perfect light that would rival the beauty of daylight.

Then we proceeded to manufacture CELESTIALITE, the three layer lighting globe (see illustration on right). At all the demonstrations of this new lighting globe, expert and layman alike agreed that CELESTIALITE gives superior illumination.

Clients want Celestialite

Today people demand perfect light. They appreciate the need of better



Celestialite's Three Layers:

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A marvelous soft white light results that safeguards the eyesight

vision. They realize the necessity of safeguarding the eyesight. And the result — CELESTIALITE's popularity is growing

by leaps and bounds.

Glorifying the Architect's Artistry

Architects, too, are appreciating how this light enhances the beauty of an interior. All of the artistic niceties which the architect so carefully plans are accentuated—glorified!

Request a trial demonstration in one of your buildings or your own office. Primeval instinct born of thousands of generations of experience with daylight will make you like CELESTIALITE.

CELESTIALITE

(PATENTED)

NEXT TO DAYLIGHT

GLEASON-THEBOUT GLASS CO., (Celestialite Division)
200 Fifth Avenue, New York City P.P.-4

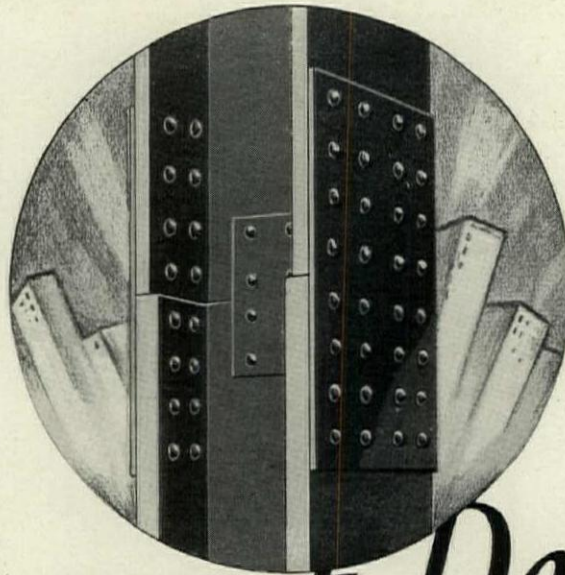
Kindly send me free Catalog, A.I.A. file, and fragment of CELESTIALITE showing its three-layer construction

Name

Position

Address

City



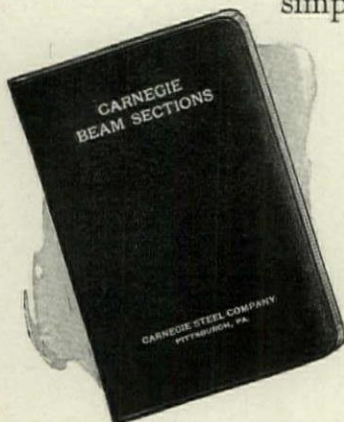
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The constant depth feature is unique with the New Carnegie Beam Sections. This series includes a complete range of 10" and 12" sections designed for column purposes, in which the various weights have a constant depth.

In tier or apartment house construction where typical floors exist, constant depth is especially valuable. It permits the duplication of material in successive floors, resulting in a saving in detailing, in fabrication and erection. It also eliminates fillers under column splices and makes possible a greater uniformity in fireproofing and finish.

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[COPY of this book will be sent at your request. It contains detailed information regarding the new Carnegie Beam Sections, together with profiles, properties and safe load tables.]

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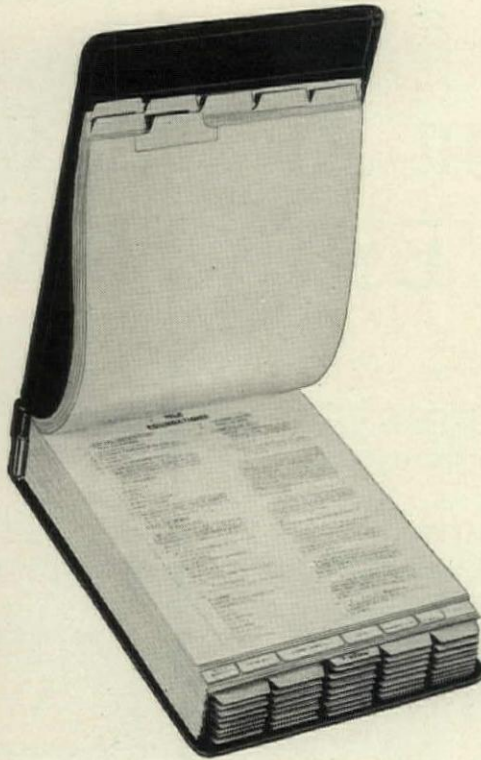
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A leather bound manual containing an exhaustive compilation of open-competitive master specifications for every type of building, every detail of construction. Compiled and edited by Frank B. Stevens Jr. who has specified for over \$60,000,000 worth of construction. Every paragraph



To you—with our compliments!

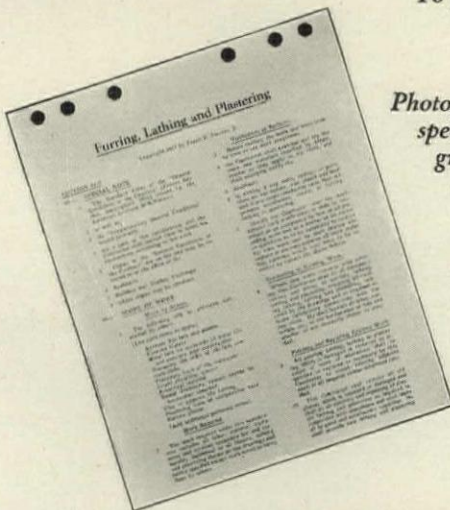
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Photograph of a typical
specification page,
greatly reduced

Condensed Index

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|---------------------------|--------------------------|
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| Instructions to Bidders | Steel Partitions |
| General Instructions | Marble, Slate |
| Wrecking | Finish Tile Work |
| Excavation | Terrazzo |
| Foundations | Terrazzo Tile |
| Sub-Drains | Mastic Flooring |
| Concrete | Composition Flooring |
| Hollow Tile Floors | Magnetic Flooring |
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| Structural Tile Work | Rubber Tile Flooring |
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| Architectural Terra Cotta | Wood Block Floorings |
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| Artificial Stone | Carpentry |
| Granite, Limestone | Roofing and Sheet Metal |
| Masonry | Skylights |
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| Miscellaneous Iron | Glass and Glazing |
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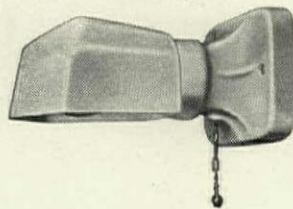
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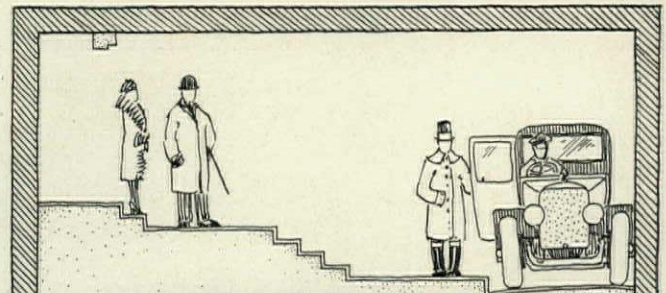
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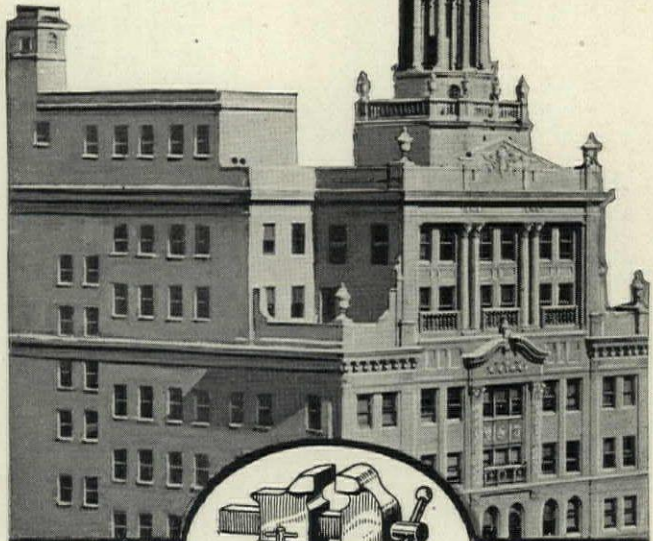
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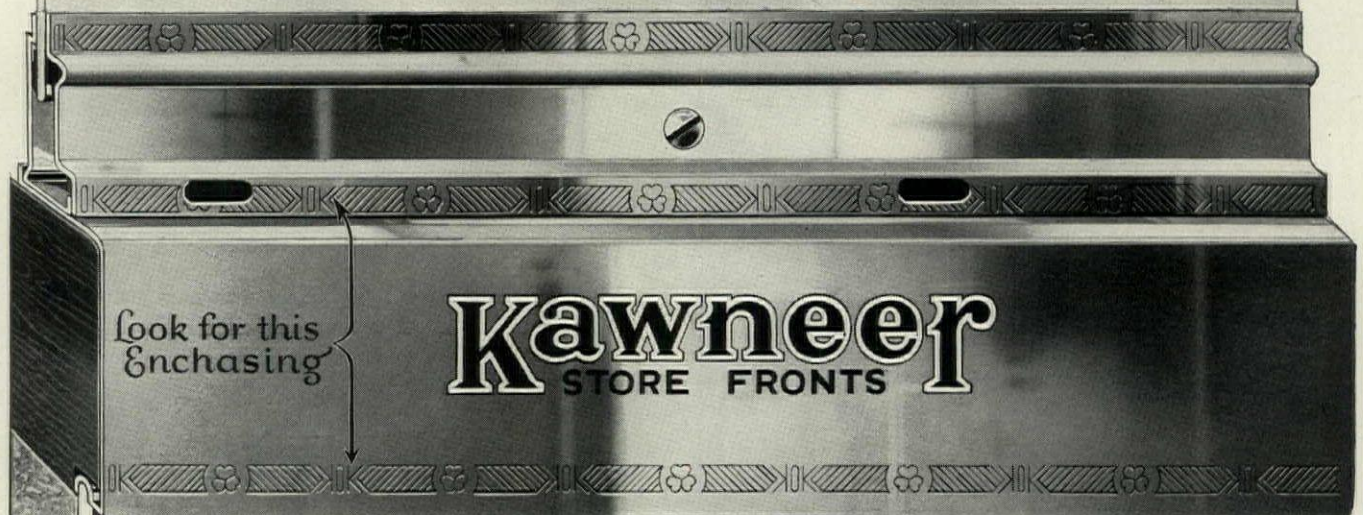
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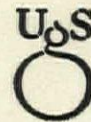
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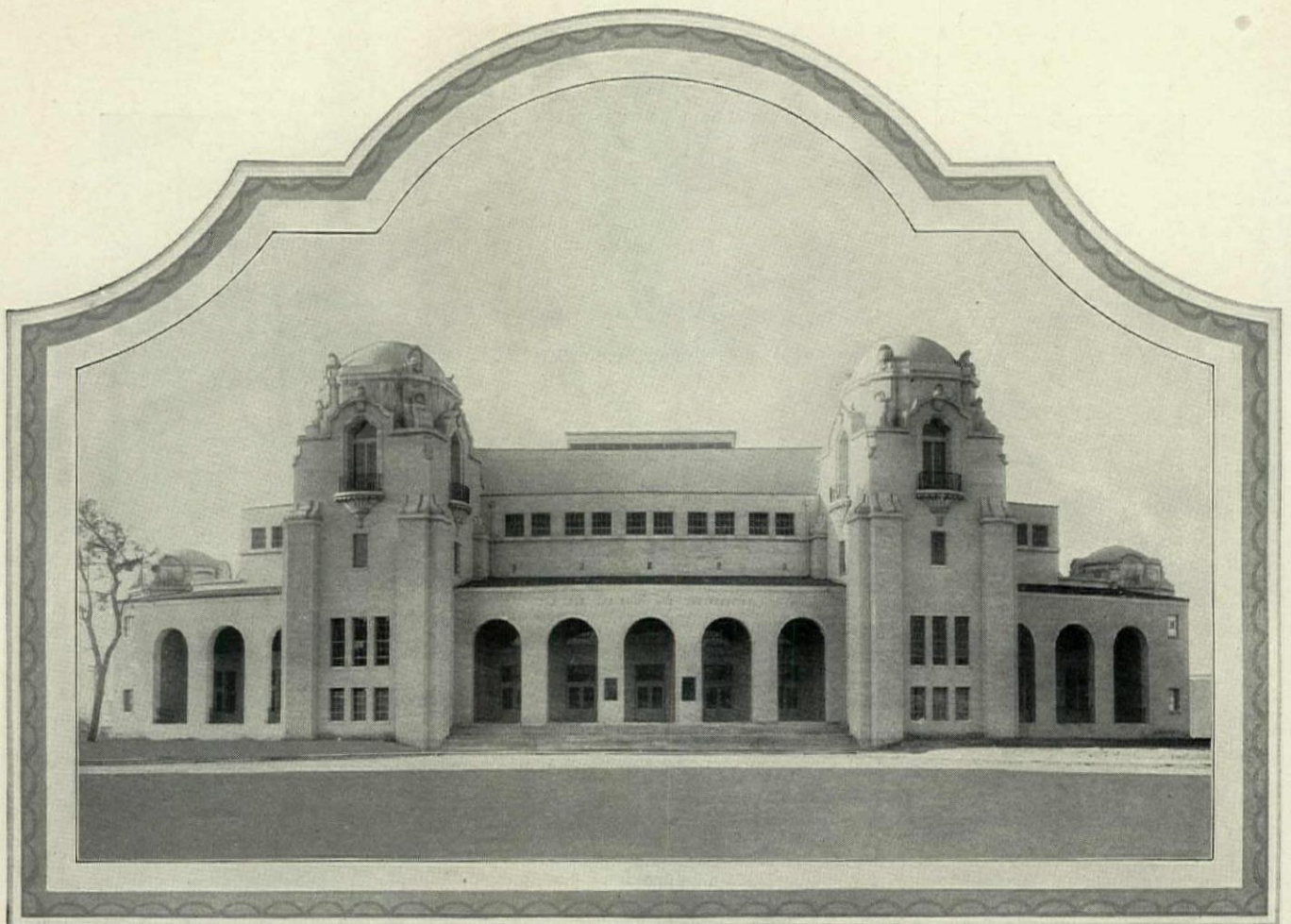
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STANDARD
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MATERIALS



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FAIR PARK AUDITORIUM, DALLAS, TEXAS LANG & WITCHELL, ARCHITECTS EQUIPPED WITH JOHNSON HEAT CONTROL

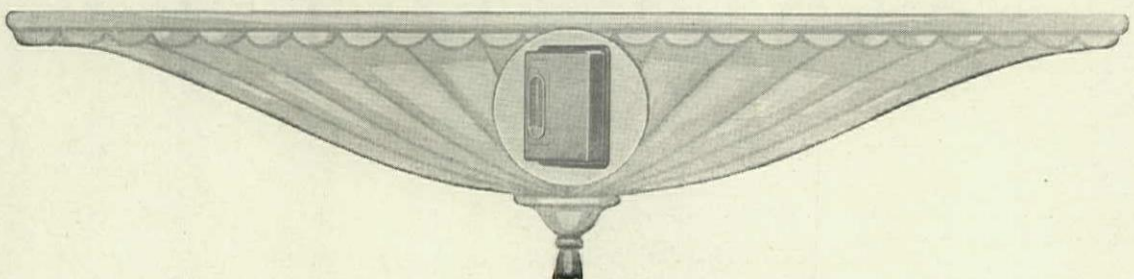
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Architect, C. W. & G. L. Rapp
Builders, Thompson, Starrett Company

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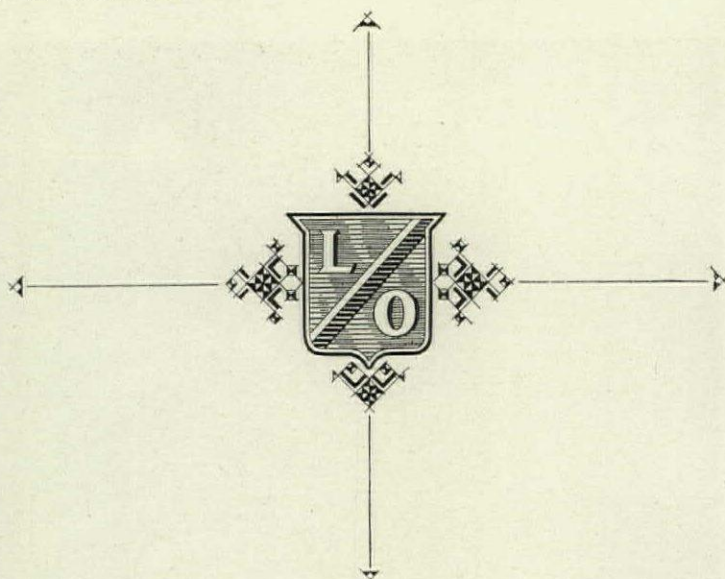
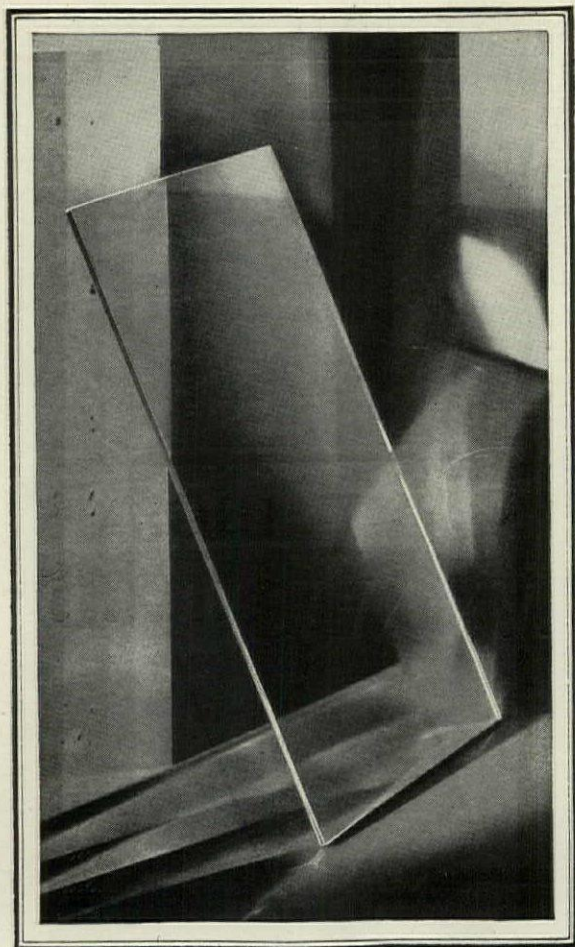
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P.P. 4



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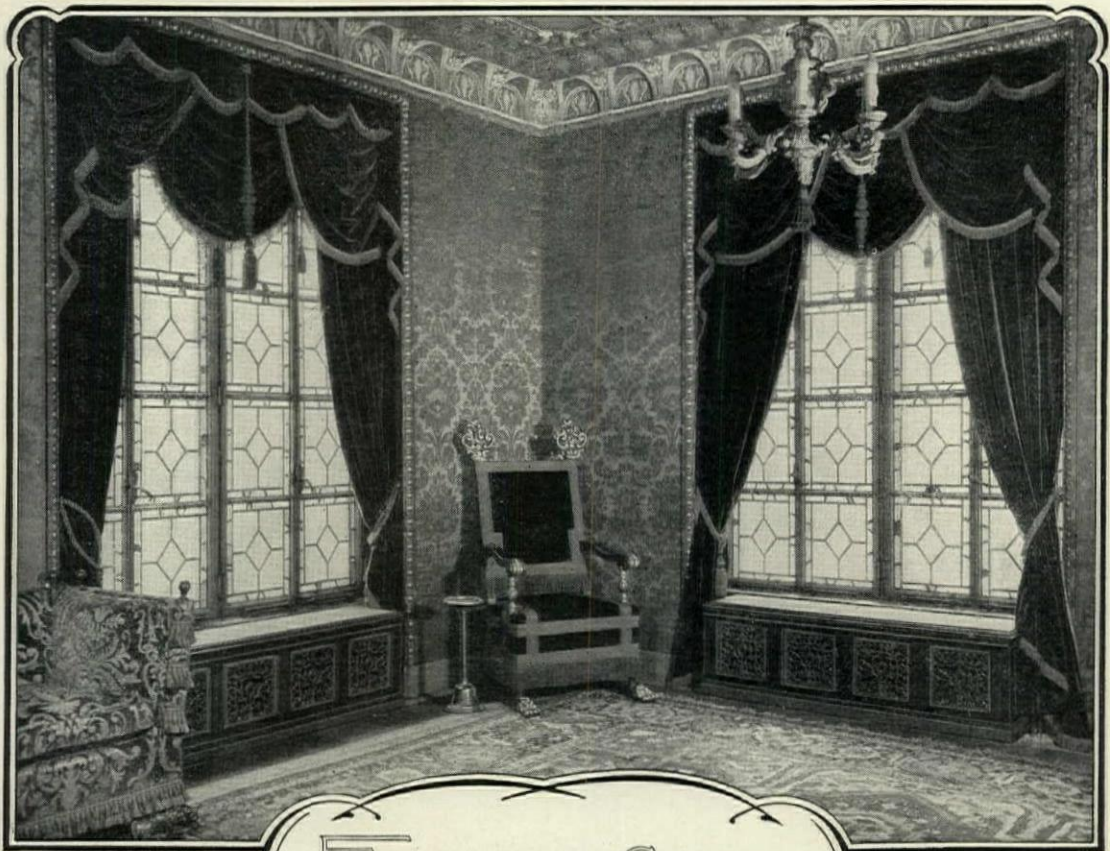
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FERROCAST GRILLES CAST



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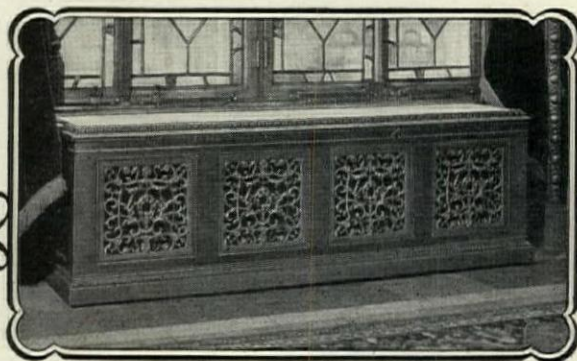
design, quality and physical characteristics, the Ferrocrast Line capably meets the situation. Whether in the towering cathedrals of the business world, the spacious salons of luxurious hotels, or in the quiet dignity of a beautiful home, Ferrocrast is a vital means to the end of radiator concealment. Architects and Decorators should write for illustrations of special designs available in the Line of Ferrocrast Cast Grilles.

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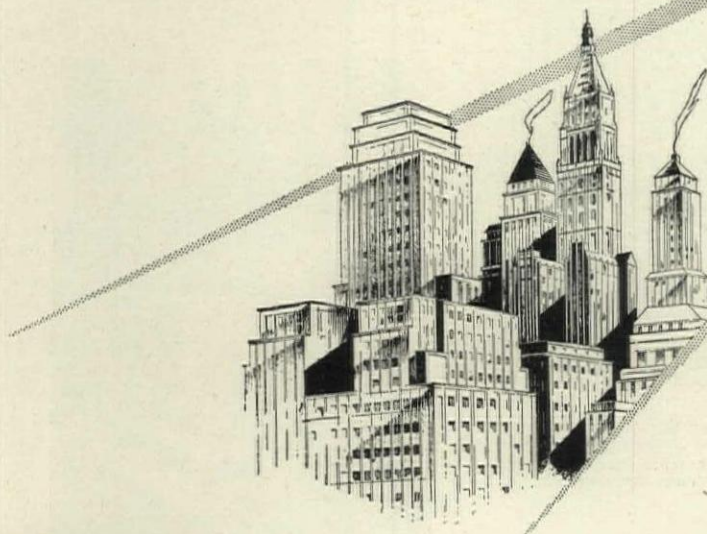
Makers of
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Photograph ABOVE shows the Renaissance Room at the Park Central, designed by Willy Pogany of New York. A close-up of the Ferrocrast Grille (Special Design 270) is shown at LEFT. The French, Arabian and Gothic Rooms are also equipped with Ferrocrast Cast Grilles.

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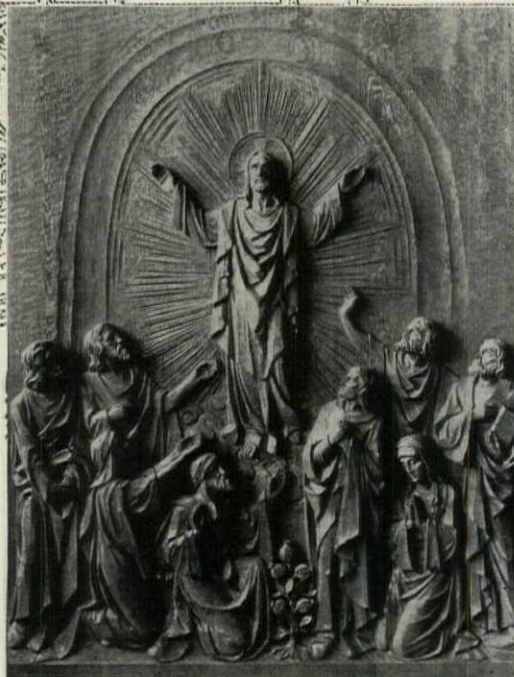
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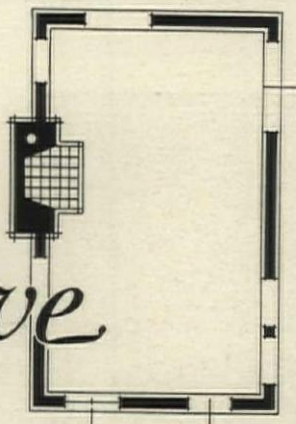
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*is assured
when mass color
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ALL the potential beauty of line and proportion that your carefully thought out plan possesses may be easily brought out. Each break, each reveal, each projection can stand out clearly, unmistakably defined. This added effectiveness is readily achieved by the use of mass color in the floors.

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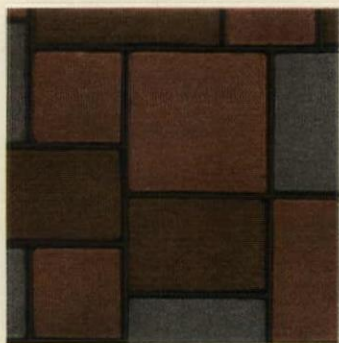
In just this manner an Armstrong's Linoleum Floor of color confirms the contour of the room. And in addition to emphasizing its good lines and proportions, it offers an attractive pattern background for further room decoration. The finished effect affords you unusual satisfaction, and your client obtains added beauty at but slight additional cost.

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For complete specifications covering Armstrong's Linoleum Floors, refer to Section B of Sweet's 1927-28 Architectural Catalog, pages 1578-1583, or write for the current edition of

* This is No. 1 of a series—"Floors of Color—Their Architectural Value." Reprints of this and the five pages to come will be sent you gladly upon request.



ABOVE is shown a section of Armstrong's Jaspé Linoleum Floor No. 17. To accentuate the room plan, giving it maximum effect, this floor is unusually appropriate; for its solid mass of color is relieved by a charming rippled motif that softens the whole area.

At the left is Armstrong's Embossed Handcraft Tile Inlaid, design No. 6042, a large scale flagstone tile effect floor with much structural significance.

our architect's handbook, "Armstrong's Linoleum Floors," 40 pages, 8½ x 11 inches in size. Armstrong Cork Company, Linoleum Division, Lancaster, Penna.

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Architects:
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W. & J. SLOANE LINOLEUM



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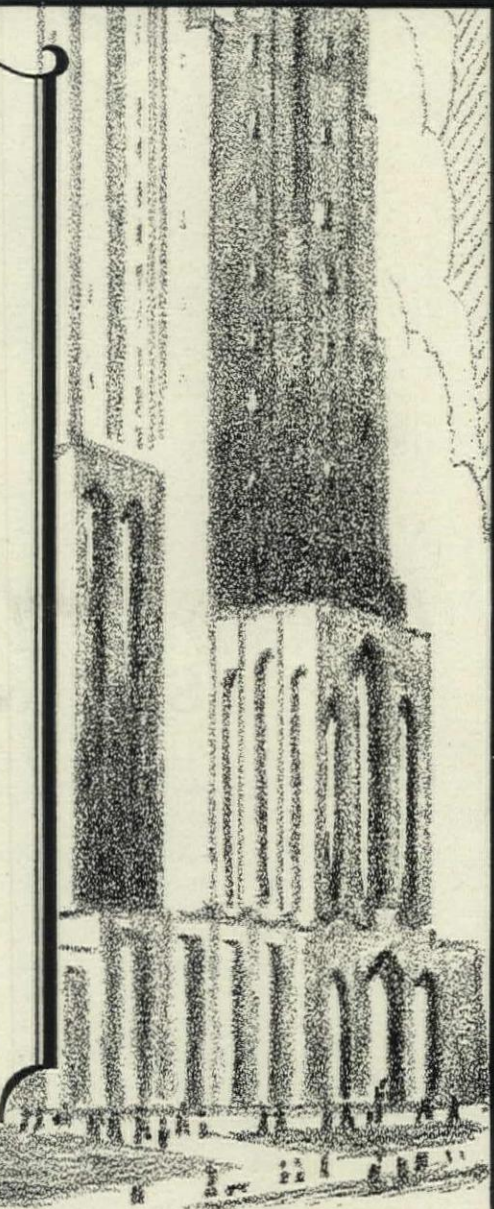
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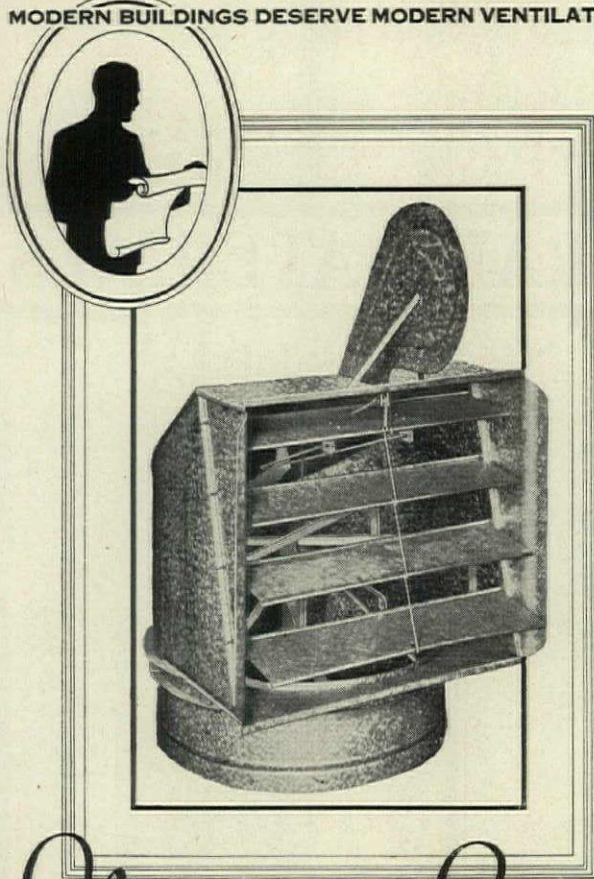
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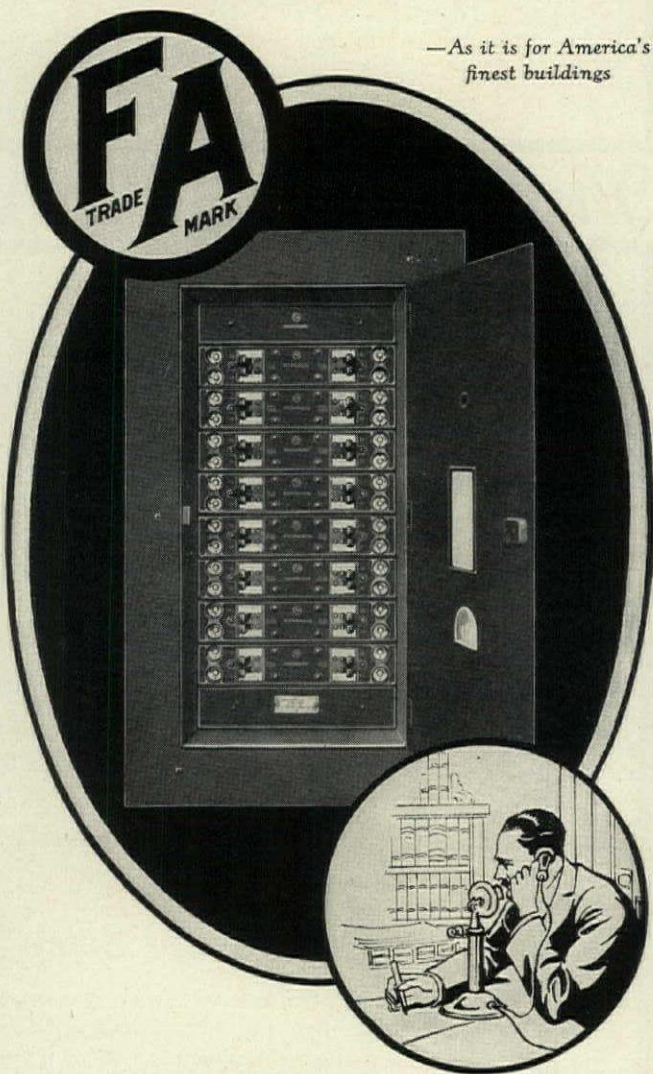
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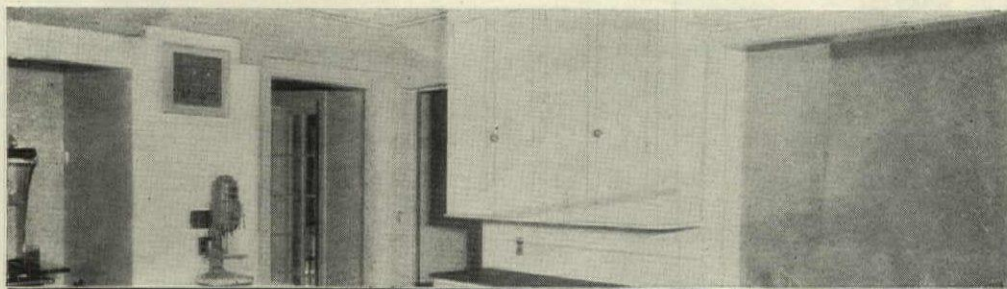
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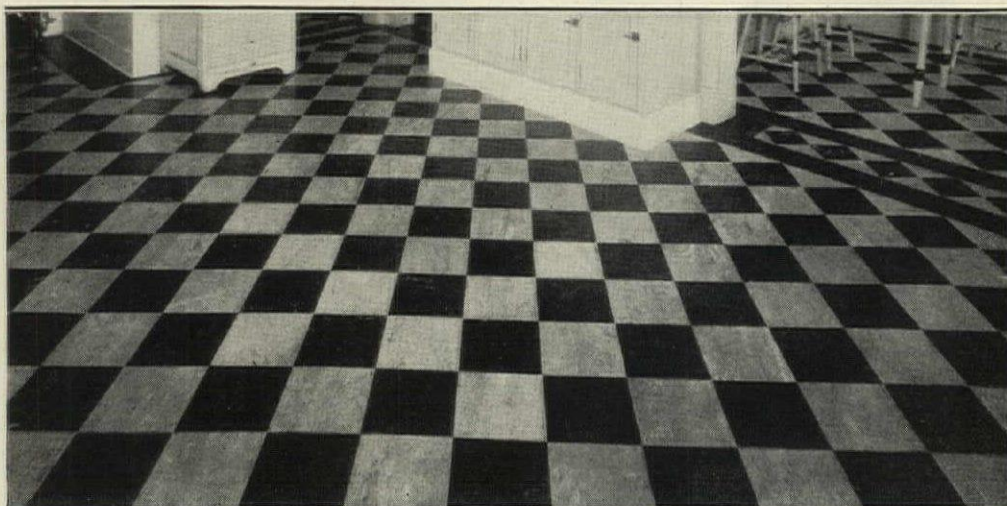
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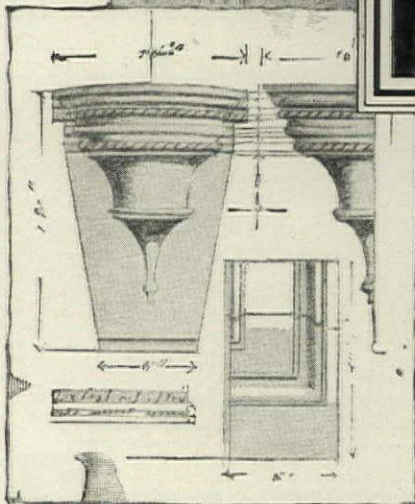
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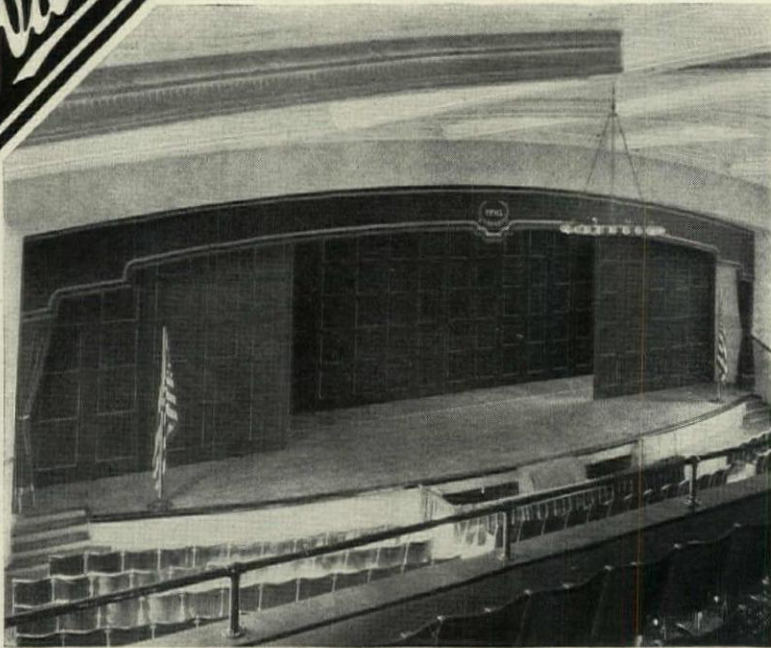
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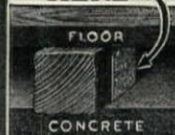
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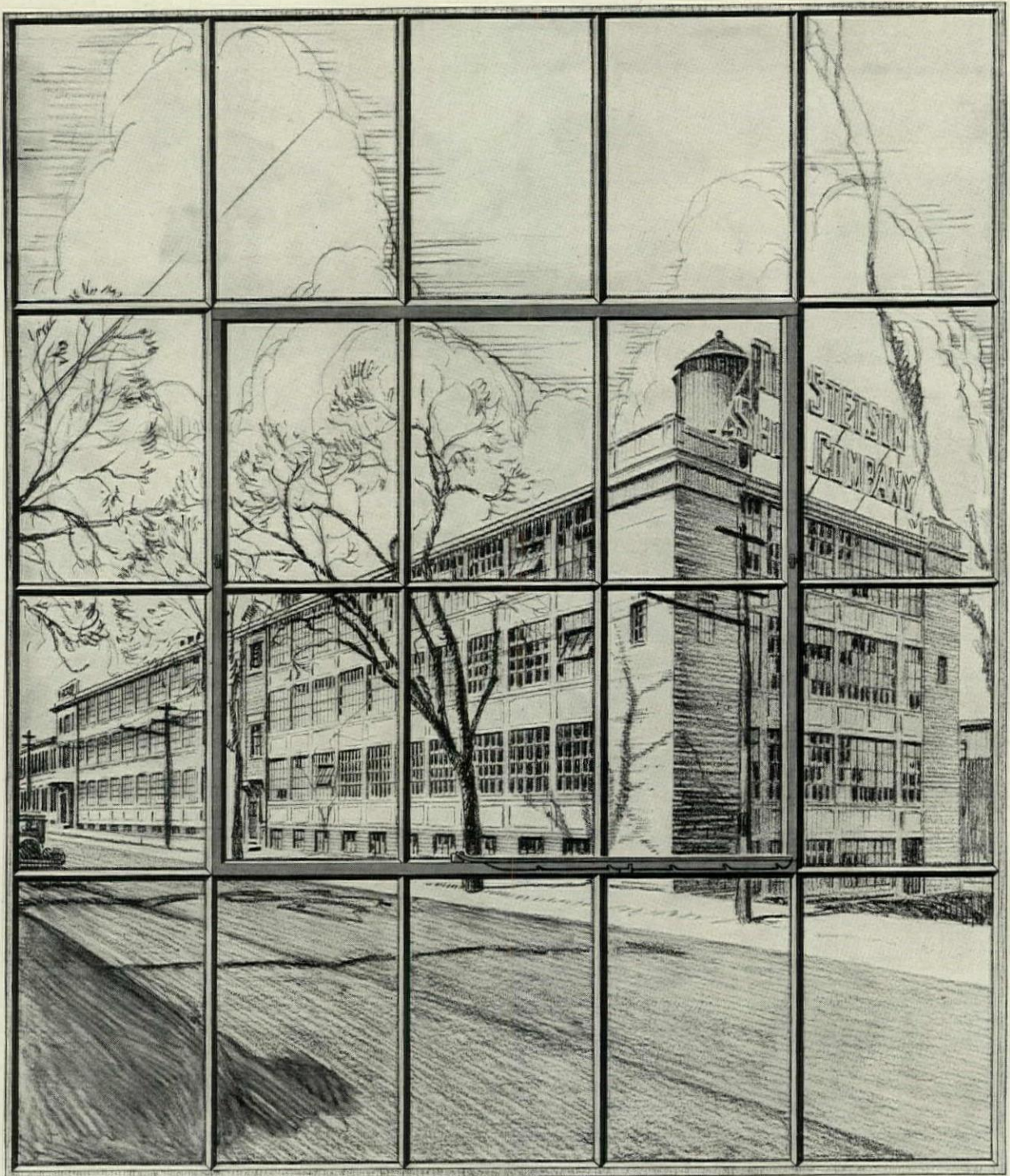
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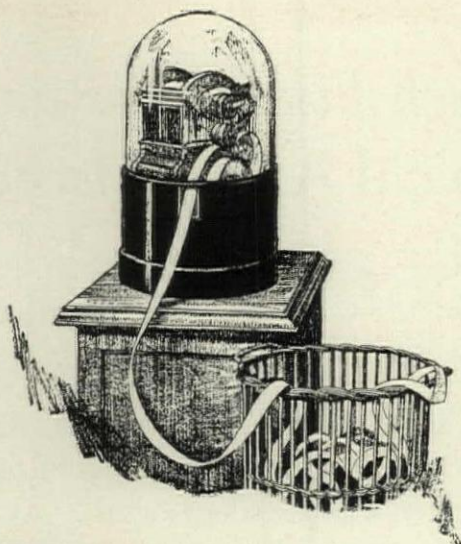
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52 U. S. Branch Offices—In Canada, Darling Bros., Ltd., Montreal

Another Example!



The failure of its heating system to maintain all rooms at a comfortable temperature was a serious handicap to the management of the Hotel Endicott in New York City. So in 1923 the chief engineer made an investigation to determine what changes would be necessary to convert their obsolete two-pipe gravity system to a modern Webster Vacuum System of Steam Heating.

The piping was revised where necessary. Webster Sylphon Traps were installed on some radiators, while on others, Webster Sylphon Attachments were installed in the old valve bodies. Two motor-driven vacuum pumps, one a spare, which maintain a vacuum of from 4 to 5 ins. on the return line, completed the installation.

With the Webster System conditions have improved, surprisingly. Instead of using three boilers, the cold weather load is easily carried with the one large boiler, and the farthest rooms in this difficult-to-heat building are as comfortable as those in the central portion. Regulation of heat is much more effective, pounding in the radiators has stopped, and ruinous leaks have ceased to exist.

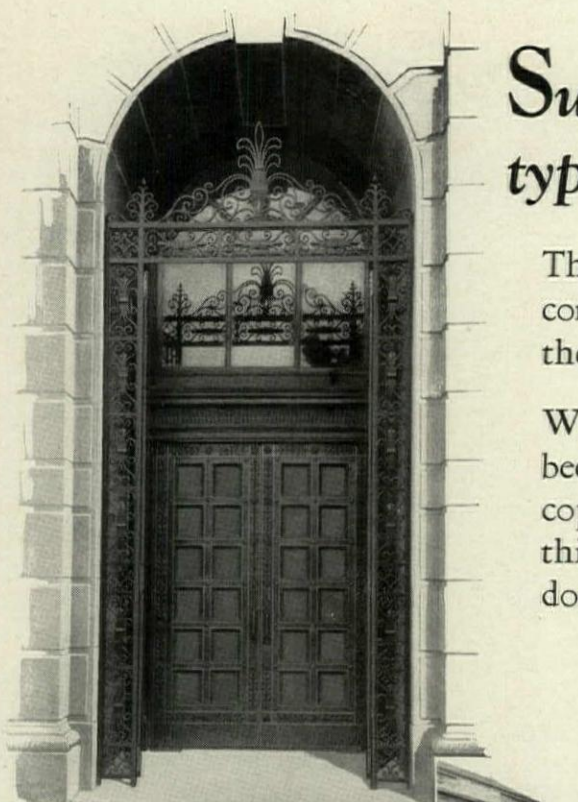
The savings in fuel, while amounting to \$432.00 annually, is of relatively small importance when compared to the increase in heating efficiency and comfort of guests. The good will of its patrons is one of a hotel's greatest assets, and it should never be jeopardized by a heating system which cannot maintain a comfortable temperature in every room—at all times.

Can we apply Webster Service to increase the income from your Building?

Write for data.



More than 46,000 installations in America's finer buildings



Architect:
Eckel & Aldrich,
St. Joseph, Mo.
Contractor:
Lehr Construction Co.,
St. Joseph, Mo.



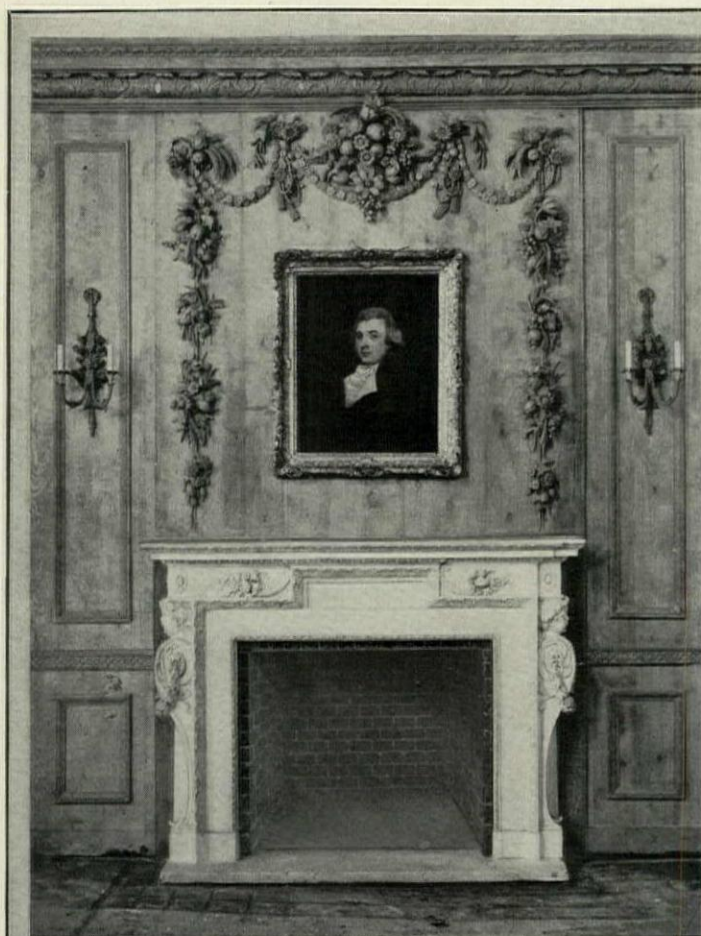
Such Fine Doors as this are typical A.M.P. Installations

The St. Joseph City Hall, at St. Joseph, Missouri contains 6 beautiful main entrance doors (like the one pictured on the left).

We call your attention to this installation because it is typical of our regular bronze and copper covered door work. We specialize in this type of door and have furnished such doors on any number of public buildings.

We shall be glad to receive your inquiry for important information on Bronze and Copper Covered Doors.

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Illustration shows Mantel of Art Stone and Grinling Gibbons ornament and moulding of Compo.

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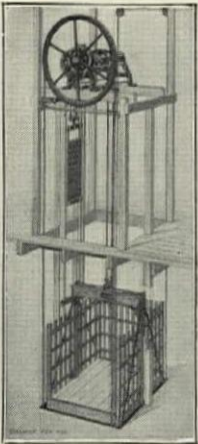
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and on all low-pitched roofs or on the floors of piazzas and conservatories is the accepted standard material and has been for years. BAYONNE has stood all reasonable service demands without failure. The maintenance is simple and inexpensive. When a canvas roofing is required BAYONNE is the correct answer.



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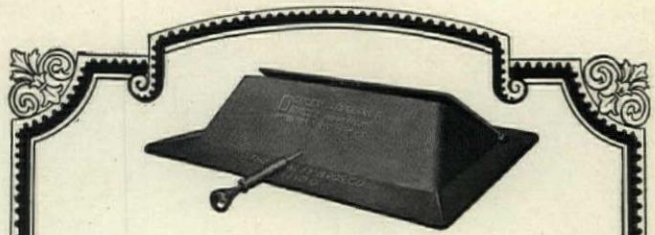
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THERE are three common, yet serious fireplace troubles experienced by many architects. They are, poor draft regulation, smoke and soot and insufficient heat. Back of these three evils are a dozen causes which, if the architect knows, he can eliminate when laying out the fireplace.

Most of these fireplace troubles are due to faulty construction and poor equipment.

To help architects avoid fireplace evils, we have published the Donley Book of Successful Fireplaces. In this book the causes of fireplace ills are thoroughly discussed, and their preventions pointed out. It also contains construction plans, 59 fireplace designs and description of Donley Successful Fireplace Equipment. We will be glad to mail you a complimentary copy upon receipt of your request on your firm's letterhead.

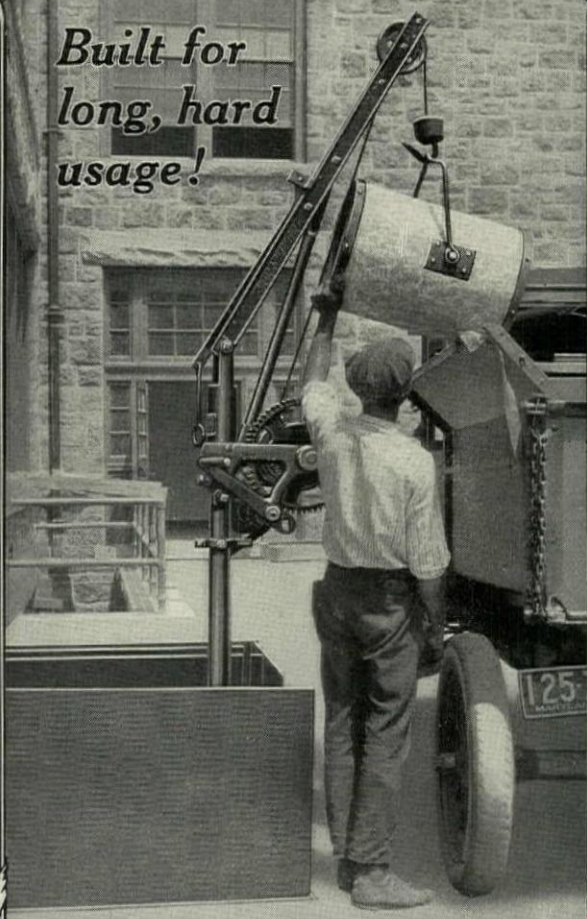
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Baltimore, Maryland
Architects

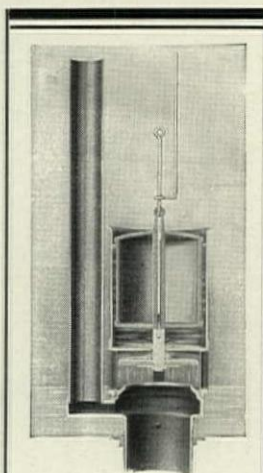
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General Contractor

The G&G Telescopic Hoist
with Automatic Gear-Shifting Brake Device and Silencer

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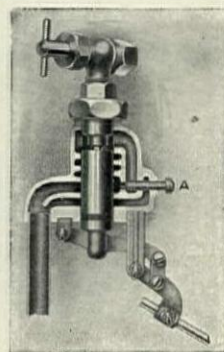


AND THIS means freedom from embarrassing hisses, noisy refills, and annoying leaks.



Sectional View "Curtin Victory" Valve

Float slowly falling as water leaves float chamber; valve but partly closed, yet tank already emptied.



Sectional View "Curtin Rotary" Back Supply Ball Cock or Float Valve

The Curtin valve and ballcock have filled the desire for quiet bathrooms.

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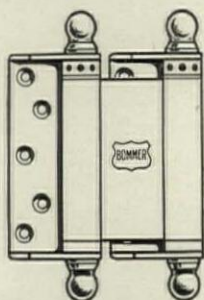
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are
the best**



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**Follow the line of
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Specify—Bommer—Specify
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See details
in "Sweet's"



Sec. B,
Page 1749

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If you have ever used any PECORA product we will be content to have you judge any other PECORA product by it.

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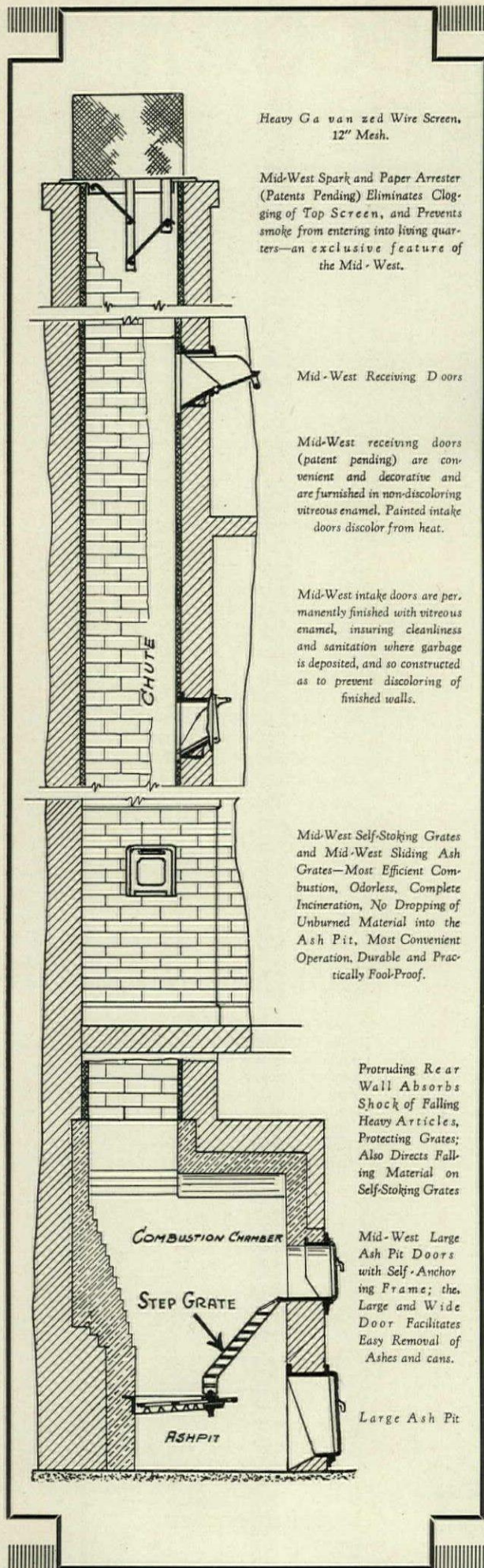
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takes a firm and permanent grip on any building material and has the necessary take-up and give to keep any joint closed regardless of expansion and contraction. It is guaranteed to keep out moisture, wind and dust without detracting from the appearance of a building.

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7321 South Shore Drive Apartments, Chicago — W. C. Bannerman & Co.—Owners & General Contractors. Robert S. DeGolyer & Co. Architects. Walter T. Stockton, Member of firm, in charge of this operation — H. L. Clute, Engineer: "We are quite familiar with the Mid-West Incinerator," said Mr. Stockton. "Our engineer has investigated it thoroughly and we believe it to be one of the best incinerators on the market."

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"Permit Ample Draft"

"Contribute to Complete Combustion"

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"The distribution of refuse along the step grates above the flat grates gave the material an opportunity to become pre-heated and somewhat dried out before it dropped down to the flat grate for final combustion. It was evident that the opening in these step grates permitted ample draft and contributed materially to the complete combustion of the gases. The grates in each of the incinerators visited were in such perfect condition as to indicate long life for these grates."

Sweet's
Catalogue
1928



Gives
Full
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New York Office - 75 West St., New York City

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NUMERALS REFER TO SECTIONS SHOWN IN OUR BOOK
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MARBLE
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SCALES
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SECTION 'BB'

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years ago appear more beautiful than when the varnish was applied. Its great covering quality makes it also economical to use.

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Cashier's Room,
First National Bank,
McKees Rocks, Pa.,
floored with Arm-
strong's Cork Tile in
9 x 9 inch medium
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RESTFUL and noiseless underfoot as a carpet, dignified and distinctive in appearance, Armstrong's Cork Tile is an especially appropriate floor for offices. It lessens fatigue and noise and contributes materially to office comfort and efficiency. The rich brown colors and characteristic surface marking make it an effective decorative feature.

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Cabot's Shingle Stains



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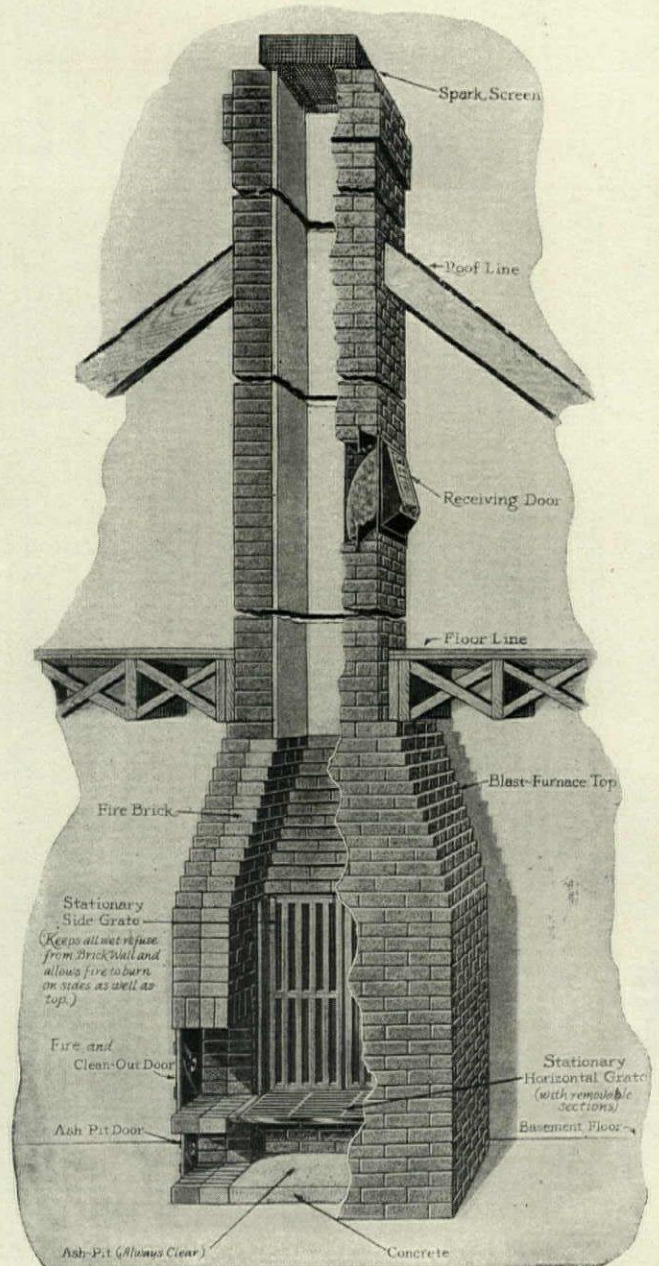
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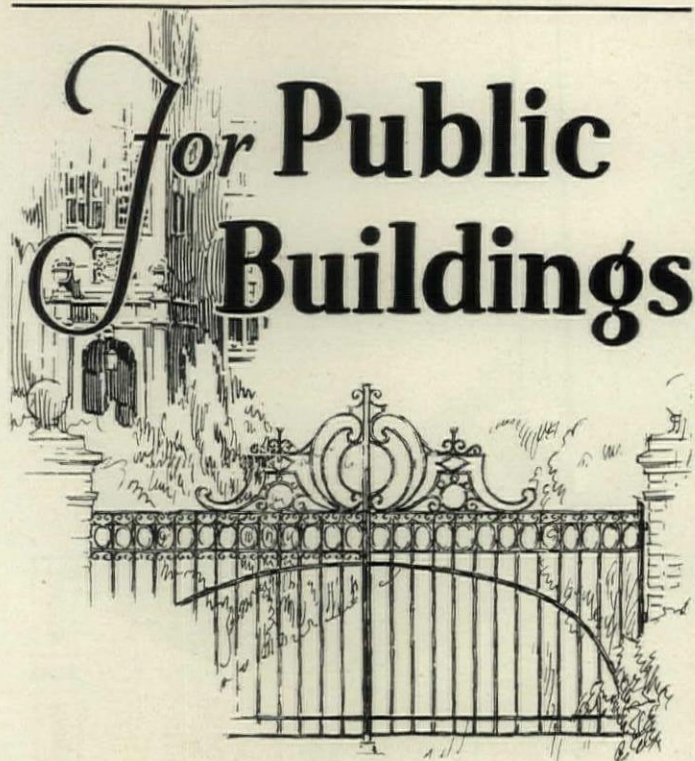
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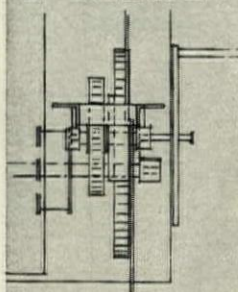
Let us place our Catalog in your reference file—and offer you our advisory service.

The Stewart Iron Works Company, Inc.
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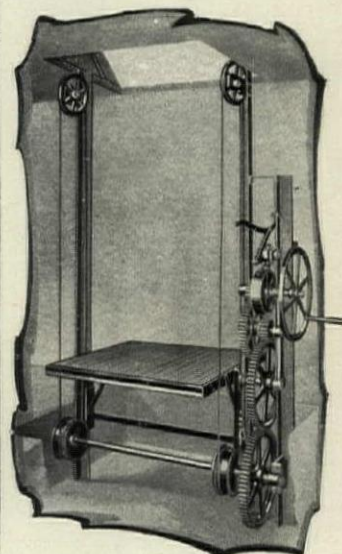
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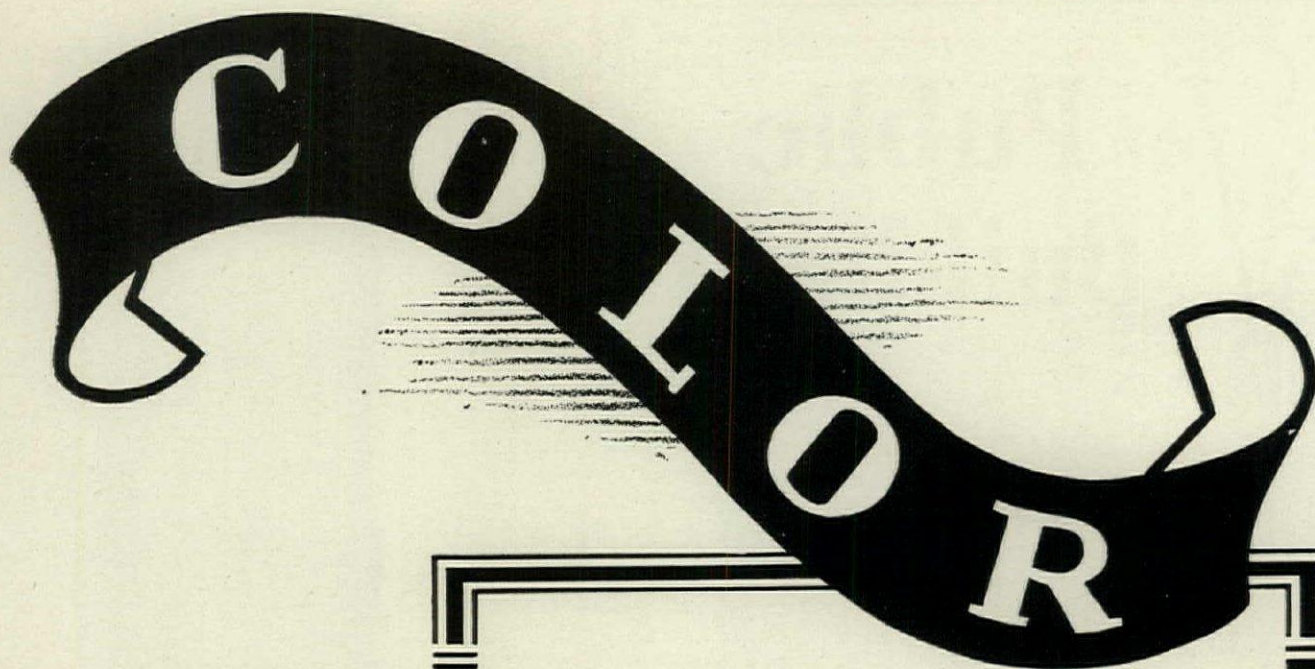


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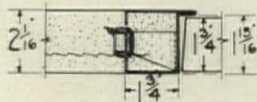
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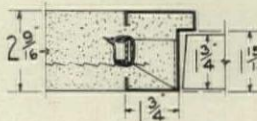


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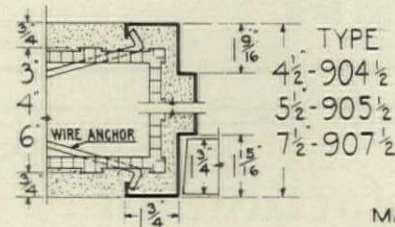
420 LEXINGTON AVENUE
NEW YORK



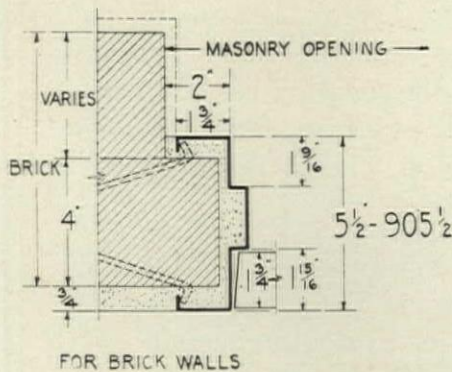
TYPE 902 $\frac{1}{16}$
FOR 2" PLASTER WALL



TYPE 902 $\frac{3}{16}$
FOR 2 1/2" PLASTER WALL



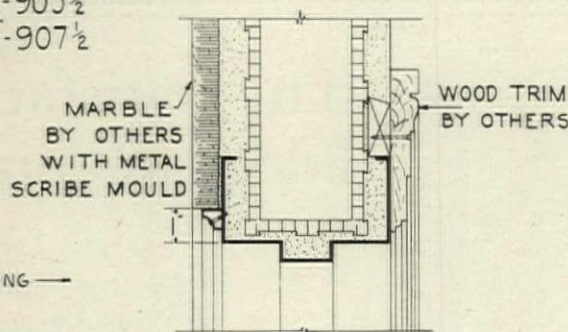
FOR TERRA COTTA PARTITIONS



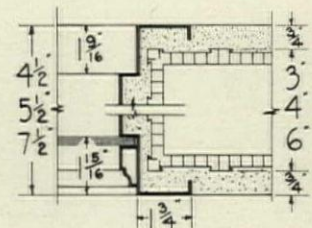
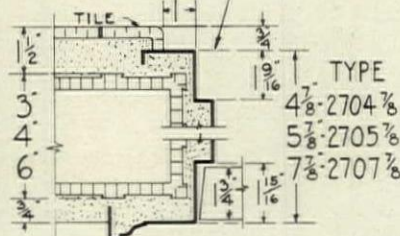
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GOOD FOR LIFE OF BUILDING.
COMPLETE OPENING INSTALLED
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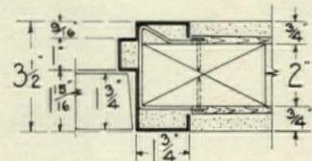
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DESIGNED FOR USE IN HOSPITALS AND
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USED IN ENTRANCE HALLS AND SPECIAL
ROOMS OF HOTELS, APARTMENT HOUSES,
COMMERCIAL BUILDINGS ETC., WHERE
MARBLE OR WOOD TRIM IS TO BE APPLIED,
AS INDICATED IN SECTION OF HEAD OF
BUCK SHOWN BELOW.



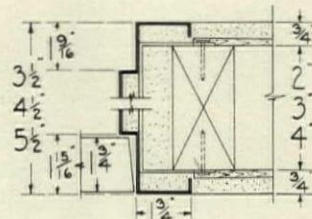
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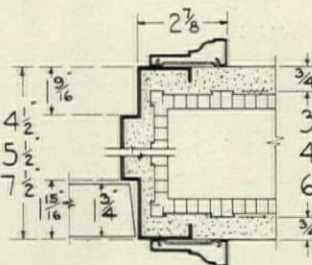
WHEN USED IN PARTITIONS
AS BORROWED LIGHT



FOR 2" STUD PARTITION



FOR STUD PARTITIONS



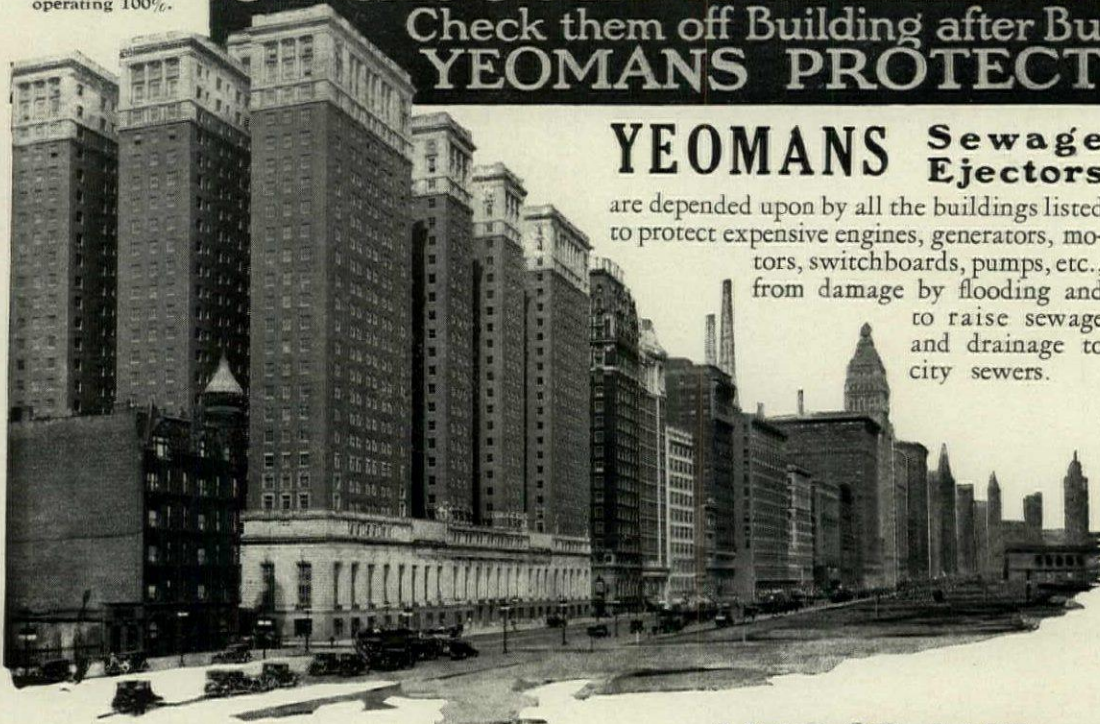
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40 years ago. Still
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Orchestra Hall
Art Institute
Pullman Bldg.
Peoples Gas Bldg.
Lake View Bldg.
Illinois Athletic Club
Monroe Bldg.
University Club
Chicago Athletic Assn.
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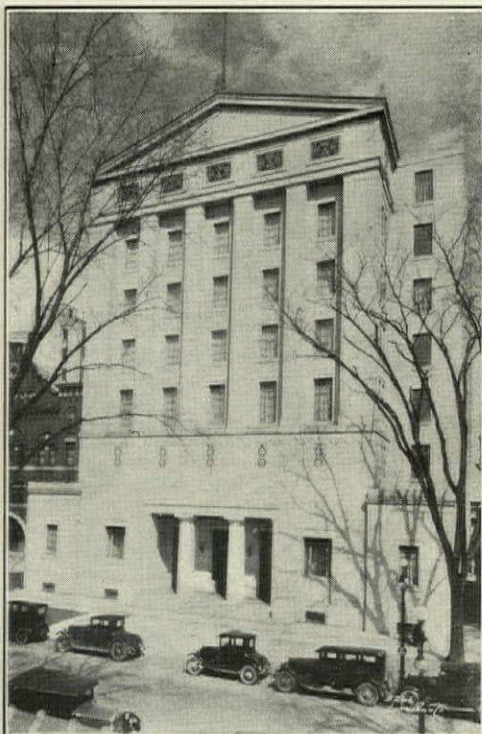
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MASONIC TEMPLE, LANSING, MICH.
Edwin A. Bowd, Architect

The satisfaction of adequate protection—

IN THE Masonic Temple at Lansing, no halfway measures were employed in providing protection from the spread of fire. All elevator enclosures, all pipe-shaft enclosures and all stair doors are of United hollow metal construction.

While the beautiful finish and skillful design of United Metal Doors and Trim gives no hint to the casual observer of their indestructible nature, they serve as a stubborn barrier to fire.

The United handbook is replete with detail drawings. Send for your copy.

THE UNITED METAL PRODUCTS CO.
CANTON, OHIO

UNITED METAL DOORS

Jamison

I Approve!

Mr. H. P. Hill, of Ophus & Hill, Inc., Consulting Engineers, 112 W. 42nd St., New York City, comments as follows:

"Your five point challenge sets up an ideal worth striving for."

Five Point Challenge

- 1 Build doors which—WHEN CLOSED—MAKE PRACTICALLY A SOLID WALL, because of sure, tight seals and door insulation equivalent to the wall itself.
- 2 Build doors which CLOSE AND SEAL QUICKLY and surely, and which further reduce air-flow by requiring minimum wall opening.
- 3 Design doors that HARMONIZE with their surroundings and which PASS the most stringent SANITARY INSPECTION.
- 4 Build doors to avoid troubles due to swelling, shrinking and warping and to ENDURE FOR YEARS despite heavy duty and abuse.
- 5 Build doors so efficiently, because of long experience and volume production, that it is possible to combine ALL of these requirements in a single door at MODERATE COST AND LOW UPKEEP

Plant of
Detroit Refrigerating Co.
Detroit, Michigan

W. W. Ahlschlager
Architect
Westerlin & Campbell Co.
Con. Engrs.

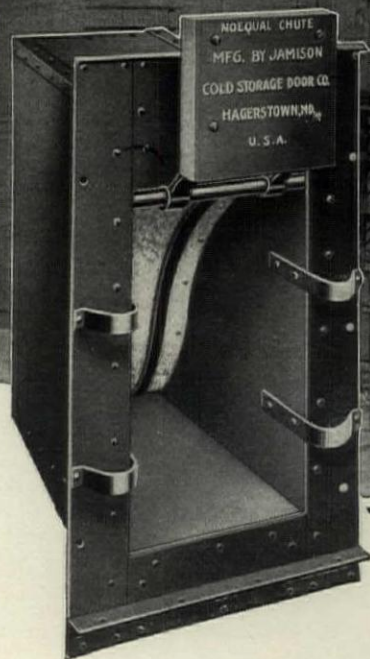
Point Number Two

Air flows through a doorway in proportion to the size of the door and the length of time it is open. Within practical limits, a cold storage door must be as small as possible and designed for quick action.

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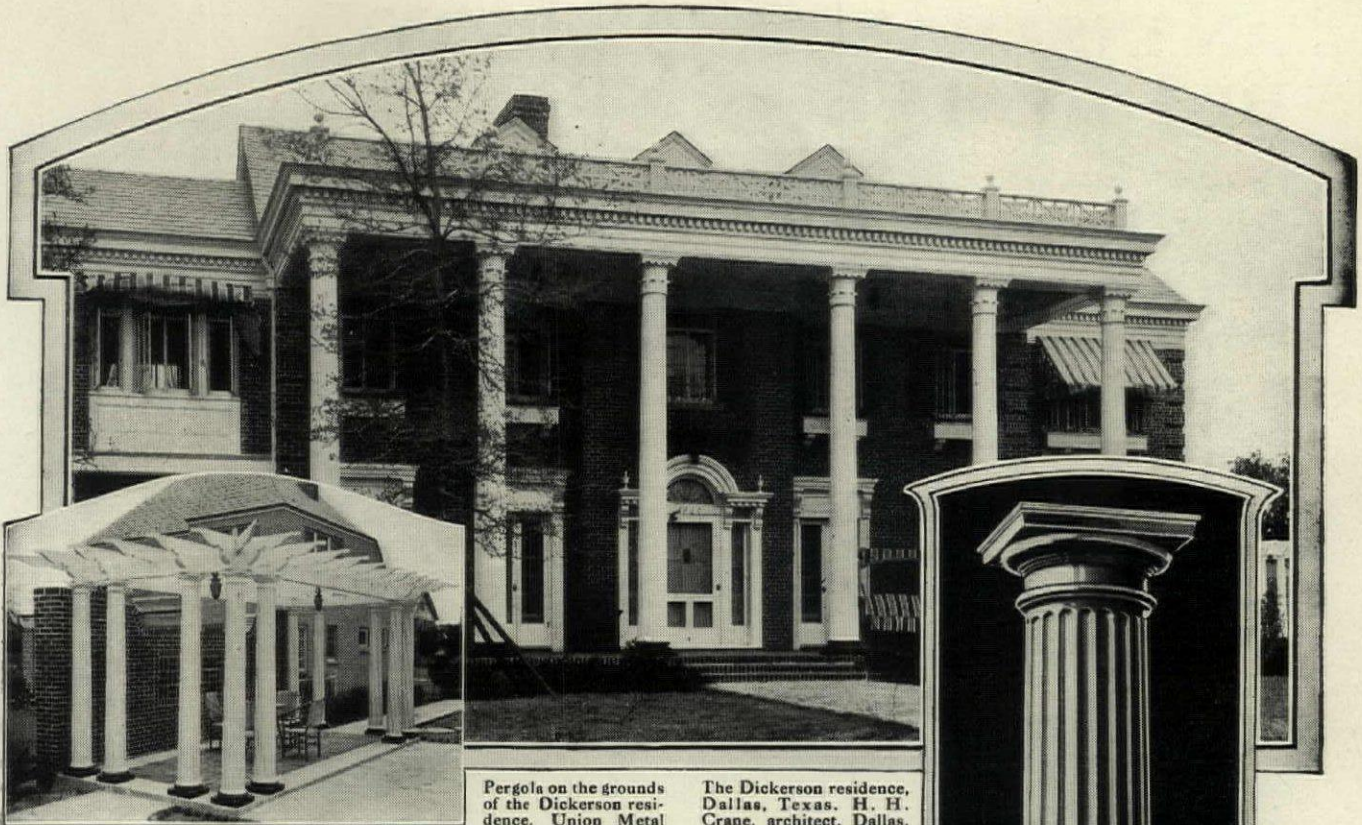
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The Dickerson residence, Dallas, Texas. H. H. Crane, architect, Dallas, Texas. Union Metal Columns, Design 213.

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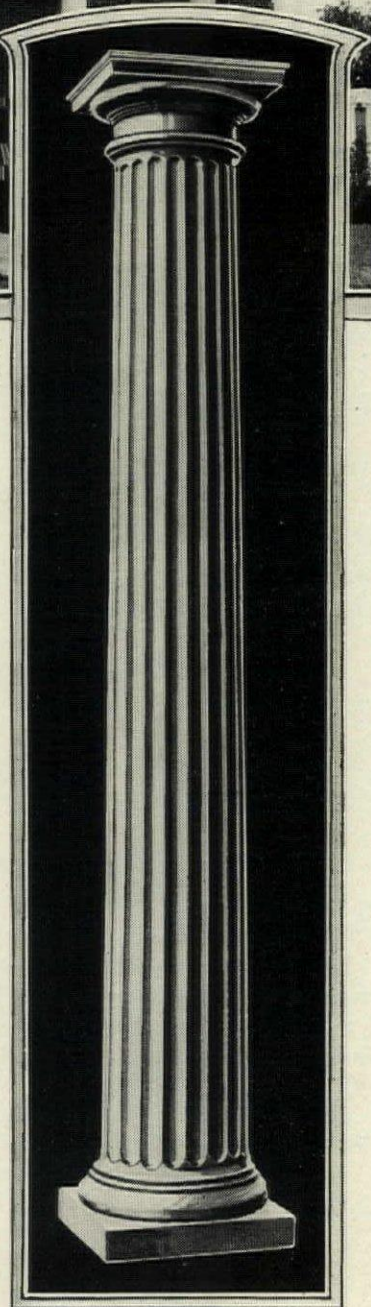
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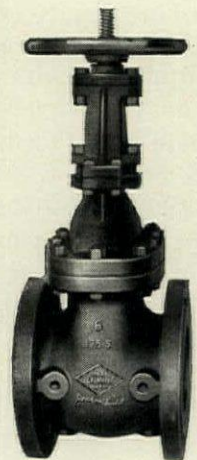
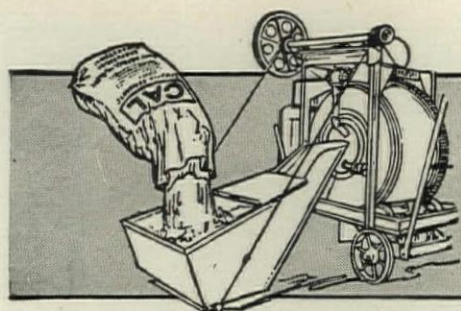


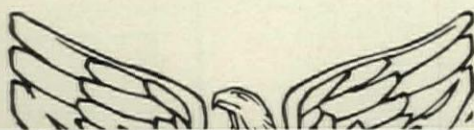
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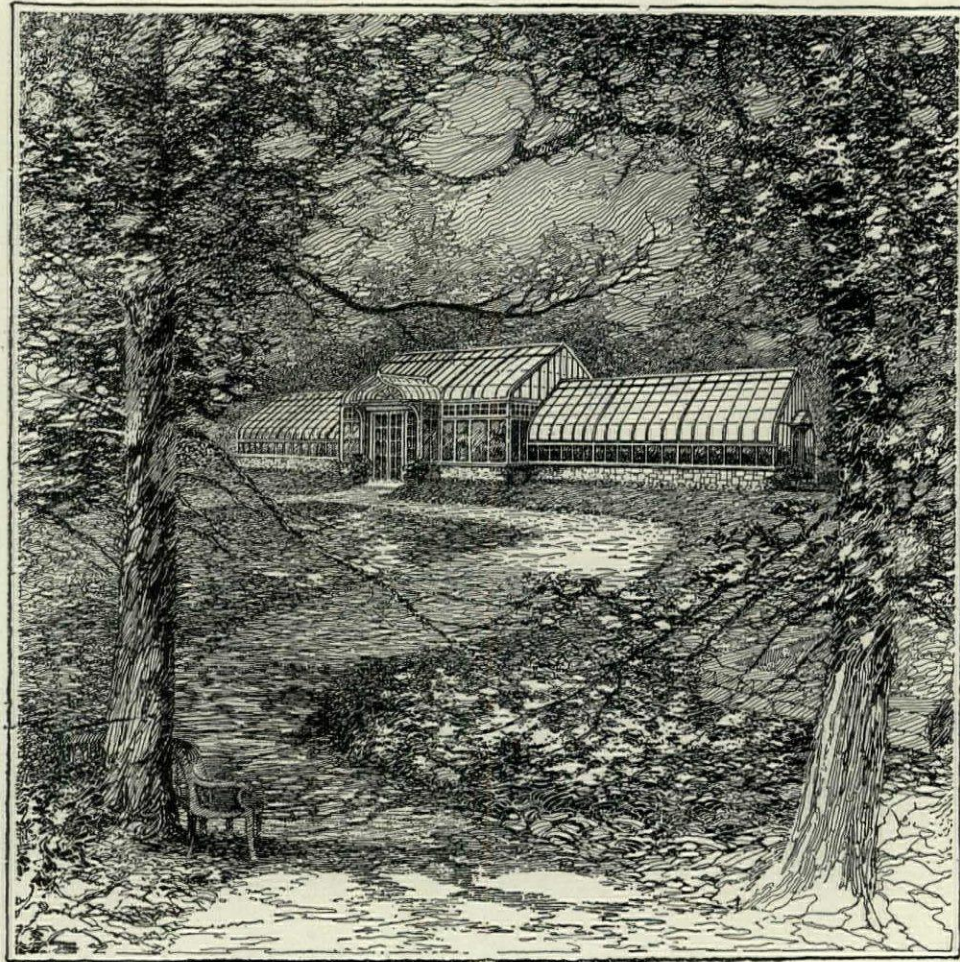
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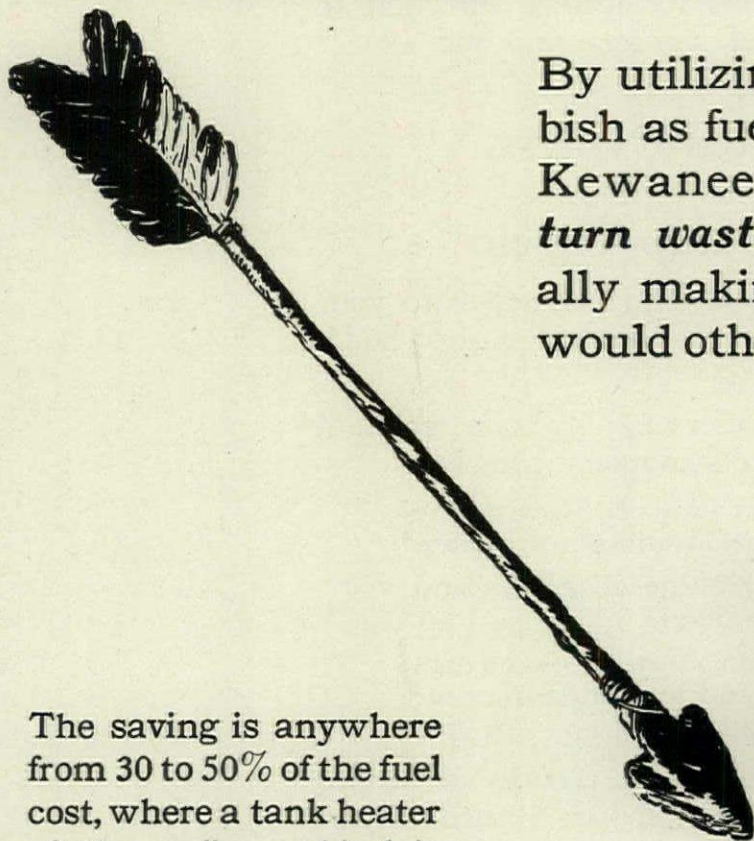
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MORE PAGES IN PENCIL POINTS

ONE OF THE things which has gratified us most as publishers is the fact that PENCIL POINTS has been able to grow from year to year, adding a little now and then to its size and its usefulness as a periodical serving the architectural profession, using this word in its broadest sense. From its modest start in 1920, when each issue contained about sixteen pages, PENCIL POINTS has developed to its present stage where every month we send out sixty-four pages of editorial matter together with two reproductions in color of architectural renderings or drawings.

We are pleased to announce that the growth of our advertising section places us in a position financially where we are able to give to our subscribers more for their money and so we expect shortly to increase the space in PENCIL POINTS devoted to editorial matter by eight pages a month. Naturally, in doing this, we are anxious to use the additional pages to the best advantage of all concerned. Hence, we are inviting you, our readers, to let us know what we can do with this space to make it of the greatest possible use to you. Of what sort of material are you most in need?

We have several possibilities in mind. We may very possibly include material on construction, particularly as applied to small buildings. It is possible, also, that we might in-

clude additional material on the design and economical construction of small houses. It is probable that we will devote considerable space to discussion by architects, located in different sections of the country and working under different conditions, of the cost of preparing drawings for different types of work. This subject, of course, is of vital importance to the architect, for the cost of his drafting room may furnish the element which will make all the difference between profit and loss in conducting his business. It should also be vitally important to the draftsman for if he can, by using common sense methods, cut down on his drafting time on a given job, he can make it possible for his employer, the architect, to reward him by increased salary.

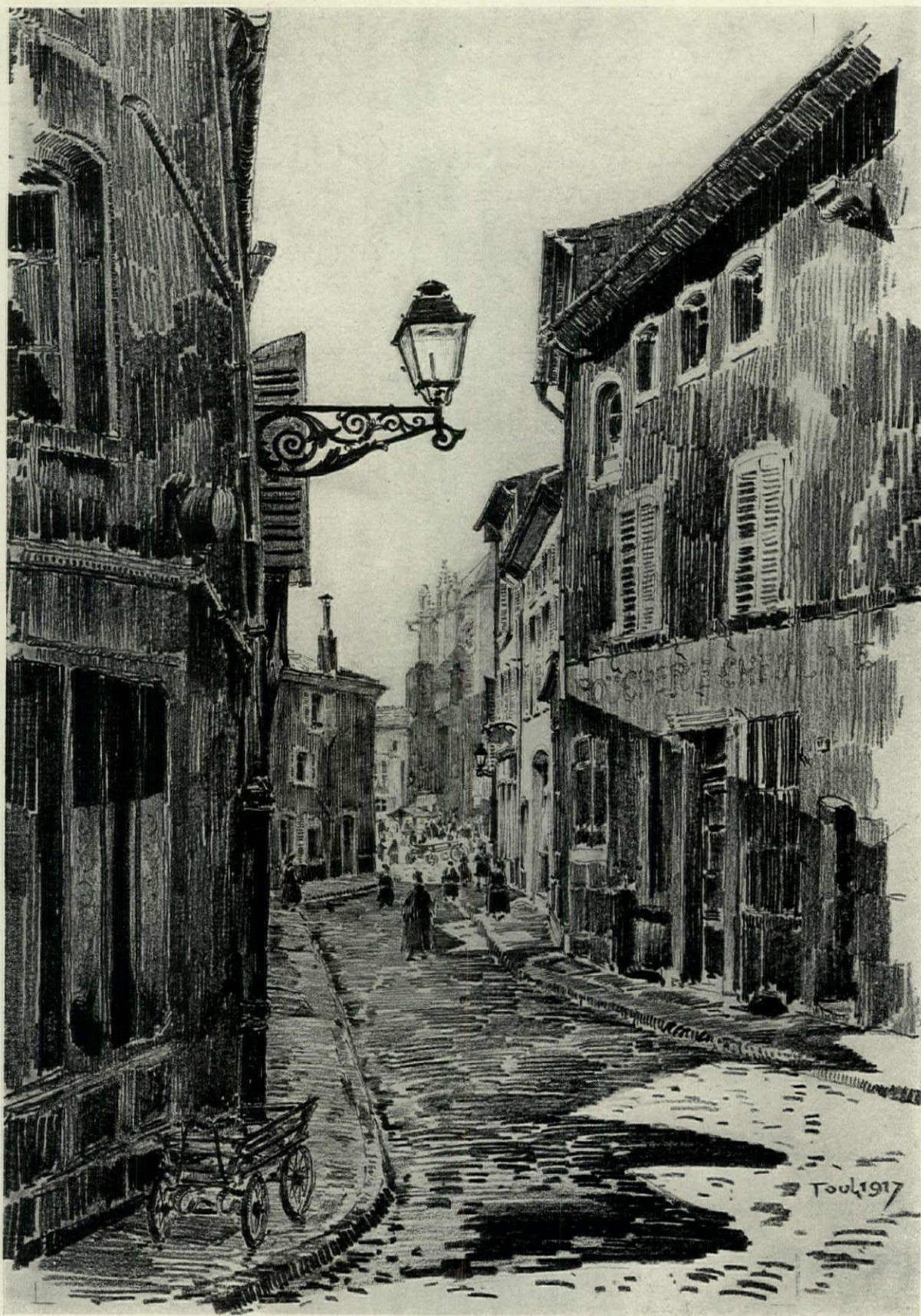
There are a number of other subjects which have occurred to us as worthy of consideration in our pages. What we eventually decide to do will depend in some measure on what you tell us you want. Perhaps there is some problem which has come up in your daily work concerning which you have had difficulty in discovering authoritative information. Let us know about it and we will make every effort to supply that deficiency, both for your benefit and for that of all of our other readers. Here is your golden opportunity to exert your influence in the editorial office.

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PENCIL SKETCH BY CAMILLE ÉTIENNE GRAPIN
OLD STREET IN TOUL, FRANCE

PENCIL POINTS

Volume IX

April, 1928

Number 4

FRENCH COMRADES IN AMERICA, III

CAMILLE ÉTIENNE GRAPIN

By Luther Lashmit

CAMILLE GRAPIN IS Professor of Architecture at Carnegie Institute of Technology. He came to this post in 1923. His coming added another comrade to the noted band of French Architects teaching and practicing in this country, and gave added evidence of the faith of our architectural schools in the constructive influence of the École des Beaux Arts on the architecture of America.

Born in Burgundy in the little town of Savigny-les-Beaune, Grapin grew to boyhood in the eastern foothills of the Côte-d'Or in the peaceful beauty of the Burgundy landscape.

Dijon, twenty-seven miles away, was the goal of his first architectural adventure. There the numerous fine monuments of the Old Burgundy School, a rich heritage dating from the eleventh century, were the first influences to bear directly on the career which he had chosen.

He began his studies at the École des Beaux Arts in Dijon under M. Danne, who had been trained at the *atelier Lebas et Ginain*. With a diligence and seriousness that has been characteristic of all his undertakings, he soon completed the preparatory requirements for the second goal of his ambitions,—admission to the École des Beaux Arts in Paris. In recognition of his talents his department of the Côte-d'Or gave him a scholar-

ship for Paris enabling him to continue his studies.

In Paris he entered the *atelier Bernier*, famed for its good taste in architecture. Under the supervision of his patron he amassed a great knowledge of detail. By observing the work of older students he learned to evaluate his own work. By studying the exhibitions he learned to discriminate in the choice of *parti*.

The successes of this period were many. In the first year he won the Muller-Schonée Prize for having received the most awards. In the second year he won the medal in mathematics and construction, and later, in the first class, the *Grande Médaille d'Emulation* for having received the most awards in the first class. In the years after were won the *Prix Labarre*, a *Prix Chenavard*, the *Prix Abel Blouet*, *Prix Stillman*, *Prix St. Agnan-Boucher*. And in 1914, the last year before the war, was attained the coveted

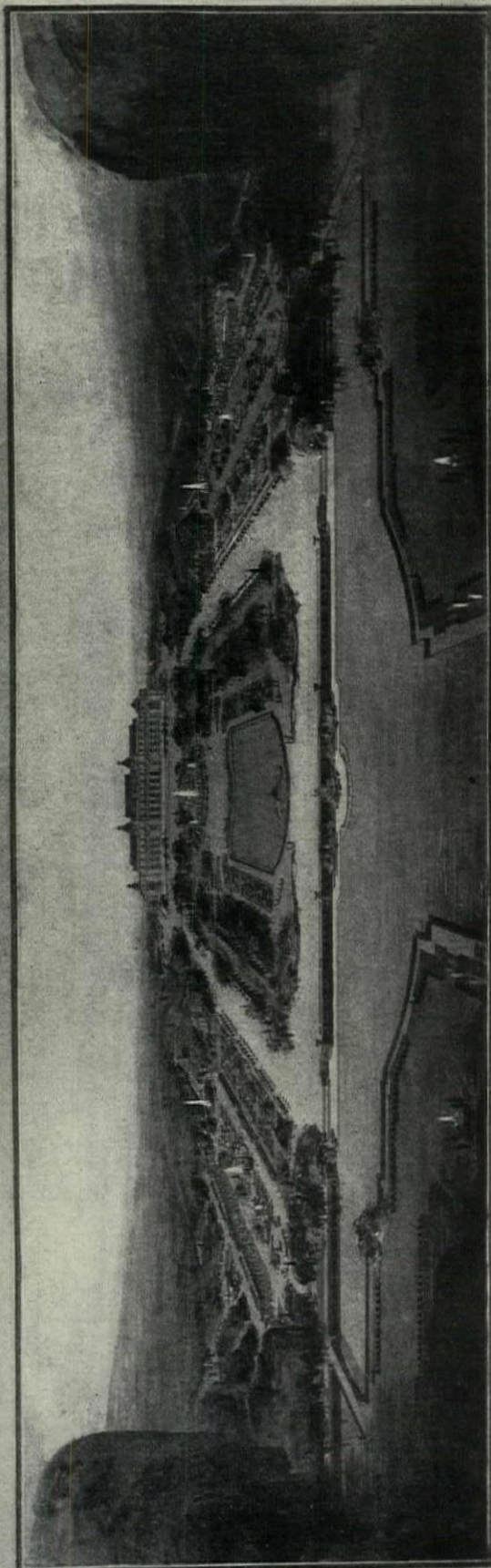
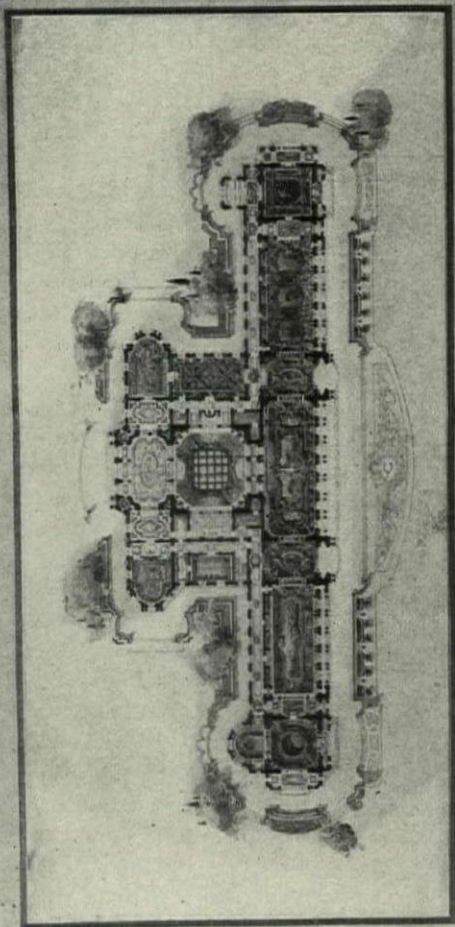


CAMILLE ÉTIENNE GRAPIN

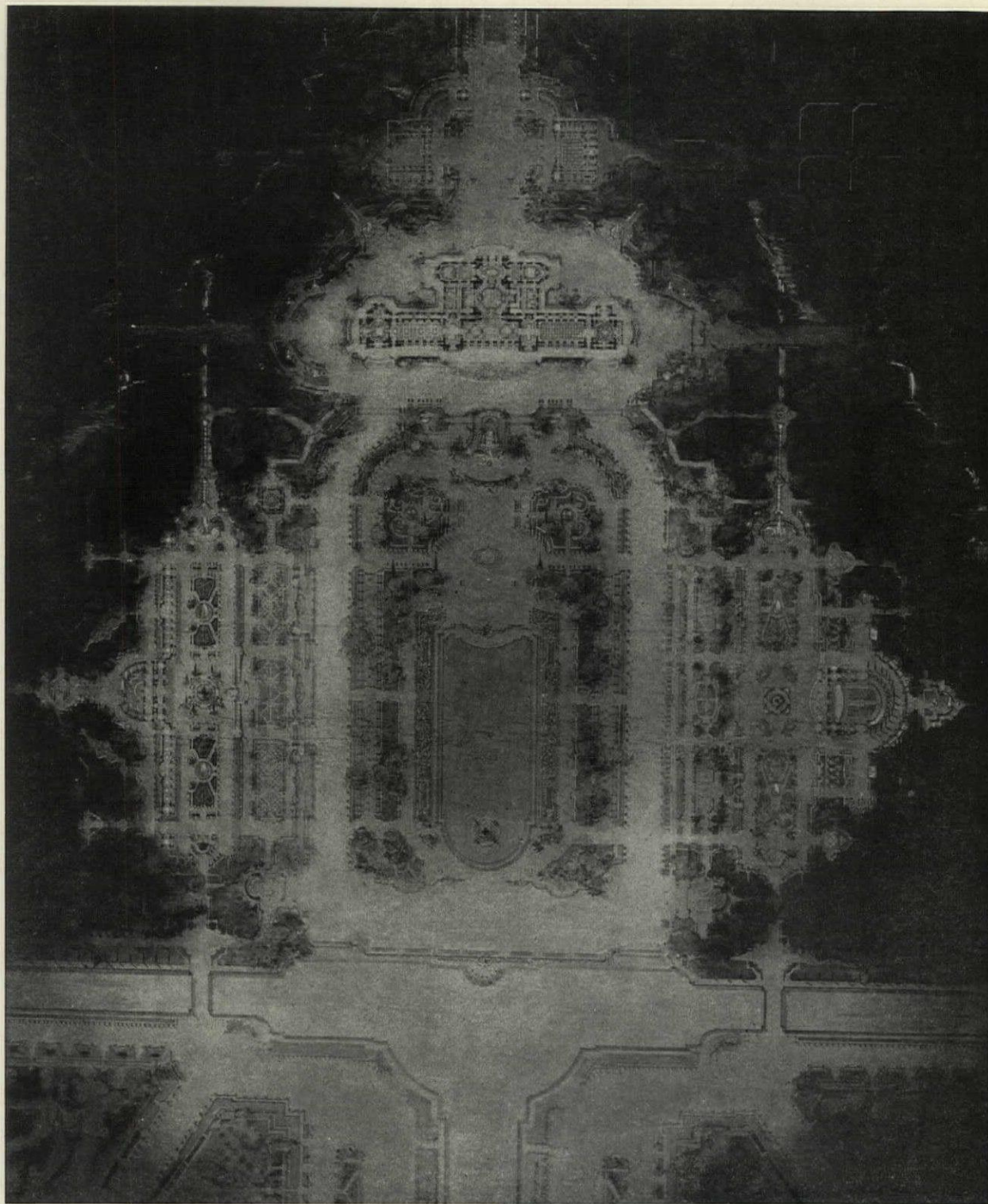
position of *logiste* for the *Grand Prix de Rome*.

During the five years of war Grapin served in the army.

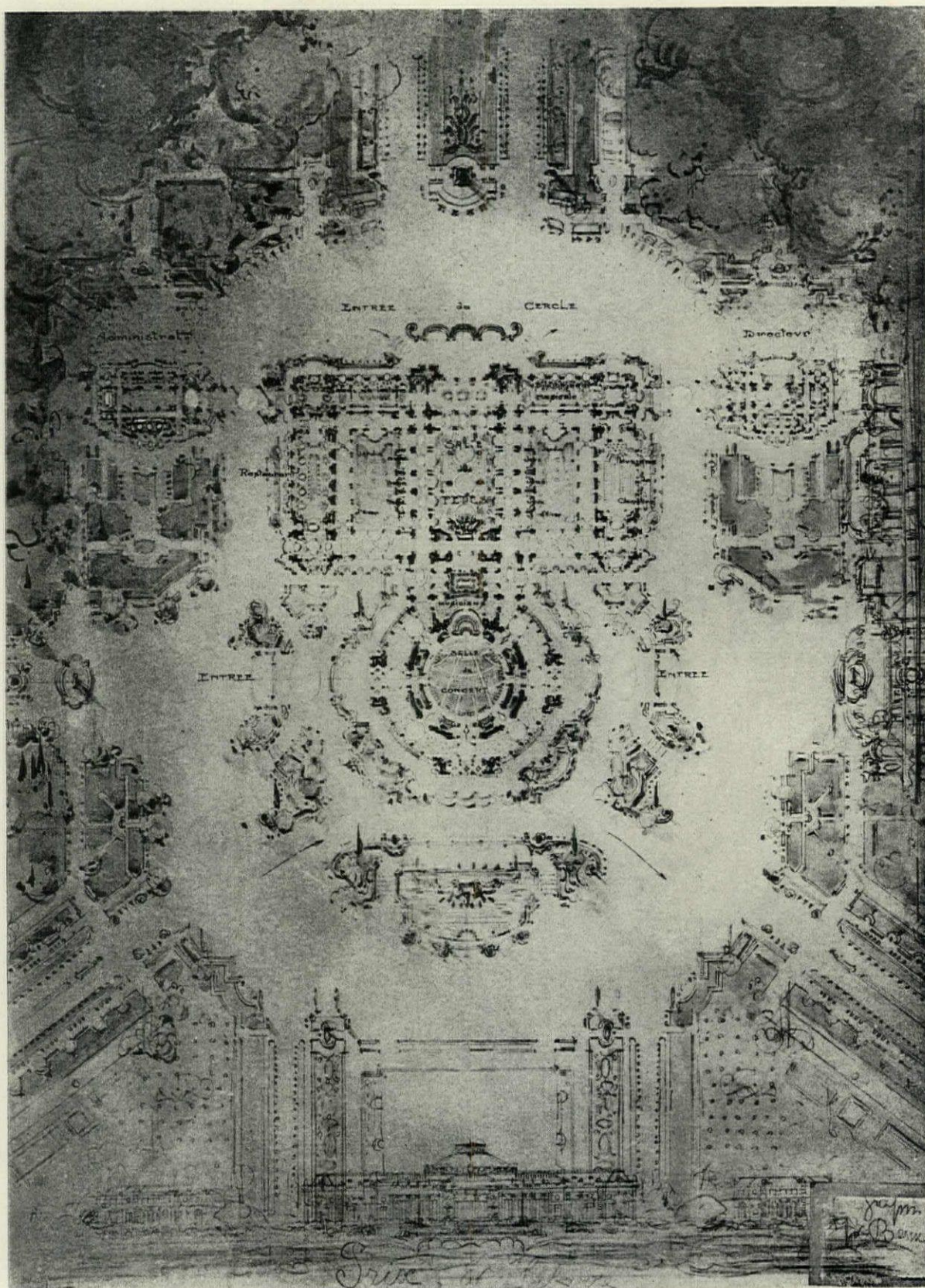
Returning to his studies he entered the *atelier Laloux*, where, under the guidance of "the master of broad and powerful compositions," he sought to link with his excellent training in good detail, learned at the *atelier Bernier*, a thorough understanding of



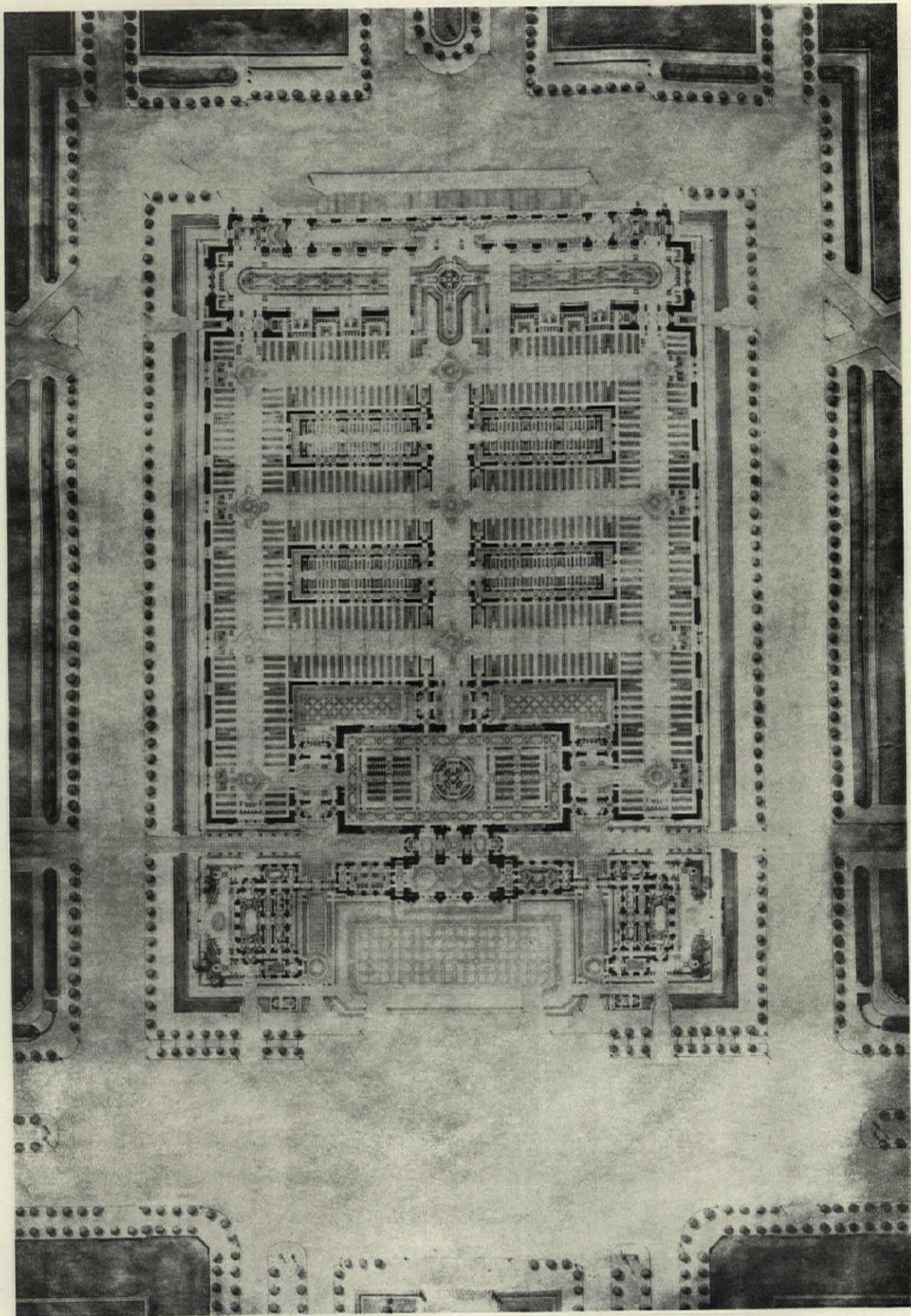
PLAN AND PERSPECTIVE BY CAMILLE GRAPIN FOR "UN CHÂTEAU EN PROVINCE"
 SUBMITTED IN CHENAVARD COMPETITION OF THE ÉCOLE DES BEAUX ARTS IN 1914



PLAN BY CAMILLE GRAPIN FOR "UN CHATEAU EN PROVINCE"
SUBMITTED IN CHENAVARD COMPETITION OF THE ÉCOLE DES BEAUX ARTS IN 1914

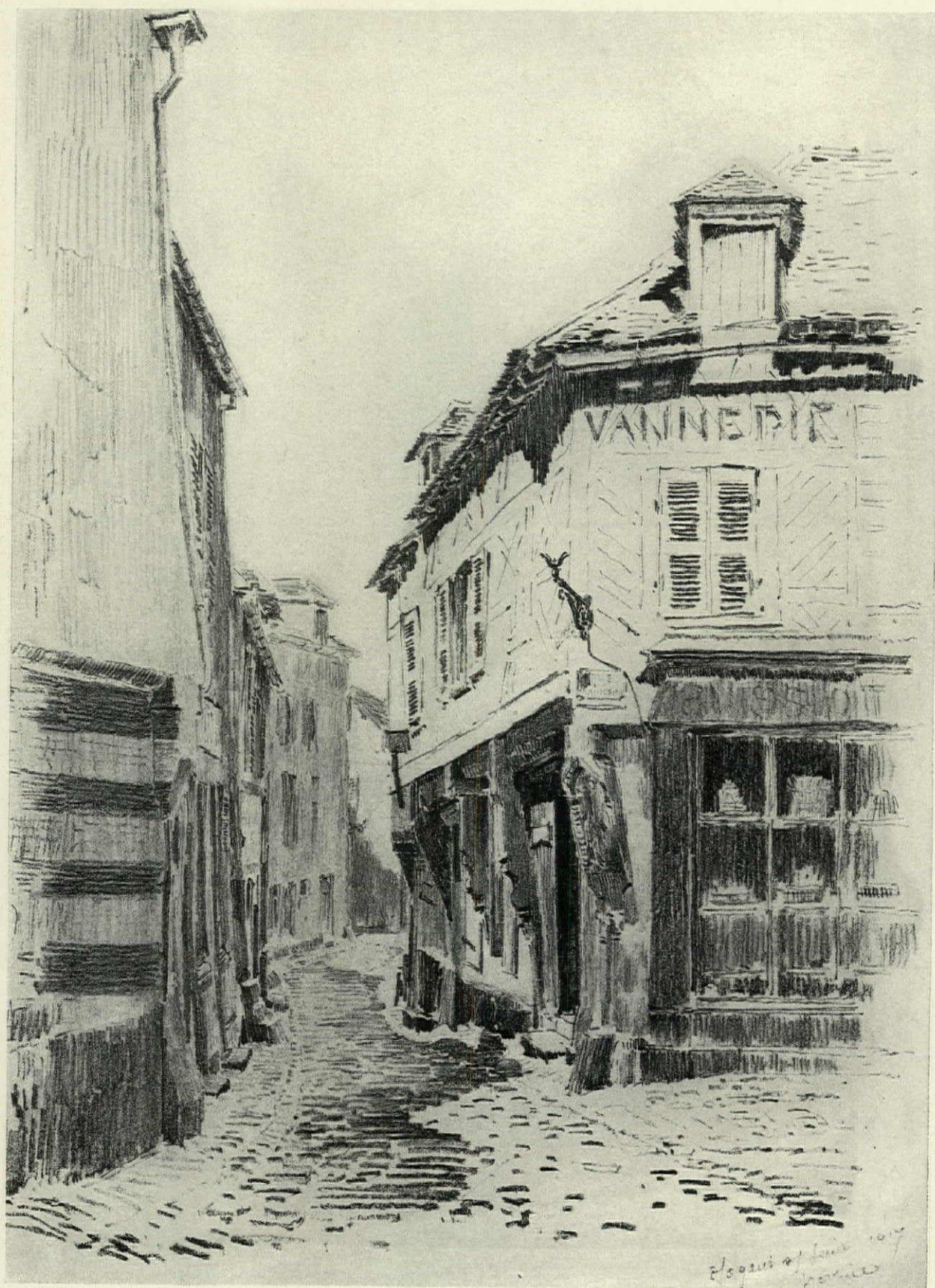


PLAN FOR "UN PALAIS DE LA MUSIQUE," BY CAMILLE ÉTIENNE GRAPIN
WINNING DESIGN IN LABARRE COMPETITION AT THE ÉCOLE DES BEAUX ARTS IN 1914



PLAN BY CAMILLE GRAPIN FOR "UNE HEMEROTHEQUE"

AWARDED SECOND PRIZE IN THE CONCOURS ROUX OF THE ÉCOLE DES BEAUX ARTS IN 1919



PENCIL SKETCH BY CAMILLE ÉTIENNE GRAPIN



PENCIL SKETCH BY CAMILLE ÉTIENNE GRAPIN

sound composition. His chief honors during this period were the second *Prix Roux* and the first *Prix Roux* a year later. The final and crowning achievement of his school days was the *Deuxième Grand Prix de Rome*.

When Grapin was *logiste* for the *Grand Prix* in 1920, Laloux wrote him a letter which is an interesting revelation of the character of Laloux for those of us who know him chiefly in legend.

"MY DEAR FRIEND:

"Just a line, not to give you words of encouragement—I know full well that you do not need any—but to explain, in a measure, our complete change of opinion.

"For some time already I have been embarrassed by the comparison of our study with your esquisse. It had an embarrassing effect upon me and my advice was concerned only with infinite details. At close range I was charmed; at a distance, when I saw only the whole, I was not quite so well pleased.

"Where I was wrong, I frankly admit it, was not to have expressed to you my regret before leaving for the country. Nevertheless, I believe that your esquisse is infinitely better than our work. It is much more individual, more original, more yourself. So let us come back to it without hesitancy. I am firmly convinced that you will not regret it.

"In your esquisse everything is better; the mass, the proportions; the general form is more impressive, greatly to the advantage of the whole composition.

"It took me perhaps a long time to realize it, but, on second thought, I believe that your esquisse is a good solution of the program, a clear and *decorative* vision and we were wrong in not being willing to accept it. Have therefore confidence!

"Does that mean that your studies will not be useful in attaining quickly the desired results? Do not think so. Your studies will be helpful in getting immediately at the details and will thus enable you to make up lost time.

"On the other hand, should you need some fellows 'to nigger' for you, in order to make up the days you lost, I shall find them for you.

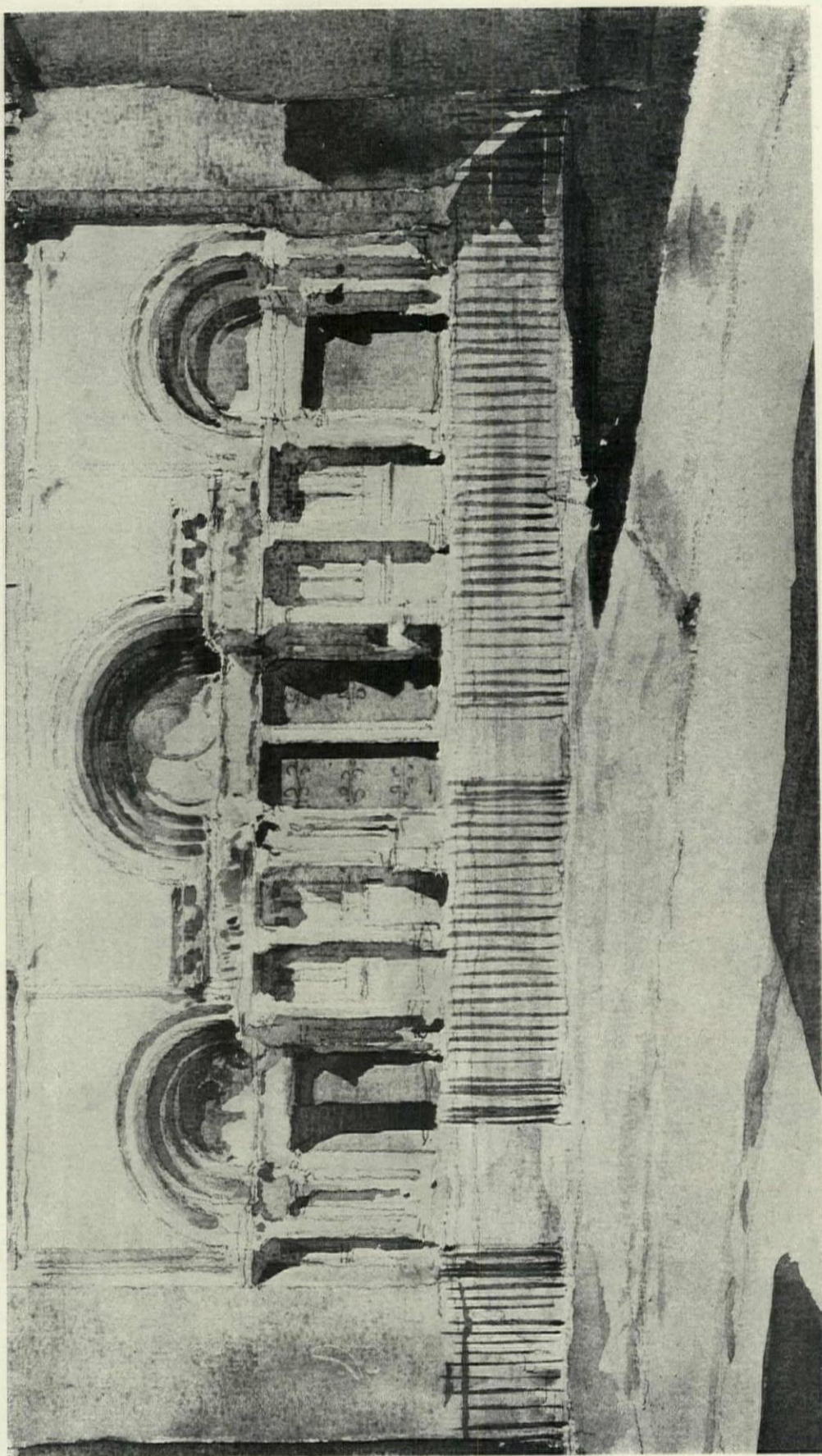
Sincerely yours,

(Signed) LALOUX.

"Cheer up!! I'll see you tomorrow."

School days finished, Grapin spent some months in travel. Returning to Paris, he sought an appointment as *Architecte des Batiments Civils et des Palais Nationaux*. He was received second and named *Architecte Ordinaire du Palais du Louvre*. The position, being only honorary, was not accepted.

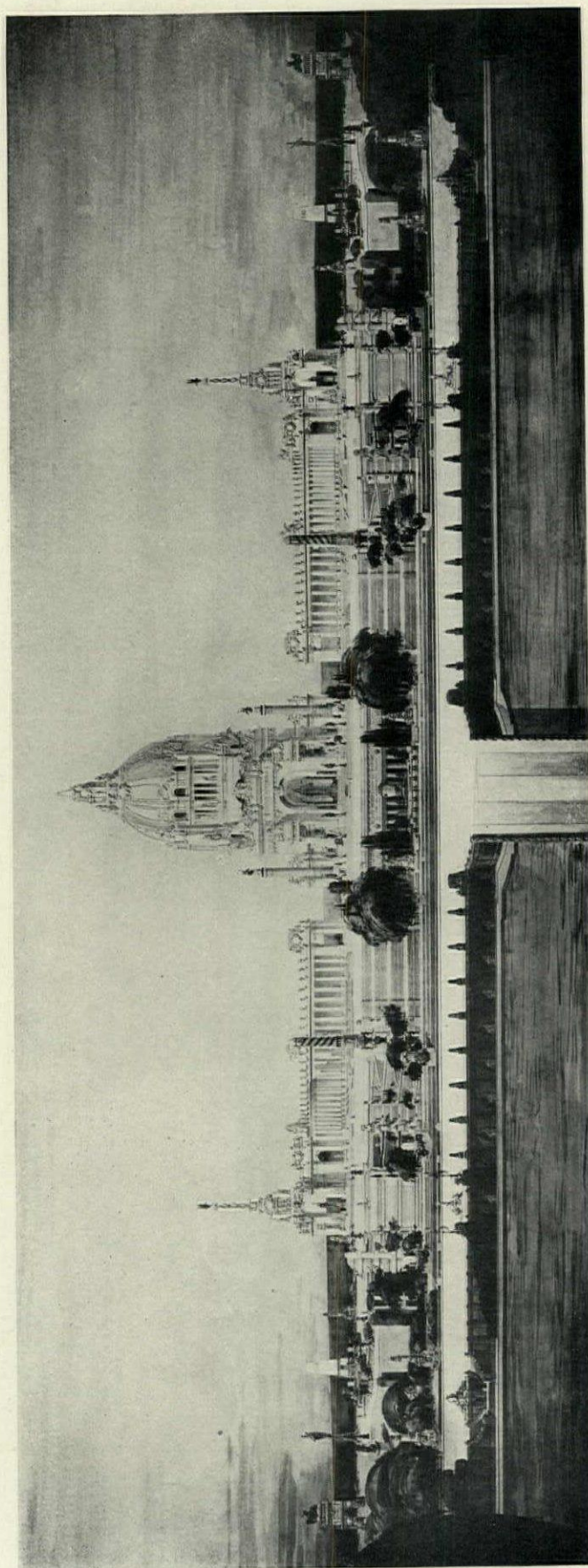
There followed a period of practical work in Milan and in Paris. In Paris he worked on the new



FROM A WATER COLOR SKETCH BY CAMILLE ÉTIENNE GRAPIN
"PORCH OF CHURCH OF ST. GILLES"

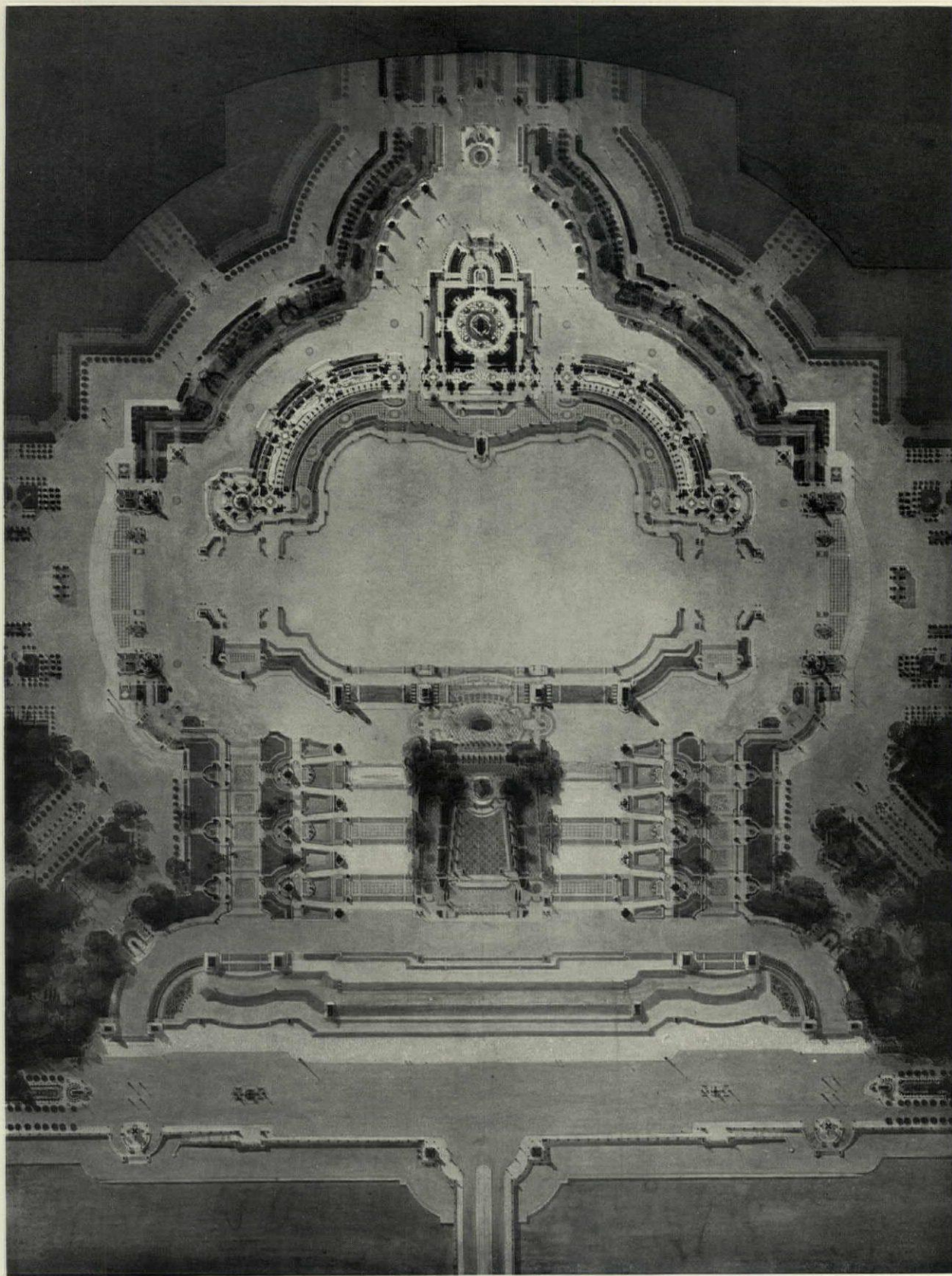


PENCIL SKETCH BY CAMILLE ETIENNE GRAPIN
"A ROAD IN BURGUNDY"

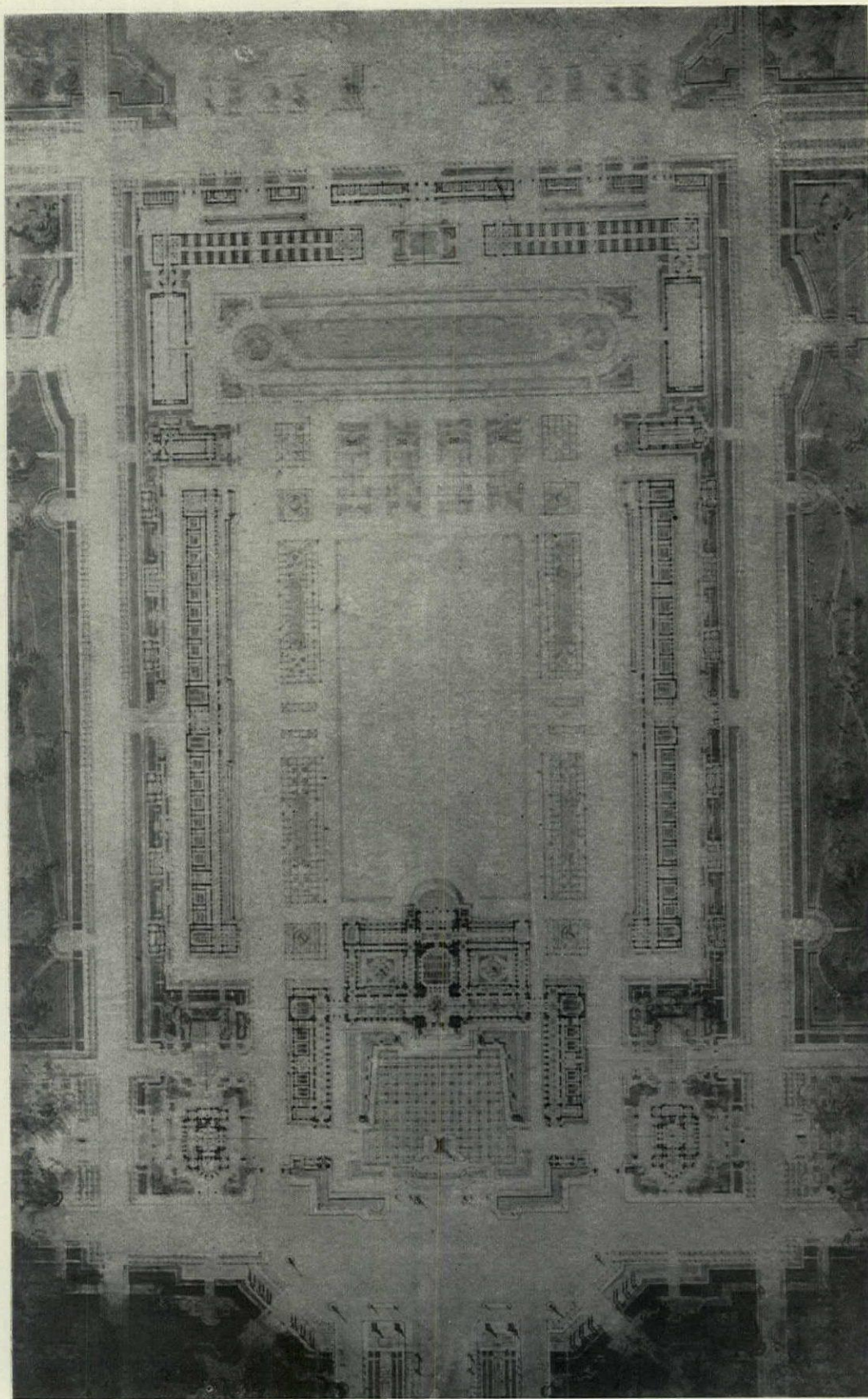


FAÇADE BY CAMILLE GRAPIN FOR "UN MONUMENT À LA VICTOIRE"

AWARDED SECOND GRAND PRIX DE ROME AT THE ÉCOLE DES BEAUX ARTS IN 1920 COMPETITION

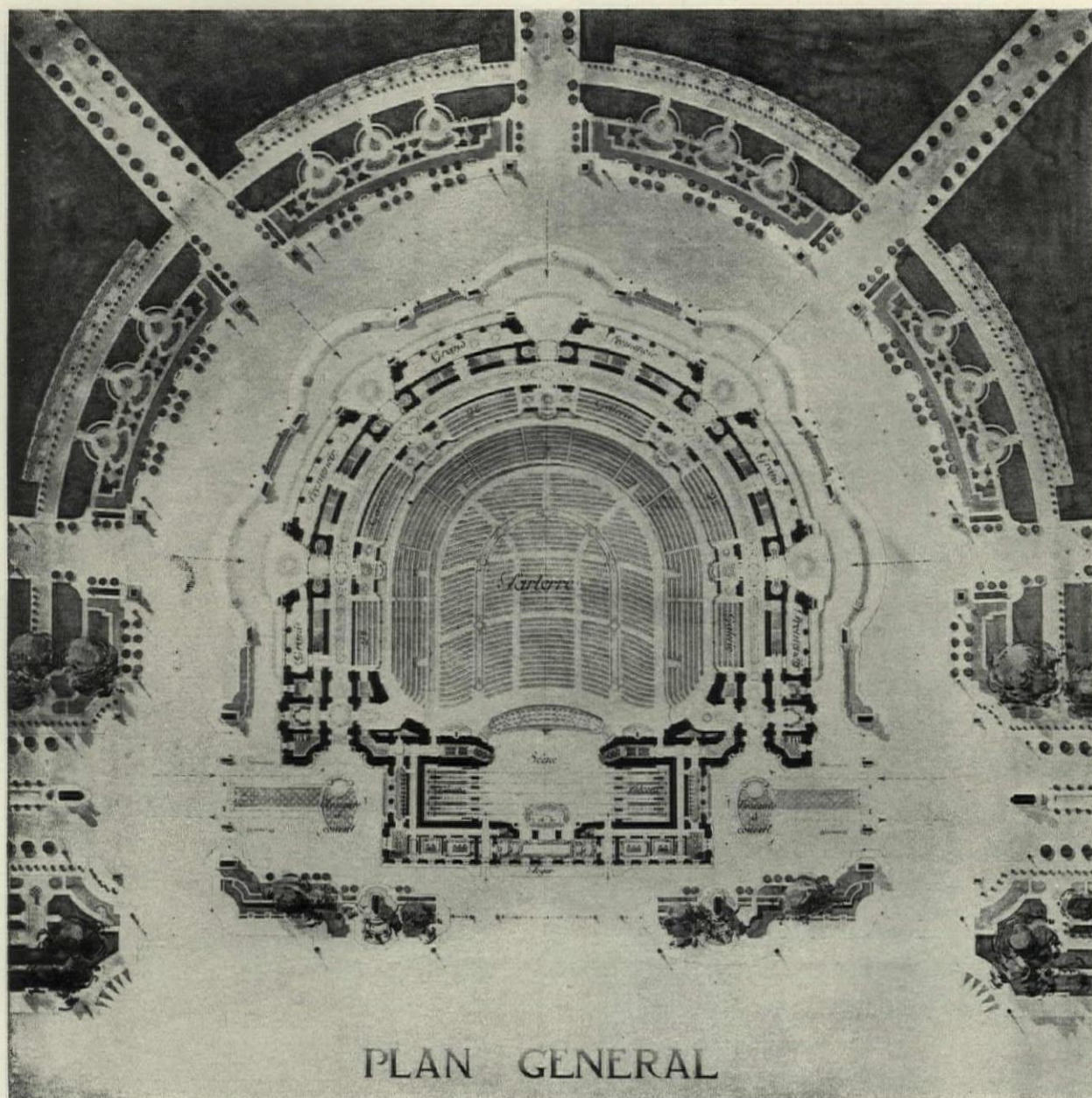


PLAN BY CAMILLE GRAPIN FOR "UN MONUMENT À LA VICTOIRE"
AWARDED SECOND GRAND PRIX DE ROME IN 1920 COMPETITION



STUDY BY CAMILLE GRAPIN FOR PLAN OF "ÉCOLE MILITAIRE"

DRAWN IN 1921 AT THE ÉCOLE DES BEAUX ARTS



PLAN BY CAMILLE GRAPIN FOR "UN THÉÂTRE POPULAIRE"

AWARDED FIRST PRIZE IN THE CONCOURS ROUX OF THE ÉCOLE DES BEAUX ARTS IN 1920

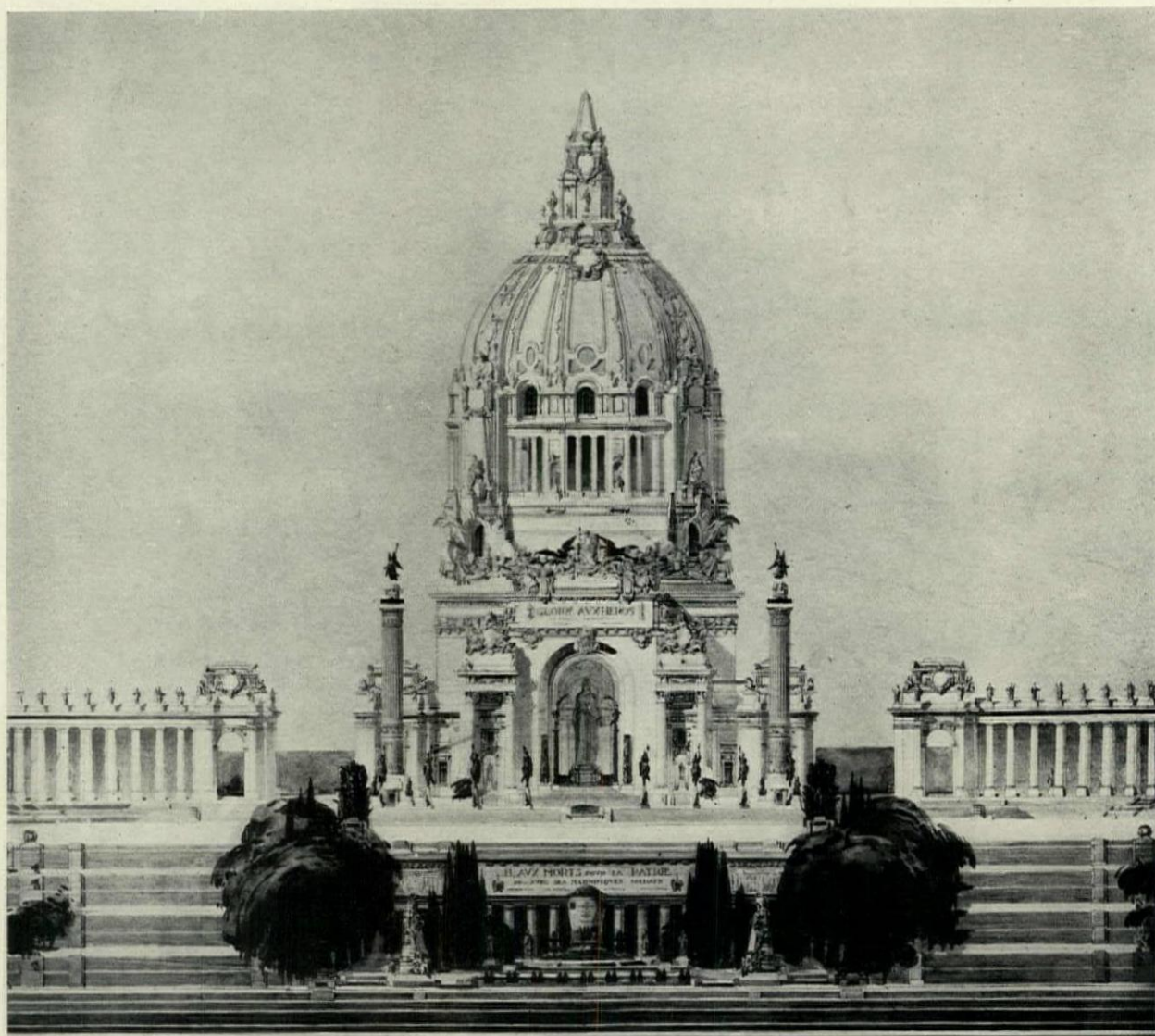
abattoir, on a new railroad station for Le Havre and on the new *Cercle des Officiers*. He did a competition for the new school of Decorative Arts and made several studies for the Automobile Club.

In 1923 he was asked to come to Carnegie Institute of Technology, as chief of the design faculty for the Department of Architecture. He is fulfilling his new duties with characteristic seriousness.

The projects chosen for reproduction in connection with this article consist chiefly of prizes won at the Ecole. Their technical and decorative qualities are apparent. The plan for a Military School is reproduced from a small scale study about twice the size

of the reproduction. It is an interesting example of finished technique in indication.

Gravin's pencil sketches attracted attention at the Salon in Paris in 1921. An extract is taken from a criticism of the architecture at the Salon. "The presentations of ancient monuments are submitted in two ways: in geometric elevation and in picturesque views. The second manner does not belong to the architectural section, it belongs more to the realm of painting. A very useful exception would be to make this section accessible to the work of Cancellotto and Piranesi. Mr Gravin is represented there by his five pencil drawings of views of old Paris,



PORTION OF ELEVATION FOR "UN MONUMENT À LA VICTOIRE," BY CAMILLE GRAPIN

SECOND GRAND PRIX DE ROME DESIGN, 1920 (SEE COMPLETE DRAWING ON PAGE 204)

which are excellent pieces of work. Our painters of city views might take them as an example. Mr. Grapin draws with solidity and charming precision the fleeting perspective of streets. The lights and shades are treated with a perfect sense of effect . . ."

Among the reproductions a group of water colors is added. The two in color show sufficiently the real qualities of Mr. Grapin's work in that direction. It is regrettable not to have more printed in color for they have a brilliant effect.

Some of Grapin's thoughts on architecture, gathered from conversations, are set forth in the remaining paragraphs.

Architecture should keep pace with science, industry, politics. The scientist, the industrialist, the politician, have studied the accomplishments of the past. But they live in the present and meet modern problems with modern solutions. Every indication of

progress in human effort can be traced in the concurrent material and spiritual life.

Achievements in architecture are no exceptions. But present-day progress seems to have been blocked by architects who cling too affectionately to the past. They call constantly to mind the antique monuments of foreign countries. The reflection of dead epochs is too apparent in their work. Clients are partly responsible for the persistent recurrence of abortive details of past styles. Having traveled, having seen charming bits of detail here and there, they demand the same things although climatic conditions, accessibility of material, structural difficulties may deny the logic of such demands.

The realities of life today indicate new programs. Modern methods of mass production, processes of fabrication, new structural possibilities give new means of execution. Modern workers are not skilled

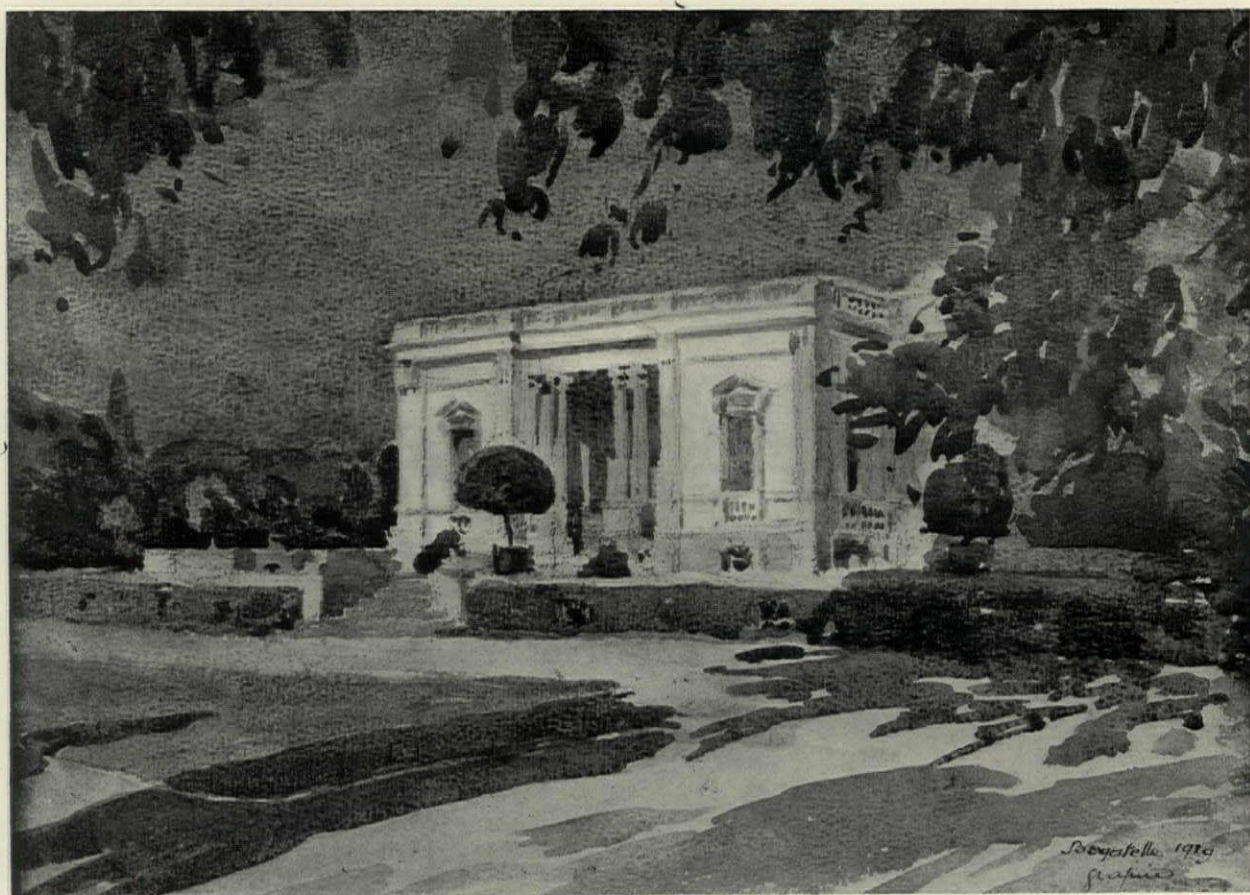
in the same way that Gothic workers were skilled. But there are compensations. Machines replace human hands. Pneumatic tools set a new character for carved details—steel and concrete challenge the imagination. Electro-chemistry and the blast furnaces are at the bidding of the visionary capable of producing a new wealth of products in polychrome terra cotta, colored glasses, metals. Photography makes accessible a wide knowledge of plant forms, animal forms and forms of marine life, from which can be taken fresh and interesting motifs for ornament. Microscopic photography is more modern still. From its revelations of microbe groupings and plant sections may be evolved decorative motifs of a superior sort.

Thus far attempts at "modernism" have existed chiefly in some changes of proportion and detail. The grotesque masquerade of present-day buildings is highly amusing. The architect chooses the costume. The engineer produces a skeleton to wear it. But all present-day buildings are not in masquerade. Some new skyscrapers, particularly, are apparently

sincere in their outward appearance. They may be the first fruits of a new era. It is only through a shameless recognition and a frank acceptance of modern structural and decorative elements that continued progress in architecture is possible.

Perhaps the most valuable lesson in building should be learned from nature. In animals, for example, structure and beauty of finish are achieved directly and purposefully with the elimination of all unnecessary things.

New ideas take root slowly. But it is encouraging to see the very interesting attempts of the younger generation. Older minds, entrenched in the easy security of an acceptable past, are sometimes hostile to the spirit of change. Younger minds, lacking assurance, hesitate to impose their thought. But as there is no imperialism in architecture and as youth asks to be understood, it is the duty of every architect to assume part of the responsibilities of the present and to encourage new essays. In spite of the respect we owe our ancestors we must make way for youth!



WATER COLOR BY CAMILLE ETIENNE GRAPIN—"BAGATELLE"

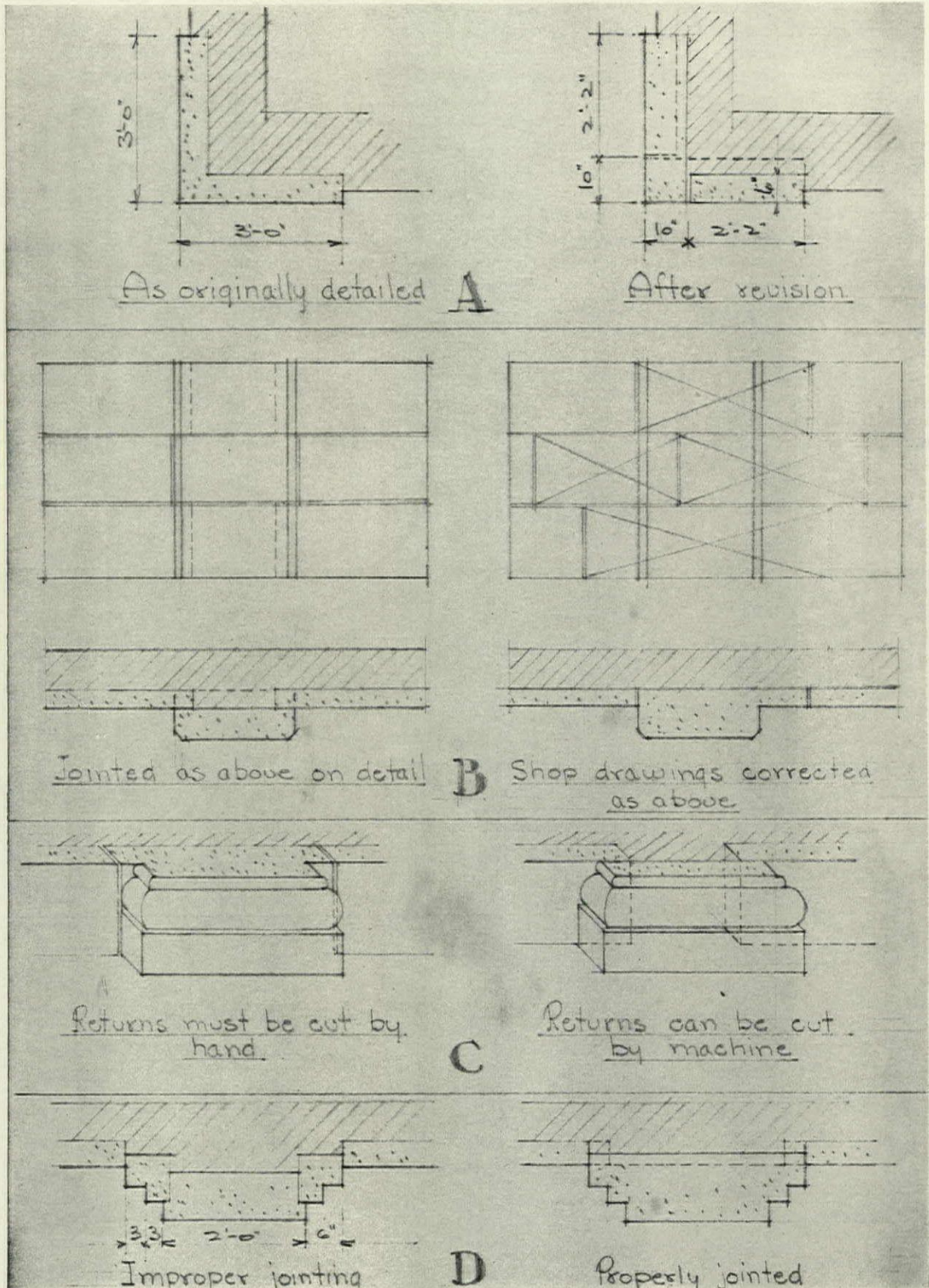


FIGURE 1—SKETCHES TO SHOW COMMON ERRORS IN DETAILING STONE
(See text opposite)

STONE AND THE DRAFTSMAN, II

By Marion Davidson

EDITOR'S NOTE:—*This article continues the discussion of stone begun by Mr. Davidson in the January 1928 issue. In this installment he takes the question of detailing stone on the architect's drawings and on the stone shop drawings and brings out a number of points which should be of assistance to the draftsman.*

EVERY GOOD DRAFTSMAN is a jack-of-all-trades. Isn't it logical for him to know about the working qualities of the materials incorporated in his plans, when he expects contractors to follow these and produce a successfully executed building? Whether detailing bronze or glass or stone, or writing a specification for a Twentieth Century wine cellar, where a good man may be down but not out, he must constantly see through the eyes of each trade or else the drawings do not carry their message.

Of the three operations described in this series, his closest contact with the work of the stone contractor is during the preparation of details and the checking of shop drawings for the process of manufacture. Frequently, however, drawings show information that is incomplete, indefinite or contrary to common practice and which may have a bearing on the preparation of estimates and the execution of the work. It is difficult to describe semi-technical subjects without dropping into a matter-of-fact style which soon becomes irksome and dry reading, and while we guard against this inclination, we hope that we may write simply and briefly and that our discussion will cover at least a few items which may assist the man in the office when working on stone.

In the first place, the purpose of working drawings and particularly scale-details includes presenting proper information for contractors to prepare intelligent estimates as well as for them to follow in constructing the building. In order to take off the quantity of stone in cubic feet, the size of each member must be obtained; but often important sections and plans through belt courses, lintels, cornices, and joints are lacking, and the estimator must ask innumerable questions or just guess. As a rule too few sections are drawn. It is surprising what is left hidden and what they can bring to light. Courses in walls should be only deep enough to secure sufficient bond in the wall and balance for a projecting portion—further depth is excess stock, costing additional freight, increasing the expense of handling and likely requiring extra hand cutting for back-checking on the building, but adding nothing to the face of the stone.

A characteristic that is almost universal with all men who draw and which requires a constant guard, lest it become natural and difficult to shake, is visualizing the units of construction at a reduced scale from what they actually are. The author speaks with the background of several years' experience making

architectural details when this tendency of running in too much detail and drawing at too small scale, rather than too large, continually followed and haunted him. Frequently, this inclination will cause draftsmen to dwarf the units of the architectural members, and when these are stone, it becomes a serious fault, because the physical properties do not lend to an economical fabrication at an extremely fine scale. This of course affects especially the joints—their location, size, and number.

We want to mention an incident which illustrates the habit one is likely to acquire unsuspectingly. An excellent draftsman, who had been working continually for several weeks on eighth-scale drawings received the first batch of shop drawings to check for a 4-cut granite base course. After several days these were returned with a mass of corrections, neatly lettered in yellow crayon, showing that the location of many joints had been shifted by only one-sixteenth inch. Besides being waste of time, this extreme checking was impractical because the material could not be cut this accurately—but the project was large, and by the time the last shop drawings had arrived this same man was allowing a latitude of $\frac{3}{4}$ " in establishing the location of joints. The point is: after he shifted from working at eighth scale to checking shop drawings, one-sixteenth inch still remained in his mind as meaning six inches.

Ashlar cornices and belt courses, but particularly ashlar, are shown repeatedly as jointed, both horizontally and vertically, into too many courses and pieces, preventing an economical manufacture and setting of the stonework, for the reasons that each joint requires two beds to be cut and a small piece costs approximately the same to handle as a stone of large size. It is worth while to remember that the heights of courses above the eye-level are often foreshortened and the joints appear nearer together. The locations of vertical jointing are not always sufficiently studied on scale details to obtain the best result. Sketches A, B, C, D in Figure 1 are portions of drawings that have been picked at random from architectural details to illustrate conditions that have occurred.

The left-hand plan of A is through a corner pilaster in which no vertical joints were indicated on the $\frac{3}{4}$ " scale detail, consequently the cube was figured on the basis of 3'-0" x 3'-0", the size of the pilaster, for ordinarily no allowance is made for the stock

PENCIL POINTS

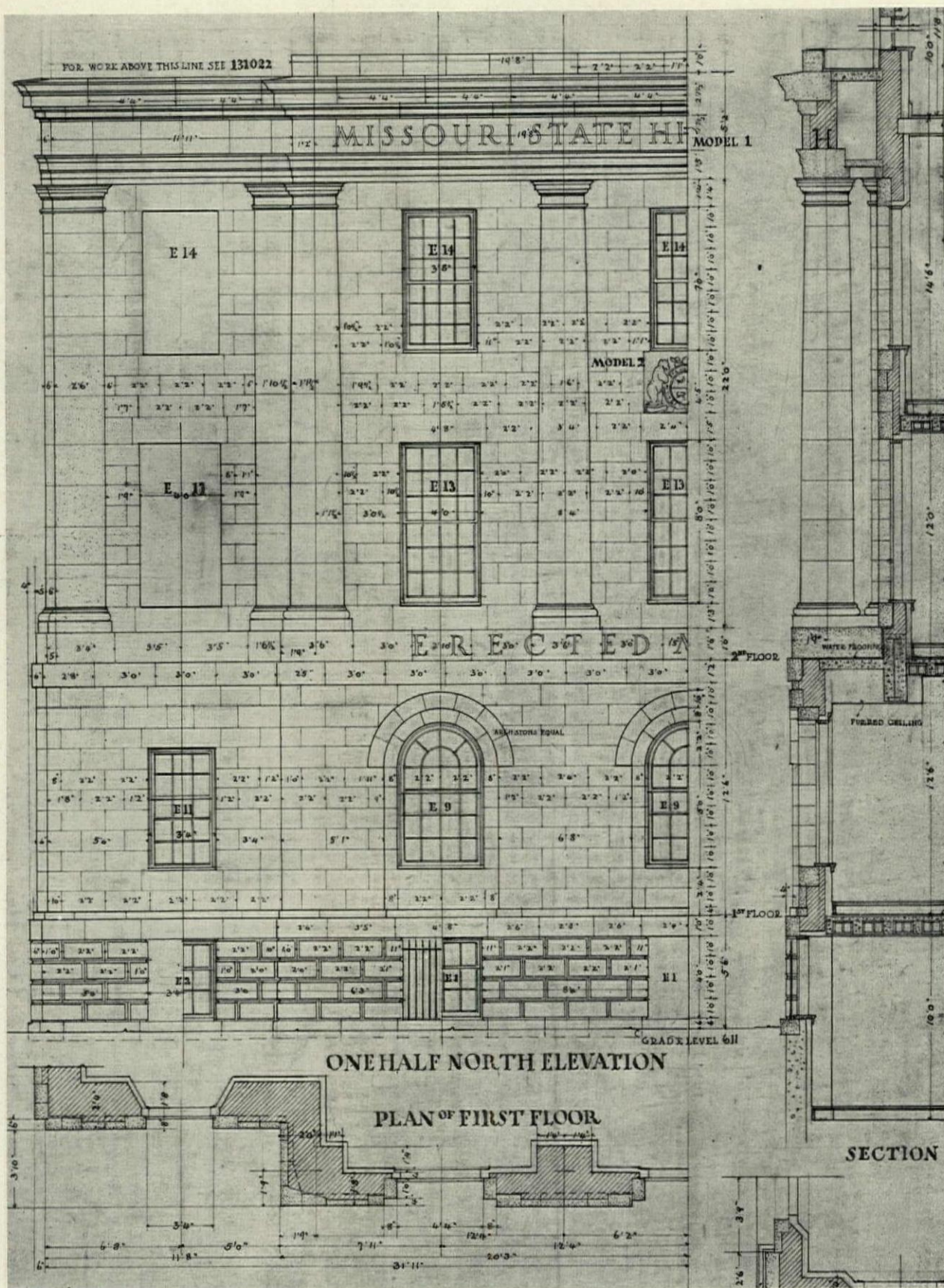


FIGURE 2—PORTION OF 1/4 INCH SCALE DRAWING FOR MISSOURI STATE HIGHWAY BUILDING
EGERTON SWARTWOUT, ARCHITECT

checked out in the back. The proposals on the basis of this detail were far above the budget established for the stone, but by alternating 10" heads in the faces, illustrated by the right-hand plan, the cost was reduced several hundred dollars. This illustration is applicable to headers and returns at corners that often can be similarly jointed to reduce the cost without lowering the standard of the work.

The left-hand sketches of B are copied from a detail which showed the method of jointing a series of wall pilasters. The stone proposal was made up and shop drawings prepared on this basis, but when these were returned for correction, the joints had been changed so that most of the pilaster stones were integral with the ashlar. Obviously this was a more expensive method of fabrication because of increasing the amount of stock and requiring all the pieces to be manufactured or special, for no two are alike. We believe the stone contractor was justified in howling, which he did, because the pilasters occurred at a high elevation where this special jointing would neither be expected nor count for much. The object, of course, in changing the joints was to prevent the irregular line of the alternating joints occurring in the corner, which is a refinement and to be recommended for monumental work. Buttresses and piers that project from walls in all high-grade work demand a certain number of stones cut integral with the wall and buttress to break up the joint line in the corner. If these are expected the stone contractor ought not be misled by the details into estimating on a cheaper method. Along with all of us he desires to keep worry out of his face and poverty off his back.

Jointing of architectural members similar to the pilaster bases in C are rarely ever indicated as jointed in a definite way so the estimator will know whether handcutting will be necessary on the return, as the left-hand base, or whether it can be cut entirely by machinery as the other. One of the two methods should be shown. Pilaster caps and returns in general often need the same information to be established.

In sketch D the draftsman went too far in skinning down the cube at the expense of manufacturing and setting, for the two small pieces ought to have been combined with the large center stone that could have been made and set cheaper than the three pieces. Although the cube is increased, the cost of the extra stock is more than offset by the saving in the mill operation, and the elimination of the two vertical joints by combination will produce a better result. The setting of the piers on the building where this occurred ran high and similar instances are worth anticipating and preventing.

The examples that have just been mentioned are typical of many that could be given of instances where draftsmen can assist in portraying to the stone man practical information for preparing a just estimate and receiving good work.

The kind of stone, the finish and the size of individual stones determine to an extent the size of joints. One immediately reasons that a coarse-grained stone will not work to a joint as small as a stone with a fine texture; and that large pieces have a tendency to increase the size. Generally, architects desire joints as narrow as possible, often too small for the working qualities. In everyday practice $3/16"$ and $1/4"$ are the rule. Stone men prefer the latter because dimensions are easier to figure but it is our opinion, after checking many joints on a building, that $3/16"$ should be specified if a thin joint is wanted and the stone is fine texture with a smooth or fine tooled finish. This size permits a sufficient bed of mortar between the stones, and if slight variances occur in their sizes, which do because of the inability to work the material to small fractions of an inch, these variations are less noticeable in $3/16"$ joints than in $1/4"$. Truthfully, horizontal joints tend to run oversize and vertical joints run under. Occasionally $1/8"$ joints are wanted, but unless the material is suitable, like marble, or the joints are in sculpture, we don't believe they work out practically. With gang saw finishes and some hand-tooled surfaces, the joint sizes run up to $3/8"$ and in cases where the ashlar is broken to sizes they may be as large as $3/4"$.

Unfortunately jointing in sculptured work is often disappointing, for sculpture is habitually designated on the plans with an apologetic note, something like "Leave stock for sculpture" or "Sculpture—see later detail" because the subject has not been approved, accepted or decided. Frequently the stone is set before the motive has been settled and in this case it is always advisable to confer with the stone contractor so that large stones and small joints can be secured, as joints have an unhappy manner of coming in wrong places. An instance is recalled where each of three figures in the same panel had a vertical joint splitting its face as accurately along the nose as Mr. Tell split the apple. The jointing of the sculptured frieze in the Liberty Memorial at Kansas City by Mr. Magonigle is excellently laid out. By slight humoring on the job, the carver will hide most of the joints.

In dimensioning stonework the heights are measured from "bed to bed"; that is, from the top of one stone to the top of another. Dimensions on details should be the same. Horizontal lengths are figured from the center of the joints. Mr. Egerton Swartwout furnished us with the interesting detail, Figure 2, which he made of the Missouri State Highway Dept. Building. At the first glance one sees that a large portion of the rusticated base course and a still greater percentage of the plain ashlar field is typical in size; i.e. 2'-2" x 1'-0". The arch stones are equal and the headers are carefully dimensioned. Mr. Swartwout says that these stones more or less happened to work out at these sizes, but the important point is that by the application of a few dimensions every stone estimator

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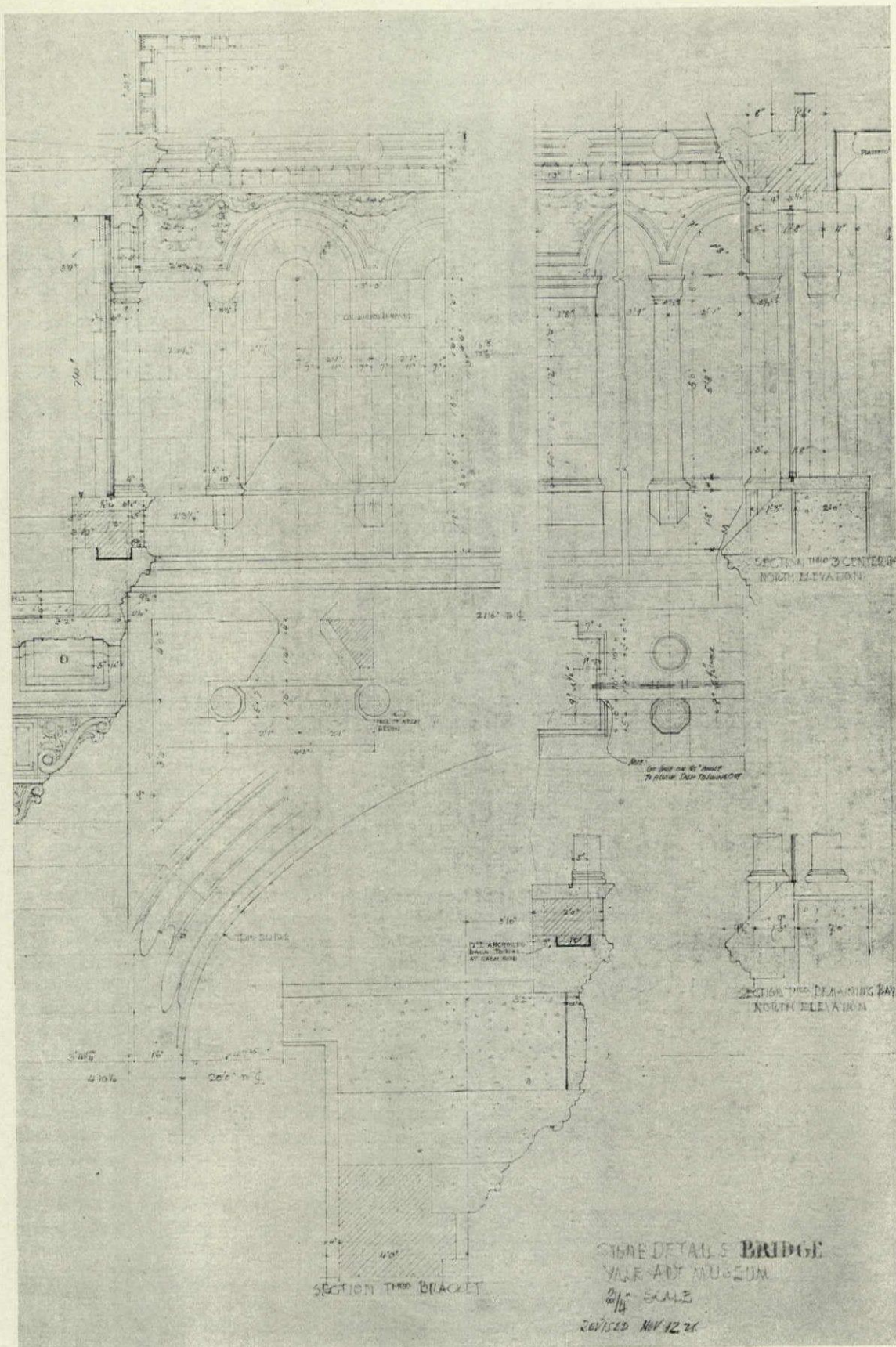


FIGURE 3—PORTION OF ARCHITECT'S $\frac{3}{4}$ INCH SCALE STONE DETAIL DRAWING
YALE UNIVERSITY ART MUSEUM, EGERTON SWARTWOUT, ARCHITECT

will be impressed immediately by the fact that a great number of typical stones exist; which means simplification in ticketing, listing, and making patterns in the drafting room, of handling in the shop and setting on the building. We venture that the prices in connection with all items of stonework shown on this building were the best obtainable and we also think that many items, such as this, which escape draftsmen, are worth while and tend to give the stone contractor a better insight into what he be required to do if he obtains the contract. For example, voussoirs in many arches, particularly Gothic, vary in size, but instead of actually making all the stones different, several typical ones can be made and the variation secured by shifting their location in the arches.

The areas of ornamental portions that are to be carved should be defined on scale-details and some idea of the character of the carving given, but on full-size details it is a waste of time to do elaborate drawing for work to be modelled since this binds down the modeller and is later confusing when models are completed. Wherever models are wanted for ornament it is a good scheme to number them in the approximate numerical order in which they will be required in the building and to define each area to be

modelled by a line enclosure on the plans. If mouldings such as pediments occur within these limits, it is most advisable to describe in the specification or by note on the plans whether or not these are to be included with the model. Sometimes both carving and modelling contracts are let directly by the architect. If the former is done during the construction of the building it is better for its progress to have these contracts let by the general contractor, for the time schedules of many other trades hinge on the work of these artisans; but unless their contracts are made directly with the general contractor, he is not legally recognized by them and sometimes, for this reason, he finds it difficult to secure their cooperation.

Where letters go, indicate the number, kind (incised or raised), and the size. Have we ever carefully lettered in the word "Subscription" and hopefully expected it to cover any wording from "Let there be Peace" to a list of the names of the building committee?

The contracts for the windows and stone in a building ought to be let immediately after excavation, foundations, and steel. We include windows with stone to lay emphasis on the fact that the type must be decided so their sections can be incorporated in the

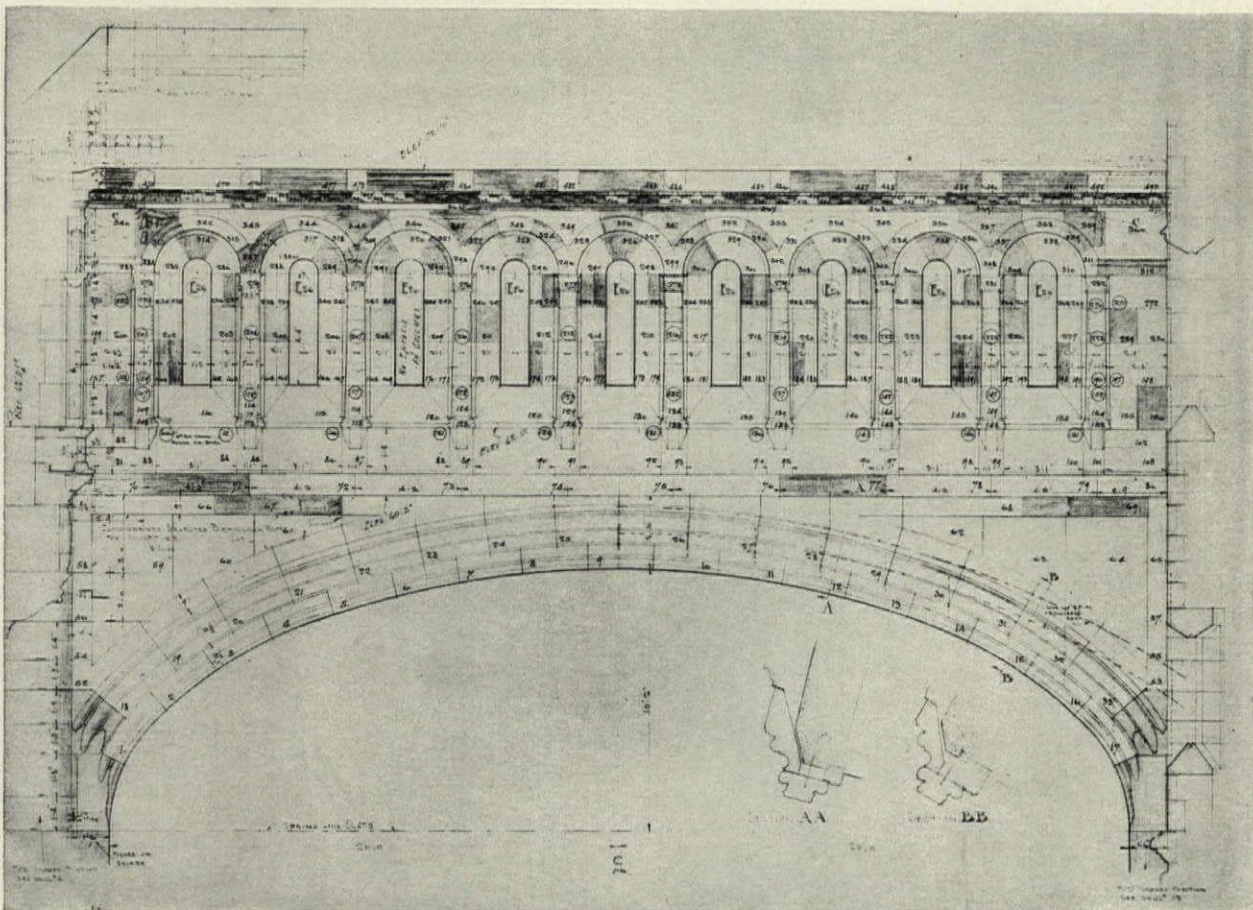


FIGURE 4—STONE COMPANY'S DRAWING FOR BRIDGE, YALE ART MUSEUM
MADE FROM ARCHITECT'S DRAWING SHOWN OPPOSITE

PENCIL POINTS

| ORDER NO. 250 | | SCHEDULE NO. 10 | | ORDER 250 | | ORDER 250 | | ORDER 250 | |
|---------------|--|---------------------------|--|-------------|--|-------------|--|-------------|--|
| STONE S85 | | ITEM NO. 862 | | SCHEDULE 10 | | SCHEDULE 10 | | SCHEDULE 10 | |
| NO. PIECES | | | | ITEM 862 | | ITEM 862 | | ITEM 862 | |
| | | | | CUTTING | | CARBO SAW | | PLANING | |
| | | | | DATE | | DATE | | DATE | |
| | | | | START | | START | | START | |
| | | | | FINISH | | FINISH | | FINISH | |
| | | | | TIME | | TIME | | TIME | |
| | | | | ROUGH | | ROUGH | | ROUGH | |
| | | | | S2S | | S2S | | S2S | |
| | | | | S4S | | S4S | | S4S | |
| CUBE 3'-6" | | BIRMINGHAM WARM TONE BUFF | | CUBE 3'-6" | | CUBE 3'-6" | | CUBE 3'-6" | |
| S85 | | S85 | | S85 | | S85 | | S85 | |

FIGURE 5—SHOP TICKET

full-size details for the information of the stone contractor in manufacturing sills, lintels, and joints. So far nothing has been said about full-size details. Faults of many are their unwieldy large size, the showing of unnecessary information, and the delay in preparation.

Details are often made in single sheets and when unrolled they look as long as a rug in a hotel corridor. This size is inconvenient to handle, the drawings become torn and ragged, and as a consequence the stone draftsman immediately tears them into convenient sizes for his use. It would be of assistance to contractors in handling large full-size drawings if the draftsmen would put the drawing number in each corner of the drawing. It is not necessary to take time to make beautiful figures, but use a black Blaisdell pencil which will make the numbers plain on the blue prints. This not only allows one to tell by a glance at any corner what drawing it is, but if a corner becomes torn off there is always a number left.

What we meant in saying that full-size details show too much information is this—the most time in the prepara-

tion of drawings should be applied to working out complete, scale details, preferably 3/4" scale, so that 1/16" on a common rule will mean one inch. Full-size details are only supplementary to these and should indicate only what cannot be put down at a small scale, for instance the full size of moulds. Good scale details are frequently made and then followed with unnecessary duplication of sections, like the back-side of cornices, on the large drawings. The inclination

to see and think in units of small scale influences the draftsmen at times to full-size moulds too small for cutting in stone and with sharp interior corners that are impossible to cut. The character of mouldings is improved by allowing the corners to be very slightly rounded, which produces a softening effect to the lines and relieves that hardness which extremely sharp arrises produce. The contours of moulds ought to be drawn in sharp narrow lines because better patterns can be made from following a thin line than a heavy sketchy one whose thickness will cause the shape to vary.

Stone shop drawings are customarily drawn at 1/2" scale in ink on tracing cloth. While the usual procedure is to draw

SCHEDULE 10

ORDER 250

DATE 7-2-27

STONE BIRMINGHAM WARM TONE BUFF

FINISH PER SAMPLE

| ITEM | SKETCH | POS. | LENGTH | DEPTH | HEIGHT | MARK | LINE | TIME | TOTAL CUBE |
|------|---|------|--------------|-----------|-----------|--------------------------------------|-------|--------|------------|
| 860 | <p>2 3/4" SEC # 182</p> | | 7' 4 1/2" | 1' 6" | 0' 4 1/2" | S 72-73-74-75 76-78-79 | 5' 2" | 3' 6" | |
| 861 | <p>2 1/2" SEC # 185</p> <p>HOP OVER</p> <p>REMOVE BOTH ENDS</p> | | 9' 3' 0 1/2" | 1' 4 1/2" | 1' 4 1/2" | S 84-86-88-90 92-94-96-98-100 | 4' 4" | 27' 0" | |
| 862 | <p>1" Dowel Hole 3" Deep</p> <p>BED # 186</p> <p>REMOVE BOTH ENDS</p> <p>TYPICAL</p> <p>SEC # 185</p> | | 8' 1' 1" | 1' 4 1/2" | 1' 4 1/2" | S 85-87-89-91 93-95-97-99 | 3' 6" | 28' 0" | |
| 863 | <p>1" Dowel Hole 3" Deep</p> <p>SEC # 187</p> | | 8' 1' 1" | 1' 4 1/2" | 0' 3 1/2" | S 113-115-117-119 121-123-125-127 | 0' 5" | 3' 4" | |

FIGURE 6—SHOP SCHEDULE

STONE AND THE DRAFTSMAN

and submit them for approval in the order of the requirements for stone in the building, it does not necessarily follow that all stones will be manufactured in this sequence, for the reason that stock is sawed with the idea of obtaining as many small pieces as possible from the waste of the larger.

The actual making of shop drawings is only a small part of the stone draftsman's work. Figure 3 illustrates an architectural detail that the company used in conjunction with the general plans for preparing the shop drawing shown in Figure 4. The stone represented by this drawing is a mixture of two Ohio sandstones, one has been shaded in so the architect could study the distribution and to facilitate the handling in the shop and the setting on the building. After a drawing like this is approved, the draftsman makes the corrections, rechecks the dimensions, and numbers the pieces from left to right, beginning at the lower left-hand corner of each elevation. Following this he tickets and lists each piece and cuts the patterns—all are guides in the manufacture. On intricate work such as domes, tracery, circle on circle arches, ramps and twists, expert knowledge of stereography is required to lay out work so the patterns can be made and the information listed for the men in the shop to follow. The cost of drafting is one of the largest operating expenses in the stone industry, and on intricate work the cost per cubic foot often exceeds that of the rough stock.

Figures 5 and 6 show a shop ticket and schedule and while this scheme is not typical of all mills, the theory is essentially the same. Stone S85 has been taken as an example. Its ticket, Figure 5, is issued to the shop superintendent and travels entirely through the mill with the stone. The three right-hand stubs are for the use of the stone company in recording costs as a check against the estimate and for references on

the costs of future work. As each portion of the manufacturing is finished the proper third is torn off, filled out and filed at the office. The ticket containing the sketch remains with the stone until shipment is made, then the shipping clerk turns it in as a record of shipment. The shop schedule, Figure 6, is a compilation of the various pieces and shows, for instance, that eight stones like S85 are to be cut. A copy is given the plant superintendent, the cutter superintendent and the shipping clerk at the time the tickets are issued and the stones put in the mill.

Simultaneous with the preparation of the ticket and the schedules the patterns are laid out. Patterns are cut from either zinc or heavy paper and numbered so that each will be identified with the proper shop ticket and stone. Figure 7 shows the two made for stone S85; pattern No. 185 is the vertical section and No. 186 is the horizontal or bed pattern. These are full size and the cutting lines are laid out on the stone from these. On some stones in complicated work as many as a dozen or more are needed.

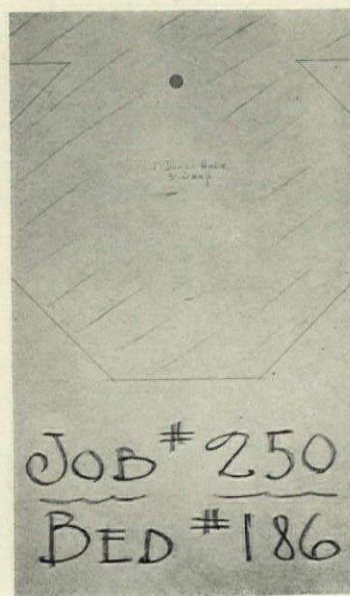
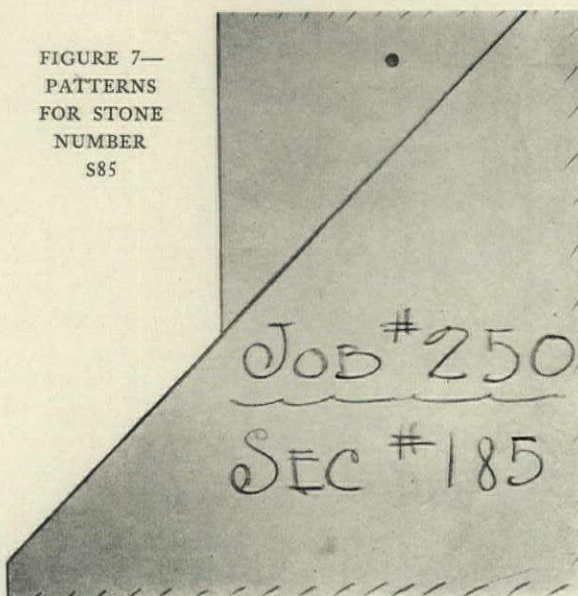
Notice that the stone of the sill course in which S85 is located is jointed for an economical manufacture, for had vertical joints been made in the center of all the stones like No. 85 instead of one at each side, the sills could not have been planed by machine but would have to be cut by hand.

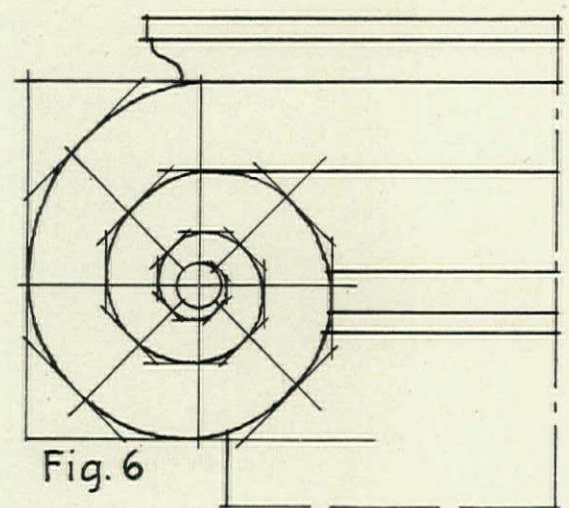
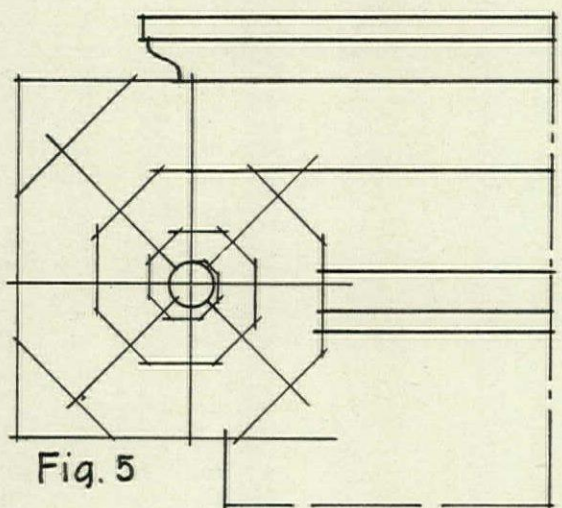
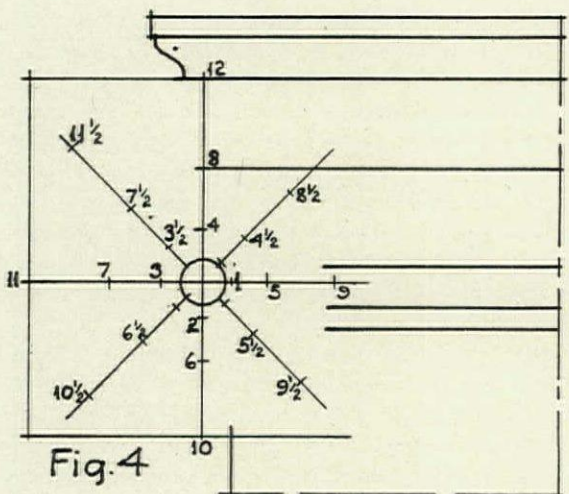
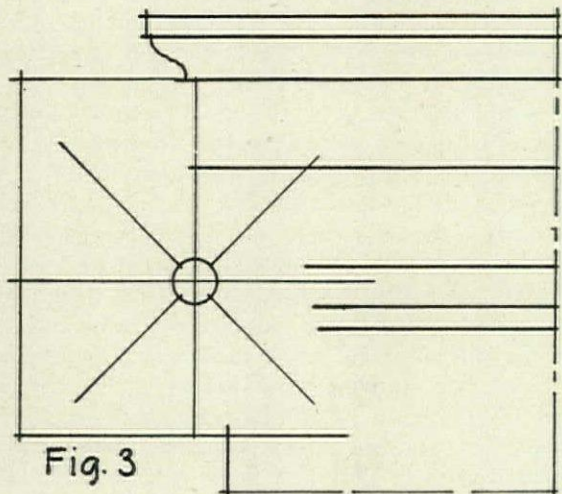
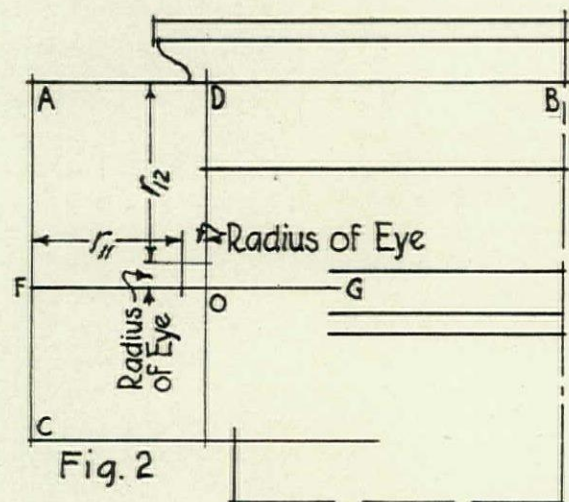
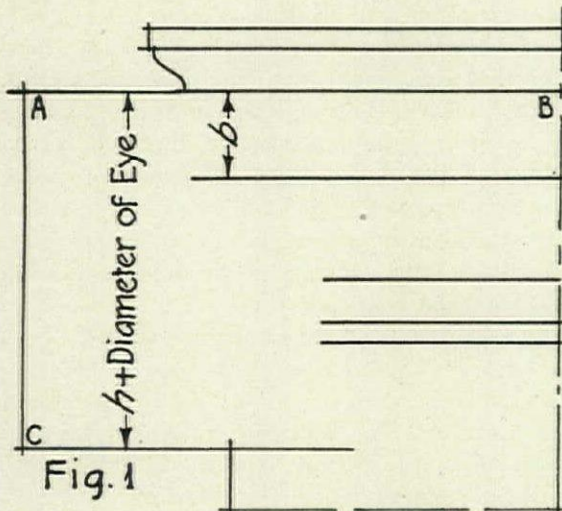
We have hastily described some of the work of the stone draftsman for the purpose of emphasizing that he has much careful work to do after the approval of the shop drawings and before the stone starts through the mill. For this reason full-size details should be furnished promptly and the shop drawings checked without delay, so there will be time to do this work. Shop drawings cannot be returned in one day and stone expected on the way the next. And now just a word about notations on corrected shop

drawings—it is this, use only yellow pencils in checking because the notes show plainly against the contrasting blue print. Corrections in red hurt the eyes, and ones in white are sometimes overlooked.

As a final word let us drop this note of advice—use your stone man, for he will always be glad to assist you with detailing and clearing up many points that cause confusion in estimating and producing good work.

FIGURE 7—
PATTERNS
FOR STONE
NUMBER
S85





CONSTRUCTION OF A VOLUTE BY MEANS OF THE TANGENT BOX

FIGURES 1 TO 6 FOR "THE GREEK SPIRAL"

THE GREEK SPIRAL

By Richard S. Buck, Jr.

OF THE ARCHITECTURAL DETAILS left to us by the Greeks, one of the most interesting and widely used is the Ionic volute. By the same token, it is one of the most difficult to draw satisfactorily. The Greeks, who had been using spirals for ornament since the Stone Age, drew these curves freehand; if you doubt this, look at the Sardis cap in the Metropolitan Museum of Art.

The Romans preferred not to trust the hands and eyes of their draftsmen for details so prominent as the volutes of Ionic caps, and devised a geometric scheme for laying out the volutes with compasses. This scheme has been handed down to us by the Roman Kidder, Vitruvius, and further elucidated by Vignola.* Its disadvantages are, first, that it is not readily adaptable to volutes of varying proportions,† and secondly, that in order to draw a successful volute by it, one needs a wire-drawn accuracy of drafting of a sort that is otherwise useful only for solving problems in graphic statics. (If you have ever "drawn the Orders" in school you have doubtless sweated blood over this foolish little graphical problem, and I doubt if you were a better architectural draftsman for your pains.) Then, too, a compass-drawn curve can never have the life of a freehand curve.

A mathematically trained modern is tempted to say, "Why not devise an equation for the sort of curve you want, and then plot, by points, a line that shall have at least the cold beauty of things mathematical?" As a matter of fact, this has never been done. The conditions that the volute-spiral must fit, when expressed mathematically, form a nasty problem in differential equations.

The best working scheme in general use, then, is the freehand method of the Greeks; and a long, weary method it is, too. A good spiral is no easy thing to draw under the simplest conditions; when the conditions are as many and as rigorous as those that govern the curve of the Ionic volute the difficulty, for most draftsmen, grows of all reason. The usual compromise is to go to D'Espouy for a crib.

In the present article, I propose to explain a practical method of laying out guide-lines as an aid in drawing freehand spirals. I shall then show that this method can be further developed into a scheme for plotting a volute to fit any set of conditions that will ordinarily be given.

Given: The following conditions on an Ionic volute (see figure 1)

1. The height, $h + e$, from the bottom of the spiral to the bottom of the abacus.
2. The width of the spiral band at the end of curvature, b .
3. The diameter of the eye, e **
4. The condition that the spiral shall make three complete turns between the end of curvature and the point where it touches the eye
5. The condition that the curve shall be graceful; that is,
 - (a) That the spiral shall look round
 - (b) That the band shall increase steadily in width from the eye outward to the end of curvature.
 - (c) That the spiral shall be free from bumps and depressions.
 - (d) That the curve shall not hug the rim of the eye too closely near the beginning.

Note that the breadth over-all of the capital is regulated by the placing of the volutes, not by adjustments of their form.

To construct a series of tangent straight lines boxing in the curve of the proposed volute.

Procedure by use of tables.

1. On the elevation of the capital, lay off the bottom line of the abacus, AB , and the vertical line, AC , tangent to the outside of the spiral. The latter marks the extreme width of the capital.

2. From tables I.-V, choose the spiral whose proportions are closest to that which you intend††. Note that in these tables, the value " h " is the height of the spiral less the diameter of the eye, " e "; the size of the eye can be assumed independently of the other proportions. Its diameter is usually about one-half the maximum width, o , of the spiral band.

3. On the same table multiply each of the values by the value of " h " on your proposed spiral. A 10-inch slide-rule gives ample accuracy for this process. Thus, if the height of the spiral, less the diameter of the eye, is $9\frac{3}{4}$ inches, all values are to be multiplied by 9.75.

4. On the elevation, lay off the horizontal line FG a distance down from the line AB equal to $r_{12} + \text{radius of eye}$ —(see figure 4.)

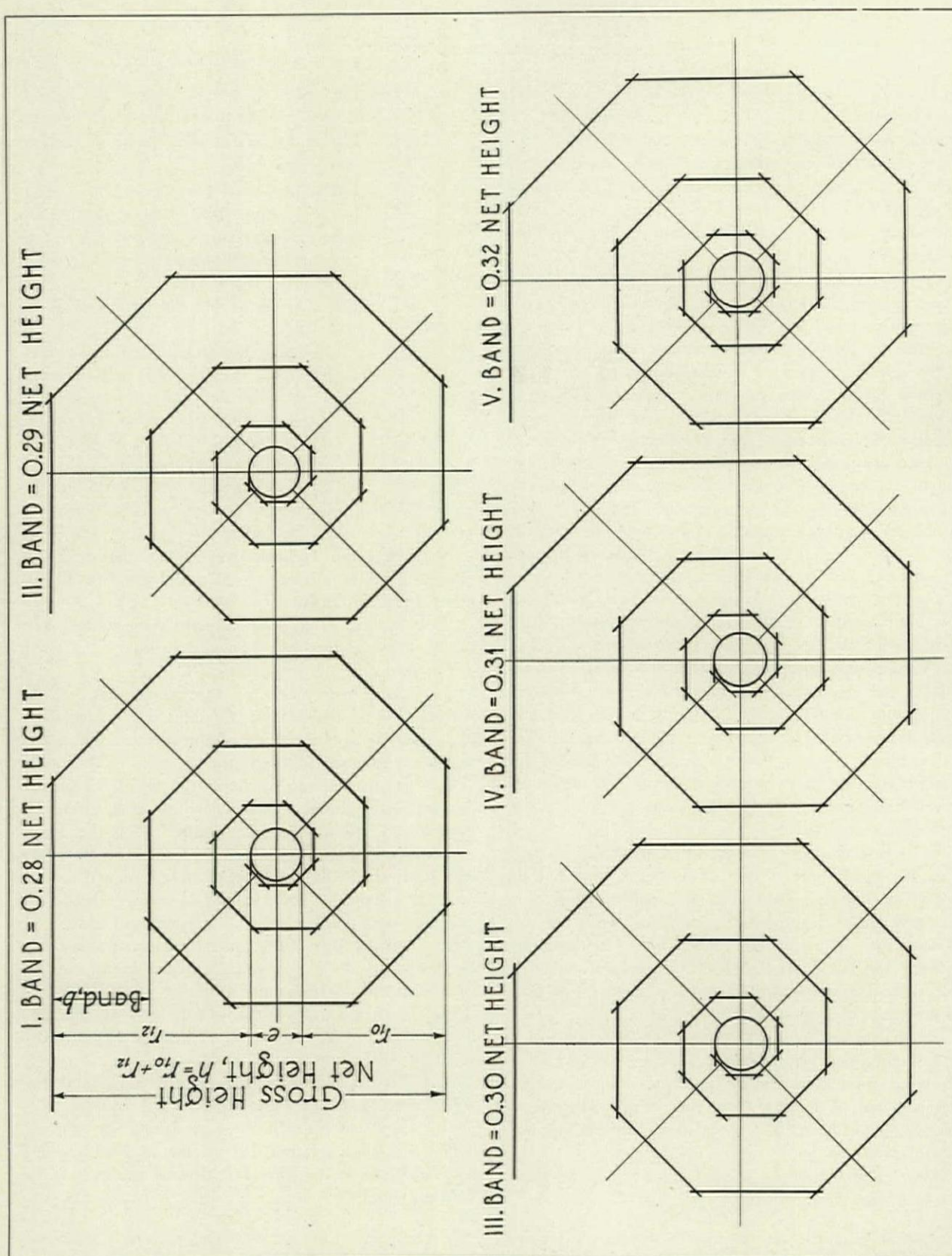
5. On the elevation, lay off the vertical line DE a distance from the line AC , toward the axis of the column equal to

*This is the method so ably discussed by Mr. Egerton Swartwout in the January, 1928, issue of "Architecture."

†The Greeks varied the proportions of their volutes noticeably. Contrast the volute of the interior columns of the Propylaea at Athens with the volute of the Temple of Athena Polias at Priene.

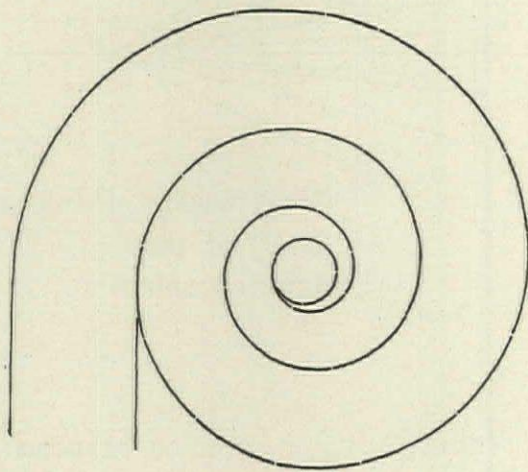
**These dimensions will be determined by general design considerations, on small-scale studies.

††The entire range of variation in the main proportions of volute spirals is slight, the variation from one spiral of our series to the next is barely perceptible.

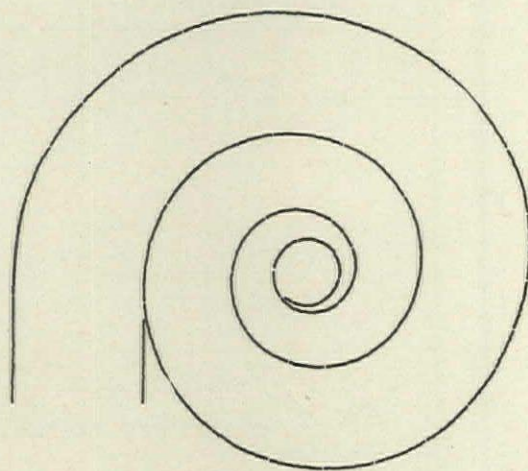


SPIRAL BOXES FOR DRAWING SPIRALS, PLOTTED FROM TABLES I-V

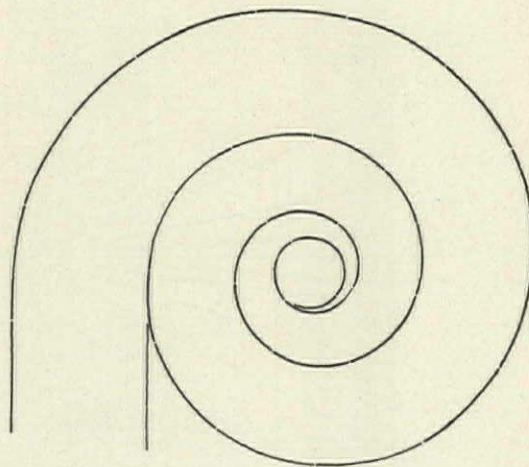
I. BAND = 0.28 NET HEIGHT



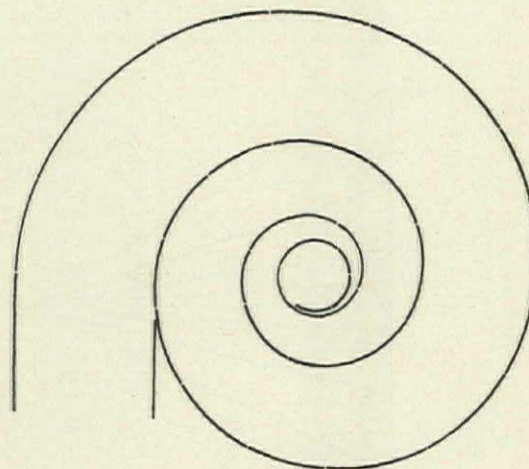
II. BAND = 0.29 NET HEIGHT



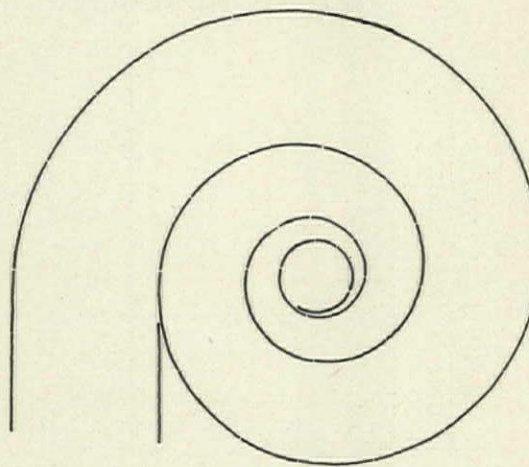
III. BAND = 0.30 NET HEIGHT



IV. BAND = 0.31 NET HEIGHT



V. BAND = 0.32 NET HEIGHT



VOLUTES DRAWN IN SPIRAL BOXES SHOWN OPPOSITE

AUXILIARY DIAGRAM TO CONSTRUCT SPIRAL OF ANY HEIGHT

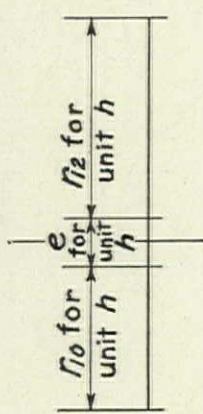


Fig. 7

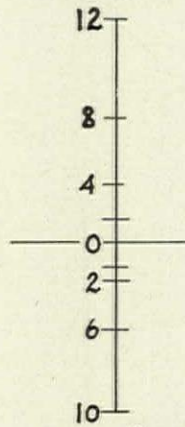


Fig. 8

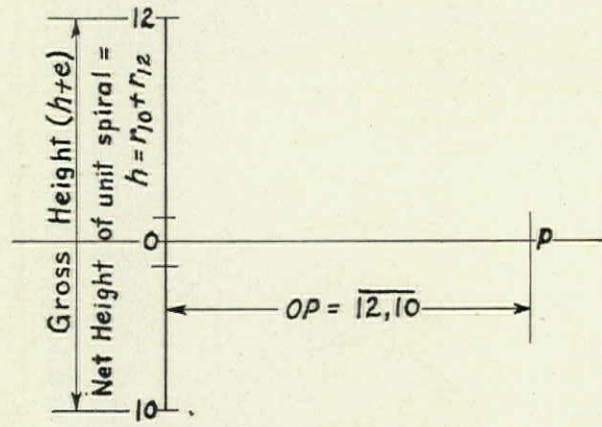


Fig. 9

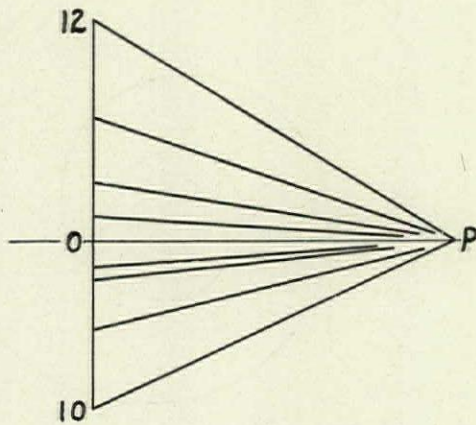


Fig. 10

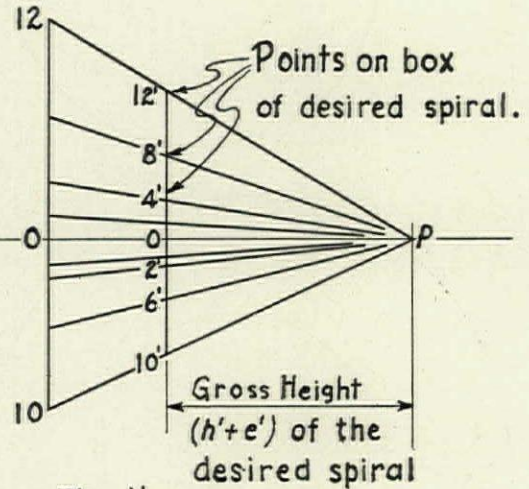
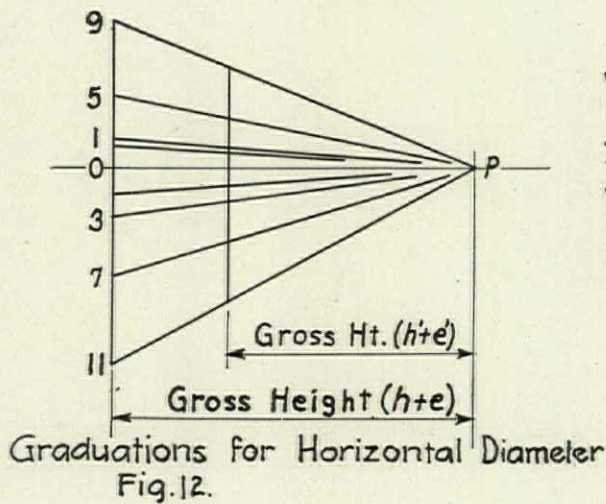


Fig. 11



Values e, r_{12}, r_{10} etc. correspond to a value of h equal to unity. Values e', r'_{12}, r'_{10} etc. correspond to the value of h desired.

THE GREEK SPIRAL

r_{11} + radius of eye—(see figure 4.)

Then, FG and DE meet at O , the center of the eye (Figure 2)

6. Draw the eye, and through the center O draw lines at 45° (Figure 3); you now have four diameters of the eye, extended.

7. On the four diameters lay off, outward from the circumference of the eye, the distances $r_{1/2}$, r_1 , $r_{1\frac{1}{2}}$, r_2 , etc., as shown in figure 4, giving the points $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, etc.

8. Through each of these points draw a line normal to the diameter, giving a spiral box as shown in figure 5.

9. Draw the spiral, tangent to all the sides of the spiral box. The points of tangency are undetermined; they are *not* the plotted points $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, etc.

To avoid the use of the slide-rule in laying out the spiral box, we can construct a graphic diagram. Tables I to V are figured for a spiral of unit net height. This unit we can take as any quantity which we can easily divide by means of a scale into tenths and hundredths. If you have an engineer's scale, 10" will be convenient.

To construct a diagram for a spiral of the proportions you have chosen, turn to the proper table, and then

- (1) Along a vertical line, lay off the r_{12} of that spiral from the table in terms of the unit that you have chosen, (10")-12H in figure 7
- (2) Below this, lay off the diameter of the eye, HI^{***} , in the same terms.
- (3) Below this, lay off r_2 , r_6 , and r_{10} , in the same terms, each measured downward from I .
- (4) Likewise, lay off r_4 and r_8 , each measured upward from H (r_{12} brings us back to the initial point 12). (Fig. 8).
- (5) Through a point O , midway between H and I , draw a horizontal line; on this lay off the distance OP equal to the line 12, 10, which is the gross height of the unit spiral. (Fig. 9).
- (6) Draw the lines P_{12} , P_8 , P_4 , P_H , P_I , etc. (Fig. 10).
- (7) Along P_O , lay off P_O' equal to the gross height of your proposed spiral. Through O' draw a vertical line cutting P_{12} at 12', P_8 at 8', etc. then 12', 8', 4', H' , I' , 2', 6', and 10' all have the same spacing along 12', 10' that they should have on the vertical diameter of your proposed spiral. (Fig. 11).

Draw similar diagrams (as in Fig. 12) for the graduations of the horizontal and oblique diameters. Note that in every case the distance OP is equal to the gross height of the unit spiral, and $O'P$ is equal to

***The diameter of the eye on the unit spiral is found by proportion:

$$\frac{\text{Diameter of eye, unit spiral, } e}{\text{Diameter of eye, spiral on drawing}} = \frac{\text{net height, unit spiral, } h}{\text{net height, spiral on drawing}}$$

the gross height of the proposed spiral, just as in the first case. Once such a set of diagrams has been constructed at reasonable scale, it can be used for constructing spirals of any size.

MATHEMATICAL THEORY OF THE TANGENT BOX

It is assumed that the plotting points— $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, etc. lie along a spiral whose polar equation (in general, $r=f(\theta)$) is of simple form. This spiral is not the volute curve itself—it is merely a device for plotting the tangents to the volute.

The pole is assumed to be at the center of the eye.

The initial line ($\theta=0$) extends vertically upward from the center of the eye.

On a left-hand volute like the one shown, positive values of θ are measured clockwise.

Positive values of r are measured outward from the rim of the eye; at the rim, then, $r=0$. (This notation is a matter of convenience).

The unit value of θ is 90° ; that is, at the end of one turn, $\theta=4$. The value of r corresponding to any value of θ will here be given with that value subscript: e.g. r_4 =value of r when $\theta=4$.

We assume arbitrarily that the equation of the spiral is of the form, $r=m\theta+n\theta^2+l\theta^{\frac{1}{2}}$.

A curve of this sort may be termed a spiral of mixed type; by adjusting the coefficients m , n , and l , it may be modified to suit a variety of conditions:

The equation

$$r=m\theta$$

gives a spiral (Fig. 14) whose curving band increases in width for the first turn, and beyond that section remains uniform.

The equation

$$r=n\theta^2$$

gives a spiral (Fig. 15) whose curving band increases in width continuously; for the first quarter turn, however, it is excessively narrow; that is, the inner part of the spiral hugs the rim of the eye too closely.

The equation

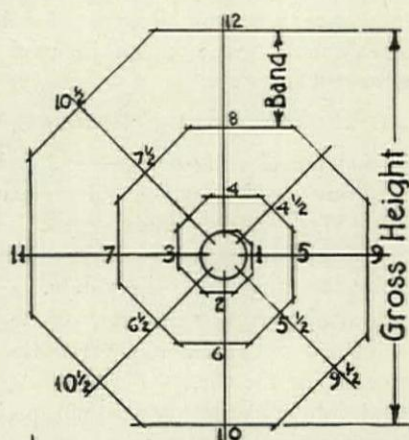
$$r=l\theta^{\frac{1}{2}}$$

gives a spiral (Fig. 13) whose band increases rapidly in width for the first turn, and then diminishes. The diminution is rapid at first and then slows gradually, until the width of the band becomes almost uniform.

Each of the terms of our proposed equation impresses some of its own character on the curve. The term $n\theta^2$ provides the increase in band width that should characterize the volute; the term $m\theta$ prevents the increase from being excessive, while the term $l\theta^{\frac{1}{2}}$ provides width for the band near the beginning of the curve.

The constants m , n , and l , in equation (1) are determined by certain of the conditions which we gave at the beginning of this article, and which can be expressed as algebraic equations.

From the assumed form of equation (1), it follows that



LOCATION OF SIDES OF SPIRAL BOXES

Net Height = Gross Height Minus
Diameter of Eye

θ = Serial Number of Point

r = Distance of Point from Rim
of Eye

NET HEIGHT = 1.00

No. I. - WIDTH OF BAND = 0.28

$r_{11} = .4972$ $r_{12} = .5754$

| θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r |
|----------------|-------|----------|-------|----------------|-------|----------|-------|-----------------|-------|----------|-------|-----------------|-------|----------|-------|
| $\frac{1}{2}$ | .0081 | 1 | .0177 | $1\frac{1}{2}$ | .0286 | 2 | .0408 | $2\frac{1}{2}$ | .0545 | 3 | .0695 | $3\frac{1}{2}$ | .0859 | 4 | .1037 |
| $4\frac{1}{2}$ | .1228 | 5 | .1434 | $5\frac{1}{2}$ | .1653 | 6 | .1886 | $6\frac{1}{2}$ | .2132 | 7 | .2393 | $7\frac{1}{2}$ | .2667 | 8 | .2955 |
| $8\frac{1}{2}$ | .3257 | 9 | .3573 | $9\frac{1}{2}$ | .3902 | 10 | .4245 | $10\frac{1}{2}$ | .4601 | 11 | .4972 | $11\frac{1}{2}$ | .5357 | 12 | .5754 |

No. II. - WIDTH OF BAND = 0.29

$r_{11} = .4970$ $r_{12} = .5786$

| θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r |
|----------------|-------|----------|-------|----------------|-------|----------|-------|-----------------|-------|----------|-------|-----------------|-------|----------|-------|
| $\frac{1}{2}$ | .0067 | 1 | .0148 | $1\frac{1}{2}$ | .0245 | 2 | .0357 | $2\frac{1}{2}$ | .0485 | 3 | .0627 | $3\frac{1}{2}$ | .0784 | 4 | .0957 |
| $4\frac{1}{2}$ | .1144 | 5 | .1348 | $5\frac{1}{2}$ | .1566 | 6 | .1800 | $6\frac{1}{2}$ | .2050 | 7 | .2313 | $7\frac{1}{2}$ | .2592 | 8 | .2866 |
| $8\frac{1}{2}$ | .3196 | 9 | .3520 | $9\frac{1}{2}$ | .3859 | 10 | .4215 | $10\frac{1}{2}$ | .4586 | 11 | .4970 | $11\frac{1}{2}$ | .5370 | 12 | .5786 |

No. III. - WIDTH OF BAND = 0.30

$r_{11} = .4967$ $r_{12} = .5816$

| θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r |
|----------------|-------|----------|-------|----------------|-------|----------|-------|-----------------|-------|----------|-------|-----------------|-------|----------|-------|
| $\frac{1}{2}$ | .0068 | 1 | .0140 | $1\frac{1}{2}$ | .0225 | 2 | .0326 | $2\frac{1}{2}$ | .0442 | 3 | .0576 | $3\frac{1}{2}$ | .0725 | 4 | .0890 |
| $4\frac{1}{2}$ | .1073 | 5 | .1272 | $5\frac{1}{2}$ | .1487 | 6 | .1720 | $6\frac{1}{2}$ | .1969 | 7 | .2234 | $7\frac{1}{2}$ | .2516 | 8 | .2816 |
| $8\frac{1}{2}$ | .3132 | 9 | .3465 | $9\frac{1}{2}$ | .3815 | 10 | .4183 | $10\frac{1}{2}$ | .4566 | 11 | .4967 | $11\frac{1}{2}$ | .5383 | 12 | .5816 |

No. IV. - WIDTH OF BAND = 0.31

$r_{11} = .4965$ $r_{12} = .5848$

| θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r |
|----------------|-------|----------|-------|----------------|-------|----------|-------|-----------------|-------|----------|-------|-----------------|-------|----------|-------|
| $\frac{1}{2}$ | .0077 | 1 | .0138 | $1\frac{1}{2}$ | .0212 | 2 | .0300 | $2\frac{1}{2}$ | .0406 | 3 | .0529 | $3\frac{1}{2}$ | .0670 | 4 | .0828 |
| $4\frac{1}{2}$ | .1004 | 5 | .1199 | $5\frac{1}{2}$ | .1411 | 6 | .1642 | $6\frac{1}{2}$ | .1890 | 7 | .2157 | $7\frac{1}{2}$ | .2443 | 8 | .2748 |
| $8\frac{1}{2}$ | .3071 | 9 | .3412 | $9\frac{1}{2}$ | .3772 | 10 | .4152 | $10\frac{1}{2}$ | .4550 | 11 | .4965 | $11\frac{1}{2}$ | .5398 | 12 | .5848 |

No. V. - WIDTH OF BAND = 0.32

$r_{11} = .4963$ $r_{12} = .5882$

| θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r | θ | r |
|----------------|-------|----------|-------|----------------|-------|----------|-------|-----------------|-------|----------|-------|-----------------|-------|----------|-------|
| $\frac{1}{2}$ | .0086 | 1 | .0136 | $1\frac{1}{2}$ | .0198 | 2 | .0275 | $2\frac{1}{2}$ | .0370 | 3 | .0483 | $3\frac{1}{2}$ | .0615 | 4 | .0766 |
| $4\frac{1}{2}$ | .0936 | 5 | .1125 | $5\frac{1}{2}$ | .1335 | 6 | .1564 | $6\frac{1}{2}$ | .1813 | 7 | .2082 | $7\frac{1}{2}$ | .2371 | 8 | .2682 |
| $8\frac{1}{2}$ | .3011 | 9 | .3360 | $9\frac{1}{2}$ | .3730 | 10 | .4121 | $10\frac{1}{2}$ | .4532 | 11 | .4963 | $11\frac{1}{2}$ | .5413 | 12 | .5882 |

TABLES I TO V FOR PLOTTING SPIRAL BOXES

THE GREEK SPIRAL

SPIRAL No 1

Net Height, $h = r_0 + r_2 = 1.0000$
 Width of Band, $b = r_2 - r_0 = 0.2800$
 Formula: $r = m\theta + n\theta^2$
 $0.102041h = 0.102041$ $-0.0051020h = -0.0051020$
 $-0.311224b = -0.088145$ $0.028061b = 0.0078571$
 $m = 0.014898$ $n = 0.0027551$

| θ | $\frac{1}{2}$ | 1 | $1\frac{1}{2}$ | 2 | $2\frac{1}{2}$ | 3 | $3\frac{1}{2}$ | 4 |
|-------------|----------------|-------|----------------|-------|-----------------|-------|-----------------|-------|
| $m\theta$ | .0074 | .0149 | .0224 | .0298 | .0373 | .0447 | .0522 | .0596 |
| $n\theta^2$ | .0007 | .0028 | .0062 | .0110 | .0172 | .0248 | .0337 | .0441 |
| r | .0081 | .0177 | .0286 | .0408 | .0545 | .0695 | .0859 | .1037 |
| θ | $4\frac{1}{2}$ | 5 | $5\frac{1}{2}$ | 6 | $6\frac{1}{2}$ | 7 | $7\frac{1}{2}$ | 8 |
| $m\theta$ | .0670 | .0745 | .0819 | .0894 | .0968 | .1043 | .1117 | .1192 |
| $n\theta^2$ | .0358 | .0689 | .0834 | .0992 | .1164 | .1350 | .1550 | .1763 |
| r | .1228 | .1434 | .1652 | .1886 | .2132 | .2393 | .2667 | .2955 |
| θ | $8\frac{1}{2}$ | 9 | $9\frac{1}{2}$ | 10 | $10\frac{1}{2}$ | 11 | $11\frac{1}{2}$ | 12 |
| $m\theta$ | .1266 | .1341 | .1415 | .1490 | .1564 | .1638 | .1713 | .1788 |
| $n\theta^2$ | .1991 | .2232 | .2487 | .2755 | .3037 | .3334 | .3644 | .3966 |
| r | .3257 | .3573 | .3902 | .4245 | .4601 | .4972 | .5357 | .5755 |

TABLE 2

SPIRAL No III.

Net Height, $h = r_0 + r_2 = 1.0000$
 Width of Band, $b = r_2 - r_0 = 0.3000$; $r_1 = 0.0140$
 Formula: $r = m\theta + n\theta^2 + l\theta^3$

$0.188284h = 0.188284$ $-0.0079815h = -0.0079815$ $-0.18030h = -0.18030$
 $-0.563144b = -0.168945$ $0.036472b = 0.0109417$ $0.32667b = 0.15800$
 $-0.889662r_1 = -0.012455$ $0.02970r_1 = 0.0004129$ $0.18600r_1 = 0.002624$
 $m = 0.006885$ $n = 0.0033761$ $l = 0.00374$

| θ | $\frac{1}{2}$ | 1 | $1\frac{1}{2}$ | 2 | $2\frac{1}{2}$ | 3 | $3\frac{1}{2}$ | 4 |
|-------------|----------------|-------|----------------|-------|-----------------|-------|-----------------|-------|
| $m\theta$ | .0034 | .0069 | .0103 | .0138 | .0172 | .0207 | .0241 | .0275 |
| $n\theta^2$ | .0008 | .0034 | .0076 | .0135 | .0211 | .0304 | .0414 | .0540 |
| $l\theta^3$ | .0026 | .0097 | .0246 | .0553 | .0959 | .0665 | .0065 | .0075 |
| r | .0068 | .0140 | .0225 | .0326 | .0442 | .0576 | .0716 | .0890 |
| θ | $4\frac{1}{2}$ | 5 | $5\frac{1}{2}$ | 6 | $6\frac{1}{2}$ | 7 | $7\frac{1}{2}$ | 8 |
| $m\theta$ | .0310 | .0344 | .0379 | .0413 | .0447 | .0482 | .0516 | .0551 |
| $n\theta^2$ | .0684 | .0844 | .1020 | .0115 | .1427 | .1653 | .1898 | .2159 |
| $l\theta^3$ | .0079 | .0084 | .0088 | .0092 | .0095 | .0099 | .0102 | .0106 |
| r | .1073 | .1272 | .1487 | .1720 | .1969 | .2234 | .2516 | .2816 |
| θ | $8\frac{1}{2}$ | 9 | $9\frac{1}{2}$ | 10 | $10\frac{1}{2}$ | 11 | $11\frac{1}{2}$ | 12 |
| $m\theta$ | .0585 | .0619 | .0654 | .0689 | .0723 | .0757 | .0792 | .0826 |
| $n\theta^2$ | .2438 | .2734 | .3046 | .3376 | .3722 | .4086 | .4464 | .4861 |
| $l\theta^3$ | .0109 | .0112 | .0115 | .0118 | .0121 | .0124 | .0127 | .0129 |
| r | .3132 | .3465 | .3815 | .4185 | .4566 | .4967 | .5383 | .5816 |

TABLE 3

(2) $r_0 = 0$;

this equation starts the curve at the top of the eye.

(3) The net height, $h = r_{10} + r_{12}$, (See Fig. 4) that is

$$-10m + 10^2 n + 10^3 l = h$$

$$+12m + 12^2 n + 12^3 l = h$$

This equation makes the first three turns of the volute fit in the desired height.

The width of the band at the end of curvature, $b = r_{12}$; (See Fig. 4) that is

$$(4) \quad b = 12m + 12^2 n + \sqrt{12}l$$

$$- 8m - 8^2 n + \sqrt{8}l$$

$$(5) \quad r_1 = 1m + 1^2 n + \sqrt{1}l = m + n + l$$

The value of r_1 is chosen; it is made just large enough to keep the spiral clear of the eye near the start. The choice of this value is a matter of design.

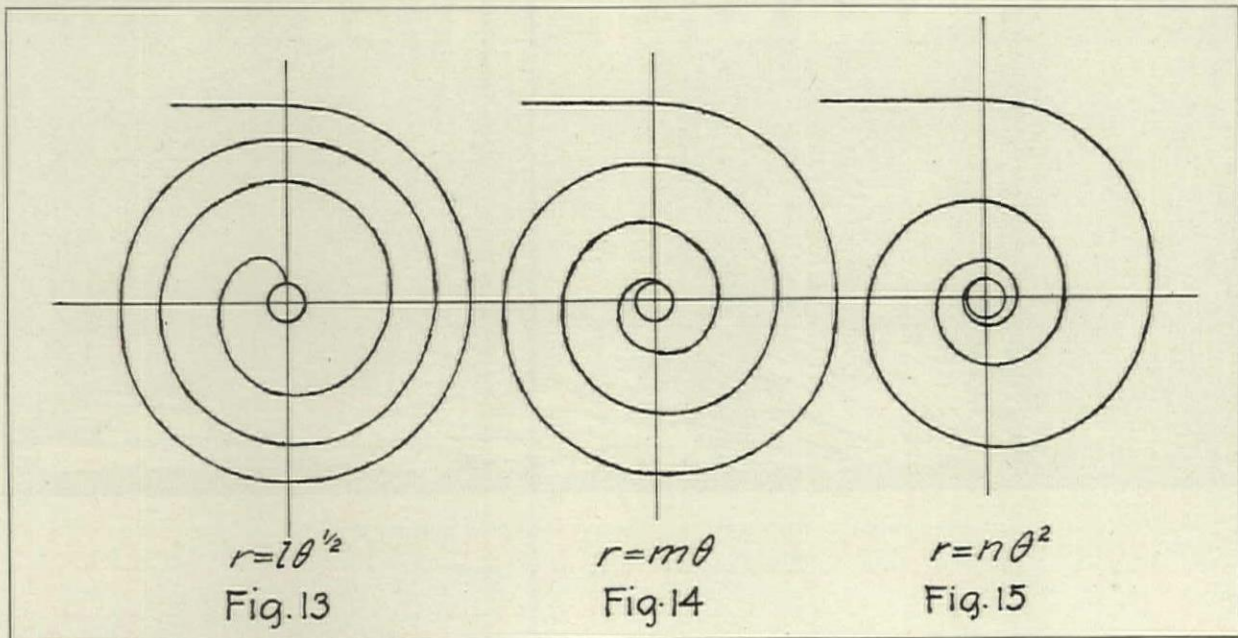
The mathematical form of the equation insures that the spiral shall look round.

These three independent equations, solved simultaneously, give us the values of the constants m , n , and l , in terms of the assumed dimensions, h , b , and r_1 , and numerical coefficients.

These equations are

$$(6) \quad m = 0.188284 h - 0.56314 b - 0.88966 r_1$$

$$(7) \quad n = 0.0079815 h + 0.036472 b + 0.02970 r_1$$



PENCIL POINTS

$$(8) \quad l = 0.180303 h + 0.52667 b + 1.8600 r_1$$

With the aid of these equations, then, you can assume the following dimensions of your volute independently.

Height, h

Width of band, b

Diameter of eye

Distance of point No. 1 from rim of eye, r_1

There are, however, certain limitations on the choice. The value r_1 should be about one-fiftieth the net height of the spiral from the *bottom of the band*, that is

$$r_1 = 0.02 (h - b) = 0.02 (r_8 + r_{10})$$

If we assume this value, spirals of good shape can be plotted where the band b is relatively wide, (up to $0.32 h$); if, however,

$$r_1 = 0.02 (h - b), \\ \text{and } b = 0.2924h, \\ \text{then } l = 0.$$

For lower values of b , l then becomes negative, and the curve does not work. Accordingly, we let r_1 take care of itself (in spiral of this type it does not tend to be too small) assume only h , b , and the diameter of the eye. Then we assume that the curve is of the form,

$$(9) \quad r = m\theta + n\theta^2$$

By the same methods as before, we find

$$(10) \quad m = 0.102041h - 0.311224b$$

$$(11) \quad n = 0.0051020h + 0.028061b$$

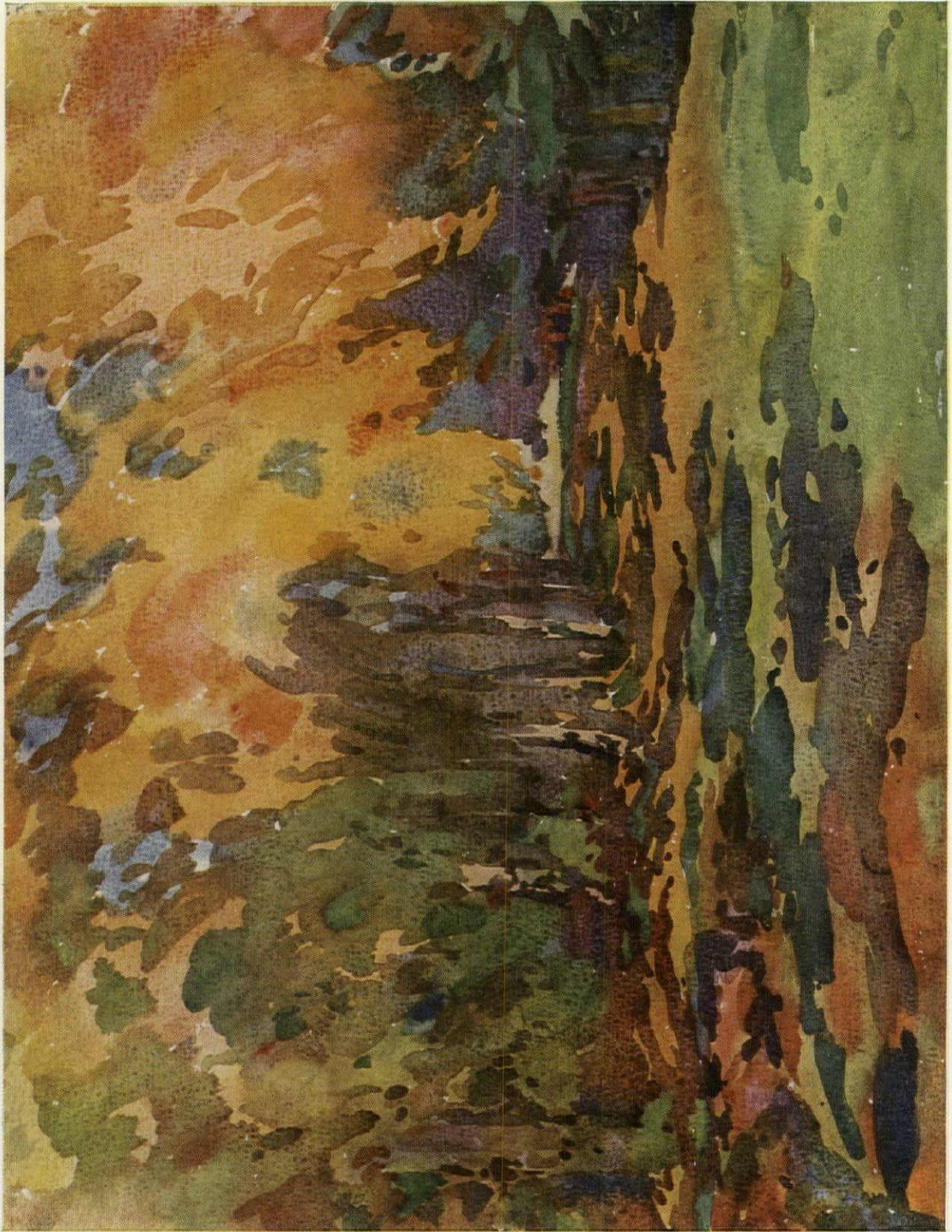
The method of figuring these spirals by these two sets of formulas is shown in tables 2 and 3. Of the spirals in table 1, Nos. I and II are based on equations (10) and (11), and the rest on equations (6), (7), and (8).



FROM A WOODCUT BY ERNEST THORNE THOMPSON
"THE GREEK REVIVAL IN MICHIGAN"

PENCIL POINTS SERIES of COLOR PLATES

In this plate as well as on the other color plate of this issue we have reproduced a water color sketch by Camille Étienne Grapin whose work is the subject of the leading article in this issue. This drawing is notable for the free use of color and although it is a little indefinite as to form it succeeds in conveying the impression of autumn foliage in an admirable way. The color was applied from a full brush and was worked wet with the result that there is hardly a square quarter of an inch of it without gradation both in color and intensity. The student of rendering can learn much from this plate about the production of pleasing color harmonies. The original measured 12" x 9½" and was drawn on egg-shell paper.



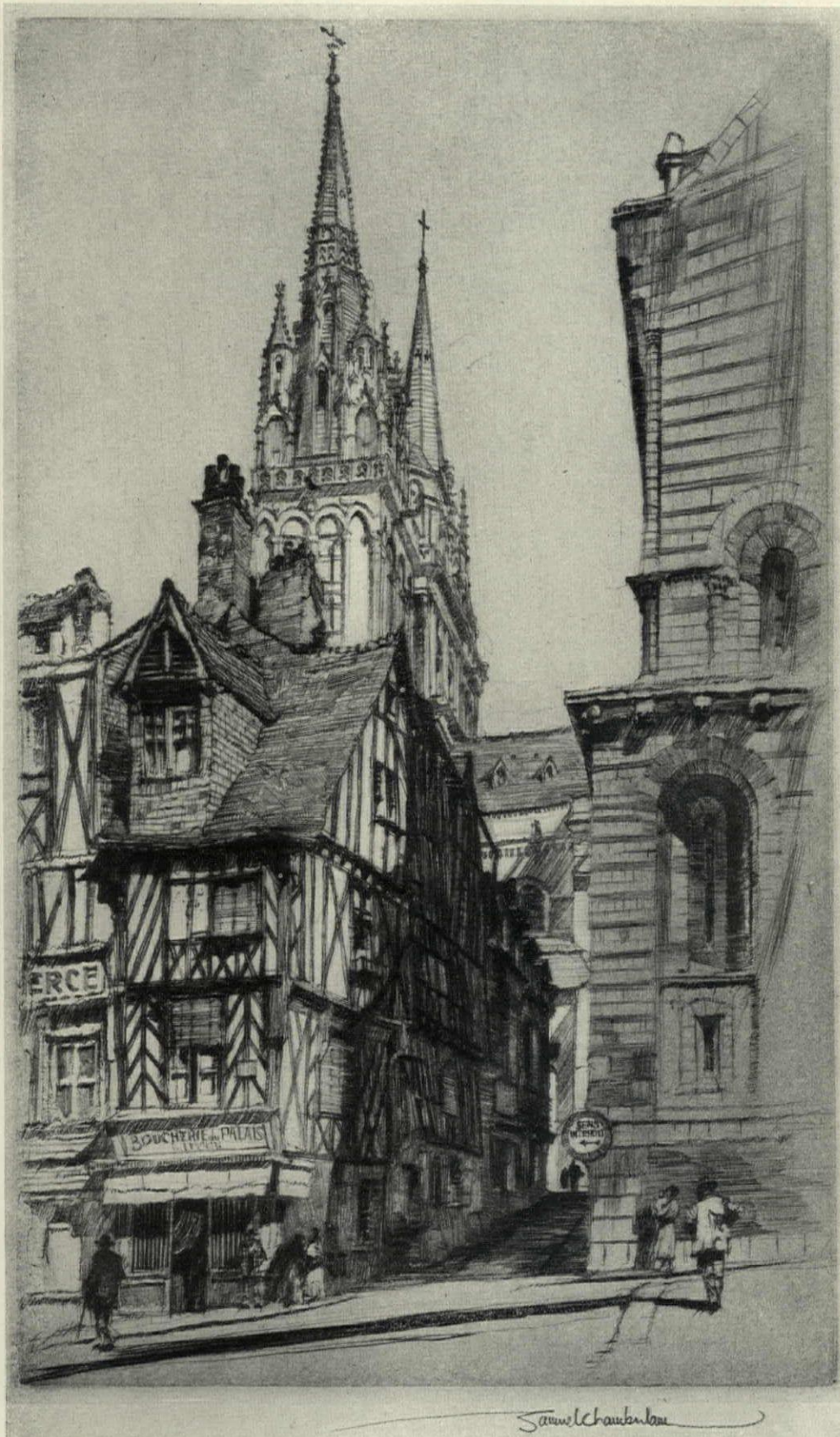
AUTUMN LANDSCAPE, BURGUNDY
WATER COLOR BY CAMILLE ETIENNE GRAPIN



EGLISE ST. PIERRE, AVIGNON
WATER COLOR BY CAMILLE ETIENNE GRAPIN

PENCIL POINTS SERIES of COLOR PLATES

The original of this sketch by Camille Étienne Grapin measured 9¼" x 13" and was drawn on a sheet of plain white, smooth, water-color paper. Notice that the buildings in the foreground at the left were sketched in with a soft carbon pencil, while the church itself was lightly drawn with a red pencil before the color was applied. While this sketch is not, in the accepted sense, an architectural rendering it will repay study by renderers of the way in which the color is used to gain atmospheric perspective and to concentrate interest on the principal element of the composition. Both this and its companion in this issue should also be of help to the student of outdoor sketching with water colors.



Courtesy Goodspeed's

FROM THE DRY POINT BY SAMUEL CHAMBERLAIN
CATHEDRAL SPIRES, ANGERS

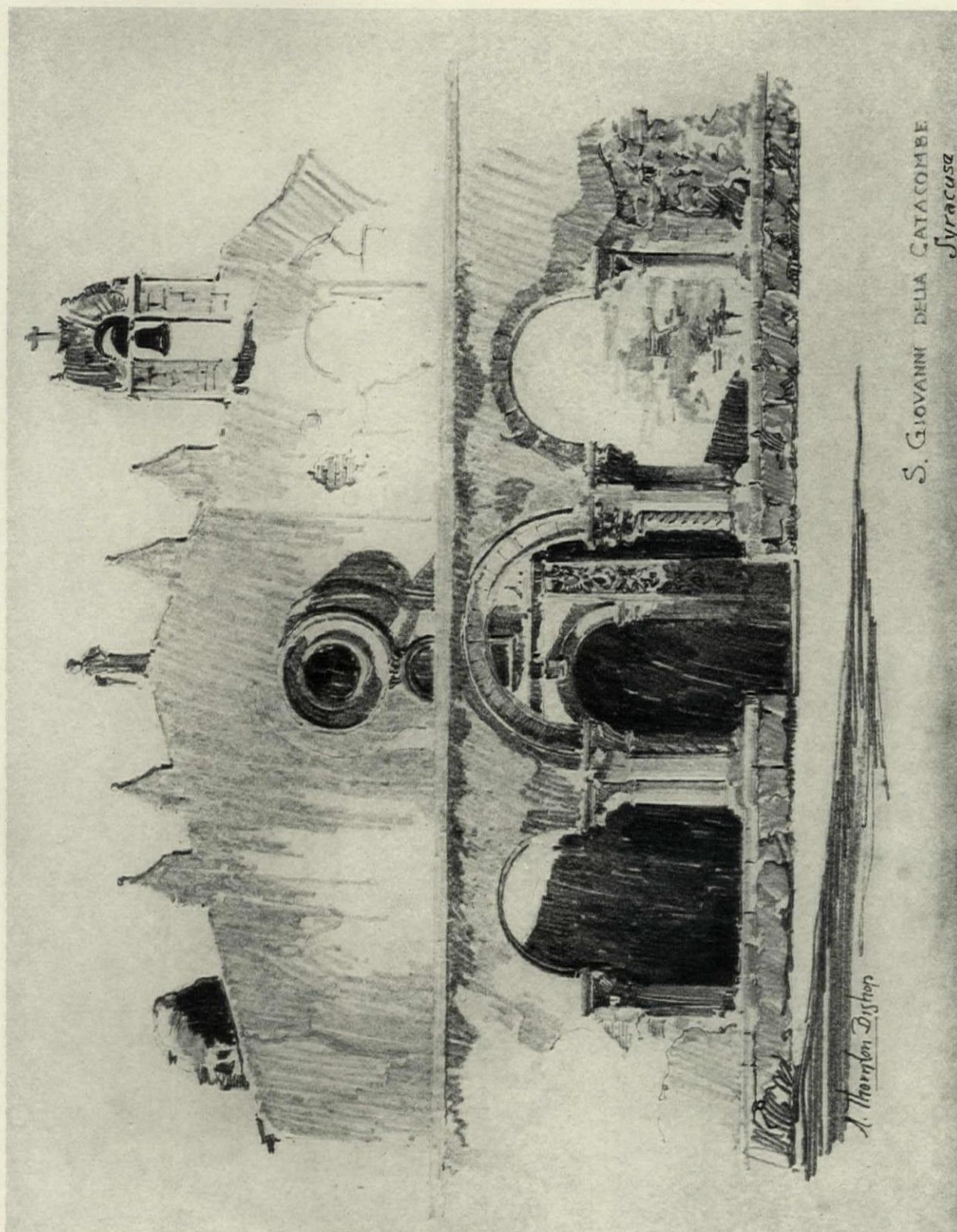
PENCIL POINTS

PLATE XIII

VOLUME IX

NUMBER 4

We have reproduced here a recent drypoint by Samuel Chamberlain, who is still abroad recording on copper, zinc, and stone his impressions of picturesque European architecture. The present example was done on copper and measured 5½" x 9". It was printed in a rich warm ink.



S. GIOVANNI DELLA CATACOMBE.
Syracusa

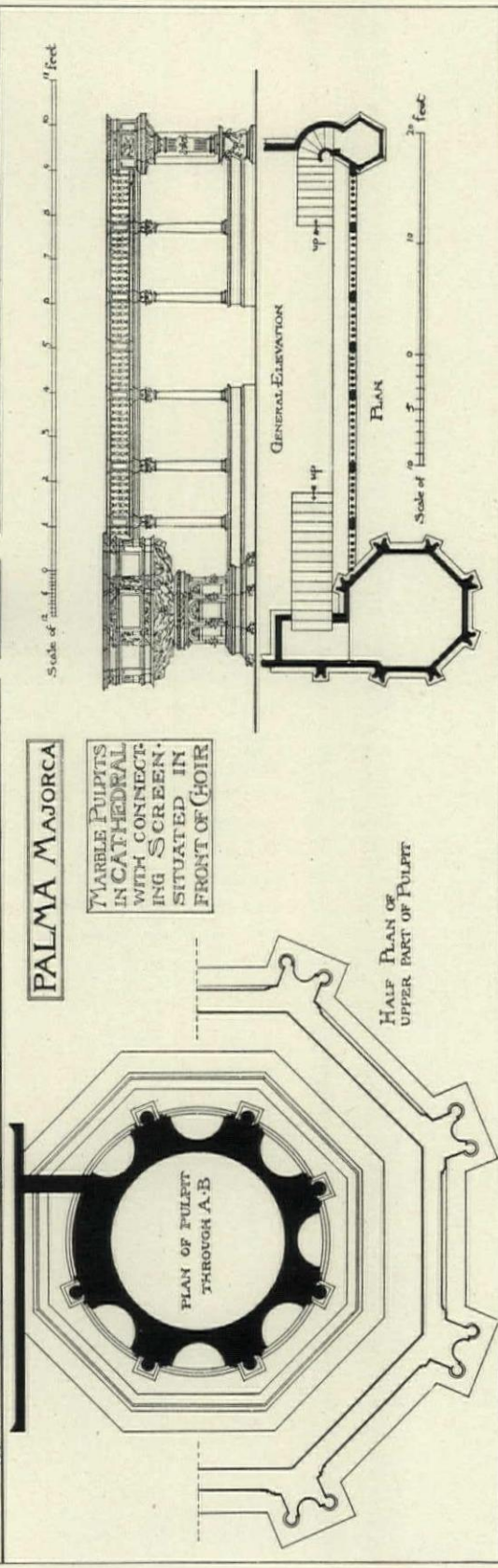
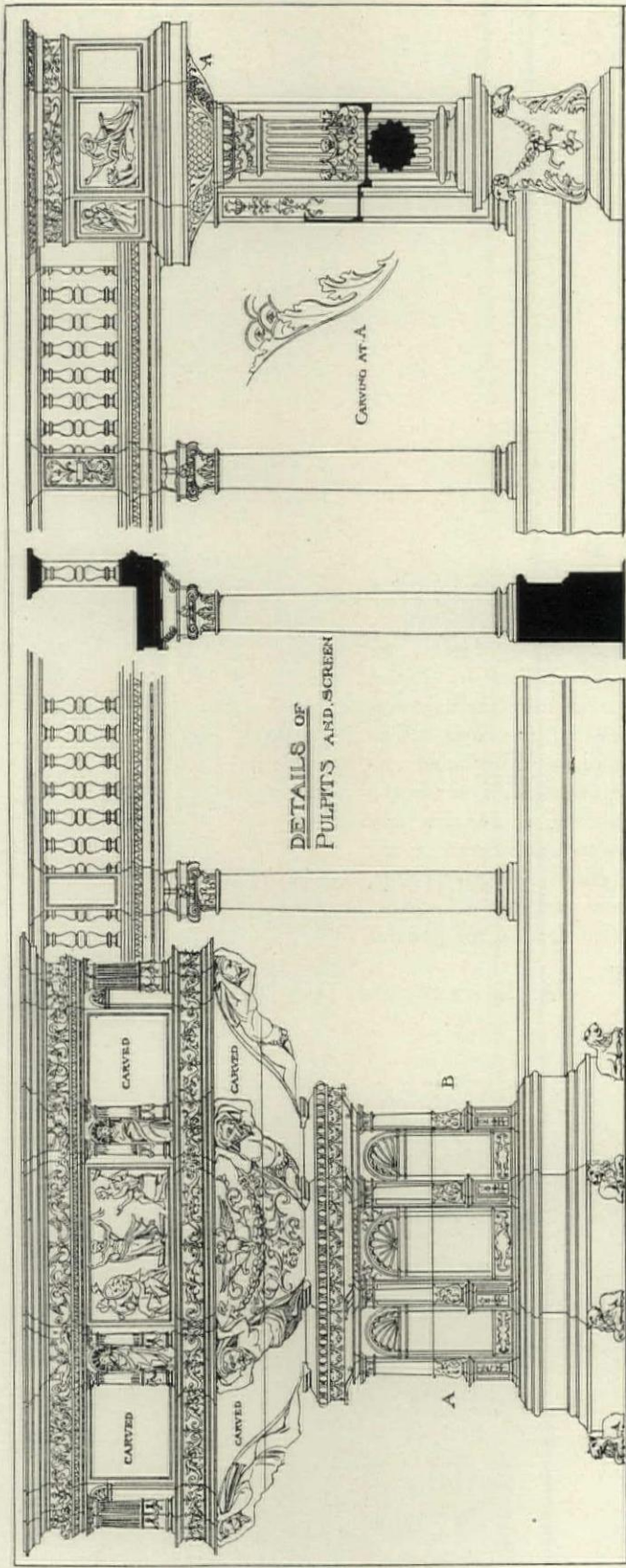
FROM A PENCIL SKETCH BY A. THORNTON BISHOP
CHURCH OF S. GIOVANNI DELLA CATACOMBE, SYRACUSE, SICILY

PLATE XIV

VOLUME IX

NUMBER 4

Drawn on Cameo paper with a graphite pencil, this sketch by A. Thornton Bishop furnishes a good example of the sure, crisp technique which marks all his work in this medium.



RENAISSANCE ARCHITECTURE AND ORNAMENT IN SPAIN

A PLATE FROM THE WORK BY ANDREW L. PRENTICE

PLATE XV

VOLUME IX

NUMBER 4

"These finely sculptured pulpits, or Ambos, are said to have been executed by an Italian sculptor in the year 1529, and, together with the connecting screen, form the east end of the choir. The other portions of the 'respaldo del Coro' were entrusted to Juan de Segrera, whose design for the west portal of the choir shows more Spanish than Italian influence. The sculptured subjects in the square panels around the pulpit are deeply cut, and the ornament shows great spirit.

"A small key plan is added to explain the general arrangements."

A. L. PRENTICE



TEMPERA EMULSION PAINTING BY FRANK SCHWARZ
FOR THE HOLY NAME ALTAR OF THE CHURCH OF ST. VINCENT FERRER, NEW YORK

PLATE XVI

VOLUME IX

NUMBER 4

This painting was done on wood in brilliant primary colors for the Holy Name Altar of the Church of St. Vincent Ferrer, New York. Wilfred E. Anthony was the architect for this altar; the church itself is well known as the work of the late Bertram G. Goodhue. The painting measures about four feet in length. The figures of which it is composed were drawn from studies of splendid types found in a hill town in Italy.



WHITT LINGS

RALPH ADAMS CRAM,

"The Gothic architect of America," tells the American Club in Paris to be of good cheer as to the condition of the art of architecture in this country:

"The arts of the world are suffering an eclipse. Creative music has almost ceased. Painting has fallen back and sculpture is in almost the same condition.

"Ten years after the Civil War American architecture had reached the lowest depths of degeneration. There has been no parallel to the American architecture of that period in all history.

"Today, however, it is on a higher level than that of any other country in the world. The change for the better began with Richardson and McKim, and now there are, in ecclesiastical work alone, thirty or forty men doing excellent things."

GOLDWIN GOLDSMITH,

Professor of Architecture and head of the architectural school of the University of Kansas, speaking before the Wisconsin Chapter of the A.I.A., gives his listeners some good advice:

"You needn't resent it if architects come in from other cities to do work here.

"It is not at all detrimental if that thing happens. Perhaps other architects will be able to show you a few new ideas, and they may give you something worth looking at."

MRS. ROBERT C. MORRIS,

Of Toledo, Ohio, in an address to four hundred women of that city, points out the desirability of cultivating public interest in architecture through observation of local buildings:

"Though we may never visit Rome or Greece, there are in Toledo buildings which show the influence of ideas which live and blossom in beauty all around the world. When our eyes are upon these buildings, why not form the habit of tracing them back to their sources?"

ARCHITECTS' SMALL HOUSE SERVICE BUREAU,

In a syndicated newspaper article, advances a picturesque argument for the employment of an architect by the home-builder:

"Take for example, a porch column. Its business is to hold up the roof of the porch. It can be made of a sawn stick of timber, or even an old galvanized iron pipe, and perform its work in a practical manner. But will you be satisfied with such a column? No, not any more than you would be satisfied to see the pet canary lose its neck feathers or the favorite cat drop all of the fur from its legs. A raw, skinny neck on a canary may function, and so may the furless legs on a cat, but the eye that can stand such a sight is truly hardened.

"For the same reasons a porch column must be more than a structural thing. It must look well, and have a graceful form. As soon as we demand this of it, we must find someone who can make it pleasant to look upon. Who can do this? The carpenter, the mason or the town contractor? No. An architect and artist."

DOUGLAS HASKEL,

In a book review in the New York Herald-Tribune gives the architect a hint as to the effect of his buildings on the passers-by:

"The average city dweller has a secret contempt for the conglomeration of styles and gingerbread on the city street, which gives him a headache, so that he closes his eyes in self-protection. We don't really see our buildings; we don't care much about them. Only at night, from a distance, when the 'architecture' becomes invisible, and the logic of the masses stands forth in great simplicity, while the single decorative pattern is the crosswork of the lights, no one needs an explanation, and we are all entranced. It is then the hidden style of today shadows itself forth.

DR. S. PARKES CADMAN,

Noted preacher, answers a question in the New York Herald-Tribune as to his advocacy of better church architecture:

"A philosopher in speaking of architecture called it frozen music. Goethe corrected this saying by calling architecture speechless music. Strong, silent, changeless beauty of structure consistent with the purposes for which it is designed is not a spiritual necessity, but it is a splendid incentive to spirituality.

ELBERT PEETS,

Writing on "The Garden as a Reservoir of Time," in the magazine "Your Garden":

"Look well to the ground-plan, too, if you want to make your garden a storage-place for time, growing richer every year. A lucid formal garden, even if neglected, manages somehow to grow old gracefully and always retains a certain air of the culture it knew in its prime. At the Villa d'Este a low cypress hedge has shot up into soaring columns. It is a new rendering of the plan, but the plan is sound and the effect is good. An informal garden, never quite sure of itself, reverts easily to bucolic pasturage, where men and not cattle seem the intruders."

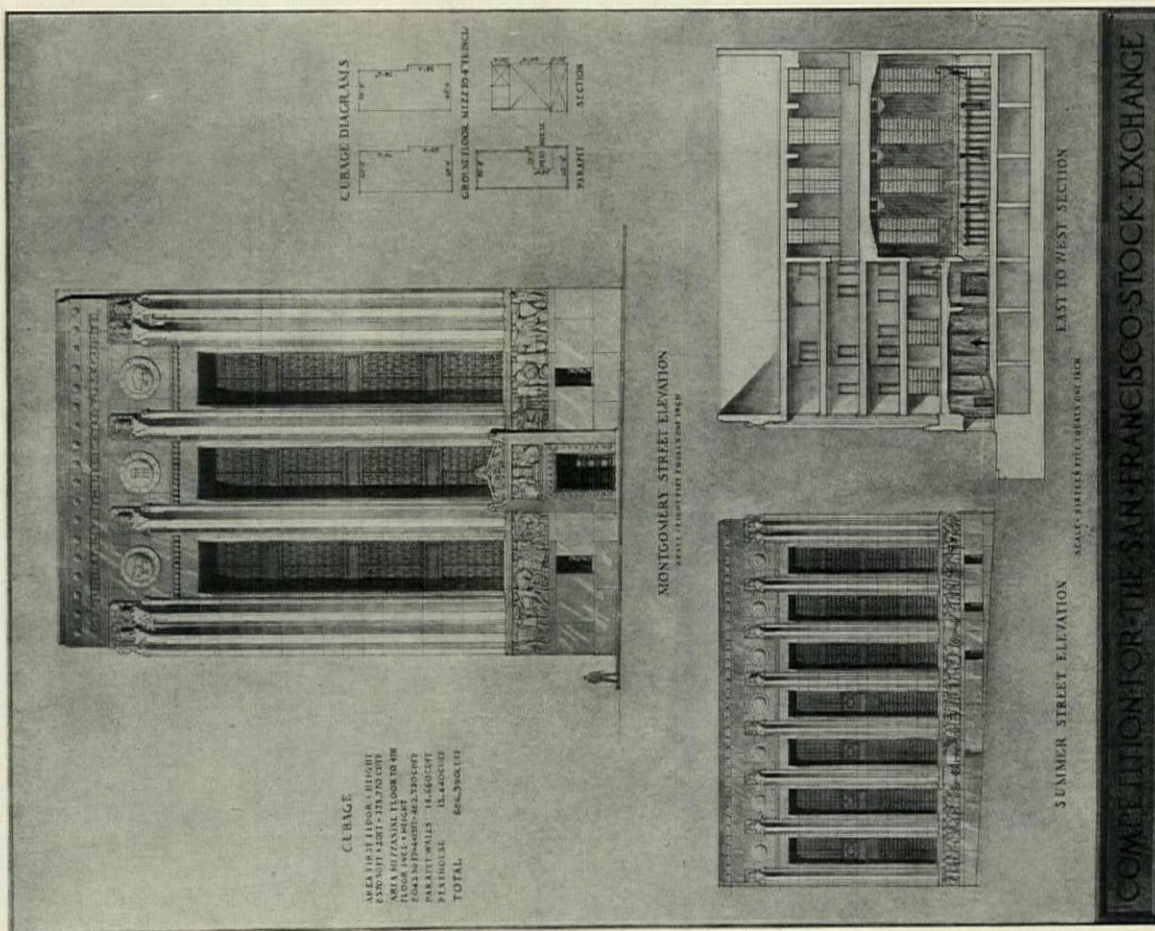
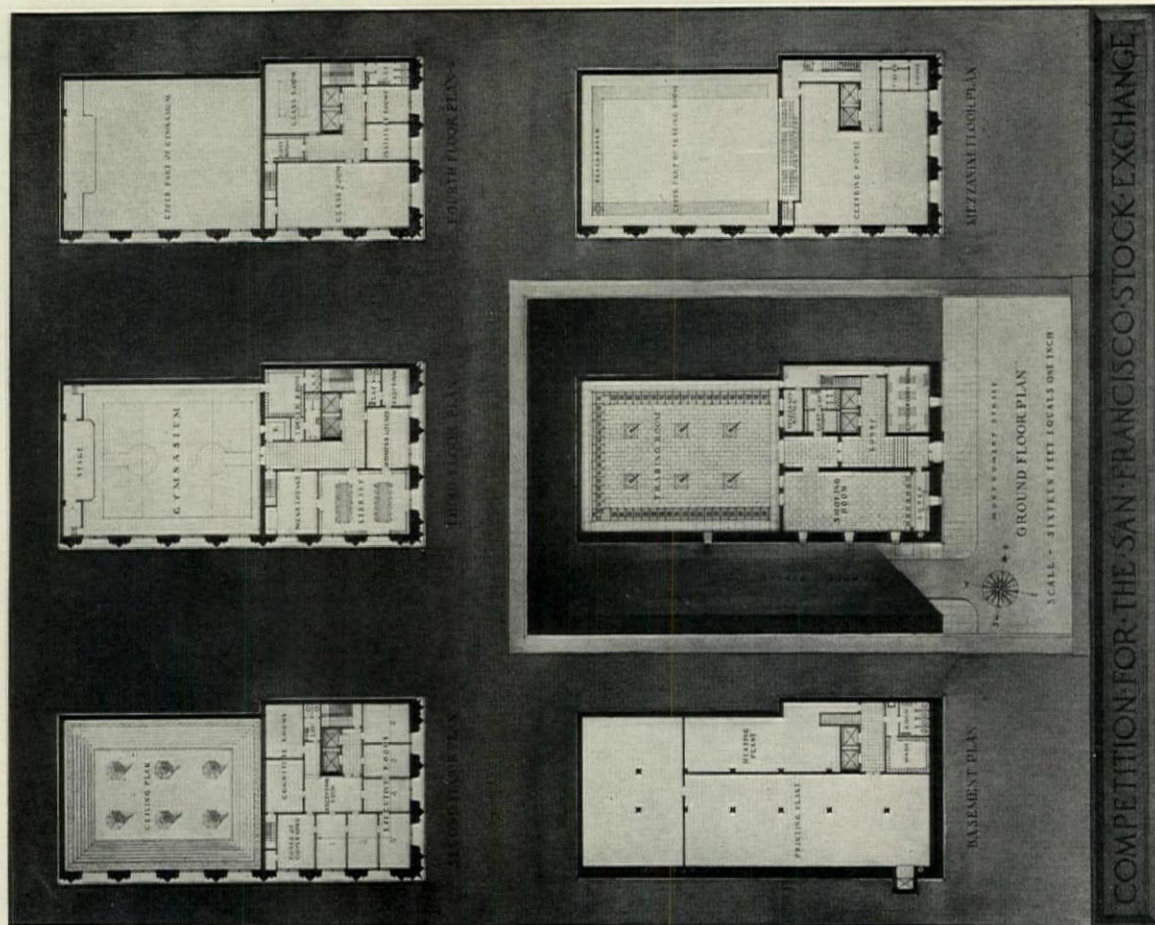
DR. W. H. P. FAUNCE,

President of Brown University, at a rocking-chair meeting of the Rhode Island Chapter of the A.I.A.:

"Because America is getting the taste, a glorious opportunity is presented to American architects. A great challenge, also, is presented. American architects must avoid the penalty of extremes in their forthcoming efforts to create a truly American style of architecture.

"Our American architects must be original, but they must not be eccentric or fantastic. Such things are not originality, they are audacity.

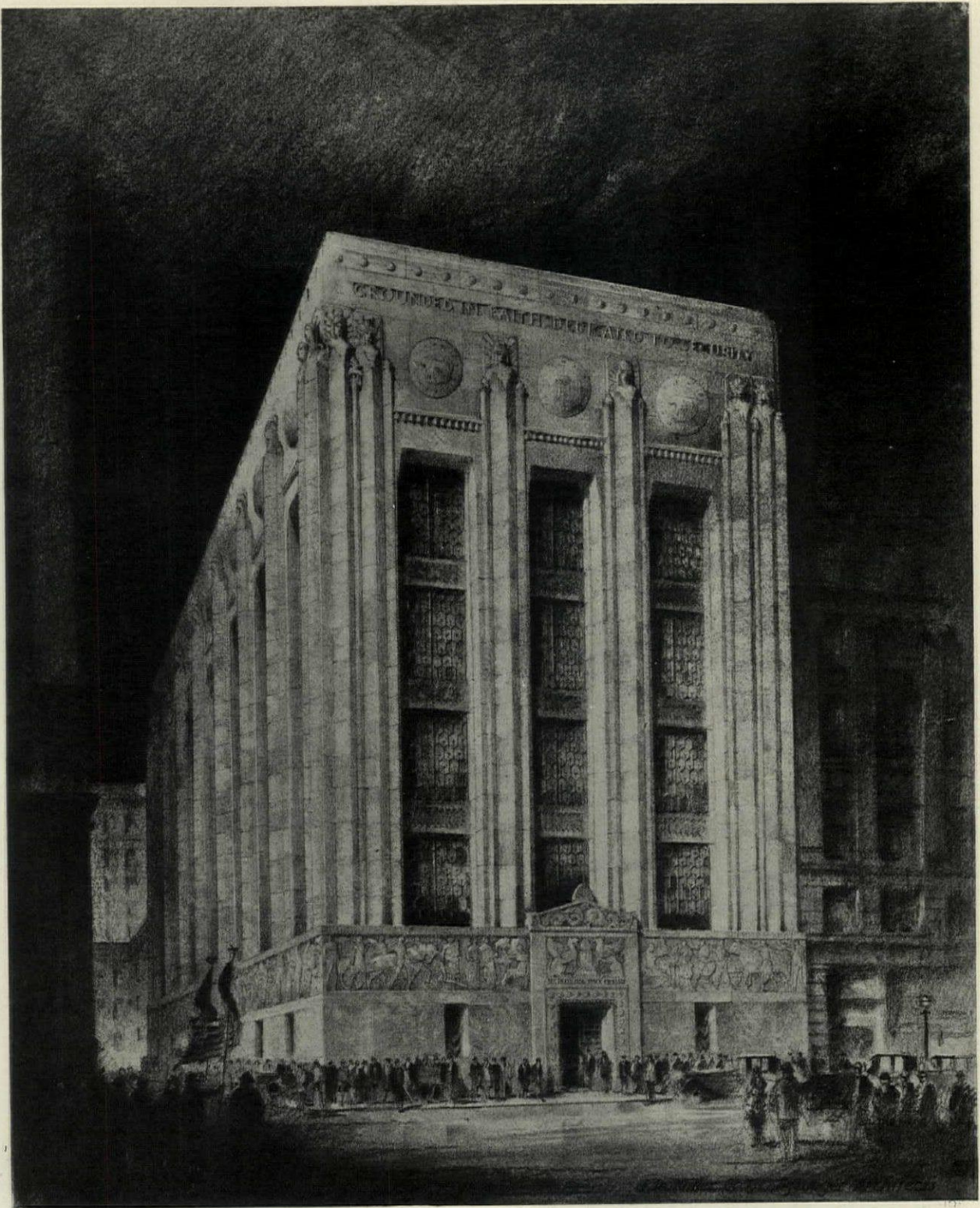
"The work of the architect is dangerously permanent. Architecture is not as the art of the musician, that is over after a song, nor as the art of the orator, which is gone at the end of a speech. Our buildings will endure for centuries; perhaps for a thousand years."



WINNING DESIGN IN THE COMPETITION FOR THE NEW SAN FRANCISCO STOCK EXCHANGE BUILDING

J. R. MILLER AND T. L. PFLUEGER, ARCHITECTS, SAN FRANCISCO

(See text on page 238)



RENDERING BY HUGH FERRISS, WINNING DESIGN FOR THE NEW SAN FRANCISCO STOCK EXCHANGE

J. R. MILLER AND T. L. PFLUEGER, ARCHITECTS, SAN FRANCISCO

(See text on page 238)

THE NEW SAN FRANCISCO STOCK EXCHANGE

MILLER AND PFLUEGER, ARCHITECTS

THE DESIGN FOR the new building for the San Francisco Stock Exchange, reproduced on the preceding pages, was selected by a competition conducted under the rulings of the American Institute of Architects.

Five San Francisco architects were invited to compete, and were paid for their time. The architects selected were Arthur Brown, Jr., Bliss and Fairweather, Weeks and Day, Lewis P. Hobart, and Miller and Pflueger. The drawings demanded were few, and of a small scale, and in addition to two rendered elevations, a most sensible thing was done in the call for a monochrome perspective. The jury was composed of two architects from Portland and Los Angeles, respectively, with one juror only to represent the Owners, San Francisco Stock Exchange. As the verdict was unanimous, it follows that the selection rested finally with the profession, and was outside and practically independent of the Owners.

As the lot is small, and the requirements of the Exchange quite definite, all the plans were in rather close accord. The layout seemed self-evident. For all that, the winning design was the most straightforward.

Of the plan, it is not necessary to go into detail, other than to point out that the two large room units are placed in the rear on top of one another, the Trading Room on the ground floor, and the Gymnasium directly over it. The smaller rooms occupy the front part of the lot with five stories, instead of two.

The winning design, with three bays on Montgomery and seven bays on Summer Street, is divided vertically into three distinct stages; a base for the first story, compound piers making one high architectural story out of the four real ones, since no masonry crosses the window heads; and finally, a very deep frieze, in reality a super-firewall, twenty feet high, the inside of which does service for a group of handball courts on the roof. The exterior fenestration, apart from very small openings in the base, consists of high vertical slots without more horizontal interruption than is necessary to define a grilled window screen from the same metal screen where it is panelled at the dado, or perforated at the sash.

Regarding the entrance framework, an earlier study of the architects' which we were privileged to see, showed a plainly bordered square-topped scheme upon which a group of heroic sculptured figures gave a truly magnificent "uplift," in a purely pictorial and not ethical sense (for the benefit of Mr. Menken) without at all suggesting, as the present scheme does, anything whatever held over from architectural antiquity.

The entire "basement" story, of which this is separate detail, is, we think, very splendidly conceived; the whole symbolic frieze incised in a field of polished black granite would, we might almost hope, cause traffic disturbances, especially if an eminent sculptor handled the subject more or less "in modo antico."

The logical opportunity to substitute diagonal corners of stone instead of the tiresome edges squared with the building has here been seized upon with most refreshing and stimulating results, because absolutely new to the eye and capable of splitting all incident light into sparkling brilliance on one side of the thin front edge, and into deepest shade on the other, with what remains parallel to the street line in a medium tone and the splayed jambs of the window openings in still another shade.

The windows differ completely from all the office windows we have ever seen. They are no longer small, dark rectangles of glass, but large, bright rectangles of grille-work. We understand that if the stonework is carried out in polished green granite, the grillage will be done in silver; that is, some type of white metal. If, however, a green polishable stone is not available, a polished pink granite may be substituted with the metal work of Pompeian green. In any event, the color scheme will be both new and entrancing.

The very deep frieze band, or head, of the building, will again strike an unusual note in its utter freedom from anything like an overhanging cornice. This, again, is in line with sheer logic.—*B. J. S. Cahill.*

PRIZES AWARDED IN COMPETITIONS FOR
WAYSIDE REFRESHMENT STAND

DESIGNS SUBMITTED in the Competitions for a Wayside Refreshment Stand were judged on March 17th and the following prizes awarded:

Group I—A Refreshment Stand.

1st Prize, \$500. to William E. Frenaye, Jr., New York; 2nd Prize, \$400. to Franklin Scott, New York; 3rd Prize, \$300. to Laurence Doubleday, Ithaca, N. Y.; 4th Prize, \$200. to James A. Britton, Boston, Mass.; 5th Prize, \$100. to Burton A. Bugbee, Ithaca, N. Y.

Group II—A Refreshment Stand and Gas Station.

1st Prize, \$500. to Henry Ives Cobb, Jr., New York; 2nd Prize, \$400. to Malcom P. Cameron, New York; 3rd Prize, \$300. to Sam F. Swales, New York; 4th Prize, \$200. to Weston Morley Geety, New York; 5th Prize, \$100. to A. S. Crapsey and Charles Leonardi, New York.

The members of the jury were A. F. Brinkerhoff, Harvey Wiley Corbett, George B. Ford, Ely Jacques Kahn, and Electus D. Litchfield.

The first prize winning drawings are reproduced on pages 240 and 241.

In commenting on Mr. Frenaye's design the judges said:

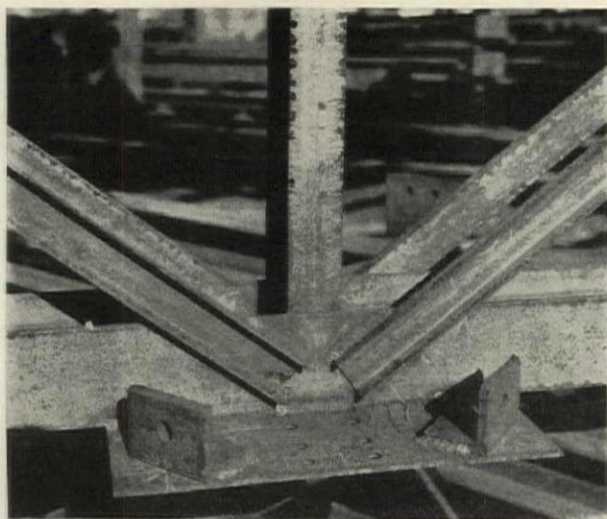
"The first prize is outstanding for its appropriateness and beauty of design. It needs no signs to show that it is a roadside stand. Its rustic character would make it seem in harmony along any roadside. The plan is delightfully simple and straightforward, and exceptionally economical as to construction. It has distinct charm, both inside and outside."

And quoting from the judges' report on Mr. Cobb's design:

"The first prize-winner stands out from all the drawings submitted in both competitions for its sheer charm. It is delightfully simple in design, excellent in proportions, and most economical in planning and construction. The interior arrangement is particularly interesting. The gas station features are extremely practical in their handling. The building is especially suitable of reproduction in series."

These competitions were the second of a series of four in a campaign initiated by Mrs. John D. Rockefeller, Jr., to improve the appearance of the wayside refreshment stands. The campaign is sponsored by The Art Center of New York and The American Civic Association of Washington, D. C., and is supported by contributions from Adolf Gobel Company.

The winning drawings in both groups are to be published and a set may be had for ten cents upon application to the *Secretary of Competitions*, The Art Center, 65 East 56th St., New York.



ARC WELDED ROOF TRUSS, 58 FT. LONG x 8 FT. DEEP
View of connection at center where two tension members and one compression member point the bottom chord.

A WELDED BUILDING

THE ILLUSTRATION above shows a portion of a truss used in the construction of the Tank Shop building now nearing completion at the West Philadelphia works of the General Electric Company. The entire structure is electrically welded instead of riveted and the success and economy with which the operation was carried out makes this job of particular interest to architects as well as to engineers. Harris and Richards of Philadelphia were the architects of the building.

The use of welding resulted in a considerable saving of steel, in a reduction of cost of the steel frame, and in the elimination of noise due to riveting. Having a total of 989 tons of steel of which 745 tons passed through the welding shop of the American Bridge Company at Trenton, N. J., this building is one of the heaviest among welded structures. It is also unique in that it exceeds all other welded buildings in the use of trusses.

The steel frame of the building consists of steel columns, made of new Carnegie beam types, between which are welded transverse trusses of the Pratt type with parallel chords in the two main aisles, but with inclined top chords in the head-house trusses. The latter trusses have spans, center to center of columns, of about 77 feet and vary in depth from 8 feet, 4 inches at one end to 6 feet, 4 inches at the other to carry the sloping roof of the head house. One main aisle has roof trusses 7 feet deep with eight panels each 9 feet, 9 inches, making the span 58 feet, 6 inches. The other truss chords in the main aisle are horizontal and as the main purlins rest on the top chords of these trusses, roof slopes for drainage are provided for by sloping the secondary purlins.

In general each column had a 1½-inch cap plate welded directly to its web and flanges, but the 1½-inch base plate was in most cases not welded to the column. Each anchor bolt was connected to each column by passing between the column flange and a short angle standing vertically with outer edges of both legs welded to the face of column flange. The anchor bolt nut bears against a plate washer resting on upper end of the angle. The device is very simple.

The bays in the main aisle were 24 feet to 25 feet while those in the head house were from 25 feet, 7 inches to 29 feet, 3 inches.

The design of roof trusses is characterized by the use of one 8-inch Carnegie beam for each top and bottom chord with flanges vertical; to the outer surfaces of which are welded channel diagonals and to inner surfaces 7-inch I-beam verticals. By thus welding diagonals and verticals directly to chord flanges the use of over 1,200 gusset plates were avoided in the trusses. Another feature is the absence of lattice bars, not only in all trusses but generally throughout the building. In only two members in the entire building were lattice bars used.

The fillet welds, of triangular cross section with base and altitude generally ⅜ inch each, are subjected to longitudinal shear, and the unit shearing stress used in the design is 3,000 pounds per linear inch for ⅜-inch fillets. In comparison with many tests made by the General Electric Company this represents a factor of safety of at least four.

At the Trenton fabricating shop five welders were generally used, each using a single operator motor generator set which consists of a generator, control panel, motor, starter and reactor assembled on a base. At the building site in West Philadelphia two welders were used each supplied with a machine brought from Trenton and made portable by mounting on simple hand trucks.

The design of this building was based in part upon tests made by Rensselaer Polytechnic Institute for the General Electric Company. The plates were of such sizes and thicknesses that at the ultimate loads the stresses in the plates were much below the elastic limit. For specimens in tension the ⅜ inch x ⅜ inch triangular fillets of varying lengths gave an average longitudinal shearing strength of 13,300 pounds per linear inch of fillet; whereas, compression specimens with varying lengths of ⅜ inch x ⅜ inch fillets gave from 17,800 to 15,800 pounds ultimate shearing strength per linear inch of fillet.

It is apparent that the 3,000 pounds per linear inch used in design for this building gives ample security.

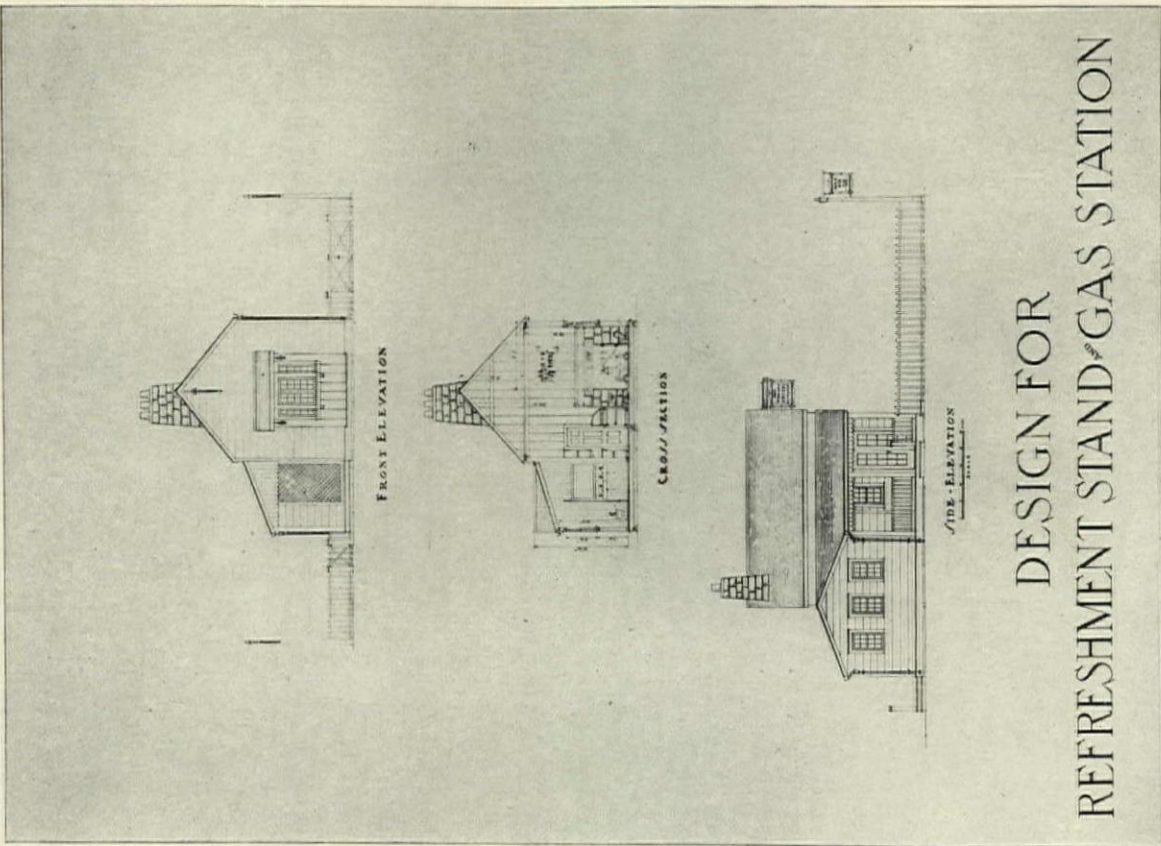
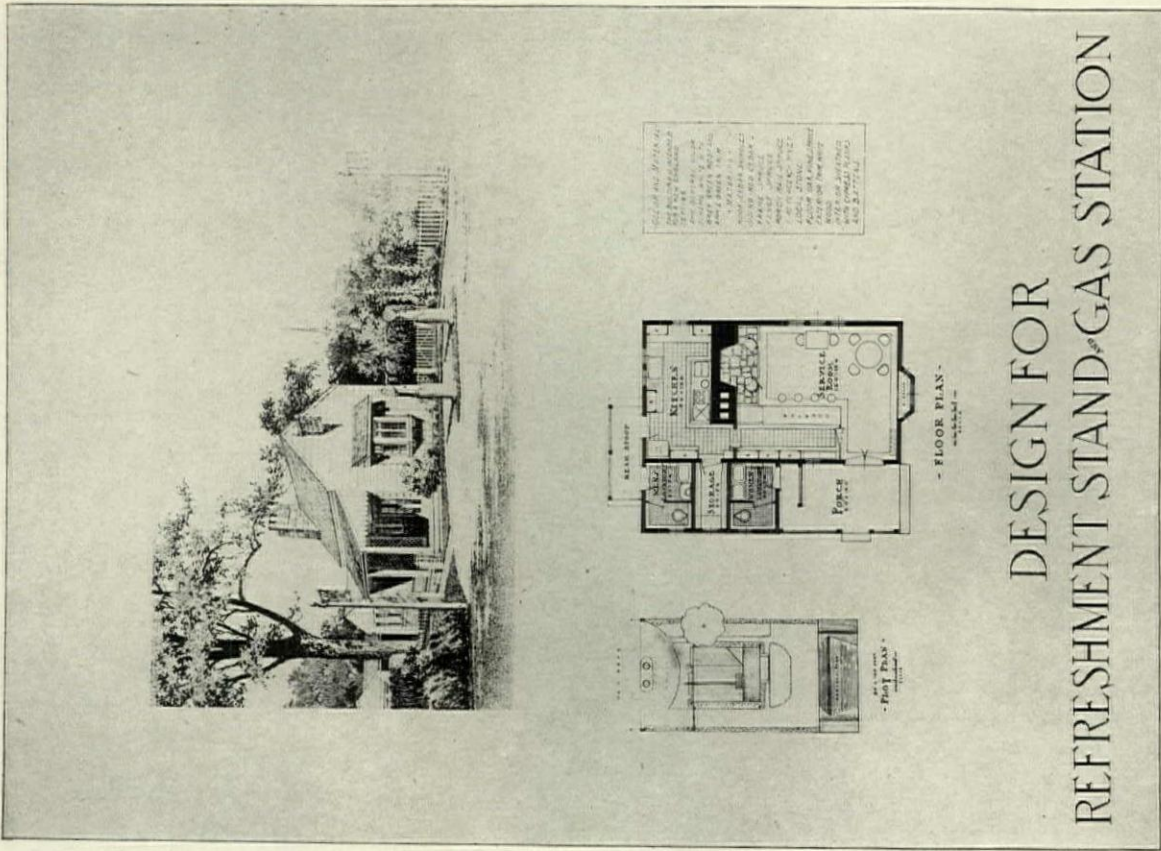
PRODUCERS' COUNCIL

THE FIFTH ANNUAL MEETING of The Producers' Council, affiliated with the American Institute of Architects, will be held at the Kingsway Hotel, St. Louis, Missouri, on Tuesday, May 15th, 1928, the day preceding the opening of the Annual Convention of the Institute. Several prominent architects will address the meeting on subjects of mutual interest.

All members of the Institute are cordially invited to attend the meetings of the Council at the Kingsway Hotel, which is only one block from the Institute's headquarters at the Chase Hotel.

ILLUMINATING ARCHITECTURE AT NIGHT

OUR ATTENTION has been called during the past month to an unusual example of the use of flood lighting to illuminate architecture and to make it more effective at night. The building in question is the new Edison Building of the Philadelphia Electric Company, designed by John T. Windrim, Architect. By a system worked out by the engineers of the Pittsburgh Reflector Company and the A. Hopkin, Jr. Company of Philadelphia, the tower is now illuminated at night in changing colors applied by a wash lighting system involving the use of white and colored light. By means of this system scores of combinations of color are available. The constantly shifting tones of color and light make this building the most prominent spot in the skyline of Philadelphia at night.



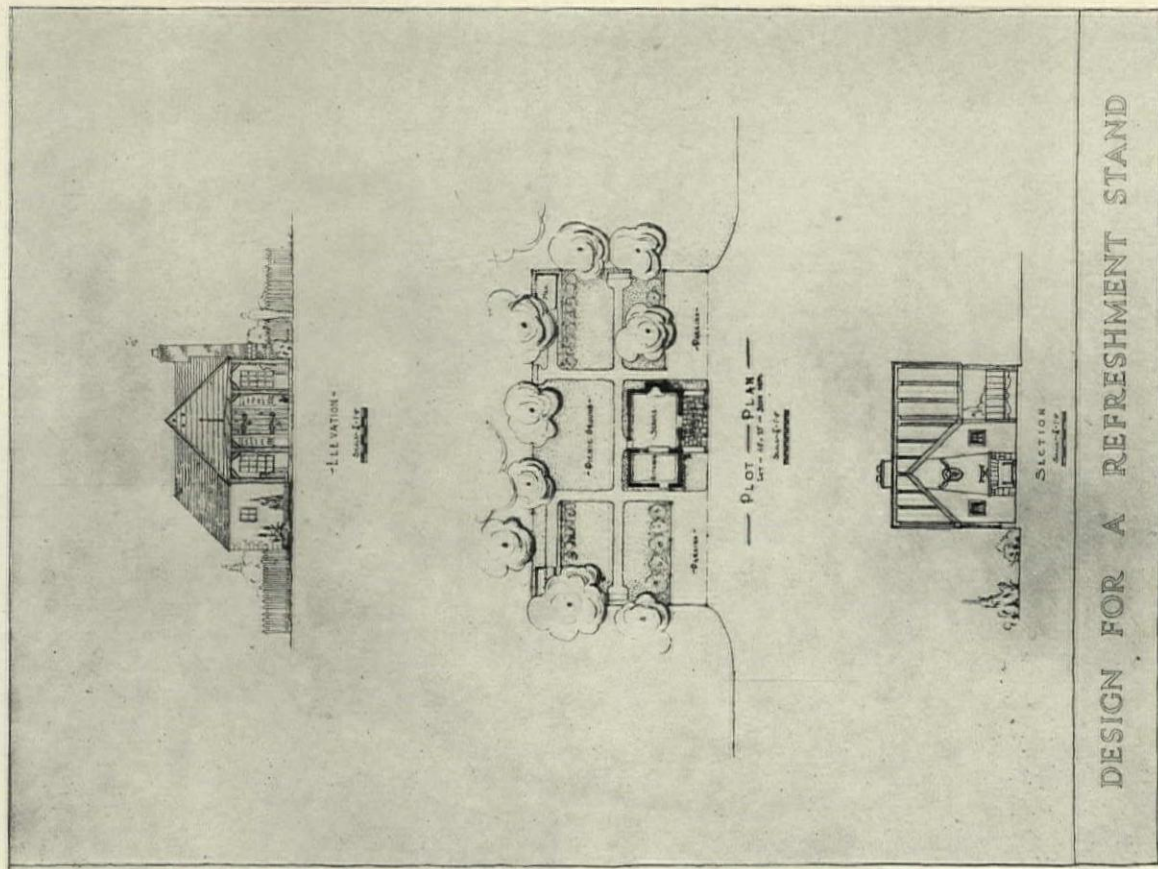
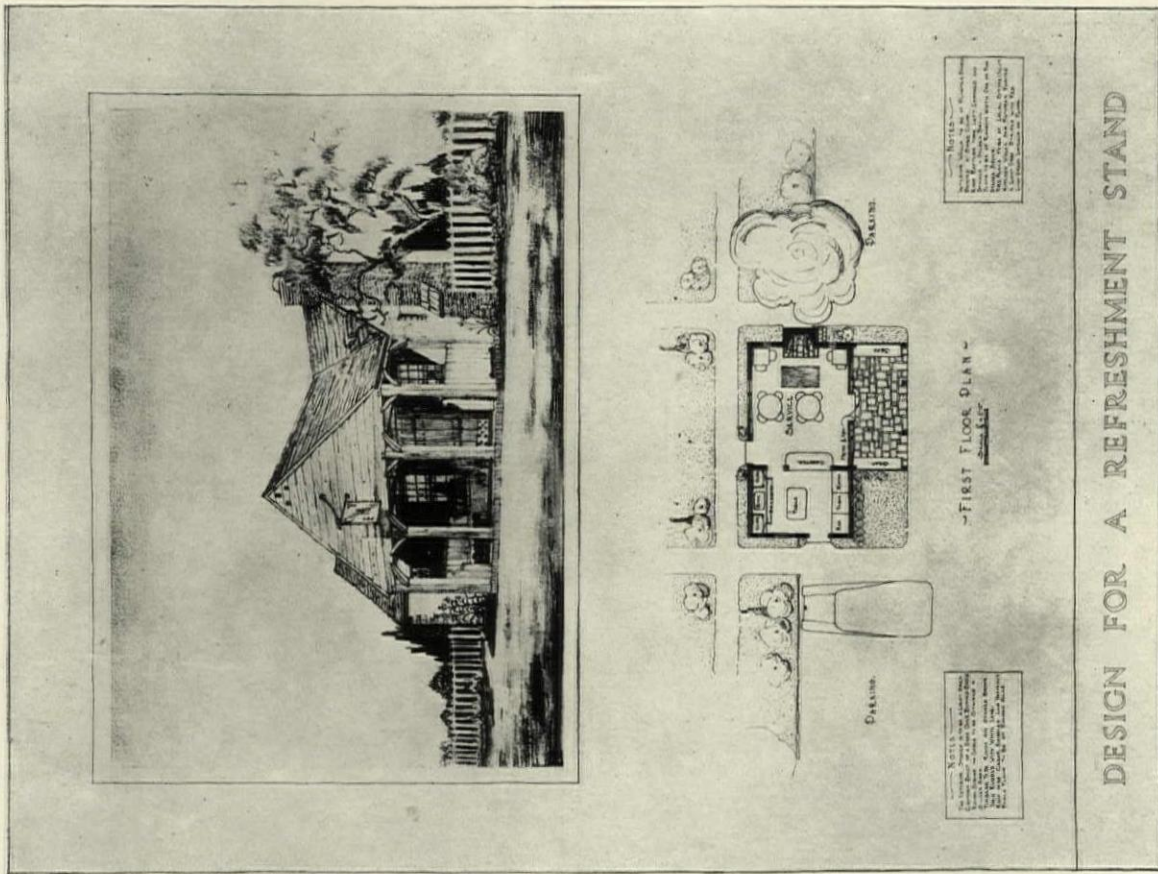
DESIGN FOR REFRESHMENT STAND-GAS STATION

DESIGN FOR REFRESHMENT STAND-GAS STATION

PRIZE WINNING DESIGN IN THE COMPETITION FOR A WAYSIDE REFRESHMENT STAND AND GAS STATION

WON BY HENRY IVES COBB, JR., NEW YORK, N. Y.

(See text on page 238)



PRIZE WINNING DESIGN IN THE COMPETITION FOR A WAYSIDE REFRESHMENT STAND

WON BY WILLIAM E. FRENAYE, JR., NEW YORK, N. Y.

(See text on page 238)

NOTES FROM THE

DETROIT ARCHITECTURAL BOWLING LEAGUE

ANOTHER MONTH has passed with but few changes in the standings of the teams. McGrath & Dohmen, and Smith, Hinchman & Grylls have completely outclassed the field this year and most of the interest is centered on the race for third place.

Just now it seems quite probable that we shall increase our membership before next season starts. Letters have been sent to most of the architects in the city who are not already represented, asking if they would care to enter the League. Several firms have already signified their intention of putting in a team in case it can be worked out advantageously to all concerned. It has been suggested that we add six teams and divide the new League into two eight-team sections.

The standings of the teams on March 10th were as follows:

| | W | L |
|--|----|----|
| McGrath & Dohmen | 51 | 18 |
| Smith, Hinchman & Grylls | 47 | 22 |
| Albert Kahn | 34 | 35 |
| Frank H. Nygren | 34 | 35 |
| Louis Kamper | 33 | 36 |
| Donaldson & Meier | 32 | 37 |
| Malcomson & Higginbotham | 32 | 37 |
| Janke, Venman & Krecke | 30 | 39 |
| Van Leyen, Schilling & Keough | 30 | 39 |
| Weston & Ellington | 23 | 46 |
| High Ind.—1 game Krecke (J. V. & K.)—266 | | |
| “ “ —3 games Jolson (F. H. N.)—654 | | |
| High Team—1 game Janke, Venman & Krecke—1027 | | |
| “ “ —3 games Smith, Hinchman & Grylls—2866 | | |

CLEVELAND

ARCHITECTURAL BOWLING LEAGUE

THE PRESENT standing of the teams in the Cleveland Architectural Bowling League is as follows:

| Position | Team | Won | Lost | Pct. | Ave. |
|----------|--------------------|-----|------|------|------|
| 1 | Walker & Weeks | 62 | 7 | .898 | .835 |
| 2 | Corbusier & Foster | 48 | 21 | .696 | .764 |
| 3 | Small & Rowley | 44 | 25 | .638 | .772 |
| 4 | City Architects | 39 | 30 | .565 | .746 |
| 5 | Warner & McCormack | 31 | 38 | .449 | .737 |
| 6 | Board of Education | 31 | 38 | .449 | .741 |
| 7 | Chas. S. Schneider | 29 | 40 | .420 | .737 |
| 8 | Howell & Thomas | 27 | 42 | .391 | .725 |
| 9 | Meade & Hamilton | 23 | 46 | .333 | .707 |
| 10 | Abram Garfield | 11 | 58 | .158 | .675 |

| | | |
|--------------------------|----------------|------|
| High team (3 game) total | Walker & Weeks | 2710 |
| High team (1 game) total | Walker & Weeks | 979 |

Individual High Single game.

| | | |
|---|------------------------------|-----|
| 1 | Zaiser (Corbusier & Foster) | 246 |
| 2 | Bradner (Board of Education) | 245 |
| 3 | Rose (Walker & Weeks) | 234 |

Individual High (3 game) Series.

| | | |
|---|-------------------------------|-----|
| 1 | Schrimpton (Small & Rowley) | 659 |
| 2 | Oram (Corbusier & Foster) | 633 |
| 3 | Worthley (Corbusier & Foster) | 608 |

Individual High Average for Season.

| | | |
|---|-----------------------------|-----|
| 1 | Rose (Walker & Weeks) | 181 |
| 2 | Schrimpton (Small & Rowley) | 175 |
| 3 | Ventker (Walker & Weeks) | 174 |

SKETCH CLUB OF NEW YORK

THE ANNUAL MEETING of the Sketch Club of New York will be held on April 28th at a studio in Greenwich Village. Dinner will be served and a water color class will be conducted under the personal direction of Hughson Hawley, with entertainment by club talent. All members are requested to notify Henry C. Van Cleef, 2207 Broadway, of changes in address.

GARGOYLE CLUB OF NEW YORK

A MEETING of the Gargoyle Club of New York will be held on April 17th at the Architectural League of New York clubhouse at 115 East 40th Street. The meeting, which will be "Ladies' Night," will be held under the direction of the Entertainment Committee. Dinner and a variety of entertainment will be followed by dancing.

PRATT ARCHITECTURAL CLUB

DEAR MEMBERS:—

The first paragraph of this month's letter will be the important one for the members. Mr. Wm. H. Gompert, charter member of the Club and member of the Board of Governors, resigned as Architect of the Schools of New York City. In order to protect his reputation and professional standing from possible hurt (stories will start when an architect resigns such a position as this) the New York Chapter of the A.I.A. made a thorough investigation and passed a resolution in which Mr. Gompert was highly commended for the way in which his office had been run and in all that he accomplished while in office. The Club gave him a dinner and we are sure that he was thoroughly satisfied as to where he stands with us.

While we did not attend the dance the Club gave for its members, their wives and prospective wives, we heard about it. It was a success in all manner and shapes; special orchestra, a prominent broadcasting gang, lots of entertainment and dancing. The perspiring architects danced, and otherwise, at every chance they had. Trust them to get their money's worth from a well fed orchestra. Our profs from School where there in all their native glory (and you know where some of them hail from). One of them danced the last dance with his coat on. Probably figured, after looking the gang over, that a coat on the back is worth two in the check room when neither is yours.

The membership is still increasing and it is a good bet that the third year will see a 100% jump over the second year membership total.

That the Tuesday luncheons are well received is proven by the gang at the round table. A bigger table was recently set aside for the members. Once a month they occupy the grill by themselves and listen quietly (it is possible) to a short talk by some imported speaker. The importation is to give the Club orators a rest. We never knew how many orators we had until a recent dinner. Here necessity and not opportunity knocked and we discovered that we did not have to go outside the Club for our talent unless we wanted some talk foreign to an architect—such as how to collect the last payment from the client.

If the Board of Governors does something at their next meeting we hope to be able to tell you some good inside information at the next writing.

Sincerely,

THE COMMITTEE

Chairman, p.g.k.

RESTORATIONS ON THE ACROPOLIS

EDITOR'S NOTE:—On page 573 of the September, 1927, issue of PENCIL POINTS we published a letter received from Clarence Badgeley, Fellow in Architecture, American Academy in Rome, commenting upon the restorations now in progress on the Parthenon.

Mr. Alexander Philadelphus, Curator of Archeology and former Commissioner of the Acropolis, replies to Mr. Badgeley in the following letter to PENCIL POINTS, which has been translated from the Greek by T. Protopapas, of the Massachusetts Institute of Technology.

Athens, Greece
February 17, 1928

DEAR MR. EDITOR:

I was surprised to read in your distinguished magazine a letter by Mr. Clarence Badgeley, Fellow in Architecture, American Academy in Rome, about the restoration work on the Parthenon. In so far as that letter contained inaccuracies which may harm this great work and at the same time defame my country, I shall request you to publish these few lines so that those inaccuracies be rectified, for the sake of truth and justice.

Mr. Badgeley writes that he was surprised when he saw the workmen using concrete as filler, where marble could be used, and that this is a great mistake. But this is not new for the restorers of the Parthenon, because many parts of this famous temple have been finished with marble, particularly during the year of 1894, when the terrible earthquakes occurred on Good Friday. The whole western façade was in danger of falling down then. Three famous architects came to Athens at that time; Penrose from London, Magne from Paris, and Durm from Germany. They prepared plans for the restoration of that façade. New huge architraves of Pentelic marble were placed which strengthened this immortal building for many centuries to come.

Since then all the restoration work is based on that plan and all work is done on the same system of scaffolding, under the direction of Mr. N. Balanos, head of the Architectural Division of the Department of Education. Mr. Balanos has been working for thirty years on the Acropolis. Many years ago he restored many parts of the Propylaea and of the Erechtheion, and if Mr. Badgeley observed these monuments, he would have noticed that marble has been used everywhere. Recently, however, concrete has been considered more suitable. This step was approved by all archeologists of the foreign schools (in Athens) so there is no question of arbitrariness and superficiality.

Neither is it true that the restoration of the Parthenon is being paid for by *American money only*. As soon as our country gained its independence, the Greek nation began to restore the Parthenon. Notwithstanding the fact that the blood of our heroes who gave their lives for our independence was yet fresh, nevertheless the Greek government began the work of strengthening and renewing the most splendid temple of Greek antiquity. At that time also the small temple of Niké Apteros (Wingless Victory) was restored entirely from its foundations. The Turks had razed the building and used all its marble to construct entrenchments in front of the Propylaea, which are called "Serpentzé."

And for all this work the needy Greek nation, particularly at that time when its poverty was greatest, spent millions without asking pecuniary aid from anyone. It is only recently or about a year ago, I think, that a banquet was given in New York where many professors, friends, and admirers of Ancient Greece participated. Edward Capps, professor of Greek literature and former United States minister to Greece was present, and he spoke

with admiration about the work which is progressing on the Parthenon. He proposed that America contribute toward such noble effort and thus unite forever the name of the American people with the most perfect monuments of the world. Everybody showed great enthusiasm over Professor Capps' happy inspiration and welcomed his proposal. Immediately, each one present contributed various sums which resulted in a significant fund worthy of the nation which these noble lovers of Greece represent.

Such is the condition in all sincerity and truth, dear Mr. Editor, of the restoration of the Parthenon which differs substantially from that of your correspondent who throws such blame on the Greek people as if they were not taking care of their monuments and their ancestral glories. I remain,

Yours sincerely,

(Signed) ALEXANDER PHILADELPHUS,
Curator of Archeology, former
Commissioner of Acropolis, etc., etc.

PHILADELPHIA ARCHITECTS' TOUR

IN RESPONSE to numerous requests from students in universities and men employed in architects' offices a special tour is being offered to those interested in architecture and the allied arts. The intent of this tour is to create an interest and further a more complete knowledge of the architectural gems of the old world by means of lectures and actual sketches made by members of the party. The tour will be under the direction of Mr. C. A. Scheuringer and Mr. E. E. Williams, who are qualified by their training and experience to instruct the members of the party in the historic background and the architectural style and development of the buildings and monuments that are to be visited. The tour leaves New York on June 30; the itinerary includes France, Italy, Switzerland, and England, returning to New York the early part of August. For additional information write to Mr. Scheuringer at 1211 Chestnut St., Philadelphia, or Mr. E. E. Williams, 9 North Avenue, Wyncott, Pa.

PARIS SUMMER SCHOOL ART COURSES

THE DEPARTMENT OF FINE ARTS of New York University, through the courtesy of the French Ministry of Fine Arts, will conduct a summer school in a quadrangle of the Louvre Museum. Nine courses will be given in English by French professors.

The school is open to both men and women and the rate of \$475 each person includes tuition fees, choice of any four courses, Transatlantic passage in the Student Tourist Cabin, accommodations and meals from arrival in France to departure for New York at the end of the courses. The party will leave New York on June 16th, returning to New York on August 24th. For complete information write to the *Secretary*, Dept. of Fine Arts, New York University, Washington Square East, New York.

INDUSTRIAL ART SCHOOL FOR CHICAGO

THE NEW Industrial Art School will be housed in the Art Institute of Chicago. Money is now being raised to pay the salaries of a staff of expert instructors so that the very best instruction may be offered in a wide range of industrial arts. Of particular interest to the architectural profession will be the class in Architectural Modelling, which has been made possible through the generosity of Gustav Hottinger, President of the Northwestern Terra Cotta Company.

HERE AND THERE AND THIS AND THAT

CONDUCTED BY RWR

This department conducts four competitions each month. A prize of \$10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the fifteenth of the month preceding the publication date in order to be eligible for that month's competition. Material received after the closing date is entered in the following month's competition.

THE PRIZE WINNERS in the March Competitions are as follows:

Class One—William Eaton, of Cardiff, Wales.

Class Two—"Jiggs," of New York.

Class Three—Fred H. Kock, of Cincinnati, Ohio.

Class Four—"Doc" Caulstone, of Cambridge, Mass.

"Doc" Caulstone sends us an esquisse for a built-in ash tray, reproduced on the opposite page, along with a note telling us that we should have a Competition for Bigger and Better Built-in Ash Trays. Therefore, we take pleasure in announcing such a competition. Drawings may be submitted on any kind of white paper, but must be done in black ink. Designs will be received until 5 P. M., on May 12th, and should be addressed to R. W. R., in care of this department, 419 Fourth Avenue, New York. Suitable prizes will be awarded!!



"OPEN AIR PULPIT," DRAWN BY WM. EATON

(PRIZE—Class One—March Competition)

"Jigg's" poem, *Beaux-Arts Building Ballad*, must have been inspired by the illustrations that accompanied Francis Swales' article in the January issue on *The Competition Extraordinary*.

BEAUX-ARTS BUILDING BALLAD

(PRIZE—Class Two—March Competition)

By "Jiggs"

Have you all seen,
The sketches so grand,
Made by the Patrons,
In a four-hour stand?

If not, take a look
At the drawings submitted,
And you'll see at a glance,
Why their noses I've twitted.

Yet, these are not bad,
For some you can bear,
But think of the mess,
Had all our bosses been there.

They can well walk around,
Looking wise and give h—,
When called to do real work,
They don't look so well.

Old man Hirons gets credit,
To him credit is due,
And there are few others
Who have nothing to rue.

Couldn't they think of this building
In terms pure and simple,
Without getting the aid,
Of old Rip Van Winkle?

Some were not happy
Until they had placed,
A shopworn old detail,
On our building's new face.

Just look at the others,
Made in Georgian and Greek,
Romanesque and Grotesque,
With minds that are weak.

Let's be more modern,
Away with the trash,
The jumble, the mixup,
Of wornout old hash.

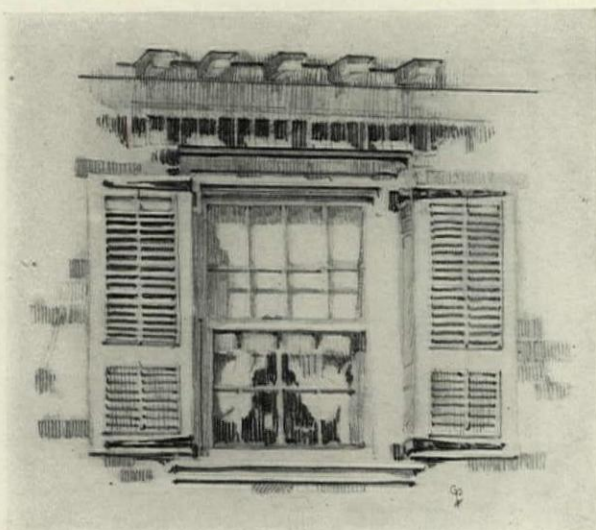


WOODCUT BY W. B. MACK, OF PENN. STATE COLLEGE
"Winter Night in Washington"

GERALD ANTHONY PAUL sent us two nice pencil sketches of windows, one of which is reproduced below, and some good advice on how it's done:

"Window patterns are dandy things to work out when you render buildings and perhaps a few tricks that I have picked up will make the job easier. When there are many windows on the same surface, such as an office building, work up those that fall within the center of interest and merely suggest the shadows of the openings of the others. Omit most of them—it looks better and the drawing doesn't seem to be labored. Where there are only a few—render those at the center of interest—the spot to which the eye is first attracted—subordinating all others, but do not omit any.

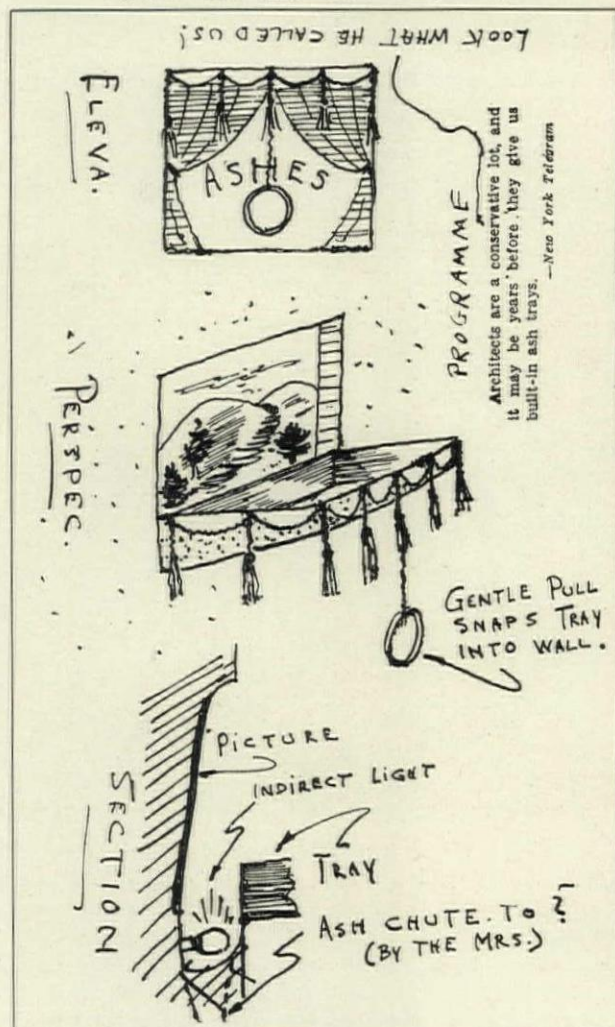
"Work with a round point until it has worn flat then use it to 'paint in' the shadows with a 'brush-like' stroke. Cast shadows should be light and transparent and should describe the forms on which they fall. Shadows on white surfaces are light; black tones should be saved for openings to show depth. Hide your 5B or 6B until the drawing is complete—then put the icing on the cake."



PENCIL SKETCH BY GERALD A. PAUL, OF NEW YORK
(see text above)



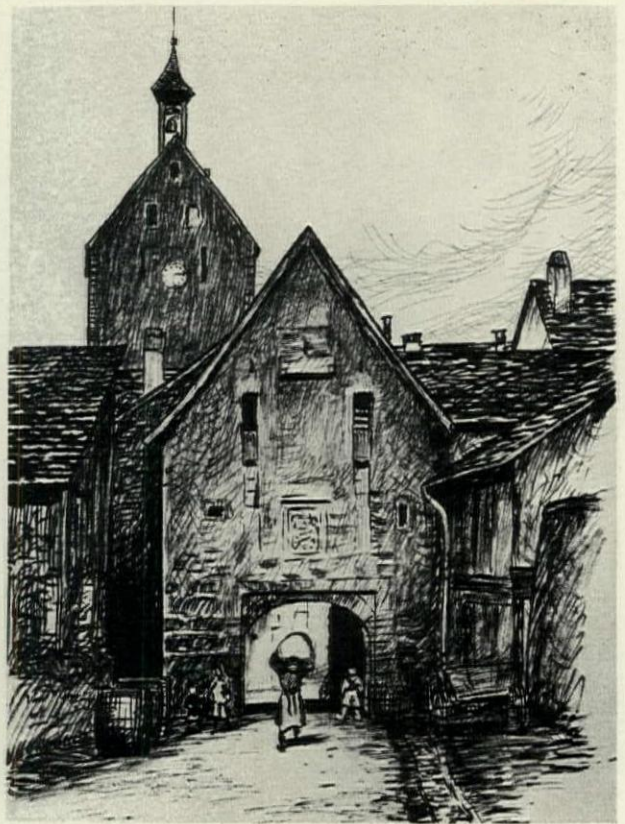
"OFFICE PRACTICE," BY FRED H. KOCK
(PRIZE—Class Three—March Competition)



ESQUISSE FOR A BUILT-IN ASH TRAY, BY "DOC" CAULSTONE
(PRIZE—Class Four—March Competition)



WATER COLOR BY WILLARD PERKINS, OF PITTSBURGH, PA.
Palace of the Caesars, Rome



SKETCH BY RALPH WARRIN, OF NEW YORK
Drawn with a brush in India Ink



"DE PROFUNDIS"—CHARCOAL DRAWING BY LUDWIG MESTLER, OF NEW YORK

This drawing, in the words of the designer, is "An attempt to illustrate the state of mind of Christ, at the time when he, a boy of thirteen, talked to the scribes in the temple. Using his powers for the first time, he becomes conscious of them and, like an hallucination, a horrifying presentiment of his life's tragedy arises within him. This appearance marks the boundary of two worlds of thought and sentiment. Hence his head is shown between their symbols: the Thora, the scroll of laws of the ancient Hebrews, and the Cross, crudely made of twigs, as indication of Christianity dawning. Above the head as a kind of halo, threatens the crown of thorns. With its three bows it reminds of the Holy Trinity. The initials of the sarcastic inscription on the Cross of Golgatha: 'Jesus Nazarenus Rex Judorum,' Jesus of Nazareth, King of the Jews, in connection with his own monogram are meant to characterize the tragic irony by which this Superhuman has been persecuted, that irony which is part of the fate of all mortals."



THE SPECIFICATION DESK

A Department for the Specification Writer

EMERY STANFORD HALL AS A SPECIFICATION WRITER

By Wilfred W. Beach

ALTHOUGH NOT boasting one of the largest practices, no architect is better known to his confrères of the Central West than Emery Stanford Hall of the firm of Emery Stanford Hall, Bisbee and Rhenisch, Chicago, Ill.

Mr. Hall has been a hard-working participator in the management of the affairs of the Illinois Society of Architects from its inception as the Chicago Architects' Business Association and has been twice honored by its presidency. Meanwhile, he has also been a truly active member of both the Illinois Chapter of the American Institute of Architects and the national body.

For many years he has edited the annual *Handbook* of the Illinois Society and has been the chief factor in making it invaluable in the office of every architect—alongside Kidder and the local code.

Some architects fish in their spare time, some golf and some tour Europe and the antipodes, but Mr. Hall's hobbies are the *Handbook*, his filing system, and his specification make-up. These are closely interrelated, as he uses his numerical reference system (published in the *Handbook*) throughout his whole office procedure—catalogue and plate filing and specification divisions and sub-divisions. Mr. Hall was appointed by the American Institute of Architects as its representative to committee and convention sessions on the standardization of advertising documents in which, as secretary of the Illinois Society, he had taken the initiative as far back as the year 1900. Mr. Hall's system for filing such documents is founded upon the well-known Dewey System of library catalogue fame.

He has extended and perfected its application to architectural practice, publishing an up-to-date revision in the *Handbook*, year after year. This is quite worthy of study, as is the consideration of its adoption in any office.

Under the ten major divisions of the Dewey System, 6 (or 600) is the numeral allotted to the *Useful Arts*, under which are the following sub-headings:

- 610 Medicine
- 620 Engineering

- 630 Agriculture
- 640 Domestic Economy
- 650 Communication and Commerce
- 660 Chemical Technology
- 670 Manufacture
- 680 Mechanic Trades
- 690 Building

Of the foregoing, Mr. Hall's classification for the use of architects is, of course, concerned with the last numbered, 690, *Building*. This he sub-divides after this manner:

- 690. Building—Materials and Trades—General.
- 691. Earth-Working, Transportation and Teaming Trades.
- 692. Mortar-using Trades (Inc. Masonry, Plastering, Tile and Marble Setting and the preparation for same).
- 693. Wood-Working Trades.
- 694. Heavy-Metal Trades—(Employing Metal heavier than No. 10 gauge).
- 695. Sheet-Metal Trades—(Employing Metal



EMERY STANFORD HALL

- of No. 10 gauge or less).
- 696. Brush, Broom and Swab-Using Trades.
- 697. Pipe Trades.
- 698. Wire and Conduit Trades—Electrical Work of All Kinds.
- 699. Machinery Trades and Miscellaneous Building Items—(Not Otherwise Classified).

The amplification of these sub-headings makes a classification for the catalogue filer as nearly ideal as may be. But it is not of Mr. Hall's catalogue-filing system that we are treating.

Referring to the general subject, 690 (*Building—Ma-*

PENCIL POINTS

terials and Trades), he lists the following:

- 690.0 General.
- 690.1 Education of Personnel Concerned in Building.
- 690.2 Building Material in the Abstract.
- 690.3 Plans (Drawings) for Buildings.
- 690.4 Specifications for Buildings.
- 690.5 Estimates for Buildings.
- 690.6 Contracts and General Conditions.
- 690.7 Supervision of Construction and Accounts.
- 690.8 Professional Services.
- 690.9 Laws and Rules Controlling Building.

We now get to the point, as it is sub-division 690.4, *Specifications for Buildings*, with which we are concerned. This Mr. Hall further divides in a manner paralleling the sub-divisions of 690, thus:

- 690.40 Matter Pertaining to all Trades.
- 690.41 Earth-Working and Transportation Trades, including Miscellaneous Labor.
- 690.42 Mortar-Using Trades.
- 690.43 Wood-Working Trades and Hardware.
- 690.44 Heavy-Metal Trades (Employing Metal heavier than No. 10 gauge).
- 690.45 Sheet-Metal Trades (Employing Metal of No. 10 gauge or less).
- 690.46 Brush, Broom and Swab-Using Trades.
- 690.47 Pipe Trades.
- 690.48 Wire and Conduit Trades.
- 690.49 Machinery and Miscellaneous Trades.

It will be noted that the segregation employed is not in the approximate order in which the various trades attack the work, as is more customary, but according to the tools and materials of those trades. As worked out, however, the sequence is not vastly different.

Obviously, any system of specification writing should be usable, without material change, for the letting either of a general contract, or for a major contract and minor contracts, or for a number of contracts without a major. This phase of Mr. Hall's topical system is to be particularly noted.

Inasmuch as the users of specifications are not at all concerned with the derivation of the method of numeration of sections employed therein, Mr. Hall simply refers to his nine major divisions as *Groups I to IX*. These one can sub-divide *ad lib* depending upon one's method of handling sub-contracts or minor contracts.

The following are Mr. Hall's sub-divisions as published in the 1927 edition of the *Handbook*.

- Group I. Earth-Working and Transportation Trades.
 - A. Preparation of Site.
 - B. Wrecking.
 - C. Shoring and House Moving.
 - D. Excavating.
 - E. Caisson and Special Foundations.
 - F. Construction Plant.
 - G. Maintenance Contract.
 - I. Grading and Filling.
 - J. Preparation of Soil, Sodding and Seeding.
 - K. Planting.
 - Z. Miscellaneous Labor not Otherwise Classified.
- Group II. Mortar-Using Trades.
 - A. Masonry Materials.
 - B. Foundation Work.
 - C. Concrete Work.
 - D. Stone Work.
 - E. Brick Work.
 - F. Fireproofing, Furring and Partitions.
 - G. Architectural Terra Cotta.

- H. Paving.
- I. Smoke Stacks of Masonry.
- J. Plastic Reinforcement, Lathing and Furring.
- K. Plastering.
- L. Models, Clay and Plaster.
- M. Plastic Insulation, Pipe Covering, Etc.
- N. Marble and Substitutes (Including Slate, Structural Glass, Terrazzo Slabs, Etc.)
- O. Tile and Substitutes.
- P. Terrazzo Blocks.
- Z. Miscellaneous Mortar Using Trades not Otherwise Classified.

Group III. Wood-Working Trades and Hardware.

- A. Wood-working Materials and Methods.
- B. Carpentry.
- C. Rough Carpentry Hardware.
- D. Finish Hardware.
- E. Revolving Doors.
- F. Special Doors, Folding, Rolling, Etc.
- G. Screens, Wood Frame, for Insects.
- H. Wood Registers, Screens, Etc.
- I. Mantels, Etc., of Wood.
- J. Wood Specialties, Show-cases, Cabinets, Etc.
- K. Seating for Assembly, Pews, Opera Chairs, Etc.
- L. Wood Platform Furniture, Pulpits, Lectern Sedilia, Altars and Altar Furniture.
- M. Portable Furniture of Wood, Chairs, Etc.
- N. Domestic Furniture.
- Z. Miscellaneous Wood-working Trades not Otherwise Classified.

Group IV. Heavy-Metal Trades—(Employing Metal Heavier than No. 10 Gauge).

- A. Metal Materials and Methods.
- B. Structural Metal (over No. 10 gauge).
- C. Miscellaneous Metal.
- D. Ornamental Metal (over No. 10 gauge).
- E. Vaults, Safes, Vault Doors, Etc.
- F. Solid Metal Sash.
- G. Heavy Metal Doors and Shutters.
- H. Fire Escapes.
- I. Stairs, Metal.
- J. Fences, Metal.
- Z. Miscellaneous Heavy Metal Trades not Otherwise Classified.

Group V. Sheet-Metal Trades—(Employing Metal of No. 10 Gauge or Less).

- A. Sheet-Metal Materials and Methods.
- B. Ordinary Sheet-Metal.
- C. Slate and Tile Roofing.
- D. Ventilating Ducts, Fans, Stacks, Furnaces, Etc.
- E. Hollow Metal Windows.
- F. Metal Clad Wood Doors.
- G. Enamel Sheet Metal Ceilings.
- H. Art Sheet Metal Trim and Doors.
- I. Enamel Sheet Metal Cabinets.
- J. Enamel Sheet Metal Lockers.
- K. Enamel Sheet Metal Radiator Covers and Seats.
- L. Enamel Sheet Metal Toilet Partitions.
- M. Metal Furniture.
- N. Sheet Metal Utensils.
- O. Drawn Sheet Metal Store Fronts, Etc.
- Z. Miscellaneous Sheet Metal Trades not Otherwise Classified.

Group VI. Brush, Broom and Swab-Using Trades.

- A. Brush Trade Materials and Methods.
- B. Waterproofing Membrane and Mastic or other

PENCIL POINTS

- Viscous Compositions, mopped, broomed or swabbed in place.
 - C. Composition Roofing.
 - D. Plain Painting and Varnishing.
 - E. Decorations (Plain, Painted or Water Color).
 - F. Hangings, Fabrics, Etc.
 - G. Upholstery.
 - H. Window Shades.
 - I. Mastic Tile and Sheet Floor Covering.
 - J. Rubber Tile and Sheet Floor Covering.
 - K. Cork Tile and Sheet Floor Covering.
 - L. Carpets, Linoleum, Etc., Floor Covering.
 - M. Plain Glass and Glazing.
 - N. Art Glass and Glazing.
 - Z. Miscellaneous Brush Trades not Otherwise Classified.
- Group VII. Pipe Trades.
- A. Pipe Trades Materials and Methods.
 - B. Sanitary Plant.
 - 1. *Sewerage and Drainage.*
 - 2. *Sewerage and Bilge Pumps.*
 - 3. *Sewerage Disposal.*
 - 4. *Plumbing.*
 - 5. *Tanks and Towers for Water Supply, Stand Pipes.*
 - 6. *Gas Fitting.*
 - 7. *Gas Stoves, Etc.*
 - C. Sprinkler Fitting.
 - 1. *Storage Tanks and Towers.*
 - 2. *Pressure Tanks, Etc.*
 - 3. *Pumps.*
 - D. Boiler Plant.
 - 1. *Steel Stacks and Breeching.*
 - 2. *Tanks for Water Storage.*
 - 3. *Tanks for Oil Storage.*
 - 4. *Super Steam Heaters.*
 - 5. *Tube Blowers.*
 - 6. *Tube Cleaners.*
 - 7. *Furnaces.*
 - 8. *Stokers.*
 - 9. *Coal Handling Equipment.*
 - 10. *Ash Handling Equipment.*
 - 11. *Pulverized Coal Burners and Pulverizers.*
 - 12. *Oil Burners.*
 - 13. *Gas Burners.*
 - 14. *Draft Inducer Blowers.*
 - 15. *Soot Burners.*
 - 16. *Fuel Economizers.*
 - 17. *Smoke Indicators.*
 - 18. *Feed Water Heaters.*
 - 19. *Boiler Feed Pumps.*
 - 20. *Service Pumps.*
 - 21. *Fire Pumps.*
 - 22. *Governors for Pumps, Etc.*
 - 23. *Water Softeners.*
 - 24. *Lubricators.*
 - 25. *Injectors for Compound.*
 - 26. *Injectors for Water.*
 - 27. *Feed Water Regulators.*
 - 28. *Draft Regulators.*
 - 29. *Flow Meters.*
 - 30. *Draught Gauges.*
 - 31. *CO₂ Recorders.*
 - E. Steam and Hot Water Fitting.
 - 1. *Vacuum Pumps.*
 - 2. *Vacuum Valves.*
 - 3. *Miscellaneous Specialties.*
- F. Steam Power Plant.
 - 1. *Engines.*
 - 2. *Compressors.*
- G. Vacuum Cleaning Plant.
- H. Mechanical Refrigeration.
 - 1. *Tanks.*
 - 2. *Compressors.*
 - 3. *Cooler Towers.*
- I. Mechanical Ventilation.
 - 1. *Heating Units.*
 - 2. *Cooling Units.*
 - 3. *Air Washers.*
 - 4. *Fans and Engines.*
- Z. Miscellaneous Pipe Trades not Otherwise Classified.
- Group VIII. Wire and Conduit Trades.
- A. Wire Trades Materials and Methods.
 - B. Electrical Conduit and Wiring.
 - C. Lighting Fixtures.
 - D. Electrical Power Work.
 - E. Electric Signs.
 - F. Private Telephone Systems.
 - G. Clock Systems.
 - H. Signal Clock Systems.
 - I. Fire Alarm Systems.
 - J. Burglar Alarm Systems.
 - K. Projecting Machines.
 - Z. Miscellaneous Electrical Trades not Otherwise Classified.
- Group IX. Machinery and Miscellaneous Trades.
- A. Machinery and Miscellaneous Materials and Methods.
 - B. Elevators.
 - C. Conveying Machines.
 - D. Mechanical Cleaners.
 - E. General Machinery.
 - F. Foundry Equipment.
 - G. Insulation, Pipe Covering, Etc.
 - H. Refrigerators, Coolers and Freezers.
 - I. Laundry Equipment.
 - J. Kitchen Equipment.
 - K. Laboratory Equipment.
 - L. Gymnasium Equipment.
 - Z. Other Equipment not Otherwise Classified.

The following excerpts from a current church job may be considered typical of the specifications turned out by Mr. Hall's firm. A word of explanation is given in a *Preface* on the title page:

"In order to avoid repetition, materials common to the several trades of a group of trades using common materials are specified in one place under *Article 1* of that group and not again repeated except by paragraph title and number.

"For illustration: The mention of a material title in a construction paragraph means that the proportion of materials therein specified shall be furnished in strict accord with detailed specification for the material enumerated under that particular title in the specifications for the various materials grouped under the general heading *MATERIALS* in *Article 1* of that Group, the same as though therein repeated. Paragraph reference numbers are only added to make it easy to refer back in case the reader has forgotten the exact specification for that material. Material specified under the general heading *MATERIALS*, or construction specified under the general heading *CONSTRUCTION*, and not called for either directly or by reason-

able implication, either on the plans or in the schedule, under a contract specification are not required to be furnished, but would be required to be furnished under an extra involving that particular type of material."

Here is inserted the standard form of GENERAL CONDITIONS OF THE ILLINOIS SOCIETY OF ARCHITECTS, followed by

TRADE GROUP I

EXCAVATING, GRADING, CARTING, WRECKING, SHORING AND MISCELLANEOUS LABOR

Article O—Group I—General Requirements

(101) IN GENERAL the contractor, or contractors, who undertake to furnish work or materials under this Group shall be governed by the GENERAL CONDITIONS OF THE CONTRACT as defined in documents known as the *Illinois Building Contract Documents*, which GENERAL CONDITIONS are made a part of every specification for work required for this improvement, the same as though separately attached and repeated in connection with each separate topic or trade heading of these specifications. The General Conditions before mentioned and identified shall be understood to define and govern all matters of mutual relationship between contractors, Owner, Architect, and the public, responsibility for insurance, etc. (see pars. 1 to 61, inclusive).

(102) ISSUANCE OF CERTIFICATES by the Architect for payments on account during the progress of the work are conditioned on the contractor's furnishing a statement to the Architect as described in paragraph 19 of the GENERAL CONDITIONS OF THE CONTRACT, and also such statements as to sub-contractors and outstanding obligations to complete the work, as are prescribed by the Mechanics Lien Law of the State of Illinois and therein required to be furnished by the contractor to the Owner as a prerequisite to making payment on contract.

(103) GROUP I comprehends and includes every sort of labor and transportation necessary to prepare the site ready for actual building construction, and also to clean up same when all construction is complete, including any *shoring, piling, wrecking, excavation, filling, grading, sodding, seeding, planting, teaming, cartage, hauling or trucking* hereinafter required by these specifications or accompanying drawings and not otherwise required to be furnished by any of the construction trades.

(104) DELIVERY OF WORK REQUIRED * * * *

(105) APPARATUS * * * *

(106) LEGAL DISPOSAL OF ALL EXCESS MATERIALS * *

Article I—Group I—Precautionary Measures Required

(107) OLD HOUSE NOW LOCATED on the lot is to be * * * *

(108) SHEET PILING OR SHORING shall be * * * *

(109) ANCHOR RODS shall be * * * *

Article II—Group I

(110) EXCAVATION OPERATIONS shall be divided into two general divisions as follows:

(a) *Division "A"* shall comprehend and include what is commonly known as "General Excavation," including all team, scraper and excavating-machine work to carry the excavation down to required levels over the entire area as far back as it is practical to do so with either team work or excavating-machine work. This Division does not include any hand-spade work but does include all cartage and disposal of material for the team work, machine-excavation work and hand-spade

work; in other words, all of the hauling is included under *Division "A,"* both for *Divisions "A"* and *"B."*

(b) *Division "B"* shall comprehend and include the necessary hand-spade work for truing up the excavations ready for building, including all trenches and pits for foundation walls, footings and piers. It also includes all excavation from under the old building, including wheelbarrow work, to bring out the earth to where it may be handled by the excavating-machine or team-scraper. It also includes all back-filling around walls and footings both inside and outside the building. It also includes the cutting of openings in the old walls, the shoring of old walls and all of the necessary incidental work to get the site ready for construction after the work of *Division "A"* has been completed.

(111) IT IS DISTINCTLY UNDERSTOOD that the contractor assuming work under *Division "B"* shall always place surplus material in a position where it can be practically and easily reached either by the excavating-machine or team-scraper.

Contract "A"—Group I—General Excavation, Grading, Shoring, Wrecking, Etc.

(112) CONTRACT "A", GROUP I, shall comprehend and include everything in the way of labor and materials required for doing all work described under *Division "A,"* Article II, of these specifications, * * * * enumerated as follows:

* * * *

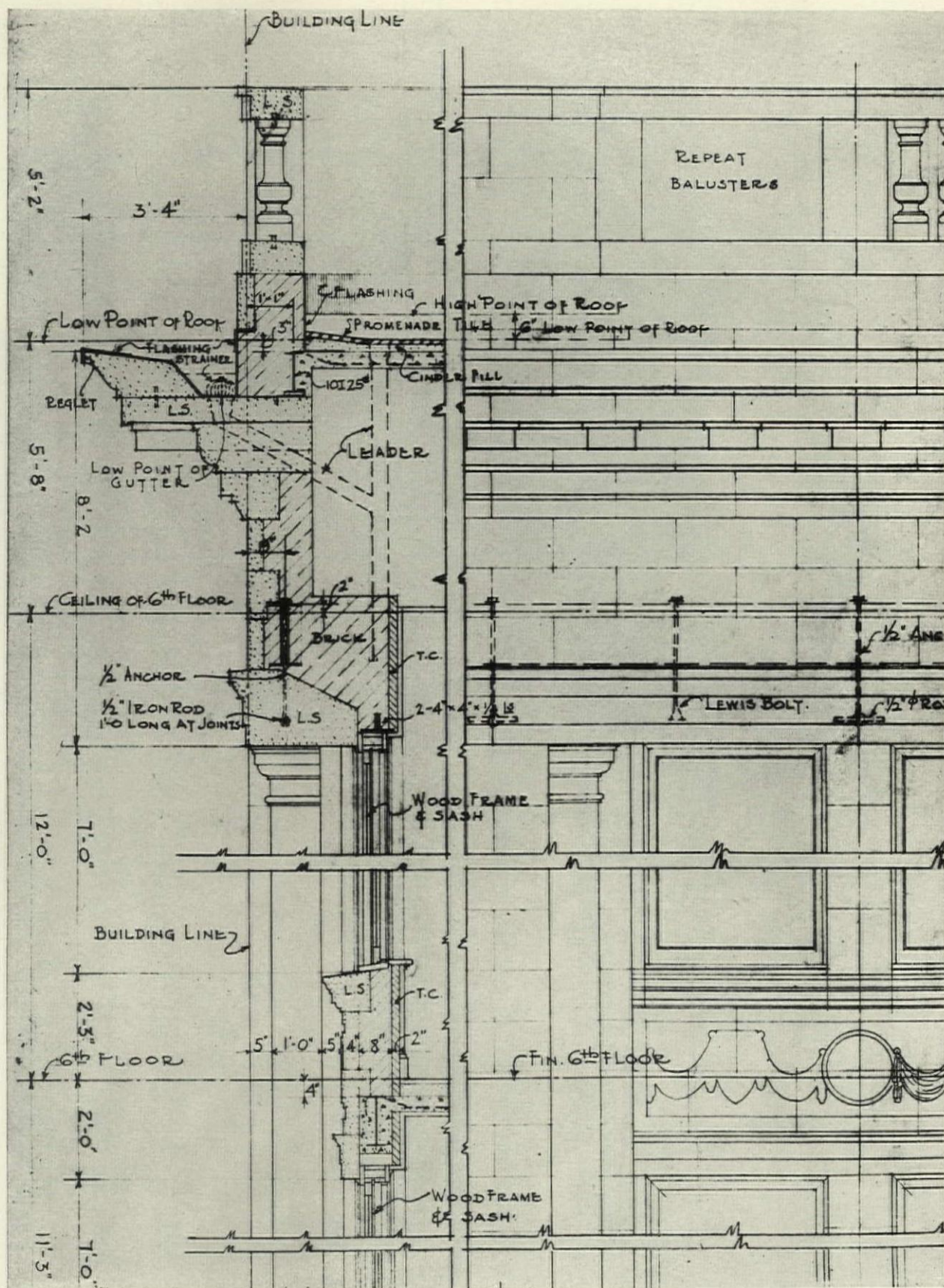
(113) CONTRACT "B", GROUP I, shall comprehend and include * * * *

From the foregoing may be noted the meticulous care exercised by Mr. Hall in establishing the lines of demarcation between contracts or sub-contracts, as the case may be. In this segregation he is influenced by his previous experiences in supervising the work, in the convenience of contractors in allotting and carrying on the work and in observance of trade union jurisdictional awards, the latter of especial importance in territory controlled by building-trade unions.

The old-time idea of architects that they should compel each contractor to circumscribe his sub-contracts carefully, without recourse to the architect in case of dispute, is excellent and proper—in theory—but contractors are prone to let sub-contracts intended to be bounded by specification divisions, hence it behooves the architect to make all such divisions and sub-divisions explicit and comprehensive, if he would avoid misunderstandings and unexpected demands for extras. This Mr. Hall is most careful to do.

He does not, as is the practice of many architects whose documentary products are otherwise of real merit, relegate the specifications to a sphere of innocuous desuetude on the theory that contractors who work out of their offices will be more influenced to do what is expected of them by their desire to keep on good terms with the architect than by being bound by harsh contract restrictions. The latter is dangerous and unprofessional practice and may easily result in a new client paying for something that was left out of the preceding contract and donated by the contractor to prove he was a "good fellow."

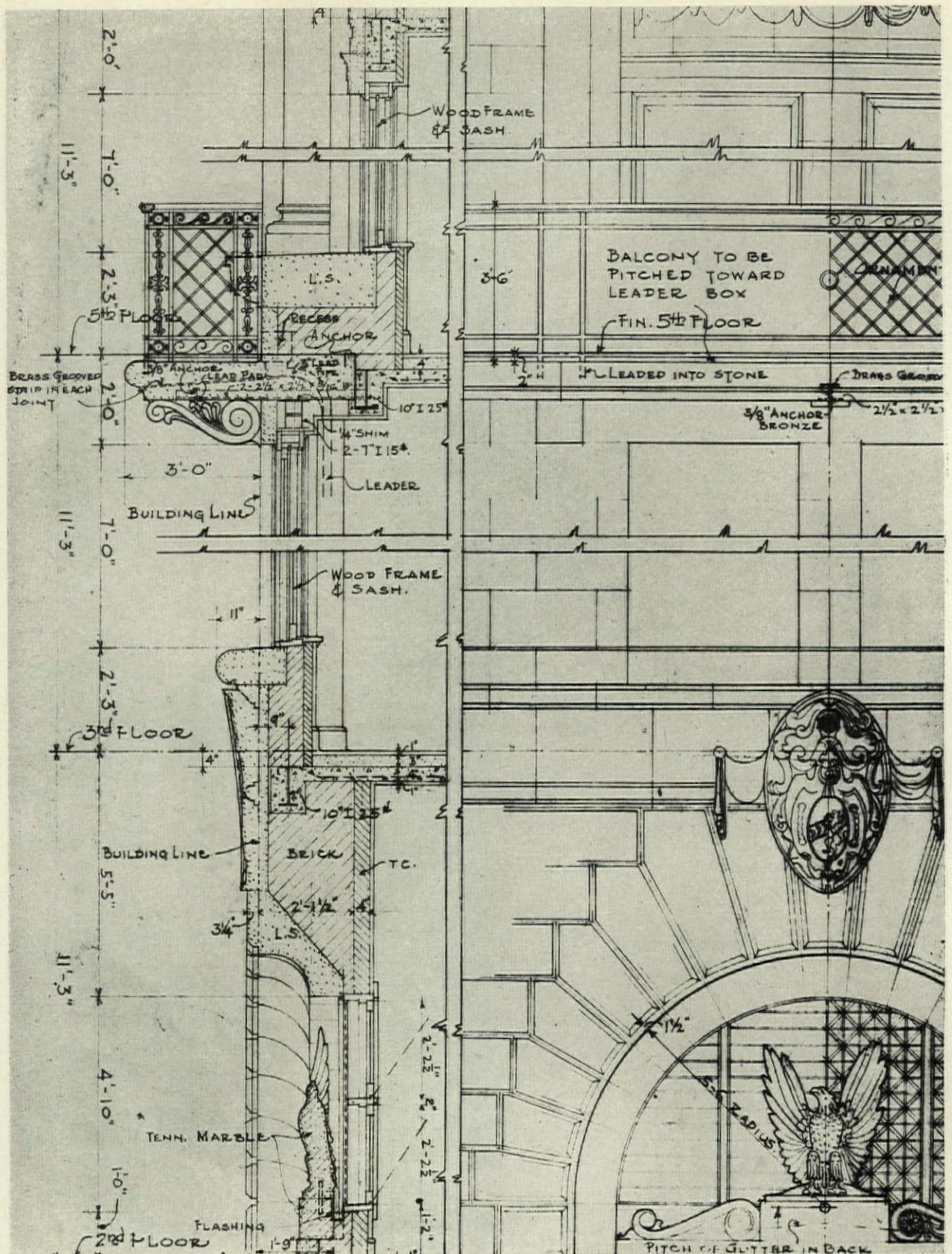
The younger members of the profession would do well to bear this in mind and begin early in their careers to make their specifications as nearly bullet-proof as they know how.



DETAILS OF CONSTRUCTION—GLEN ALDEN COAL COMPANY BUILDING, SCRANTON, PA.

KENNETH M. MURCHISON, ARCHITECT

PENCIL POINTS



DETAILS OF CONSTRUCTION—GLEN ALDEN COAL COMPANY BUILDING, SCRANTON, PA.

KENNETH M. MURCHISON, ARCHITECT



SERVICE DEPARTMENTS

THE MART. In this department we will print, free of charge, notices from readers (dealers excepted) having for sale, or desiring to purchase books, drawing instruments and other property pertaining directly to the profession or business in which most of us are engaged. Such notices will be inserted in one issue only, but there is no limit to the number of different notices pertaining to different things which any subscriber may insert.

PERSONAL NOTICES. Announcements concerning the opening of new offices for the practice of architecture, changes in architectural firms, changes of address and items of personal interest will be printed under this heading free of charge.

QUERIES AND ANSWERS. In this department we shall undertake to answer to the best of our ability all questions from our subscribers concerning the problems of the drafting room, broadly considered. Questions of design, construction, or anything else which may arise in the daily work of an architect or a draftsman, are solicited. Where such questions are of broad interest, the answers will be published in the paper. Others will be answered promptly by letter.

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions. Such notices will also be posted on the job bulletin board at our main office, which is accessible to all. Owing to the very large number of advertisements submitted for publication under this heading we are asking those desiring to use this service to make their advertisements as short as possible, *in no case to exceed forty words.*

Notices submitted for publication in the Service Departments must reach us before the fifteenth of each month if they are to be inserted in the next issue. Address all communications to 419 Fourth Avenue, New York, N. Y.

THE MART

Starrett & Van Vleck, 393 Seventh Avenue, New York, Att. Mr. Rice, wants a copy of *PENCIL POINTS* for January, 1921, and a copy of *The Architectural Review* for July, 1925.

Floyd Mueller, 544 So. New Hampshire Ave., Los Angeles, Calif., has for sale a copy of Byne & Stapley's *Spanish Interiors and Furniture*, Vols. 1 and 2, portfolio form, good condition, \$100.00.

PERSONALS

HENRY R. DIAMOND, architectural renderer, has moved to 67 West 44th St., New York.

WILLIAM BAILEY, architectural student, 295 Washington Ave., Brooklyn, N. Y., would like to receive manufacturers' samples and catalogues.

CHARLES N. WHINSTON and SELIG WHINSTON announce the opening of an additional office due to the large increase in their Westchester practice. It will be temporarily located at 58 West 1st Street, Mt. Vernon, New York. A new building will shortly be erected on N. 4th Avenue for their own occupancy.

CYRIL W. SUNDERLAND, architectural student, 96 Fourth Ave., East Greenwich, R. I., would like to receive manufacturers' samples and catalogues.

LAWRENCE A. REHM, architectural draftsman and student of ecclesiastical design, P. O. Box 104, Galveston, Texas, would like to receive manufacturers' samples, catalogues, A.I.A. data, etc.

ROSE & HALL have dissolved partnership. A. Fraser Rose will continue to practice architecture at 208 Sixth St., Miami Beach, Fla.

CARLOS MENDOZA, Aguiar 116 Departamento 93, Havana, Cuba, is opening an office as sales representative of manufacturers in the building field and would appreciate samples and catalogues.

WERNER AMREIN, architectural student, Sigma Nu House, Gainesville, Florida, would like to receive manufacturers' samples and catalogues.

R. STANLEY REID, architectural student, 720 Arbor St., Ann Arbor, Mich., would appreciate manufacturers' samples and catalogues.

LAND, RAUGLAND & LEWIS, ARCHITECTS AND ENGINEERS, 412 Essex Bldg., Minneapolis, Minn., have opened a branch office at 1955 University Ave., St. Paul, Minn., Rooms 3 & 4, and would like to receive manufacturers' samples and catalogues.

BLACKALL & ELWELL, ARCHITECTS, have moved to 29 Central St., Boston, Mass.

MILTON M. FRIEDMAN, ARCHITECT, has moved to Interstate Bldg., 6001 Santa Monica Blvd., Los Angeles, Calif.

OMAN & LILIENTHAL, ARCHITECTS, have moved to Suite 1410, Tribune Tower, Chicago, Ill.

G. H. WELLS, ARCHITECT, has moved to 274 Madison Ave., New York.

HARKNESS & LOCKYER, ARCHITECTS, have dissolved partnership. Wilfred S. Lockyer will continue the practice at 106 I. C. Office Bldg., Gulfport, Miss.

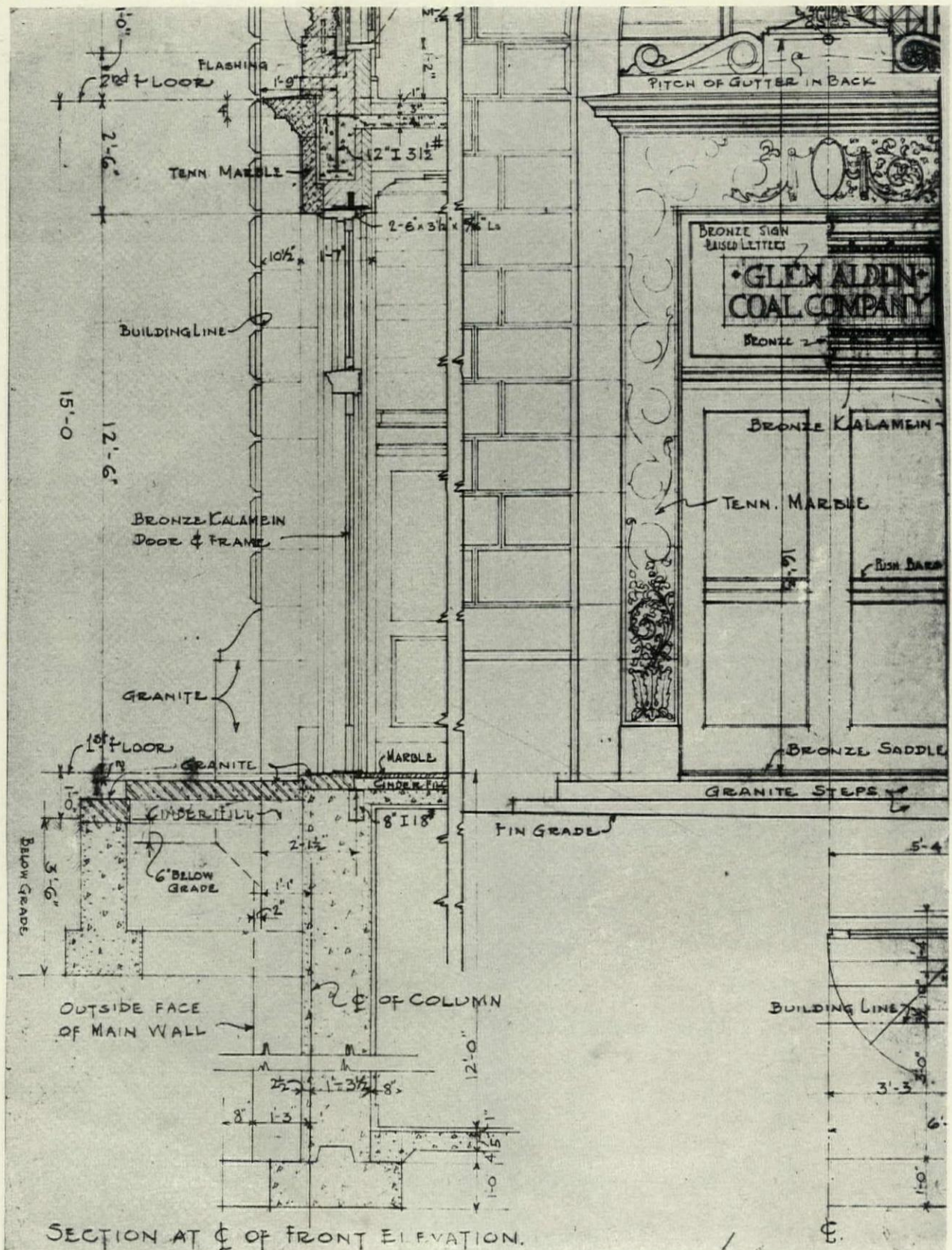
IRVING MARGON, ARCHITECT, has become associated with Adolph M. Holder under the firm name of Margon & Holder with offices at 29 West 57th Street, New York.

CHARLES A. SIMONS, Fort Scott, Kansas, desires manufacturers' samples and catalogues.

BRANDON SMITH, R. A., has formed a partnership with Harold O. Reif for the continuation of Mr. Smith's architectural practice. Offices are located at 429 Penn Avenue, Pittsburgh, Pa.

LOUIS J. BRADBURY, architectural student, 271 Adelphi St., Brooklyn, N. Y., is starting an A.I.A. file and would like to receive manufacturers' samples and catalogues.

W. H. WILSON, architectural student, 1803 Sawtelle Blvd., Sawtelle, Calif., would like to receive manufacturers' samples and catalogues.



DETAILS OF CONSTRUCTION—GLEN ALDEN COAL COMPANY BUILDING, SCRANTON, PA.

KENNETH M. MURCHISON, ARCHITECT

PERSONALS (Continued)

RAYMOND G. CLIFFORD, ARCHITECT, has moved to 616 Guaranty Building, Portland, Oregon.

A. ROY KELLEY, ARCHITECT, has moved to 1102 Architects Bldg., Fifth and Figueroa Sts., Los Angeles, Calif.

VICTOR LA FORTE, CONSTRUCTOR, 50 Leslie Terrace, Springfield, Mass., would like to receive manufacturers' samples and catalogues pertaining to hotels and apartment houses.

MORISON & WALLACE, ARCHITECTS, have moved to Adams-Franklin Bldg., 222 W. Adams St., Chicago, Ill.

GEORGE F. BERTAN, architectural student, 140-17 Cherry Avenue, Flushing, L. I., would like to receive manufacturers' samples and catalogues.

ARTHUR W. DAHLSTROM, architectural student, 847 Francisco St., Los Angeles, Calif., would like to receive manufacturers' samples and catalogues.

QUERIES AND ANSWERS

Query: I have seen "pendants" used as an architectural term to refer to the springers of arches, which rest on shafts or corbels. Have always thought pendant came from the Latin, *pendo*, I hang.

Answer: In Gothic Architecture, an ornamented polygonal piece of stone or timber hanging down from the vault or roof of a building is called a pendant.

Query: Where did the term "attic base" originate? The rooms in a roof seem a long way from the classic column!

Answer: Vitruvius named the upper and lower torus and scotia joined by fillets, the most usual of all column bases, the "attic base."

Query: Please do not write an essay but can you tell me in a few words what you and the authors in PENCIL POINTS mean by *style*?

Answer: In the Fine Arts style is the mode in which an artist forms and expresses his ideas on and of a given subject. It is the form and character that he gives to the expression of his ideas, according to his particular faculties and powers. Style may be considered as the refinement of manner: it is a characteristic essence by which we distinguish the works of one master from another. From literature this word has passed into the theoretic language of the Fine Arts; and as in that we hear of the *sublime*, *brilliant*, *agreeable*, *historic*, *regular*, *natural*, *confused*, and other styles, so we have almost the same epithets applied to styles of art.

Query: How is the real ultramarine made?

Answer: Ultramarine is the blue coloring matter of the lapis lazuli. This substance is much valued by painters on account of the beauty and permanence of its color, both for oil and water painting. In its preparation the finest lapis lazuli is selected, heated to a dull red heat and quenched in water; it is thus rendered friable, and is ground down into an impalpable powder. This is then mixed with a tenacious paste made of linseed oil, wax, resin, turpentine and mastic; and the mixture being kneaded in warm water gives out the blue particles, which are afterwards collected by subsidence. Chemists have succeeded in preparing an artificial ultramarine by heating sulphuret of sodium with a mixture of silica and alumina.

FREE EMPLOYMENT SERVICE

(Other Items on Page 126, Advertising Section)

POSITION WANTED: Architect and specification expert, 20 years' experience in general design, construction and supervision, including building and zoning laws on hotels, hospitals and other fireproof building construction. Specifications written in spare time at reasonable rates or consider permanent executive connection with a good firm. Box No. 808-A, care of PENCIL POINTS.

POSITION WANTED: Construction supervisor or superintendent. Graduate engineer wants employment preferably out of town; experienced in earthwork, concrete foundations, power, sub-station and industrial plants, warehouses, etc., transit, level work, measuring, estimating, cost-keeping. Also sales work. Address H.J.K., care of PENCIL POINTS.

POSITION WANTED: A.R.I.B.A., A.M.T.P.I., 10 years' experience with concern handling development work in housing, hospitals, offices, schools, university buildings and stores. Write stating salary to C.M.L., 40 Croftdown Road, Parliament Hill Fields, London, N.W.5.

PARTNERSHIP WANTED: Wish to make arrangements with well established architect who considers retirement from business. Middle-sized Texas city preferred. Have more than 30 years' experience in all lines of architectural business. Box No. 810-A, care of PENCIL POINTS.

SPARE TIME WORK WANTED: By senior architectural draftsman in New York City. Box No. 811-A, care of PENCIL POINTS.

POSITION WANTED: Junior draftsman, college student, 2 years' actual drawing experience with architect, desires position. A. Louis Gioggia, 208 20th Street, West New York, N. J.

POSITION WANTED: Young man, 20 years old, desires position as junior draftsman. College student. Sam. Schub, 1253 78th St., Brooklyn, N. Y.

POSITION WANTED: Draftsman-Designer, 5 years' experience. Also do renderings and perspectives, also plan work. Box No. 812-A, care of PENCIL POINTS.

PLASTER MODELS of buildings, groups, dams, bridges, and building sites, made to any scale from drawings. Box No. 813-A, care of PENCIL POINTS.

POSITION WANTED: Experienced, expert specification writer seeks connection with good firm. Location immaterial. Box No. 814, care of PENCIL POINTS.

SPARE TIME WORK WANTED: Expert typist, can file, compile data, fairly accurate at figuring. Box No. 815-A, care of PENCIL POINTS.

I AM DESIROUS of placing in the office of an architect or builder, a young man now in my employ. Very rapid typist, and can take "spec" from dictation. Also, competent and expert bookkeeper, and student of accounting. Can be depended upon fully and trusted in matters of extreme confidence. Salary reasonable. Communicate with Mr. Harold E. Hall, Architect, 1345 Shakespeare Ave., New York, N. Y.

POSITION WANTED: Graduate of University of recognized standing, training abroad, three years' experience at delineation, designing, and working drawings. Will start at moderate salary in office offering good experience and possibilities of permanent connection. Box No. 816-A, care of PENCIL POINTS.

POSITION WANTED: Architectural student studying evenings wants position as tracer in Chicago architect's or builder's office. Has good knowledge of drafting and building construction. Can furnish unquestionable references. R. A. Kempf, 66 N. Prospect Ave., Clarendon Hills, Ill.

PUBLICATIONS

OF INTEREST TO THE SPECIFICATION WRITER

Publications mentioned here will be sent free unless otherwise noted, upon request, to readers of PENCIL POINTS by the firm issuing them. When writing for these items please mention PENCIL POINTS.

Specifications for ATP Roofs.—A.I.A. File No. 12-b-11. A new document with blue prints and concise specifications covering 14 different roofing problems. Flashing details and much useful information. Standard filing size. American Tar Products Company, Inc., Union Trust Bldg., Pittsburgh, Pa.

Mantels in Cretan Stone.—Brochure in duotone showing about 50 beautiful mantels in elevation, with profiles and all necessary dimensions. $8\frac{1}{2}$ x 11. William H. Jackson Company, 2 West 47th St., New York, N. Y.

Oil Burner Specifications and Data.—A.I.A. File No. 30-g-1. Document prepared with special reference to the architect and specification writer. Blue prints, specifications, complete, concise data. Standard filing size. Electrol, Inc., of Missouri, St. Louis.

Drinking Fountains.—A.I.A. File No. 29-h-1. Architects' Catalog "H." A new document which constitutes a handbook on the subject, completely illustrated. Specifications, dimensions and complete data on all types of every conceivable use. 50 pp. Standard filing size. The Halsey W. Taylor Co., Warren, Ohio.

A Treatise on Textured Wall Finishes.—Handsome brochure, just off the press, with many color plates and large size details of different wall textures and colors. Notes on the preparation of wall surfaces. 60 pp. $8\frac{1}{2}$ x 11. The United States Gypsum Co., 300 West Adams St., Chicago, Ill.

Globes for Commercial Lighting.—Catalog 202 presents in color a line of newly designed glassware for all types of public and commercial buildings. Standard filing size. Macbeth-Evans Glass Company, Charleroi, Pa.

Sutterlith.—A.I.A. File No. 23-g-2. Specification and data folder covering this new material which is manufactured in tile or slab form for use as a flooring and on wall surfaces. Standard filing size. Sutterlith, Inc., 26 Cortlandt St., New York, N. Y.

Atlantic Terra Cotta.—Monthly brochure for architects and draftsmen, the February 1928 issue of which covers small buildings. Banks, stores, theatres, comfort stations, etc., are included. Atlantic Terra Cotta Co., 19 West 44th St., New York, N. Y.

Andirons and Firetools.—Portfolio illustrating a large number of andiron sets and other items of equipment for the fireplace. 24 pp. $8\frac{1}{2}$ x 11. Todhunter, Inc., 119 East 57th St., New York.

Within the Walls.—Booklet with accompanying detail drawings giving facts about modern out-of-the-way, out-of-sight radiators. Rome Brass Radiator Corp., 1 East 42nd St., New York, N. Y.

Insulite Specifications.—A.I.A. File No. 37-a-1. Standard specification folder with detail drawings covering sound-deadening construction for walls, ceilings and floors. $8\frac{1}{2}$ x 11. The Insulite Co., Builders Exchange Bldg., Minneapolis, Minn.

The Key to Firesafe Homes.—A.I.A. File No. 4-i-3. Brochure illustrated with many photographs with six pages of construction details covering the application of reinforced concrete to the first floors of residences. An interesting development. 20 pp. $8\frac{1}{2}$ x 11. Portland Cement Association, 605 Builders Bldg., Chicago, Ill.

Some Thoughts on Furnishing a Hotel.—Profusely illustrated booklet with plans and layouts covering everything required in the modern hotel from the lobby to the kitchen. Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

The Newton Invisible Door Closer for Banks.—A.I.A. File No. 27-b-4. Data sheet with detail drawings setting forth the advantages of this modern device. $8\frac{1}{2}$ x 11. C. H. Newton & Co., 261 Franklin St., Boston, Mass.

The Story of Oak Floors.—Brochure in sepia with color plates covering the application of oak flooring in its various finishes in all types of buildings. Oak Flooring Bureau, 828 Hearst Bldg., Chicago, Ill.

Tile Data Sheet.—Condensed information sheet with many color plates covering a complete line of tile suitable for all uses. $8\frac{1}{2}$ x 11. Rossman Corporation, 160 East 56th St., New York.

Standardized Metal Elevator Doors.—Data sheet covering the subject with detail drawings. Standard filing size. Lasar Mfg. Co., 1315 No. 16th St., St. Louis, Mo.

Blue Prints and Lumber Lists.—A series of detail sheets covering farm buildings of all types, also a two-car garage. Exchange Sawmills Sales Co., Kansas City, Mo.

Mueller Tile.—Illustrated catalog covering Polychrome Faience Tile Emblems, etc. 20 detail sheets, standard filing size. Mueller Mosaic Co., Trenton, N. J.

Gypsum Partition Tile.—Treatise by Henry J. Schweim covering the use of this material for all types of buildings. Detail drawings, tests, etc. 24 pp. $8\frac{1}{2}$ x 11. The Gypsum Industries, 844 Rush St., Chicago, Ill.

Exterior Lighting Fixtures.—A.I.A. File No. 31-f-33. Loose leaf illustrated portfolio covering complete line of lighting fixtures for the exteriors of buildings as well as equipment suitable for parks, streets, etc. Standard filing size. Union Metal Mfg. Co., Canton, Ohio.

Better Walls for Better Homes.—Booklet illustrated with construction details and photographs covering the application of stucco to both old and new work. 16 pp. Standard filing size. National Steel Fabric Co., Union Trust Bldg., Pittsburgh, Pa.

The Blue Book of Steel Windows.—A.I.A. File No. 16-E-1, just off the press. Contains a large number of construction drawings and really constitutes a handbook on the subject of steel windows as applied to all types of buildings. 80 pp. $8\frac{1}{2}$ x 11. Detroit Steel Products Co., 2250 East Grand Blvd., Detroit, Mich.

Extruded Bronze Store Front Construction.—A.I.A. File No. 26-b-1. Full size detail sheets showing application of extruded bronze to store front construction. Standard filing size. Modern Bronze Store Front Co., Chicago Heights, Ill.

Terra Cotta Detail Plates.—A portfolio containing a collection of detail plates covering a wide variety of buildings, details, ornament, etc. $9\frac{1}{2}$ x 14. Midland Terra Cotta Co., 105 W. Monroe St., Chicago, Ill.

Sterlco System of Vapor Heating.—A.I.A. File No. 30-c-2. Data sheet covering the subject indicated. Layouts, drawings, specification data, etc. Standard filing size. Sterling Engineering Co., Milwaukee, Wis.

Reinforced Concrete Floors.—Data covering subject indicated. Detail drawings, useful tables, standard filing size. Tables of live loads required by building codes. National Steel Fabric Co., Union Trust Bldg., Pittsburgh, Pa.

The Scientific Super-Efficient System for Warming and Ventilating Homes.—Interesting data on this subject, illustrated and containing installation directions for gas furnaces. Standard filing size. The Scientific Heater Co., Cleveland, Ohio.

Blue-Printing Machinery, Blue-Print Paper, Drafting Room Furniture.—Catalog M-27 illustrates and describes this line of drafting room equipment. Much useful and interesting data including drawing of the arrangement of a blue-print room. The C. F. Pease Co., 813 N. Franklin St., Chicago, Ill.

Beardslee Beverly Lights.—A.I.A. File No. 31-f-23. Catalog No. 5 illustrates and describes this line of lighting fixtures. Price lists. Standard filing size. Beardslee Chandelier Mfg. Co., 216 S. Jefferson St., Chicago, Ill.

Fitzgibbons Steel Heating Boilers.—A.I.A. File No. 30-c-1. Bulletin No. H-7 illustrates and describes this type of boilers. Profusely illustrated, details of construction, tables, etc. Fitzgibbons Boiler Co., 570 7th Ave., New York, N. Y.

Newman Bronze Tablets.—Handsome catalog illustrated in color showing complete line of bronze tablets for honor rolls, commercial signs, nameplates, etched brass signs, cast characters, etc. 8 x 10 $\frac{3}{4}$. 64 pp. Newman Mfg. Co., 416 Elm St., Cincinnati, O.

Richmond Standard Automatic Tin-Clad Fire-Doors and Fixtures.—A.I.A. File No. 16-c. Catalog TC-24 illustrates and describes this line of fixtures. Illustrations showing application of tin sheets, construction details, tables of dimensions, etc. Standard filing size. Richmond Fireproof Door Co., Richmond, Ind.

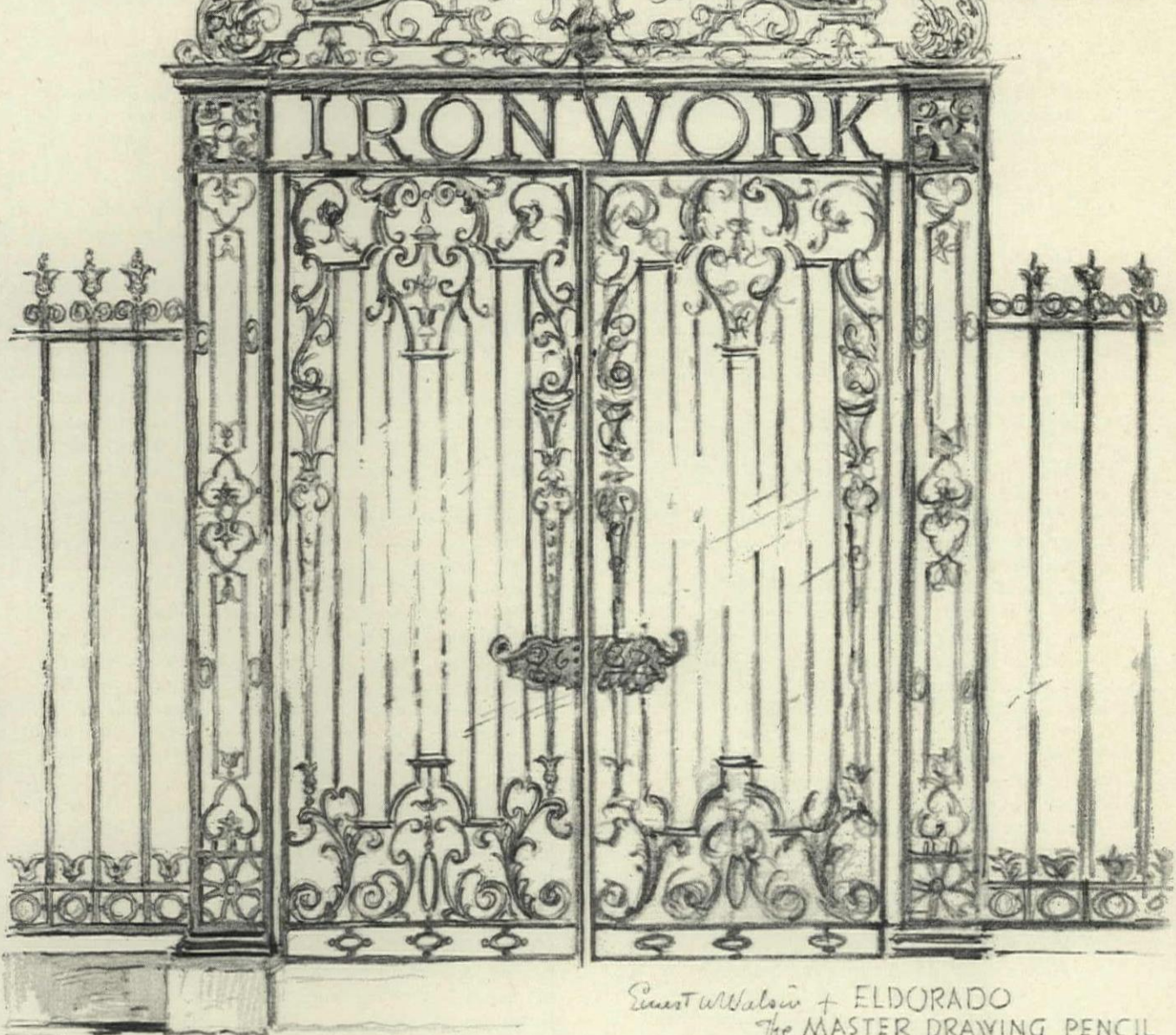
Heat—As You Would Have It.—Interesting data on Hardinge fuel oil heat. Many illustrations and much useful information on the subject. Tests. $8\frac{1}{2}$ x 11. Hardinge Bros., Inc., 549 N. Michigan Ave., Chicago, Ill.

R P M.—Illustrated discussion of Robertson protected metal and its place in modern building construction. Blue prints, drawings, engineering data, of interest in industrial buildings. 48 pp. $8\frac{1}{2}$ x 11. H. H. Robertson Co., 1st Nat'l Bank Bldg., Pittsburgh, Pa.

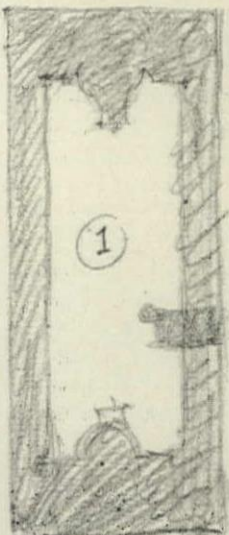
Lithopone and Its Part in Paint.—Consideration of a technical subject in non-technical language by L. H. Trot. Of special interest to those who write painting specifications. New Jersey Zinc Co., 160 Front St., New York, N. Y.

McCray Refrigerators for Hotels, Restaurants, Clubs, Hospitals and Institutions.—Completely illustrated. Plans, details of construction and complete data. McCray Refrigerator Sales Corporation, Kendallville, Indiana.

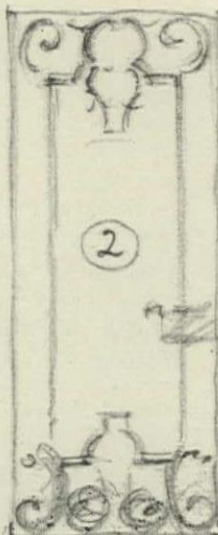
The ELDORADO PAGE



Ernest W. Watson + ELDORADO
The MASTER DRAWING PENCIL



Analysis of
MASS effect



Analysis of
LINE effect



No. 2 + scumbled
lines to suggest less important details

Two Methods of Indicating Ironwork

THE drawing of the left half of the iron gate above, required two hours; the right half was sketched in fifteen minutes. Yet both sides give the same effect when viewed casually. If the purpose of the drawing be to illustrate the design of the gate in detail, the more elaborate and accurate treatment is desirable—if, on the other hand, the general effect is the only requirement, it is evident that the rapid sketch method is adequate and more economical.

The diagrams 1, 2 and 3 indicate the importance of analysis of the design when using the shorthand method. The general mass effect and the leading lines of the design must be carefully observed. The details which are not so important can be suggested by scumbled lines.

There is no better way to learn than to make many such analytical sketches of iron designs.

This is one of a series of Pencil Lessons prepared by Ernest W. Watson. Write on your letterhead for samples of Dixon's Eldorado, "The Master Drawing Pencil," Joseph Dixon Crucible Co., Pencil Dept. 167-3, Jersey City, N. J.

COMPETITION FOR A RUG DESIGN

A RUG DESIGN competition has been announced by the Art Alliance of America which is open to artists, free lance designers, and art students generally, with the purpose of arousing them to the present-day demand for expression of modern motifs and color trends in interior decoration. The prizes offered to professional artists are:

First Prize, \$1,000.00; Second Prize, \$500.00; Third Prize, \$250.00. Other prizes will be offered to students. All the prizes are given by the Mohawk Carpet Mills, Inc., of Amsterdam, N. Y. The competition closes April 24th.

Copies of the announcement may be had from the Secretary, Rug Design Competition, The Art Alliance of America, 65 East 56th Street, New York.

LOS ANGELES ARCHITECTURAL CLUB

BENEFITTED BY the building up of the organization during the past year, the Club has now stirred itself into considerable activity with the incoming régime of the newly elected officers. There have been numerous applications for membership and the Club promises to grow in numbers as well as interest.

The February meeting brought out a large number, about 100 in all. The meeting was addressed by Francis Vreeland, Artist, and Roger Noble Burnham, Sculptor, two very enthusiastic and interesting speakers. The newly formed Club quartette rendered several vocal numbers which were well received. The meeting was held at the new Architects' Building.

The annual ball was held the early part of February and was more successful than ever. In a glorious Venetian setting there gathered a swarm of happy carnival makers, Spanish Dons and Spanish Dancers, sheiks and maids from Araby, sullen monks and rollicking Russians, their faces hidden by masks and only gleaming eyes and flashing teeth gave hint to their personalities. The proceeds of the affair were used towards a scholarship at Fontainebleau for the architectural student successful in the competition held the first week in March.

The Club is exhibiting with the Architects League of Hollywood in their third annual show at the California Art Club, located in the former Barnsdale residence, designed by Frank Lloyd Wright.

GEORGE G. BOOTH TRAVELLING FELLOWSHIP
THE COLLEGE OF ARCHITECTURE, University of Michigan, has announced that the annual competition for the George G. Booth Travelling Fellowship in Architecture will be held from April 6th to April 20th, 1928.



No, dear reader, this is not a bit of Bagdad or Byzantium. Believe it or not it is the Municipal Building in the rising American city of Opa-locka, Florida, situated not so far from Miami.

LETTERS OF AN ARCHITECT TO HIS NEPHEW

EDITOR'S NOTE:—This is the eighth of a series of letters by William Rice Pearsall, Architect, of New York, addressed to young draftsmen and students about to take up the study of architecture. Mr. Pearsall, who may be addressed at 527 Fifth Avenue, New York, has expressed his willingness to answer any questions which may be addressed to him by our readers.

March 1st, 1928.

DEAR GEORGE:

A month or so ago my letter discussed the subject of design, taking it for granted that you had looked up its definition. Now let us look at the other part of the office work, that of engineering, sometimes called "Architectural Engineering."

The dictionary definition of *engineering* reads: *The art and science by which natural forces and materials are utilized in structures or machines.*

In my letter on design I spoke of the use of suitable materials with which to carry out the character and spirit of the design as in contrast to what I called "paper designing."

Do not confuse the engineering work of the specialist in the various branches—structural and mechanical—with architectural engineering; these are subdivided because they fit in with the engineering of the architect's office. A better name might be co-ordination, for it is the engineer in the architect's office who brings together all the drawings with the specification (which should be a description of materials and methods) in a form that presents the work complete in its various parts, divided as trades for the estimating of the cost.

The one who fits into such a position must have the ability to grasp quickly the large volume of detail that must be listed, scheduled, and checked, select materials and decide methods of putting such materials in their relation to other kinds of material. A knowledge of the unit sizes and where to look for information regarding materials is necessary. Have you read that before? Keep that thought in mind.

Many times a diagram or outline drawing to call attention to the location or use of certain materials will make clear much description, because there are methods and kinds of finish that cannot be pictured in words, nor can the regular detail drawings always show clearly what is wanted or the way to use the material.

The engineer, like the draftsman, cannot succeed if he is afraid of work, is a clock watcher or does not want to dig his way out when the large volume of work almost overwhelms because pressure from outside demands the work at once.

Training and experience will teach how to judge the most important thing to be done first from those which can be postponed.

Interest and studious attention to the required duties will hasten the advancement desired by ambition to succeed, much faster than constant discussion of salary values and using as a sign of success the \$.

Sincerely, YOUR UNCLE.

EXHIBITION OF CHICAGO ARCHITECTS' CLUB

THE FIRST ANNUAL Exhibition of the Architects' Club of Chicago is being held at the Clubhouse, 1801 Prairie Avenue, and will continue for a period of two months.

This exhibition embraces displays by the Club Members and represents interesting phases of the building industry. It includes examples of material and processes, as well as drawings, paintings and models by architects, painters and sculptors.

For every Style of Architecture...

We earnestly wish that every architect could visit our factory and see for himself just what Andersen Frames* are and exactly how they are made.

You are cordially invited to come to Friendly Valley on the St. Croix River whenever it is convenient. We shall welcome you to Bayport.

Whether or not you visit us, we hope you will take the time to form an opinion of our product and its value in relation to the big buildings or homes you are planning. We shall be glad to help you to complete information if you will manifest your interest by filling out the coupon below.

*The Andersen Trade Mark is on every frame.

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A Frame for Every
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- (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.

See Sweet's Architectural Catalog, page B 1160 for frames, page B 1785 for pulleys.

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Box 4204, Bayport, Minnesota

I will be interested in receiving items checked:

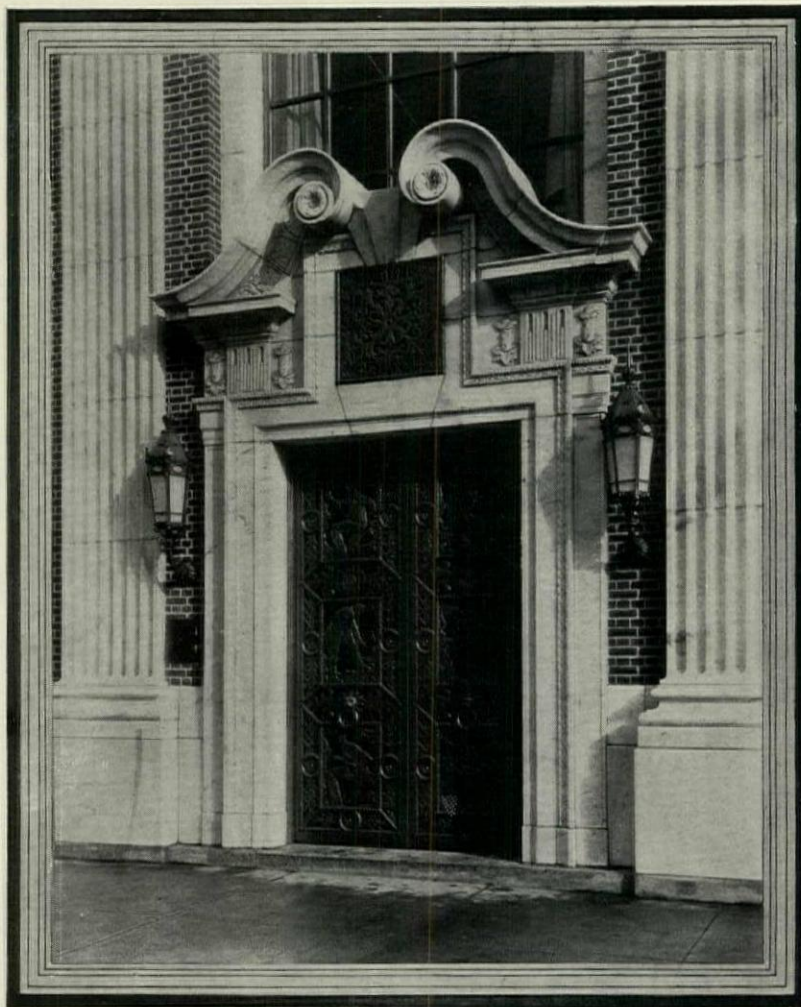
- ☐ Andersen Catalog No. 300—Complete, detailed information for the drafting room and specification writer.
☐ A sample of the new, noiseless, frictionless Andersen pulley.

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GEORGIA MARBLE



ENTRANCE MINERS NATIONAL BANK, POTTSVILLE, PA.
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ECONOMY

Using marble as trim is an economical means of retaining the character and strength expressed in marble details The Miners National Bank illustrates how the use of White Georgia Marble as trim gives a monumental dignity that could not be obtained by the use of commoner materials.

THE GEORGIA MARBLE COMPANY · TATE · GEORGIA
New York, 1328 Broadway Atlanta, 511 Bona Allen Bldg. Chicago, 456 Monadnock Bldg.

Two model offices which are part of an Exhibit of Model Offices, created by Randolph and Hang, Office Equipment Specialists of Cleveland.

At right, a realistic made-to-order floor in "plank" effect laid in Gold Seal Jaspé Linoleum, with "dowels" and "joints" fashioned by inlaying with mahogany brown interliners.

Below, a cork-composition tile floor of Gold Seal Marble-ized Tile gives spaciousness and dignity.



*Who knows
business floors
better?*

WHO has better reason to know what constitutes the ideal business floor than a firm which specializes in the planning, decoration and furnishing of modern business offices?—No one, obviously!

That's why the use of BONDED FLOORS throughout Randolph and Hang's model offices is noteworthy. That's why we bring this BONDED FLOORS installation to your attention.

These attractive rooms prove conclusively that you can have distinctive floors in perfect accord with the most elaborate and luxurious office and still secure all the approved advantages and assured economies which modern resilient floors offer.

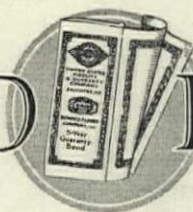
For full particulars in regard to these comfortable, quiet, easily cleaned floors write Department I. Learn how the long life of these floors is assured by a Guaranty Bond!

BONDED FLOORS COMPANY, INC.

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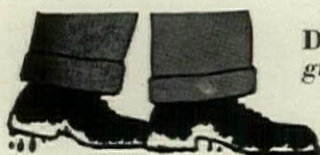


Guaranty Bond

Here is

LINOLEUM

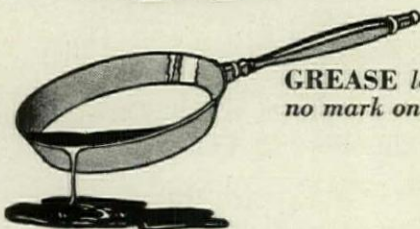
that will not "spot"



DIRT cannot
grind into it



INK cannot
penetrate it



GREASE leaves
no mark on it



FRUIT JUICES
do not stain it



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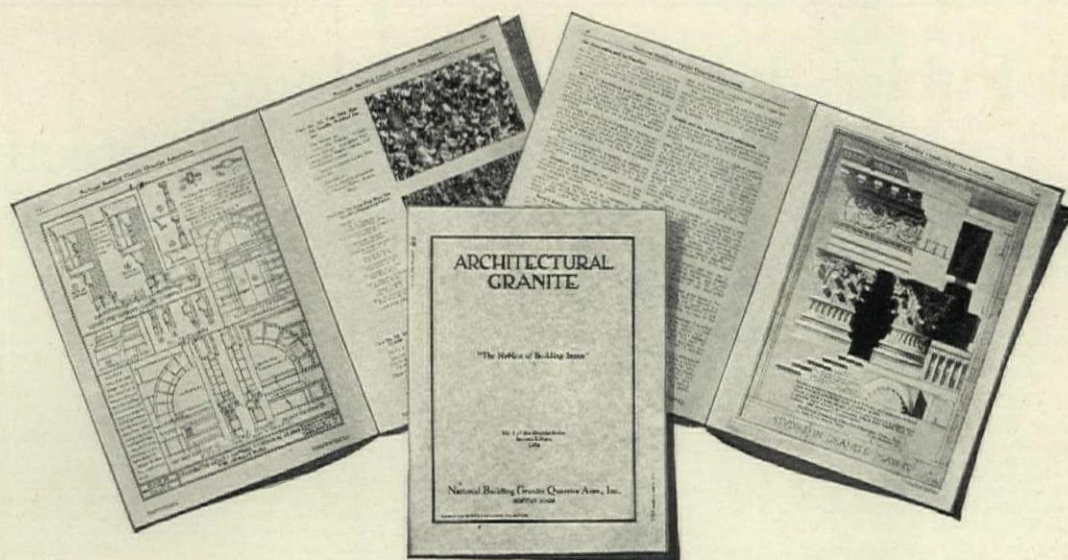
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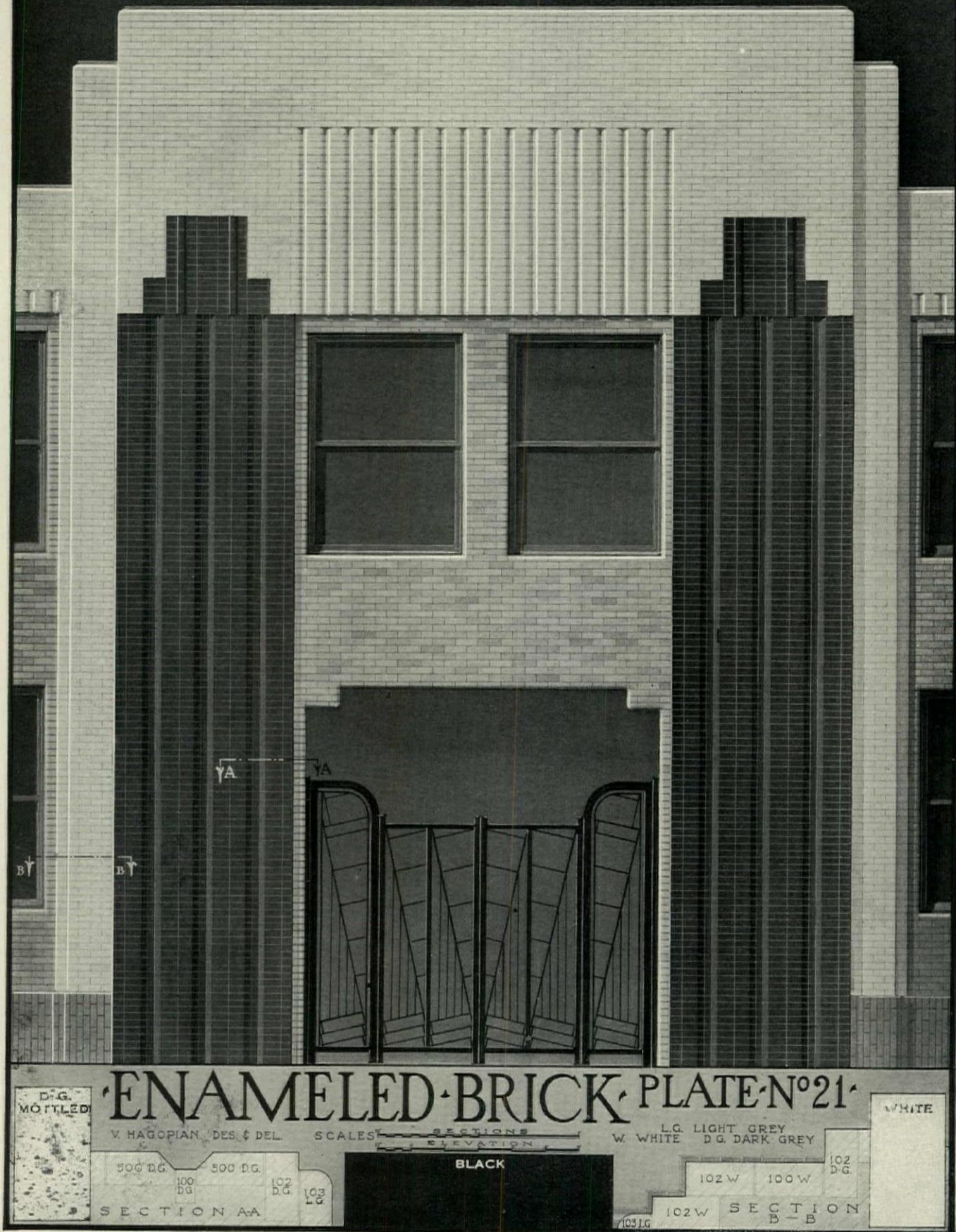


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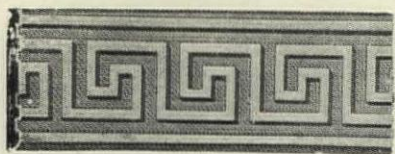
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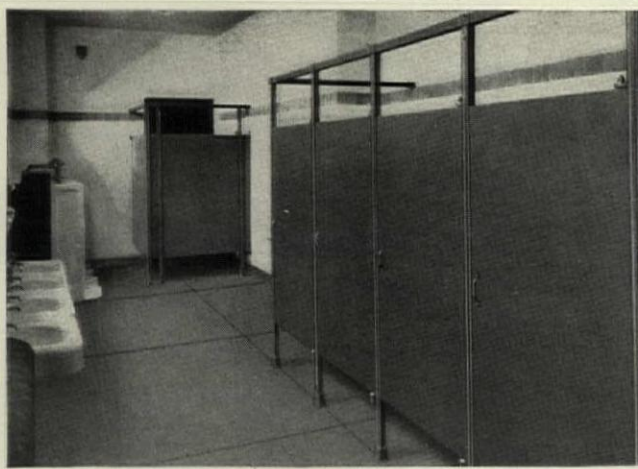
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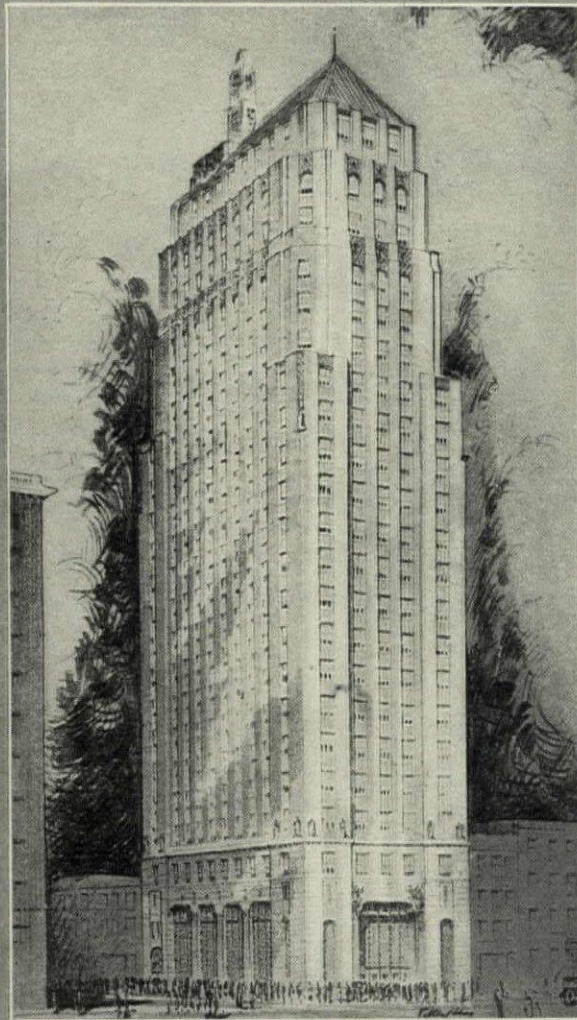
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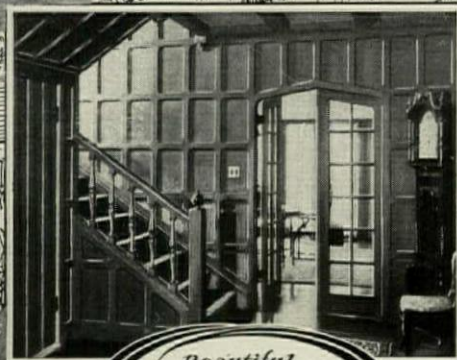
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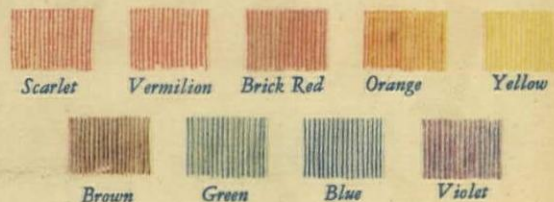
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Two methods of procedure may be followed to obtain a similar effect with a subject of your own selection. Probably the easier and more conventional of these consists of sketching the subject in black ink, next applying the intense colors and after that the tints. Caution should be exercised against the use of too much black, instead of permitting the colors to bring out the vital elements.

The second technique is a reversal of this order, with the subject first being sketched lightly in pencil, "built up" from Yellow, Orange, and Brick Red Higgins' Inks, with the darker Green, Blue, Purple and Black lines being subsequently sketched over it to supply additional depth and detail.

Done either way, the complete rendering represents an odd and interesting type which can be created only through the use of drawing ink. The technique itself may be used with equal effectiveness for the entire range of rendering, from the quickest thumbnail sketch to the most extensive elevation or perspective.





*Rendering in brush
by Arthur L. Gup-
till, from "Draw-
ing with Pen and
Ink."*

HERE the brush comes into play—the result is really a painting in Higgins' Ink. Its soft warmth and subtle sheen caused by the brilliancy of the inks commend it in many instances over the usual flat wash in water color which is often muddy, particularly in the darker tones. Because of their transparency, even the darkest tones of Higgins' Drawing Inks may be gone over repeatedly without destroying their crispness—a marked advantage over water color.

The subject was first sketched roughly in yellow ink, which, together with a few touches of brown on the railing and several purple accents on the tree branches, subsequently applied, consisted of the only pen work. The colors indicated were



applied by brush, the lighter ones being laid on first.

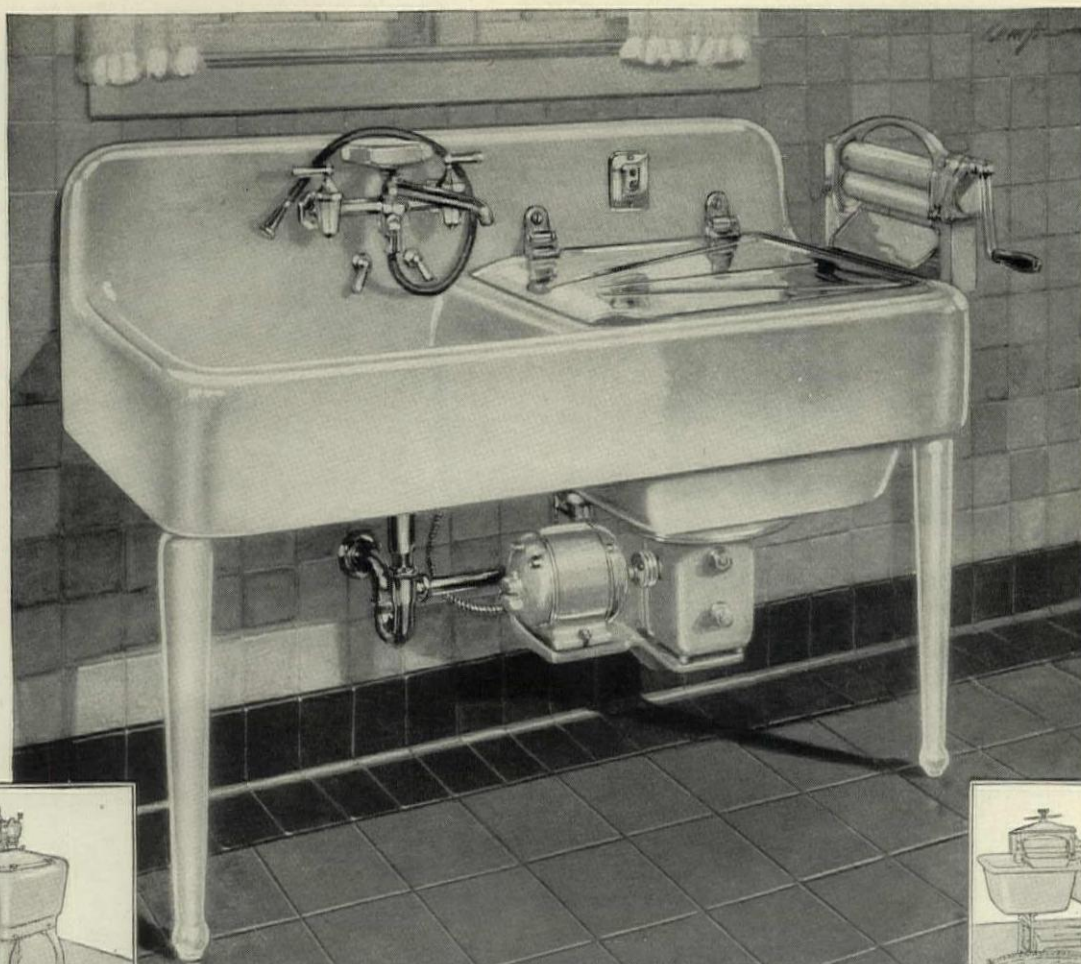
Like the drawing upon the preceding page, this method of handling may be employed for all rendering requirements and can be done quickly or carefully, as the requirements dictate. In application, Higgins' Drawing Inks may be used in line or wash, or, because they are waterproof, in combinations of the two, wash over line or line over wash.

Extra copies of this insert for your reference files may be obtained from Chas. M. Higgins & Co., 271 Ninth Street, Brooklyn, N. Y. Higgins' Colored Drawing Inks, in Carmine, Brick Red, Orange, Green, Blue, Vermilion, Indigo, Brown, Scarlet, Violet and Yellow (also the Waterproof and General Blacks and Waterproof White) are carried in stock by supply dealers and blueprint houses everywhere.

HIGGINS'



Colored Drawing Inks

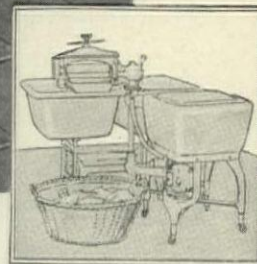


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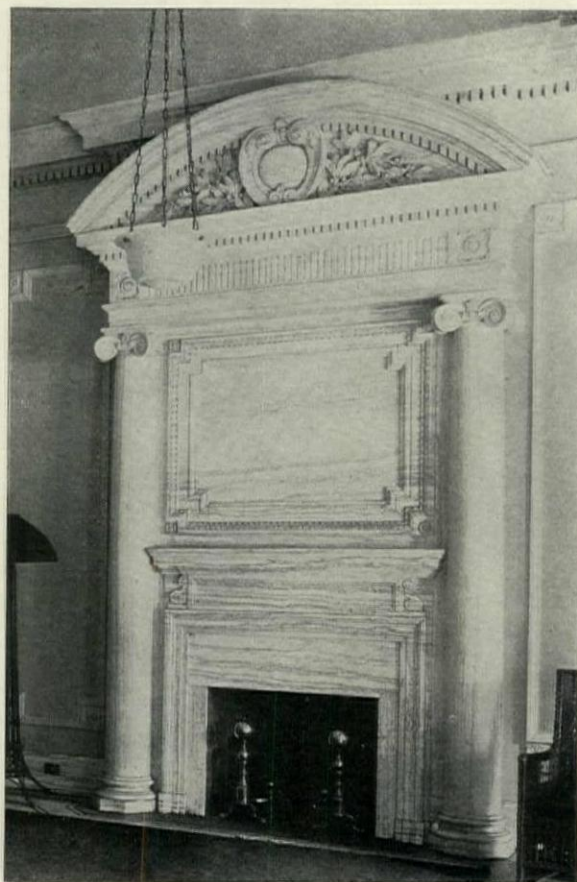
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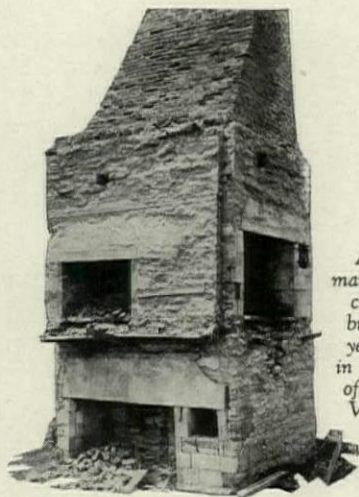
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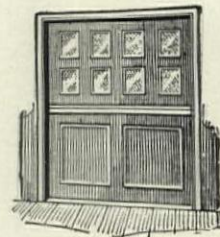
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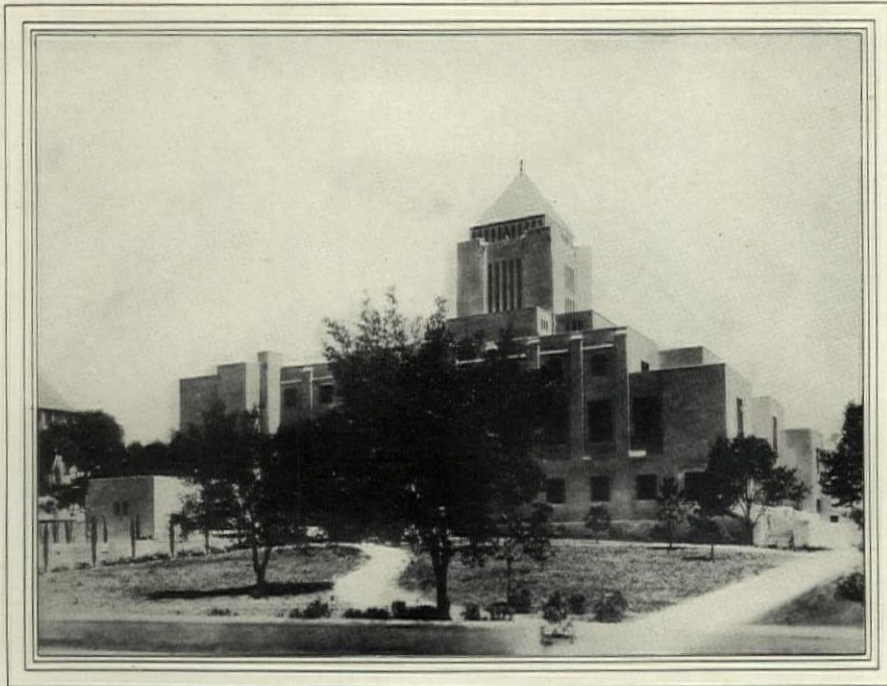
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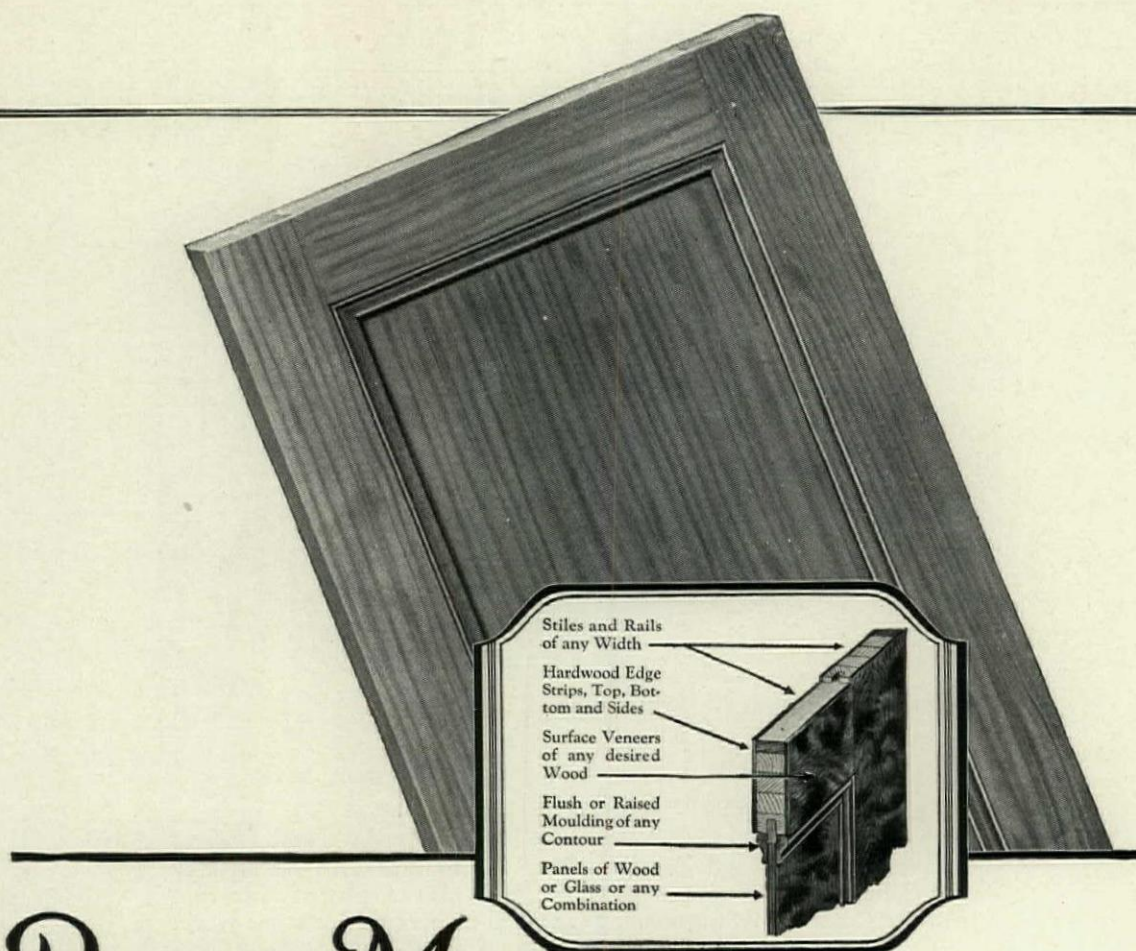
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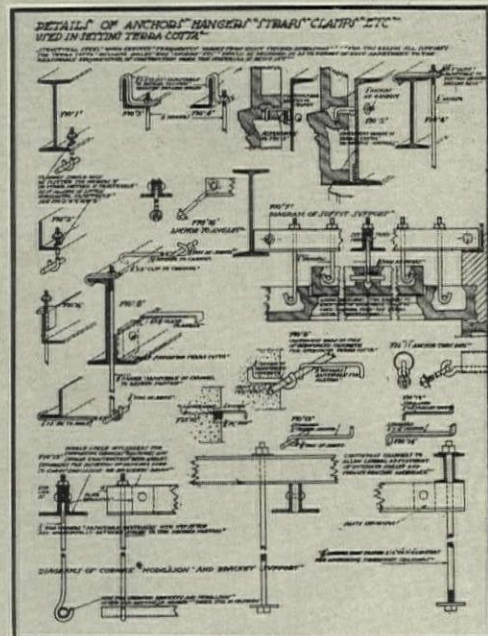
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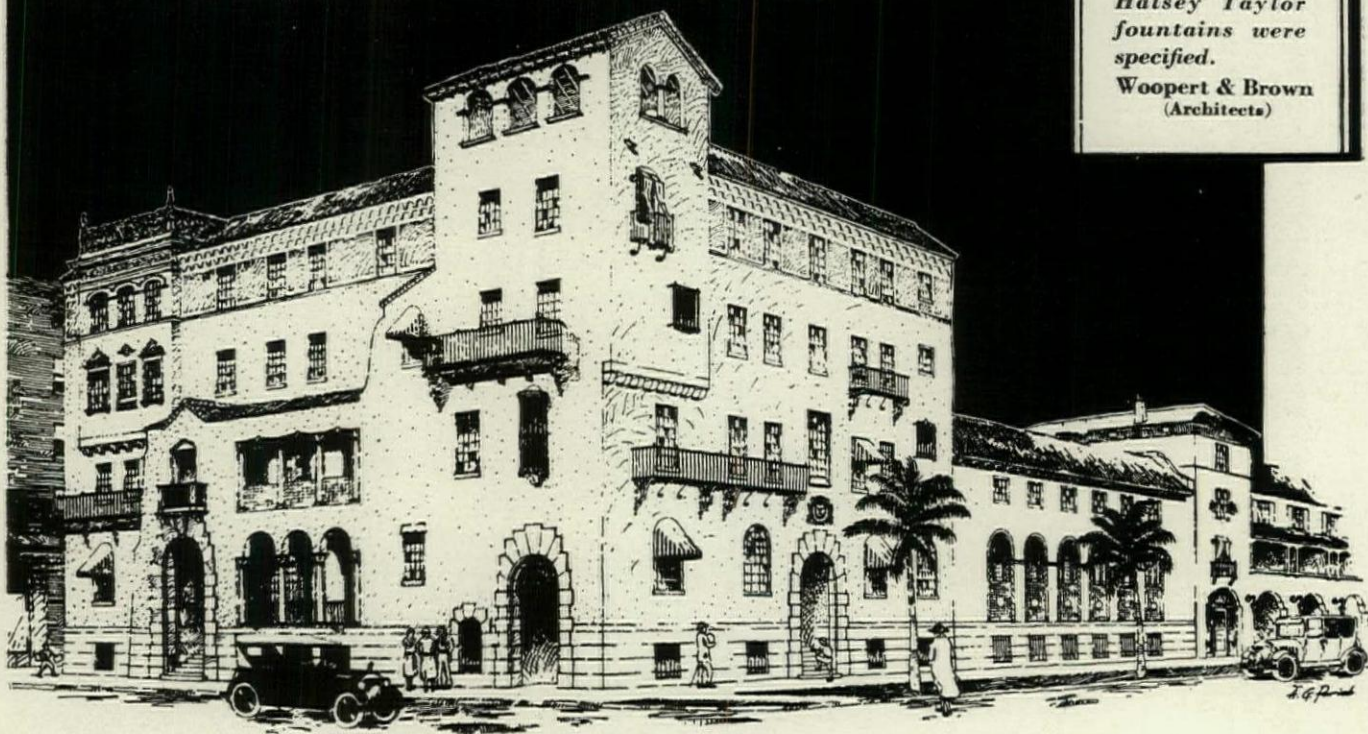
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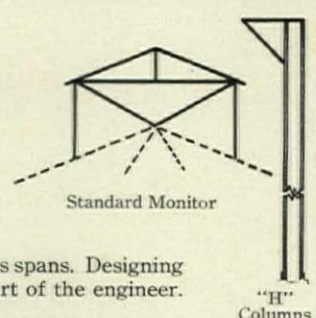
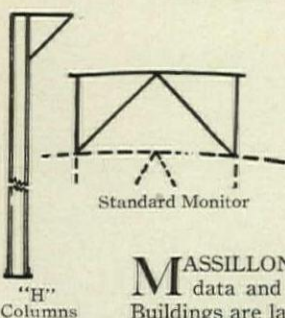
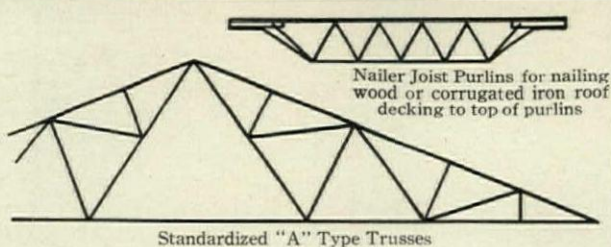
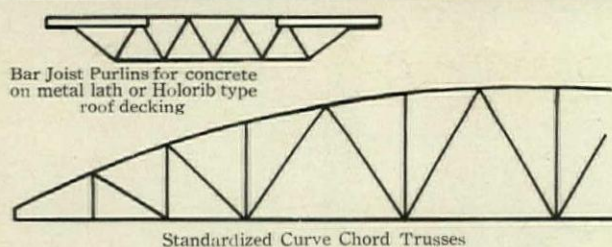
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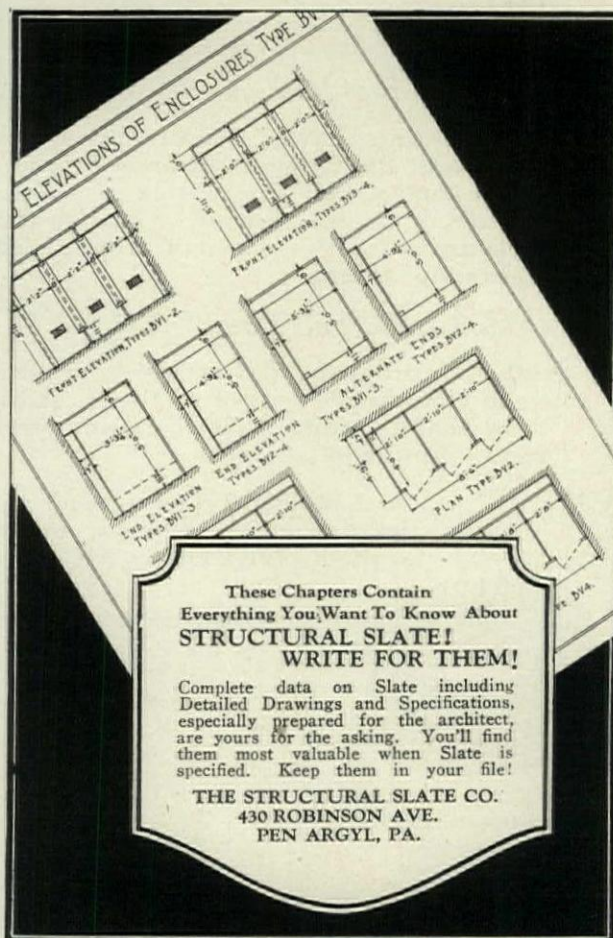
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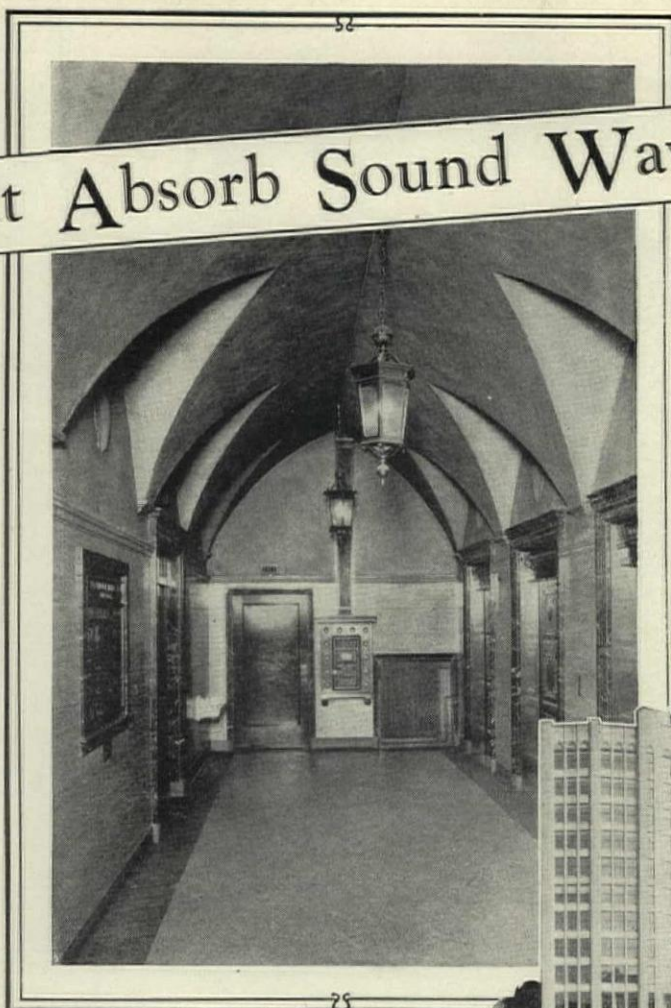
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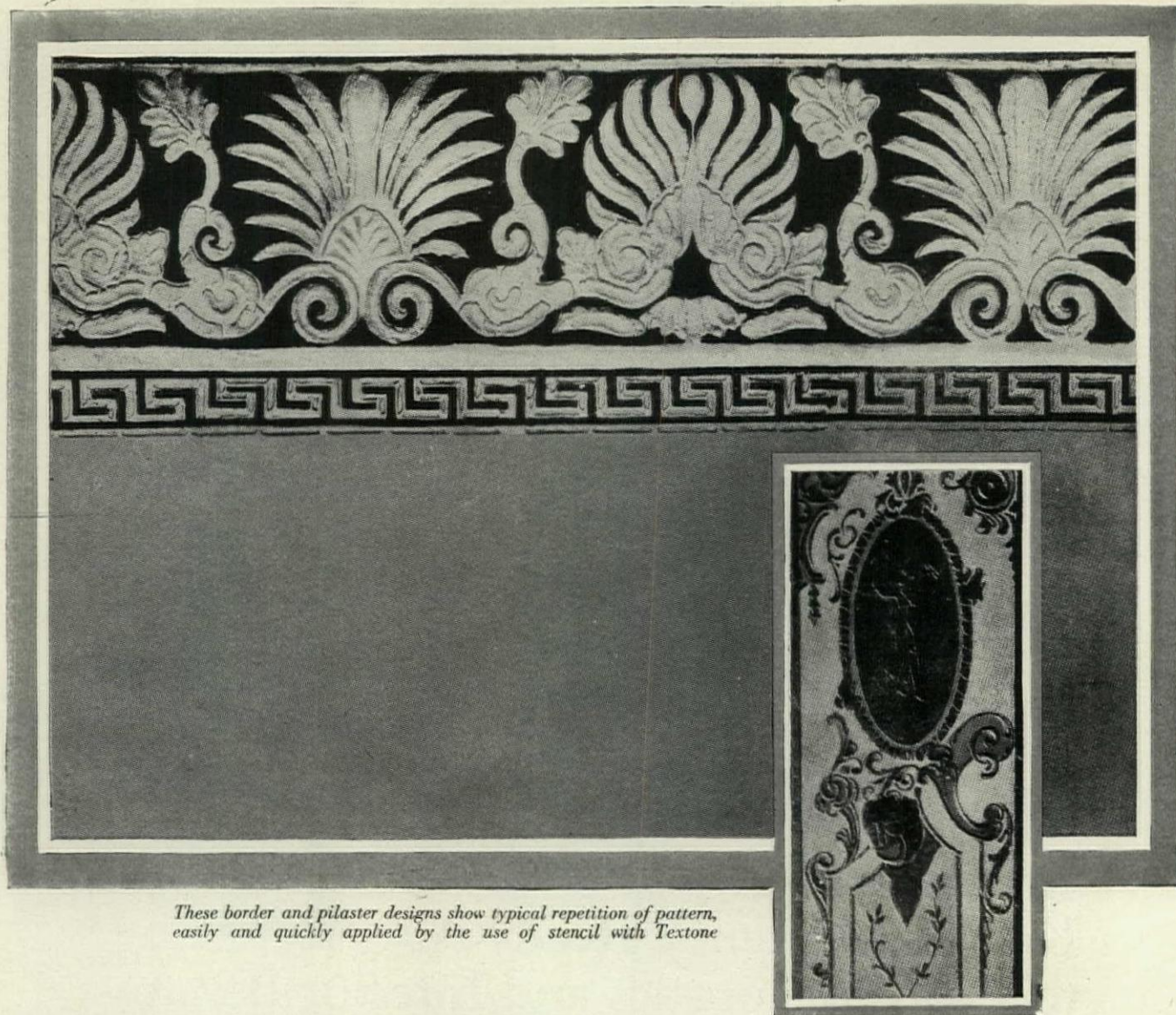


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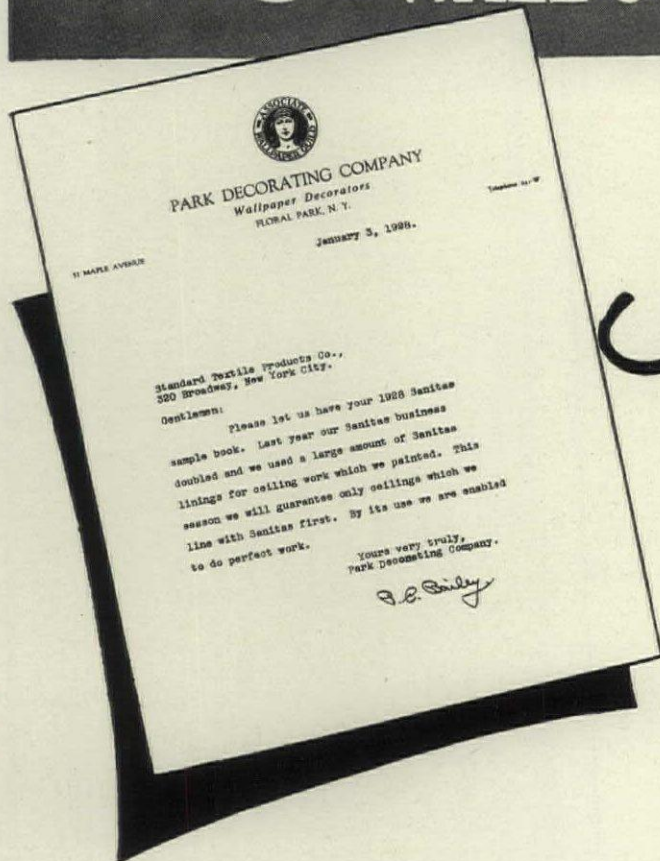


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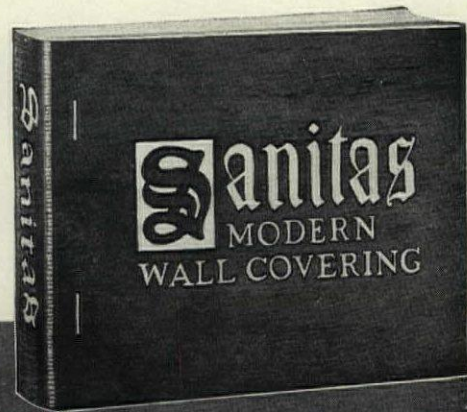
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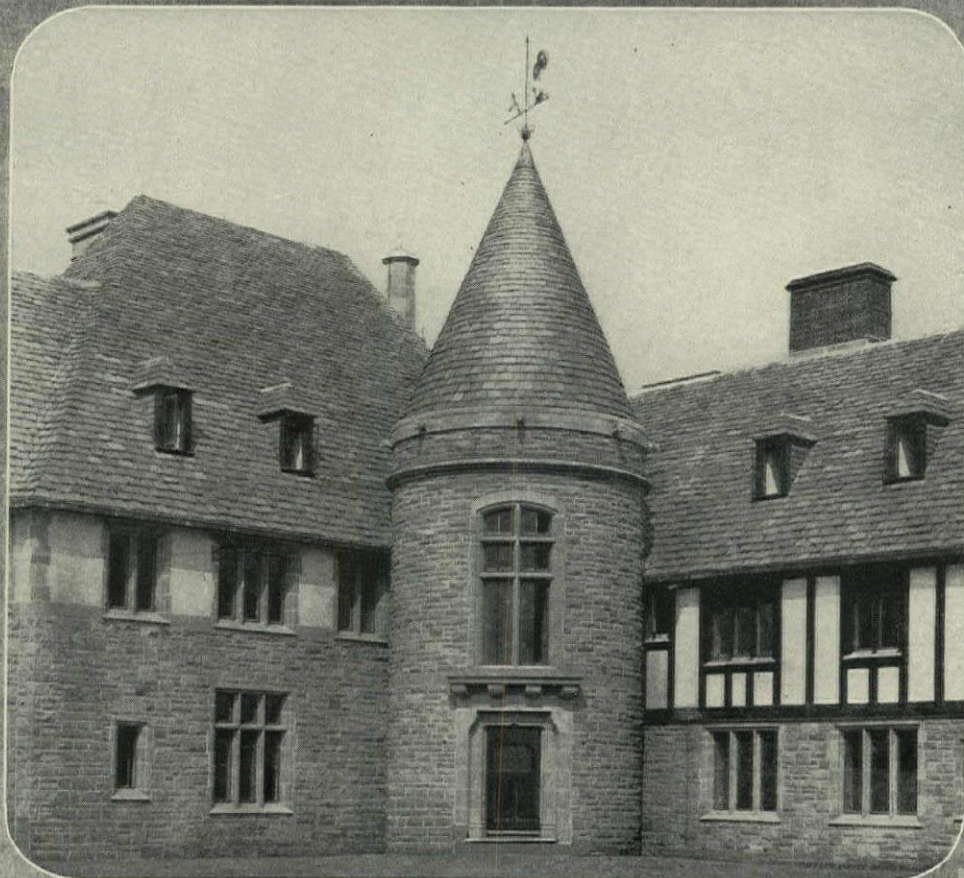
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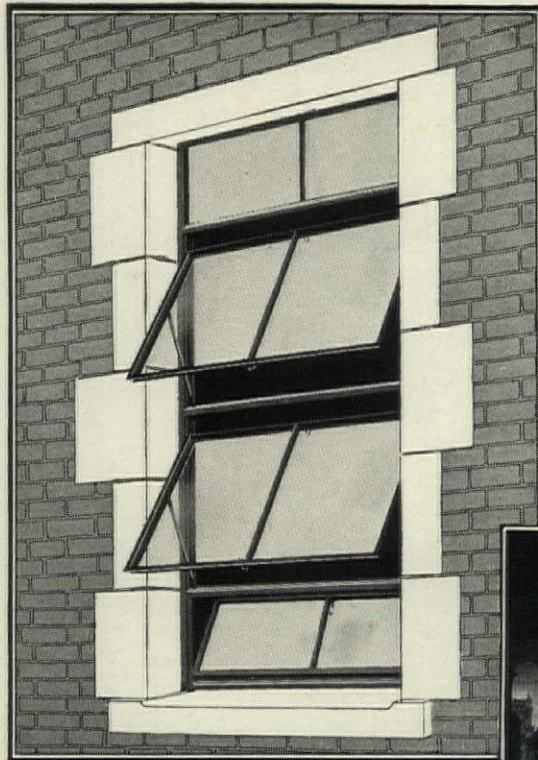
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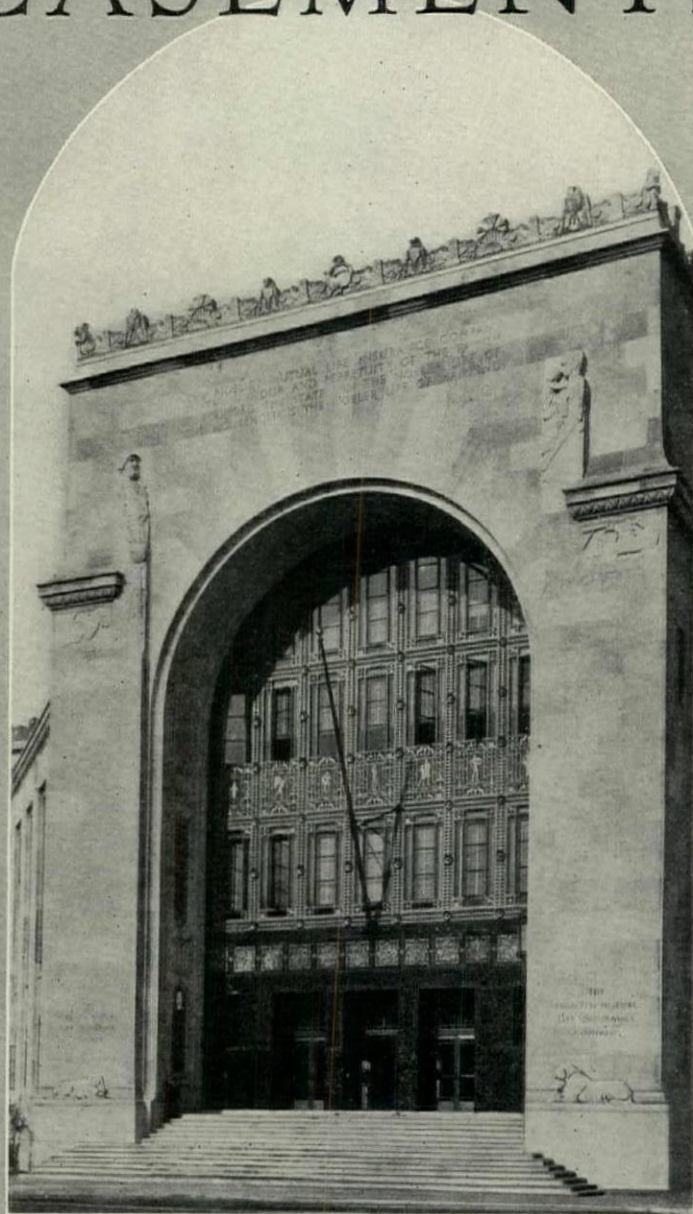
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INTERNATIONAL Metal Casements form an artistic as well as
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Also Manufacturers of International Austral Windows

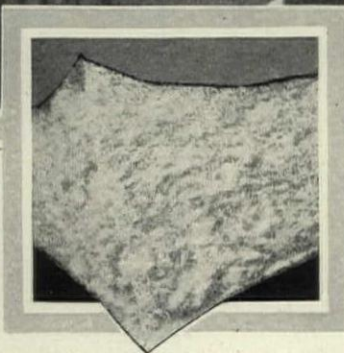
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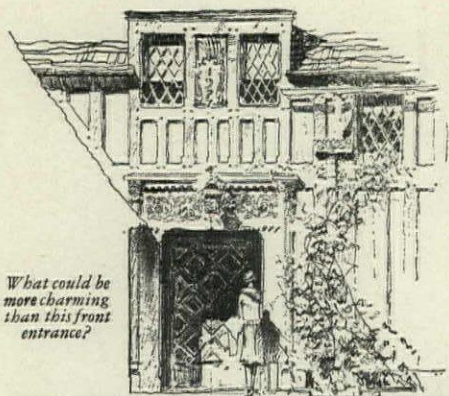
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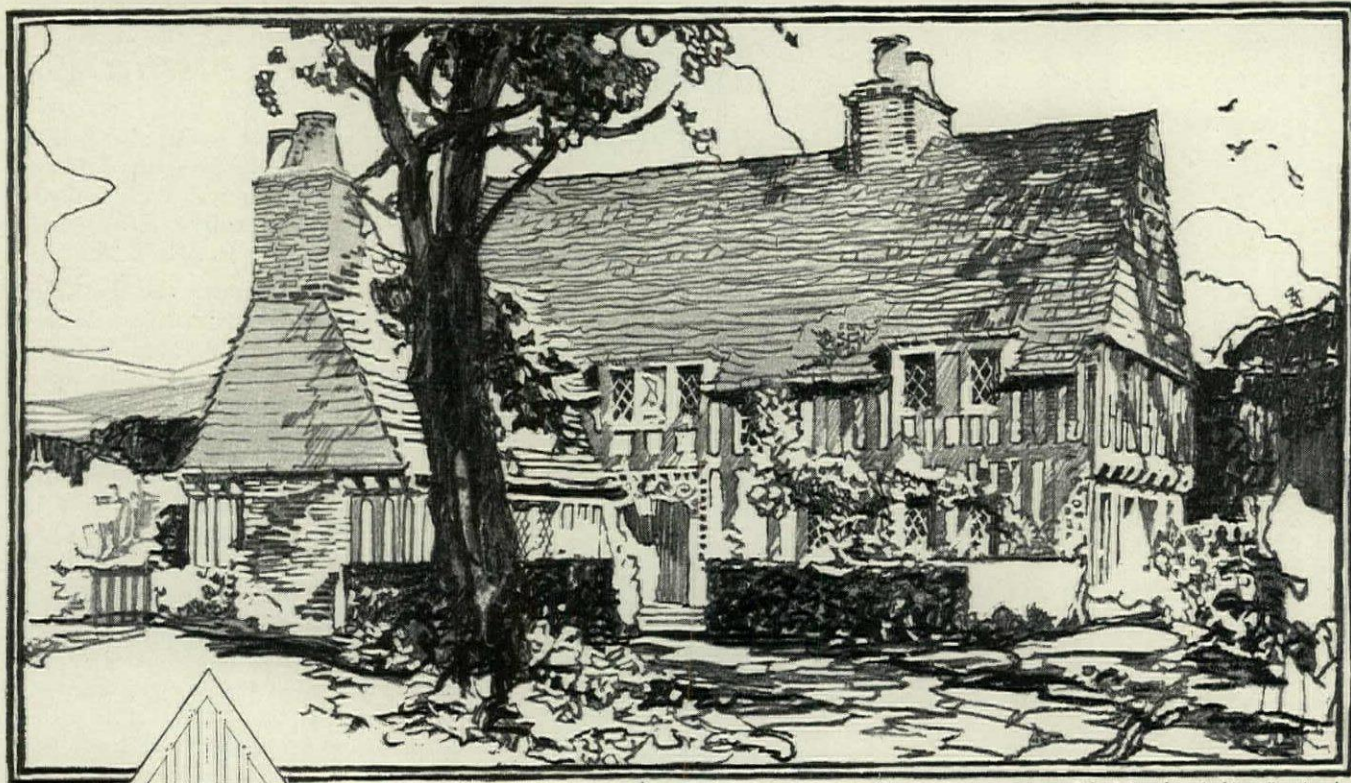




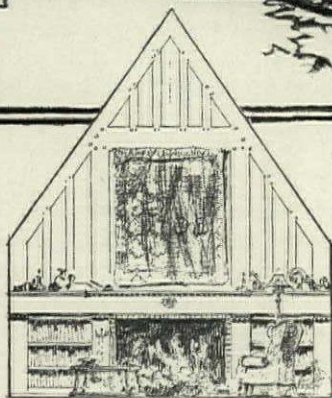
What could be more charming than this front entrance?

An *all*-timbered half-timbered home

—and it might be in Normandy



John J. Landon, Architect, Los Angeles



This very livable living room is paneled with West Coast Hemlock. It has wood trusses and shows the paneled construction.

Awarded first mention in the West Coast woods architectural competition

THE architect designed this very attractive house to reproduce—with West Coast woods—the charm of the cottages of Northern France ... with their steep pitched roofs, timbered walls, carved beams and many other pleasing exterior and interior details.

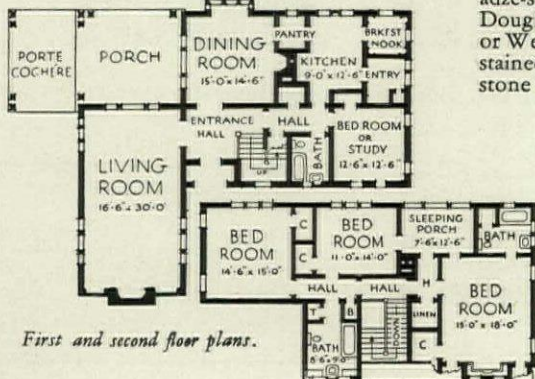
The unusually attractive *all*-timbered half-timbered effect is obtained by the use of adze-surfaced wide Douglas Fir battens over Douglas Fir plank. Frame of Douglas Fir or West Coast Hemlock. The battens to be stained darker than the panels, with rotten-stone dusted over all.

Roof is of vertical grain Western Red Cedar shingles or shakes with doubled ridges and eaves, and laid with a gradually lessening weather exposure as they near the ridge ... fastened with zinc coated or copper nails to insure a permanent roof.

Interior paneling of West Coast Hemlock. Beams and posts of Douglas Fir—all to be stained and antiqued. The entrance hall and stair rail of Douglas Fir with sand-etched design.

Living room to have exposed trusses of Douglas Fir. Dining room paneled in West Coast Hemlock—ceiling beamed with sand-etched Douglas Fir. Bedrooms in Douglas Fir, West Coast Hemlock or Sitka Spruce.

Floors to be of wide Douglas Fir or West Coast Hemlock, pegged and grooved, and stained dark brown.



First and second floor plans.

We will be glad to send you, without charge, a brochure of the designers' sketches and construction suggestions for this and many other of the designs submitted in the West Coast Woods Architectural Competition, together with a book describing the four outstanding woods of the Douglas Fir region. Address West Coast Lumber Bureau, 217 Mt. Hood Building, Longview, Washington.

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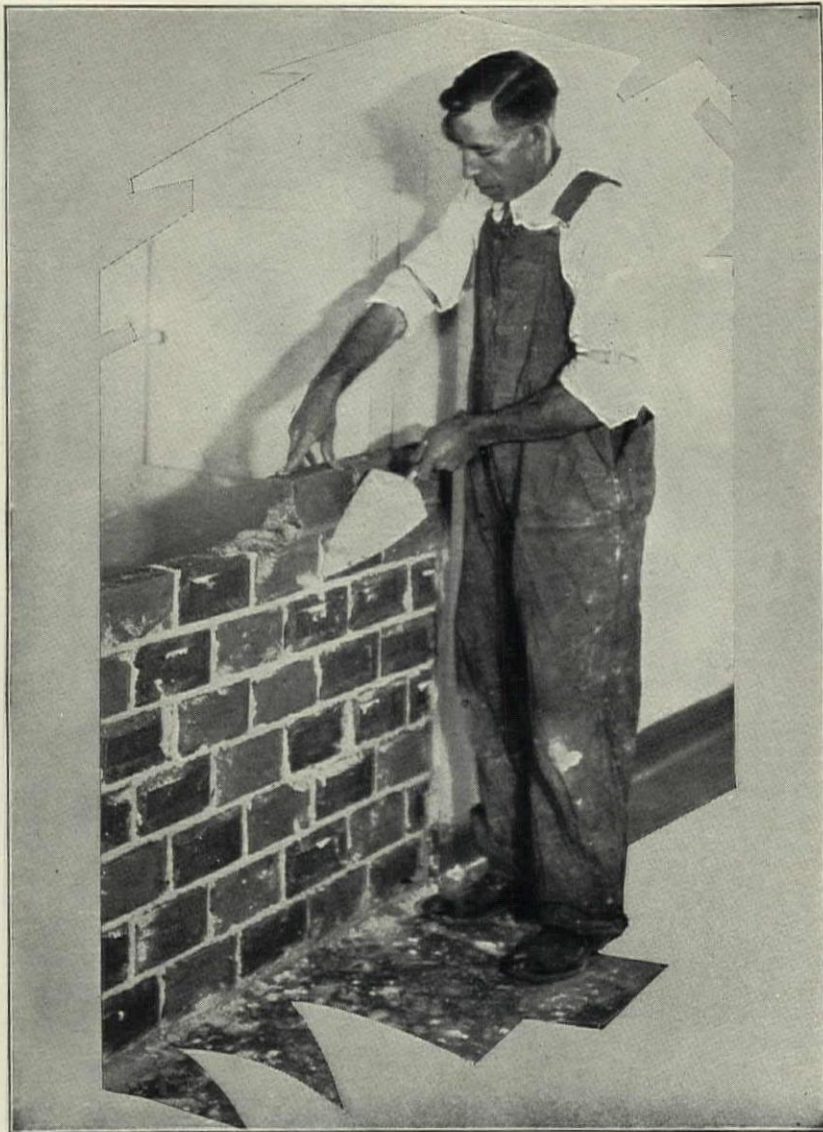
Important West Coast Woods—Douglas Fir - West Coast Hemlock - Western Red Cedar - Sitka Spruce

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are actually sound-
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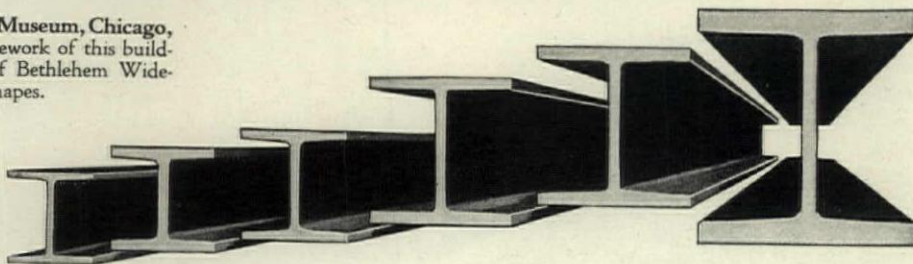
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When washed the walls surfaced in Berry

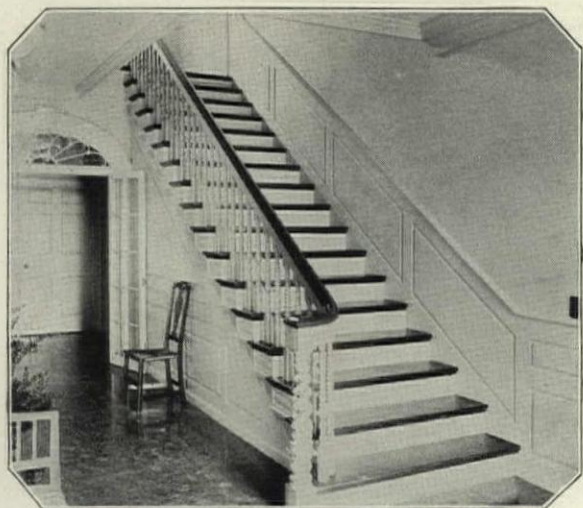
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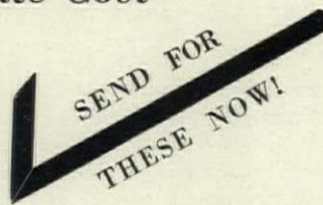
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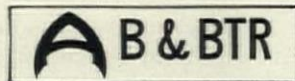
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Hand book, grading rules, book of archi-
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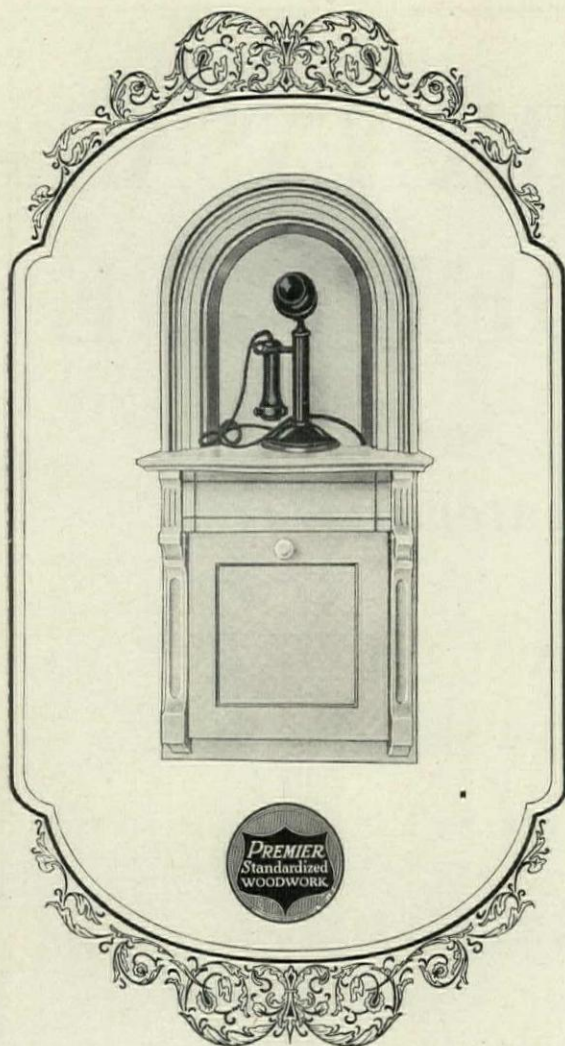
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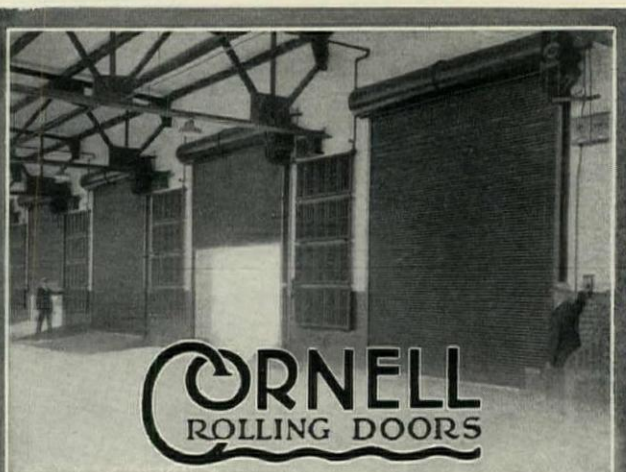


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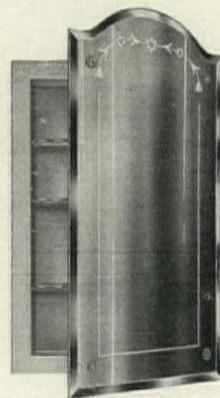
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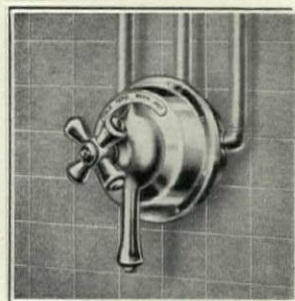
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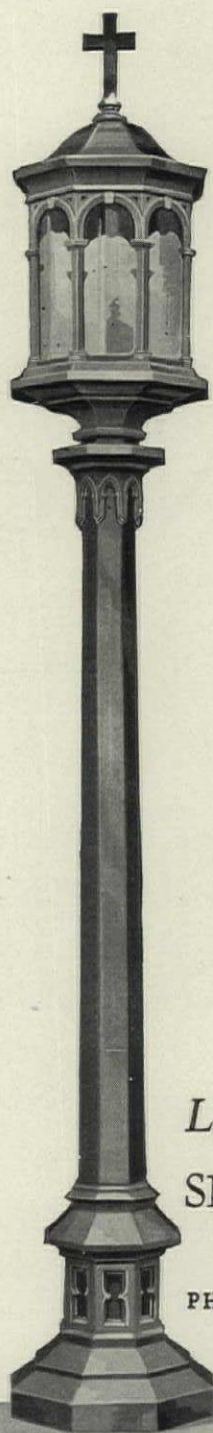
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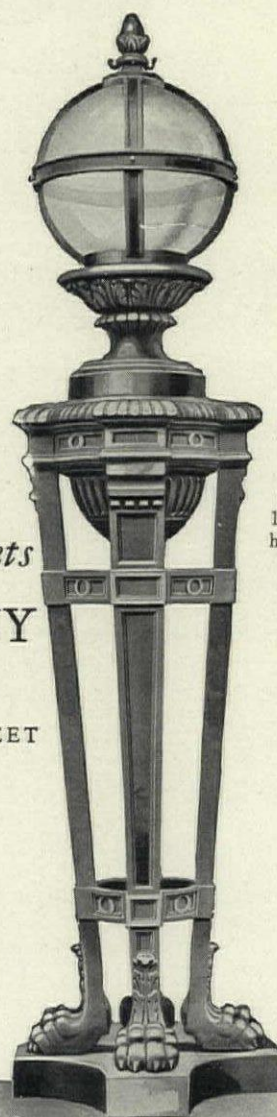
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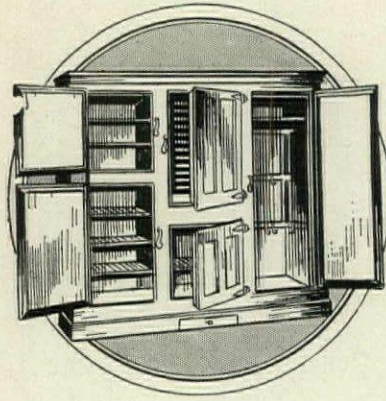
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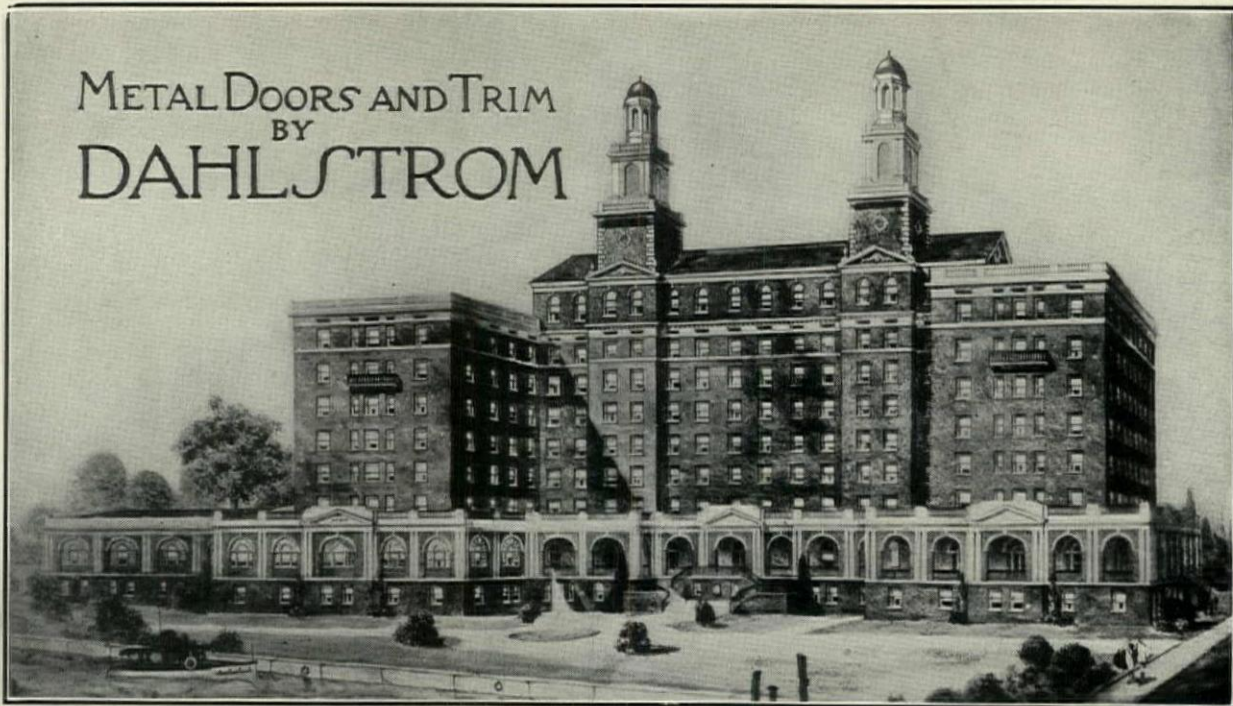
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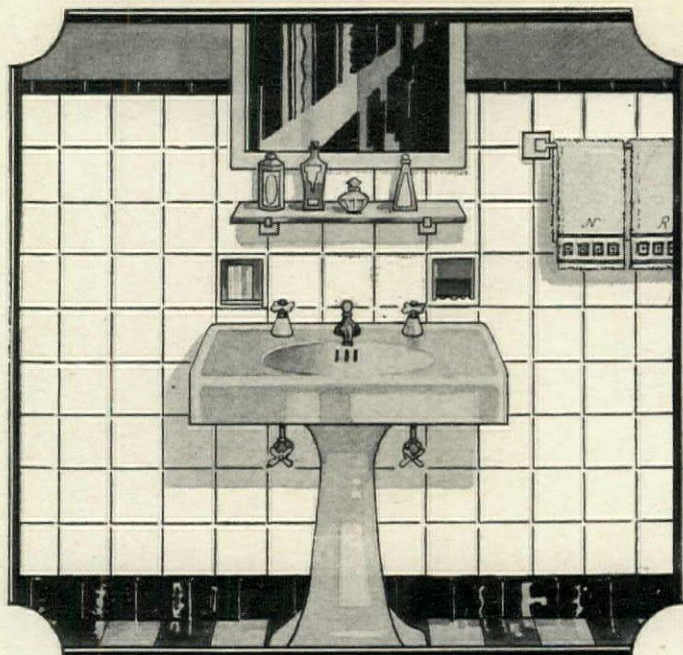
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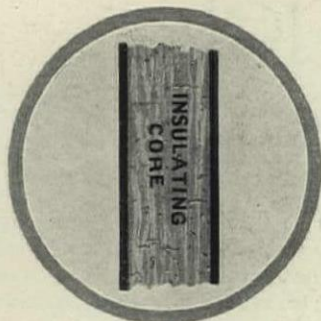
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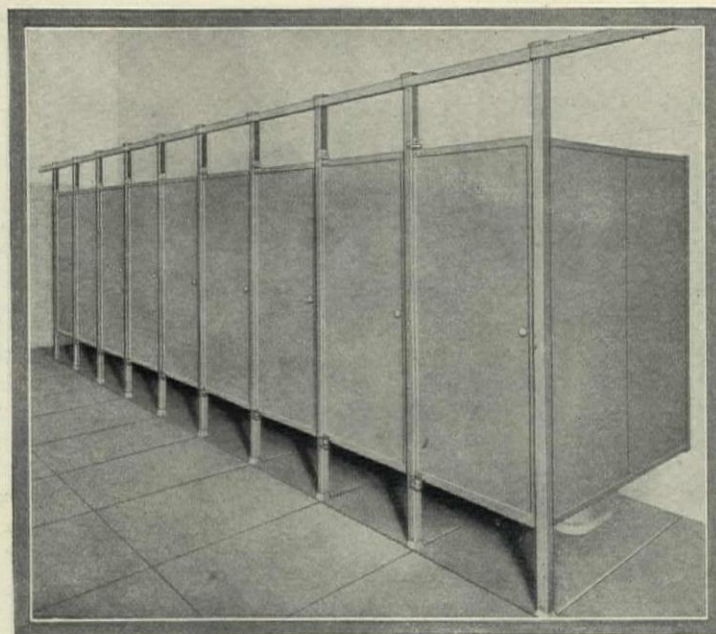


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By PHILIP G. KNOBLOCH

PART ONE

MORE than 200 subjects have been presented by Mr. Knobloch in this book of 52 full-page plates of construction details, each plate is printed on one side of heavy paper with tinted background to bring out every line to advantage. These details have been worked out carefully in consultation with numerous architects and engineers in order to secure the best selection in each case. The construction shown has been tested and built, and there is not a line in any of the drawings representing a theory unsupported by practical demonstration. The drawings were made on a scale large enough to show clearly all of the details, to which are added explanatory notes. The rendering of the drawings and style of lettering are models of draftsmanship. The scope of these details embraces practically every element of building construction.

The aim of this work has been to present a series of details representing good, modern practice in building construction for use in the drafting room and in the school.

While the material upon which these plates are based was drawn from the files of architects' drawings of buildings actually constructed, no feature that was due to special conditions has been retained. Furthermore, ideas from different offices have been combined and the shop drawings have been made to contribute to the practical value of the plates. Then, too, a score or more of men, each of whom is especially well informed on some one branch of building construction, or some one class of materials, gave their criticisms and suggestions. In short, the effort has been to combine the methods of numerous architectural offices of recognized standing with the special knowledge of men of long experience in the several branches of the building industry in a work of great usefulness that has proven itself to be a valuable contribution to the practice of architecture.

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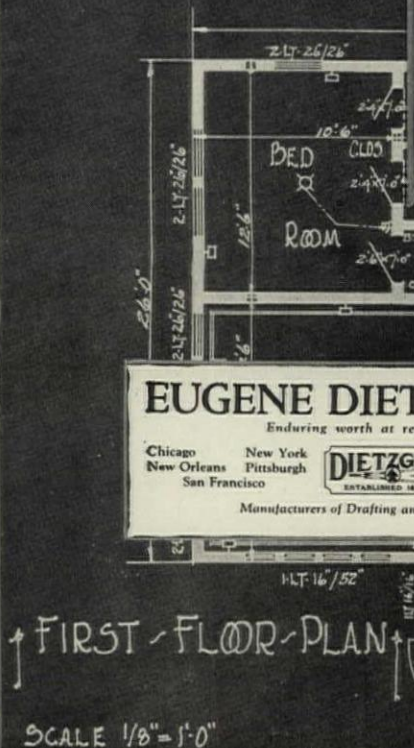
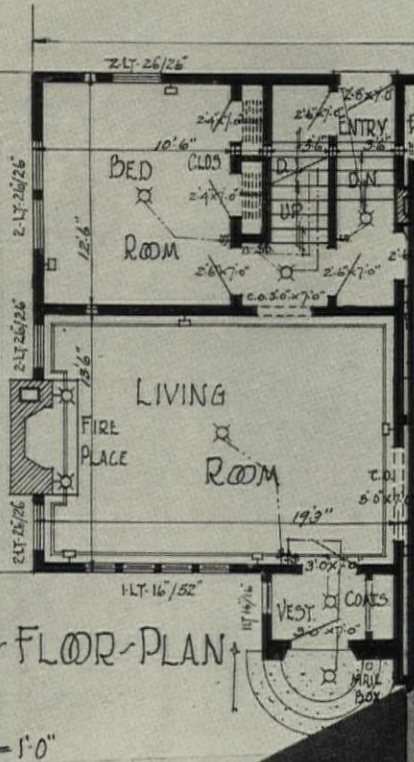
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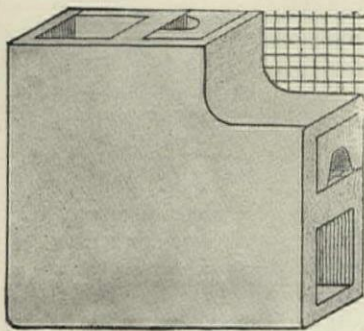
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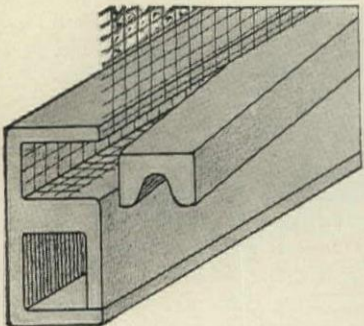
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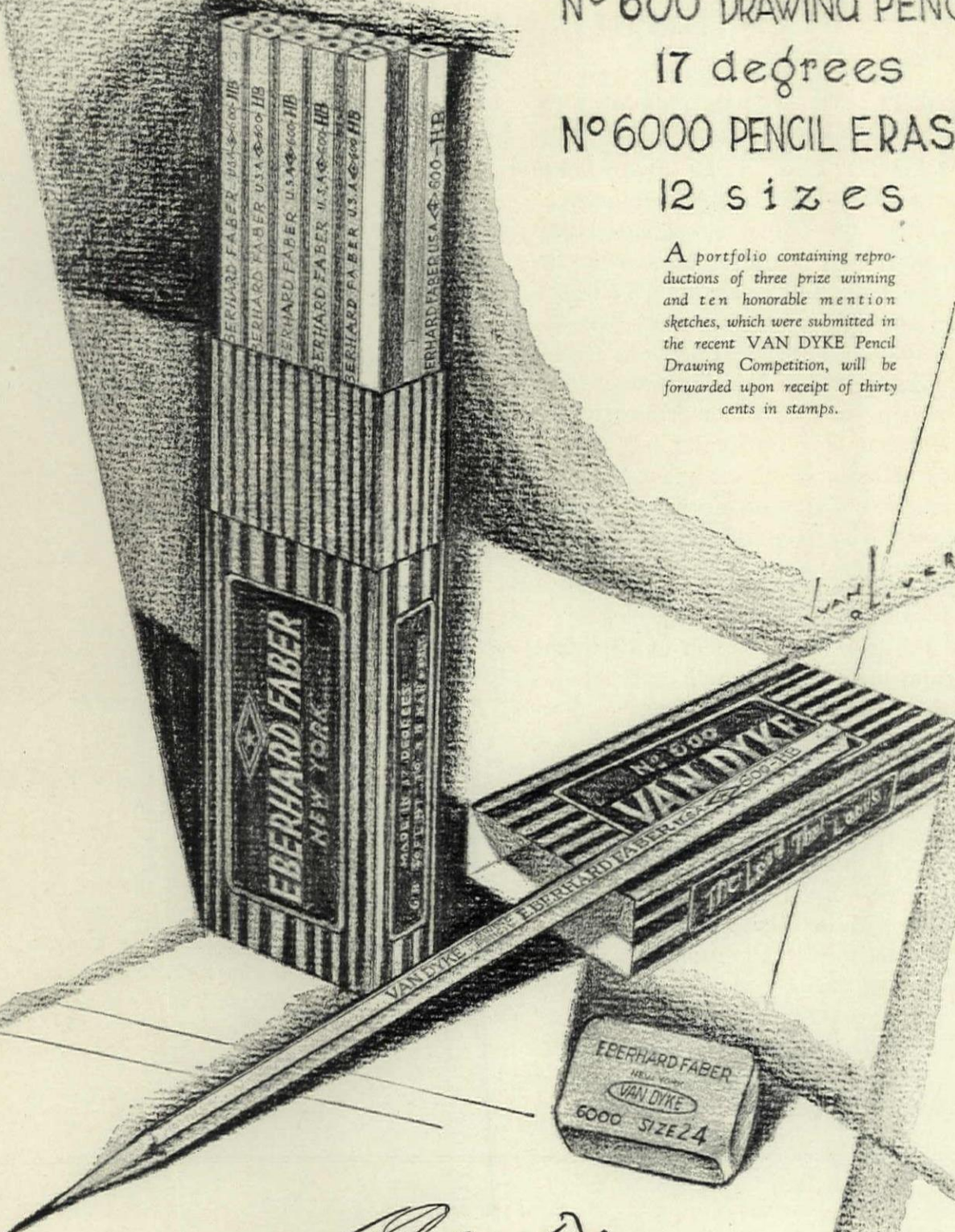
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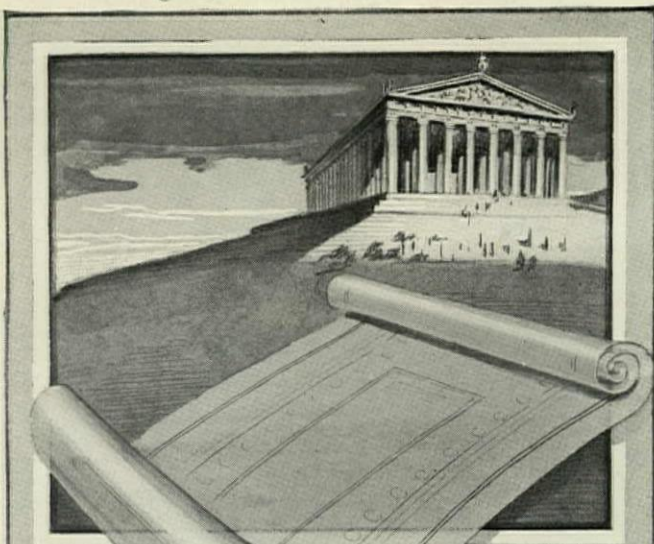
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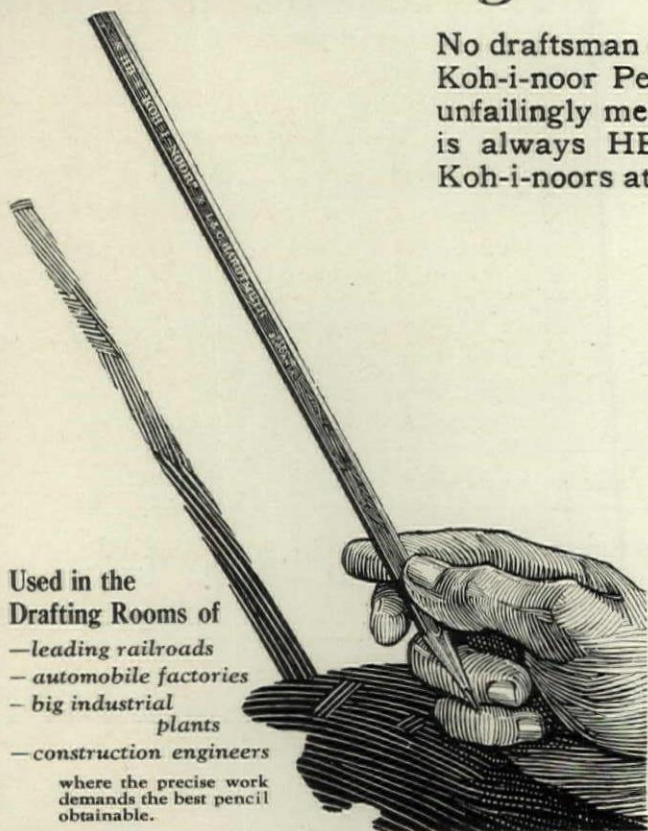
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By PHILIP G. KNOBLOCH

PART TWO

IN THE preparation of this, the second part of "Good Practice in Construction", the aim has been to present further useful details in convenient form for use in the drafting room. Details that the architect and draftsman are most likely to have occasion to employ in their work have been selected rather than those of a special character. Though many of the plates embody special knowledge, such as the details for theatres, store fronts, log cabins, etcetera, all are for buildings that are constantly being built in most, if not all, parts of the country and that may well come within the practice of any architect.

The daily use of "Good Practice in Construction, Part One", in architectural offices throughout the country has shown clearly that material of the kind it contains meets the requirements of architects and draftsmen, and since it was possible to cover but a portion of the subject within the limits of a volume of the convenient size adopted for the books of "The Pencil Points Library," the publishers have recognized the desirability of making available additional material of this nature. Also, a desire for a second volume of Mr. Knobloch's work has been expressed in many letters from users of Part One.

PART ONE and PART TWO of "Good Practice in Construction" have become indispensable in the practice of architecture, and every architect, draftsman and student needs and should possess these valuable books.

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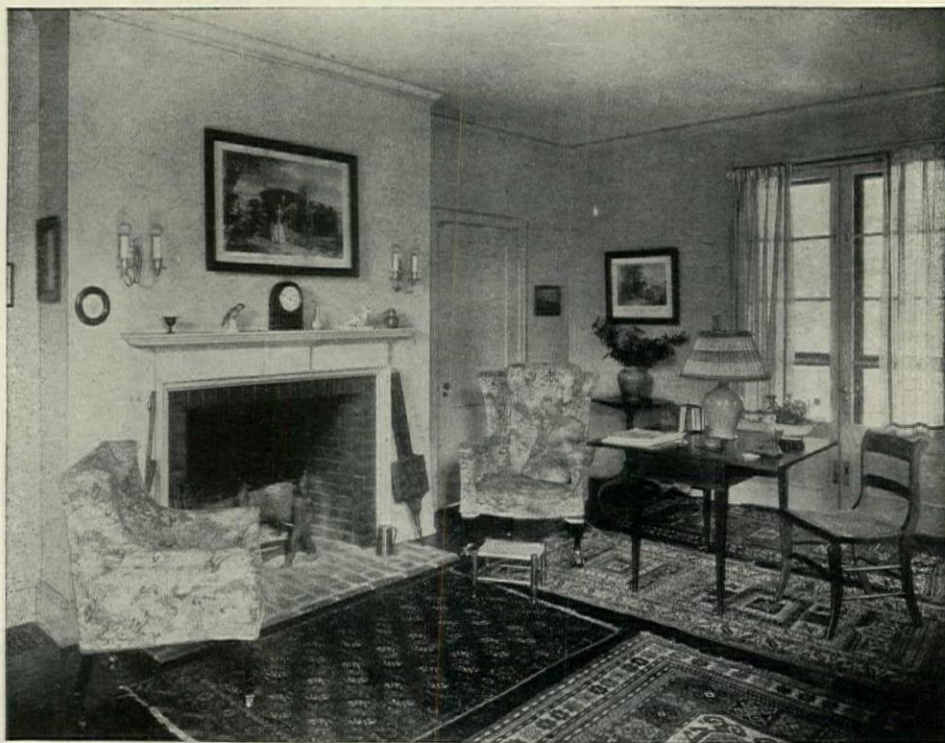
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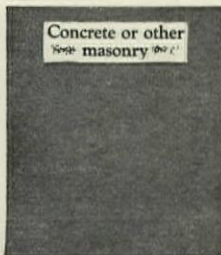
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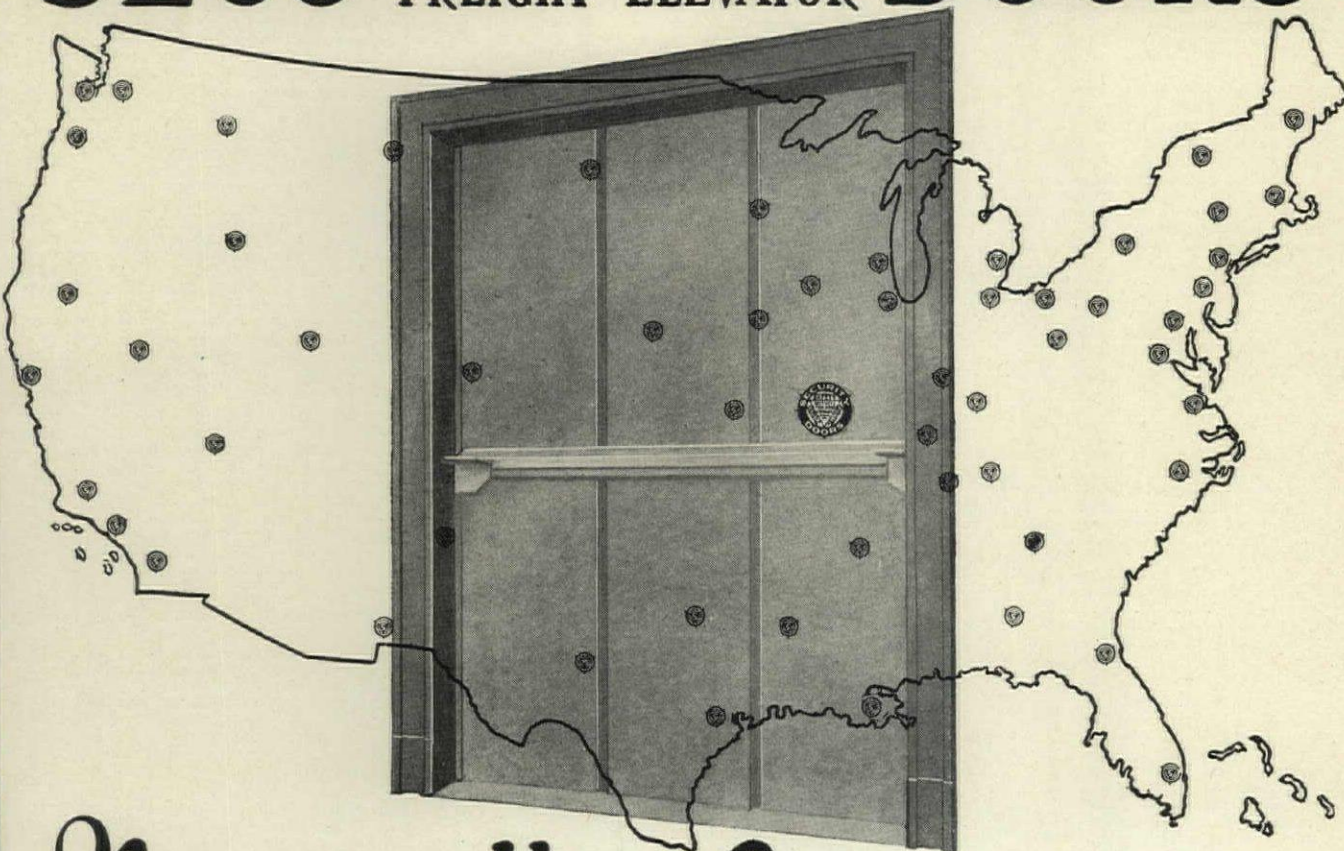
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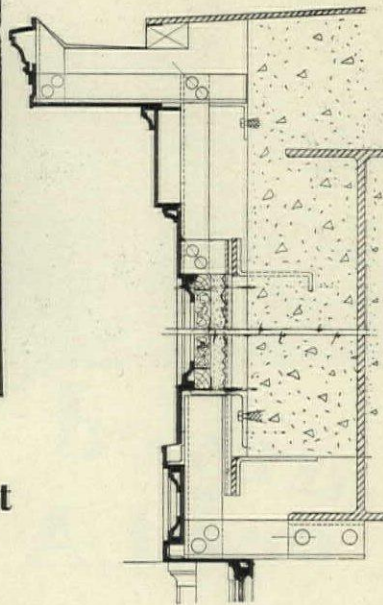
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Side elevation—MARCUS CO. STORE, WORCESTER, MASS
CUTTING, CARLETON & CUTTING, Architects



Another example of exterior treatment with Extruded Bronze

A rather unusual treatment is shown in the side elevation of this store. Extruded mouldings were used from the cornice down to the sidewalk and include the mouldings that retain the marble in place. The sections shown here are typical of stock shapes for immediate delivery and are priced on a basis that allows for general use.

Where decorative effects are required, sections such as ornamental cresting, enrichments, caps and bases, et cetera, are available in cast Bronze and are used direct in relation with the Extruded sections.

We welcome the opportunity of submitting drawings and details.

Modern Bronze Store Front Co.

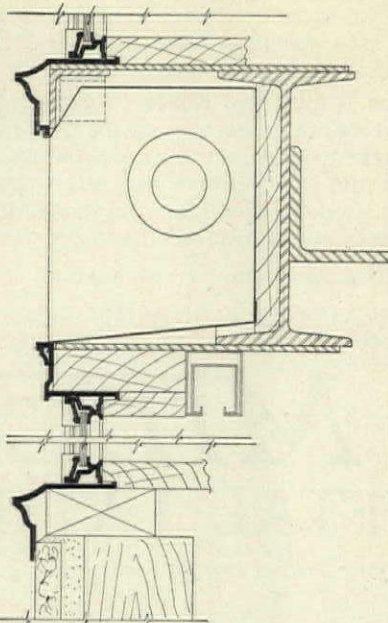
And Associated Companies:

International
Distribution

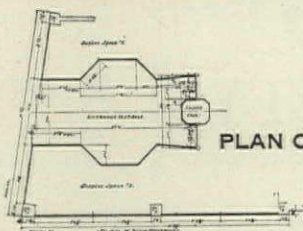
Zouri Drawn Metals Company
International Store Front Company
Standard Store Front Construction Co.
Zouri Company of California
Zouri Drawn Metals Co. of New York, Inc.

Names on
Request

Factory and General Offices: Chicago Heights, Illinois

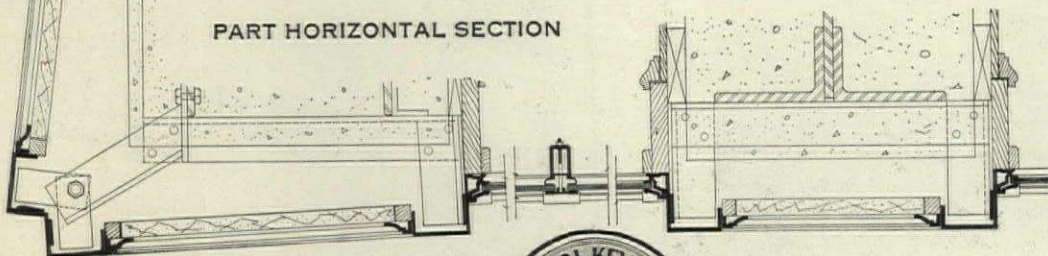


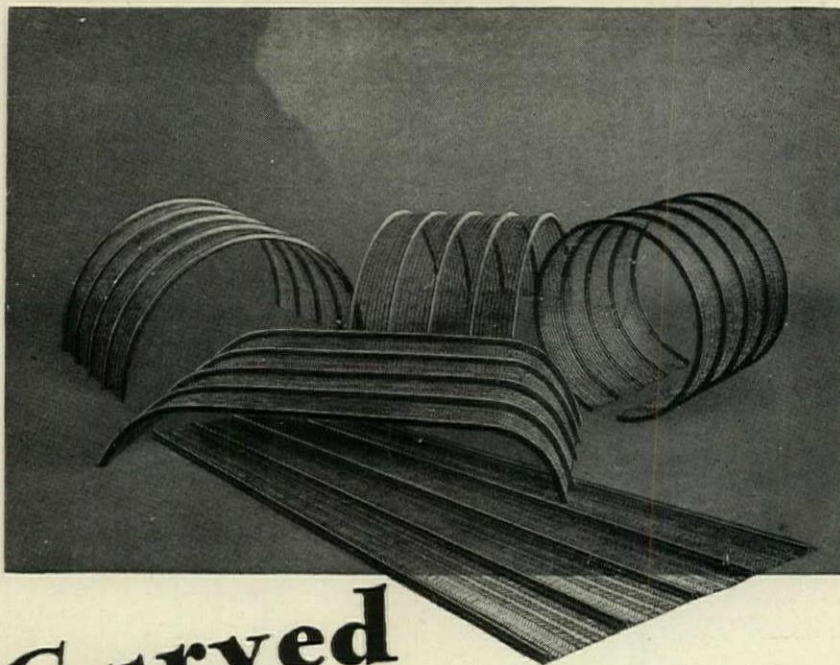
VERTICAL SECTION



PLAN OF STORE

PART HORIZONTAL SECTION





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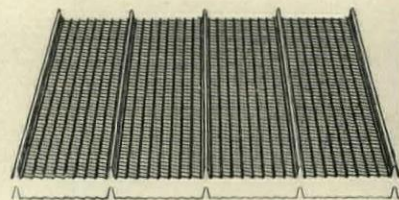
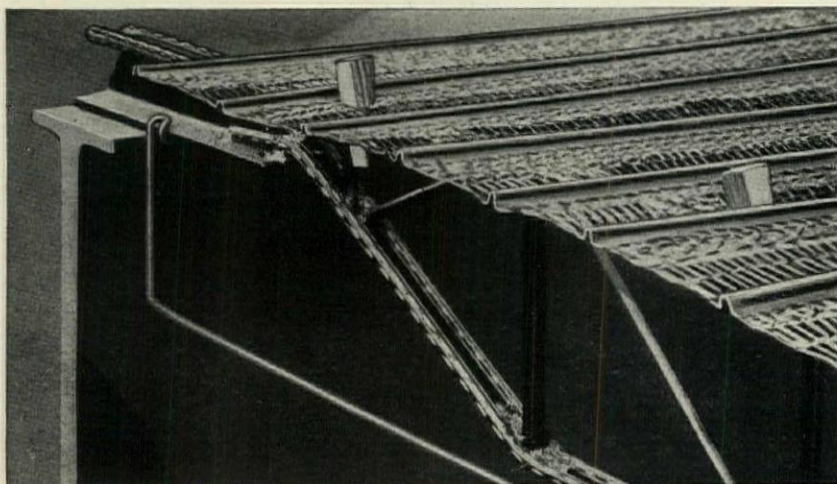
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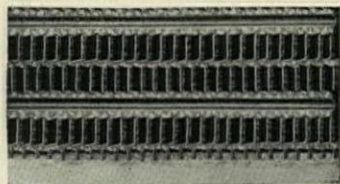
$\frac{3}{4}$ -inch Stay-Rib No. 3

Sheets 24" (covering width) Standard lengths 4, 6, 7, 8, 9, 10, 11 and 12 ft. Made from Steel "Coppered Metal," painted, No. 28 Ga., No. 2 Ga., and No. 24 Ga.; or No. 28 Ga. Galvanized; or from ARMCO Ingot Iron, painted, No. 26 Ga., and No. 24 Ga., or from Galv. ARMCO, No. 28 Ga. Ribs 6" on centers; $\frac{3}{4}$ " high.



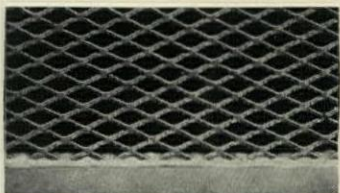
$\frac{3}{8}$ -inch Stay-Rib No. 2

Sheets 24"x96". Made from Steel, "Coppered Metal," or pure ARMCO Ingot Iron, painted black, four weights; or from galvanized sheets in two weights.



Stay-Rib Metal Lath No. 1
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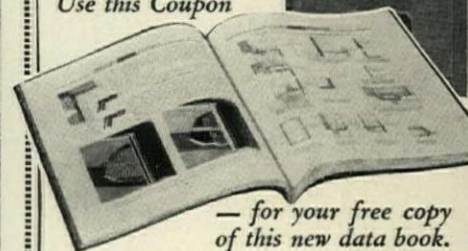


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