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R. J. Manso
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THE ARCHITECTURAL FORUM



SEPTEMBER
1920

THE laborious, slow, costly process of designing and making by hand special millwork for the average small home is the height of extravagance.

With Morgan Approved Standard Millwork in stock at leading dealers, this extravagance is unnecessary.

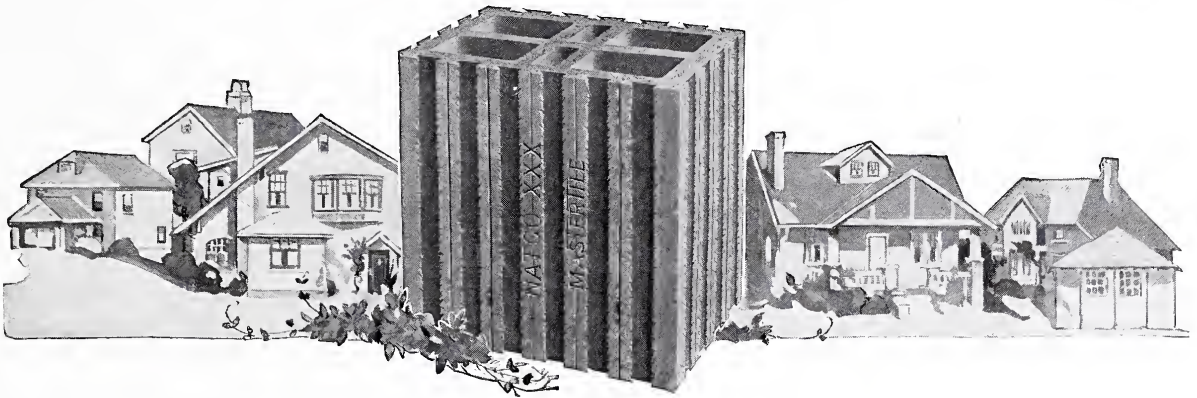
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This mark on the top rail of a door means a guaranteed door



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A NATCO Home is permanent, yet economical. When you specify NATCO, you save your client unending painting, repairing expense and general depreciation.

The perfect alignment of all shells and cross webs in a Natco Hollow Tile wall—partitions directly over each other—gives a strength that is unequaled. In addition, walls of Natco Hollow Tile resist heat and cold, maintain a cool, pleasant house in summer and a warm, fuel saving house in winter.

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255 Federal Street - Pittsburgh, Pa.

NATCO HOLLOW TILE



NORTHWESTERN

is a short form of specification for architectural Terra Cotta of superior quality.

THE Kansas City home of the Firestone Tire & Rubber Co., designed by Architects Smith, Rea & Lovitt, is faced with Northwestern cream enamel terra cotta, varied with green matt enamel spandrels and polychrome features.

This handsome building was erected by the Swenson Construction Company.

Two great American products—Firestone Tires and Northwestern Terra Cotta.

THE NORTHWESTERN TERRA COTTA CO.

CHICAGO



Atlantic Terra Cotta with Brick

THE clean-cut buildings that are being pushed to completion all over the country are very apt to be partly or entirely built of Atlantic Terra Cotta.

The National Bank of Commerce, Wichita Falls, Texas, belongs to the first class.

The first two stories of light gray matt glazed Atlantic Terra Cotta are surmounted by nine stories of face brick with trim of unglazed gray Atlantic Terra Cotta, and the building is topped with a projecting cornice of the same material.

The dignity and strength of the building, and the materials used, place it immediately in the highest class of American office building construction.

National Bank of Commerce, Wichita Falls, Texas.
E. Stanley Field, Architect. Matt glazed and unglazed Atlantic Terra Cotta.

Atlantic Terra Cotta Company
1170 Broadway, New York



HANAN & SON BUILDING
187 Broadway, N. Y.

A. D. Seymour, Jr. - Architect
Mark C. Tredennick Co., Builders

THE entire facade above the second story is of unglazed gray "SOUTH AMBOY" Terra Cotta.

Attention is directed to the perfect alignment of the rusticated ashlar fields and pilasters.

The South Amboy Terra Cotta Co.
150 Nassau Street, N. Y. South Amboy, N. J.

The Winkle Terra Cotta Company

St. Louis, Missouri



Manufacturers of
**Architectural
Terra Cotta**



In All Colors and Finishes

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SCIENTIFIC research has indicated the proper lines to follow in the solution of acoustical problems. During the years that I have specialized in acoustical work, practical experience covering wide variety of conditions has equipped me with a fund of knowledge resembling in value the experience gained by physicians only through years of practice.

My services are at the command of architects who have acoustical problems of any nature to solve. It is frequently possible by an alteration of design to avoid disastrous echoes or interference. Excessive reverberation, the most common source of bad acoustics, can be prevented by the employment of certain materials, the exact nature and quantity of which is determined with mathematical precision. These methods can also be adapted to buildings already erected and acoustically deficient.

Your correspondence is invited

GEORGE C. HANNAM

Acoustical Engineer

1400 Broadway - - New York, N. Y.

AN ANNOUNCEMENT

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For preliminary consideration on the part of those who may have an interest in this subject, the Company has prepared a brochure containing a discussion of the relative value of buildings with and without d'Humy Motoramps:

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New York, N. Y.

Louis Allen Abramson, Architect
G. Richard Davis & Co., Inc., G. C.

*Executed in our No. 3673,
special pink color*

New Jersey Terra Cotta used for Portico and other trim.
Note the perfect alignment of the Corinthian Columns of the Portico.

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OFFICE, SINGER BUILDING, NEW YORK CITY

ESTABLISHED 1888

WORKS, PERTH AMBOY, NEW JERSEY



Terra Cotta Panel on Cumberland Hotel, Cumberland, Md. Frederick Webber, Architect

THE sharp, clean cut detail of this ornamental terra cotta panel is characteristic of the modeling which architects can expect in work executed at our plant. Terra cotta affords so many possibilities for architectural

ornamentation of a building that will be in perfect harmony with other constructive materials that it should receive the architect's first attention and incidentally its use will affect a perceptible saving in cost.

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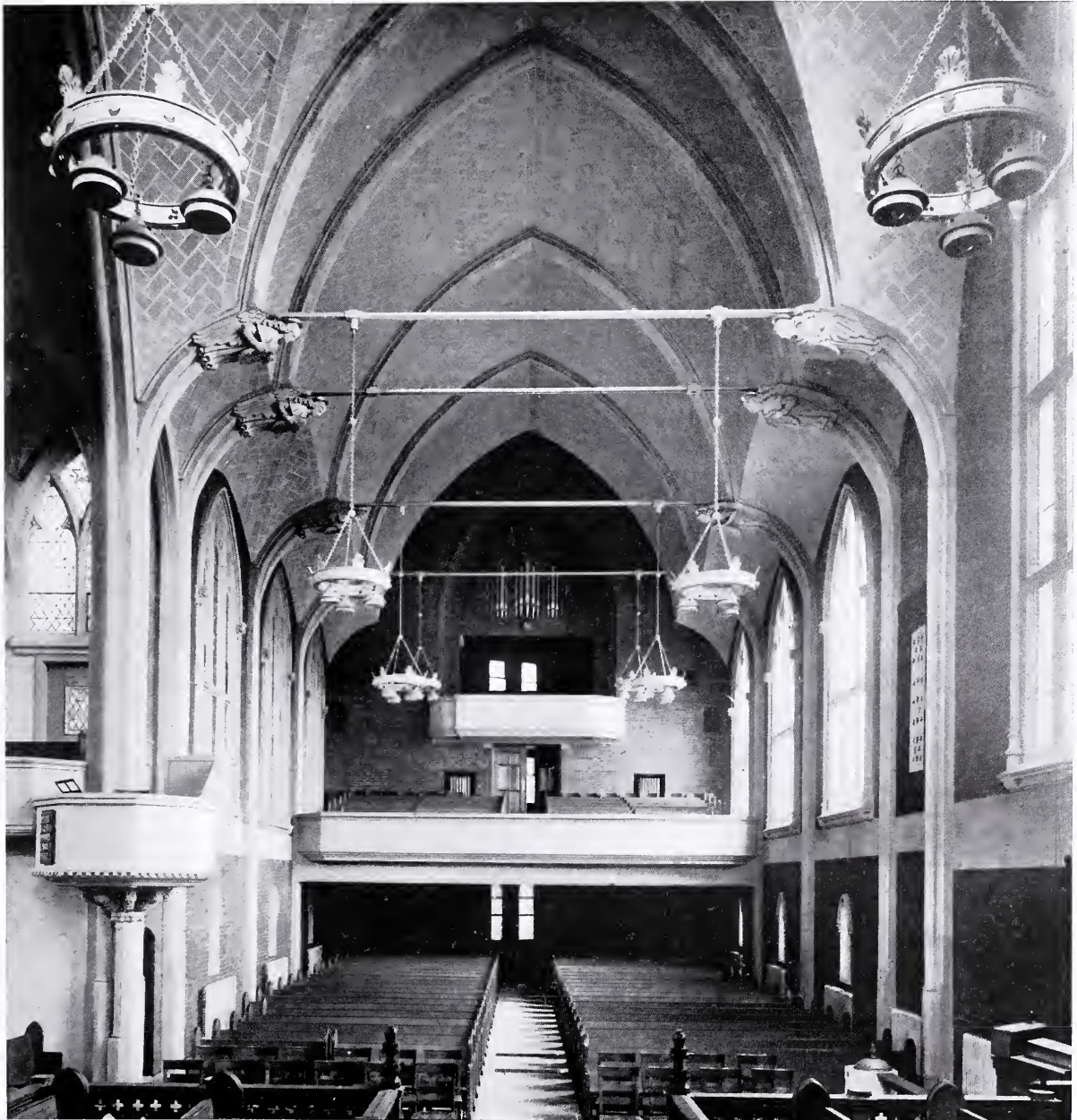
Baltimore, 804 Law Building
Pittsburgh, 413 Fourth Avenue

Washington, 234 Woodward Building
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R. GUASTAVINO CO.
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Church of All Nations, Morgan Memorial, Boston, Mass.

Frank A. Bourne, Architect

CEILING vaulting of Guastavino Construction. Soffit course of tile of sound absorbing masonry material.

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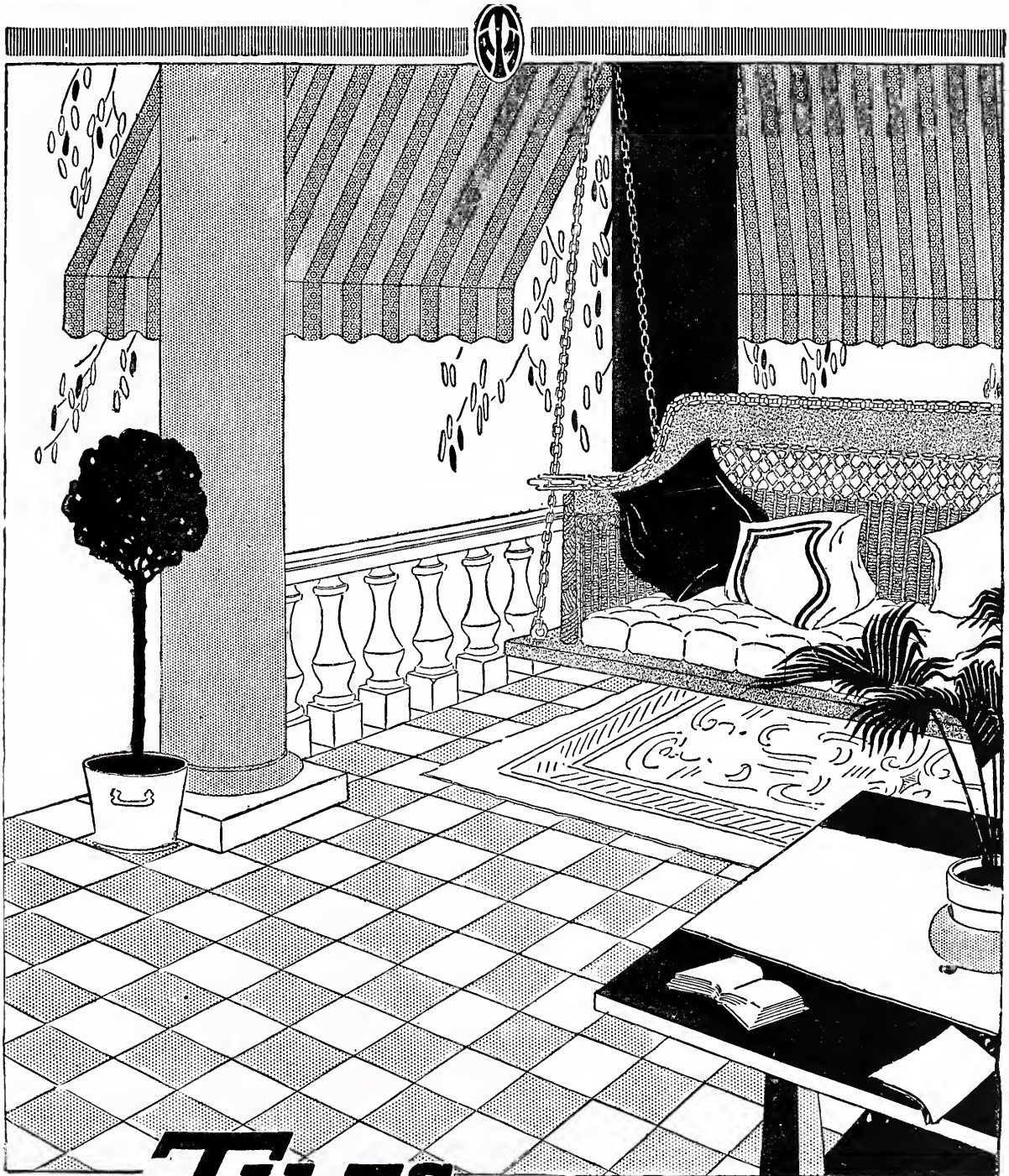
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— for either the open or enclosed type. An ideal material because of wide color range and decorative possibilities—because of permanence and dignity. The architect finds great opportunities for expressing his ideas in the use of tiles.

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H EINZTILE, carefully studied in respect to color tone and texture, has added greatly to the charm of this composition. The character of the brickwork is reflected in the picturesque roof surface.

HEINZTILE are made in French, Spanish and Mission style and in a variety of colors

The Heinz Roofing Tile Company, Denver, Colorado General Offices:
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THE MATERIAL

TO LASTINGLY PERPETUATE

YOUR INDIVIDUAL CONCEPTIONS

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Manufacturers of

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"Clay products with quality burned in them"

B. Mifflin Hood Brick Company
**CLAY and SHALE
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QUARRY FLOOR TILE

Unequaled in color value

"POTTRY" FLOOR TILE AND FIREPLACES

A distinctive product—used extensively in all parts of the United States

FIREPLACES AND MANTELS

In fifty different designs

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For chemical construction

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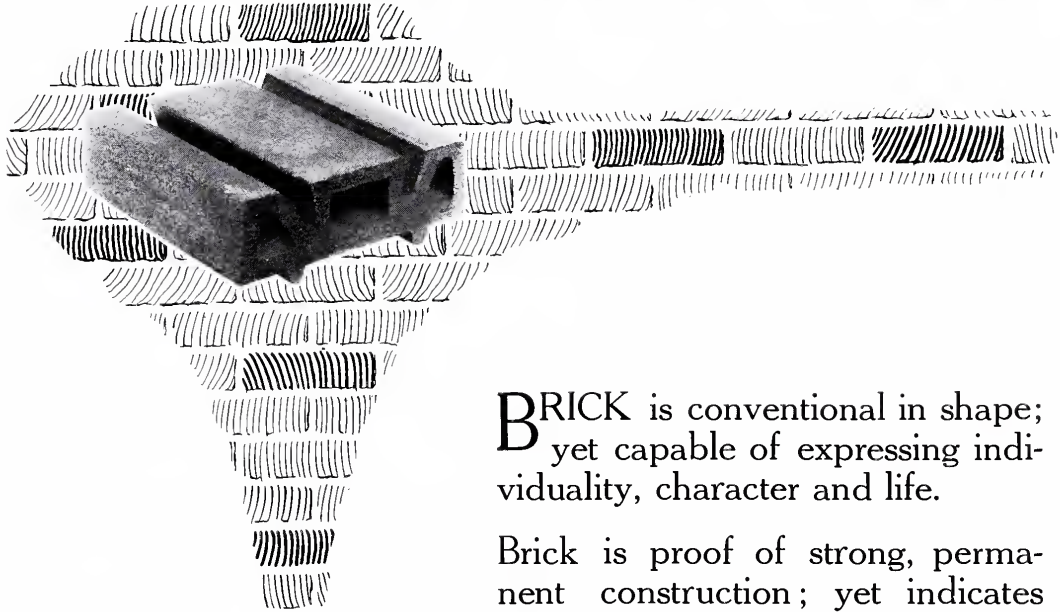
"Manufacturers of the South"

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"FISKLOCK" BRICK

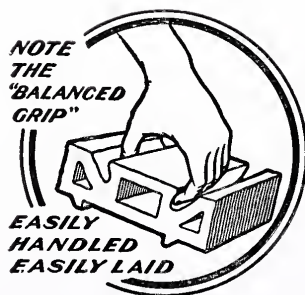
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"Fisklock" brick possesses all the usual advantages of face brick plus features exclusively its own; for it is scientifically shaped to save labor, provide heat insulation, and check the flow of moisture through mortar joints.



It's not what brick costs per thousand, but what it costs *in the wall*.

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*No delays in shipments
Costs less than other material for similar purpose
Standard shapes in stock*

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on floors, stair treads,
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HENRY MAURER & SON

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Are Ideally Serving America's
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OUR Doric and Gothic Stippled Brick give refinement and color expression to the finished wall—both exterior and interior—not found in any other material.

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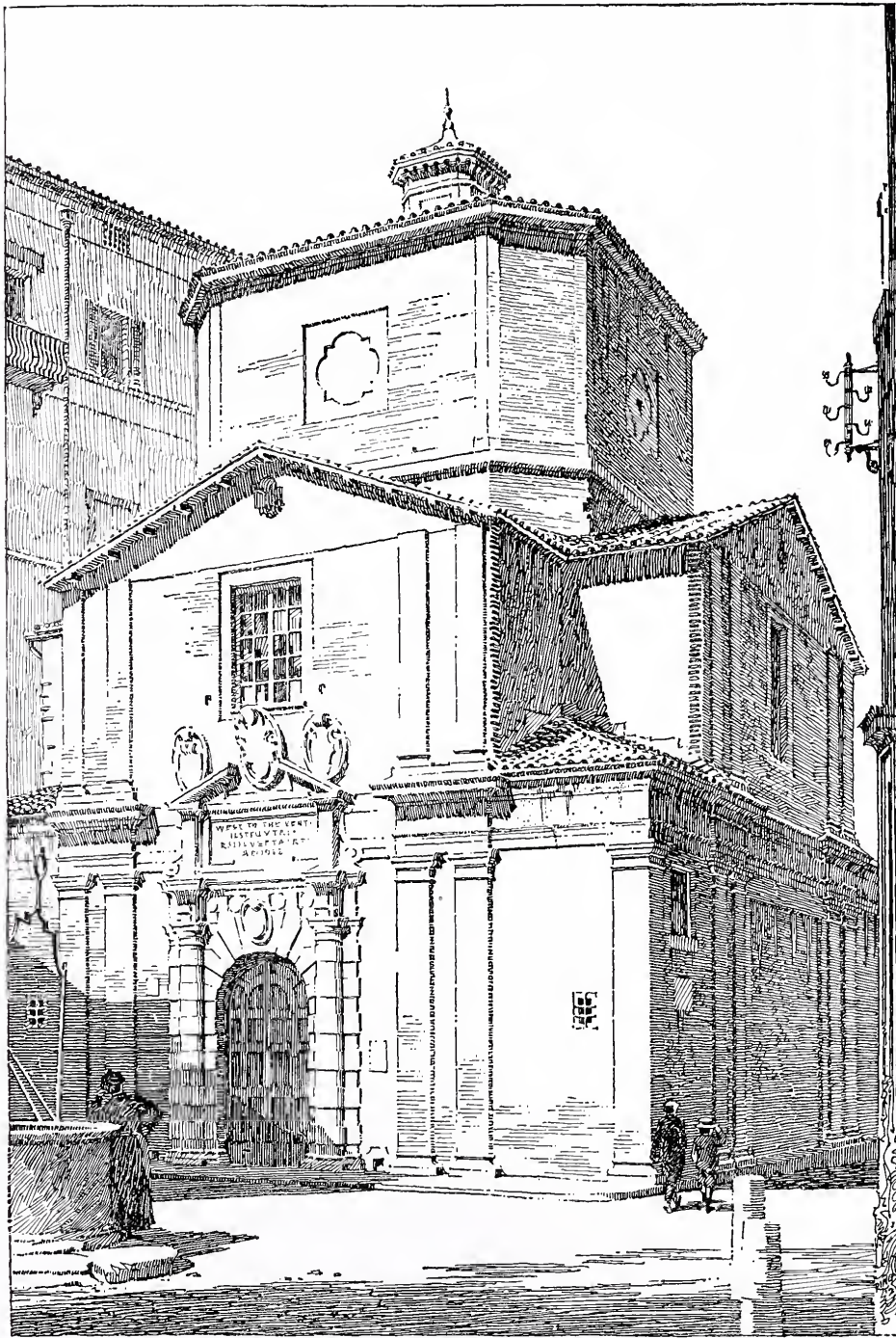
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Church at
Perugia, Italy

THROUGH all the periods, from the Roman Empire to the present day, brick has played a leading role in Italian Architecture. Notable examples of the architectural achievements of even the earliest periods are extant today because of the remarkable durability of brick.

Today in this country, American manufacturers have

added to the durability of brick almost limitless artistic possibilities through the introduction of a wide range of color tones and textures.

Any member of this association is at all times ready to discuss the architect's face brick problems with him; and to co-operate with him to the fullest extent.

AMERICAN FACE BRICK ASSOCIATION

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Might it not be well, in case your clients are inclined to delay their plans with the expectation of declining prices in the near future, to suggest that the increase in costs of raw material, labor and transportation rather point the other way?



“BRADFORD

BRICK”

(TRADE MARK REGISTERED U.S. PATENT OFFICE)

The beautiful non-fading
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Made of the famous Bradford red
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rich red color. A superb brick
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and for beautiful fire-places.

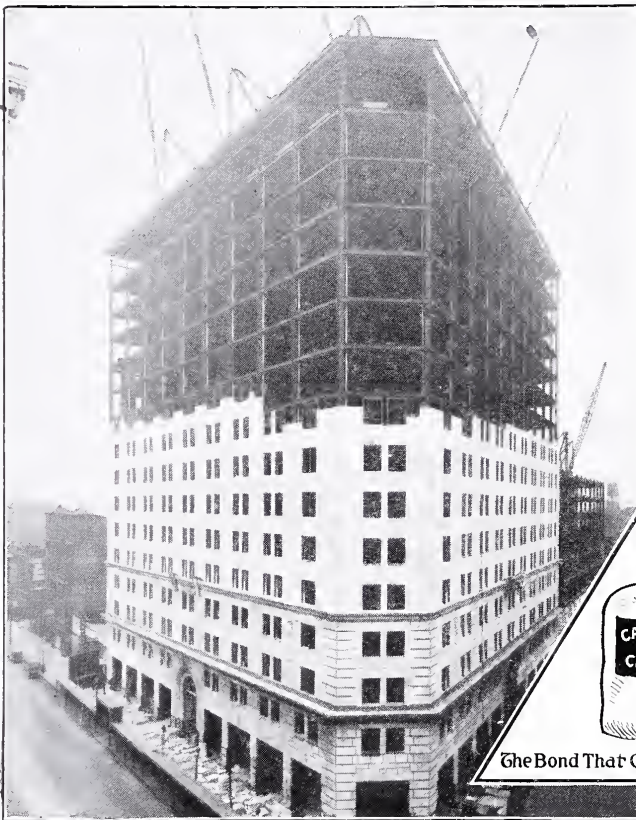
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brick for grills, bungalows, garden
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Write for RED catalogue.

BRADFORD BRICK CO.

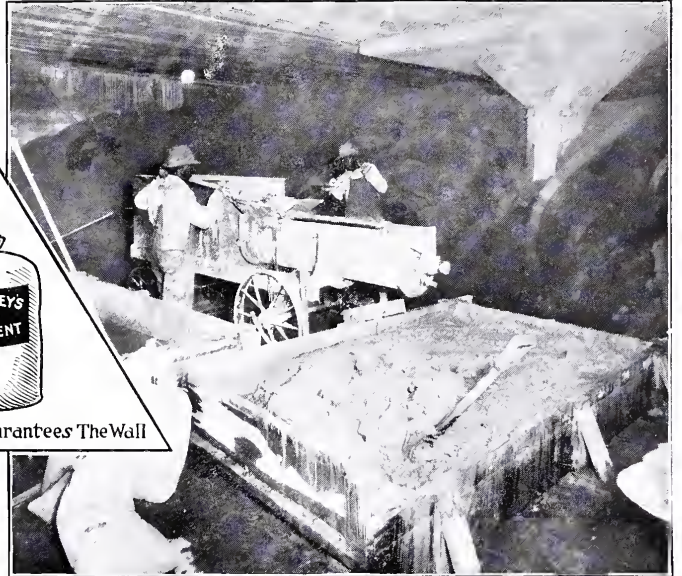
“The Red Brick People”

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The Hanna Building and Annex, Cleveland, Ohio. Charles A. Platt, New York City, Architect. John Gill & Sons, Cleveland, Contractors. Cleveland's largest office building.

Cement Mixer in use. These two men can supply mortar made from Carney's Cement to as many as 32 bricklayers. This saving of labor at the mortar box is only one of the many economies in the use of Carney's Cement.



The Bond That Guarantees The Wall

Words of Wisdom from an Old-Timer

JOHN GILL & SONS have constructed many of the largest buildings in the country. One of their brick foremen says this about Carney's Cement:

"Down in the basement here two men can mix mortar for as many as 32 bricklayers. This saving of labor at the mortar box is our first economy in using Carney's Cement.

"The mason prefers Carney's, too, because he can work with less effort when using such a smooth-working and slower-setting mortar. He doesn't have to tap or rock the brick into place nor rip it up to put in new mortar. For these reasons, the walls are more even and the horizontal rows are not wavy. The slower setting allows the absorption of more cement into the bricks and forms a much firmer bond.

"Our men are setting up four or five brick in the time it would take them to set up two in Portland, averaging 1700 common brick per day.

"If too much sand is added in the mixing, the men on the job are the first to complain, as it slows them down considerably. You can't mix it wrong.

"We don't have to use up each day all the mortar we have mixed. All we have to do in the morning is add a little water and start work.

"Any contractor who has used Carney's Cement properly will keep on using it; the man who doesn't use it simply never has."

Leading architects and engineers have repeatedly specified Carney's Cement for the largest and most important building construction in the United States.

CARNEY'S CEMENT COMPANY, Mankato, Minn. Cement makers since 1883

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CARNEY'S CEMENT

For Brick and Tile Mortar

"The Bond
That
Guarantees
The Wall"

Waste Stone

The economy in using Indiana Limestone for home building is recognized, nowadays, by the majority of architects. Its beauty and durability have, of course, never been questioned.

Below is a fine example of what was created from *waste stone* (so-called)—the odd shaped blocks left after the stone is dressed to required size for other work.

It will at once suggest a solution to the cut stone contractor's problem of what to do with "waste stone"—and serves as another proof of the economy and extreme adaptability of



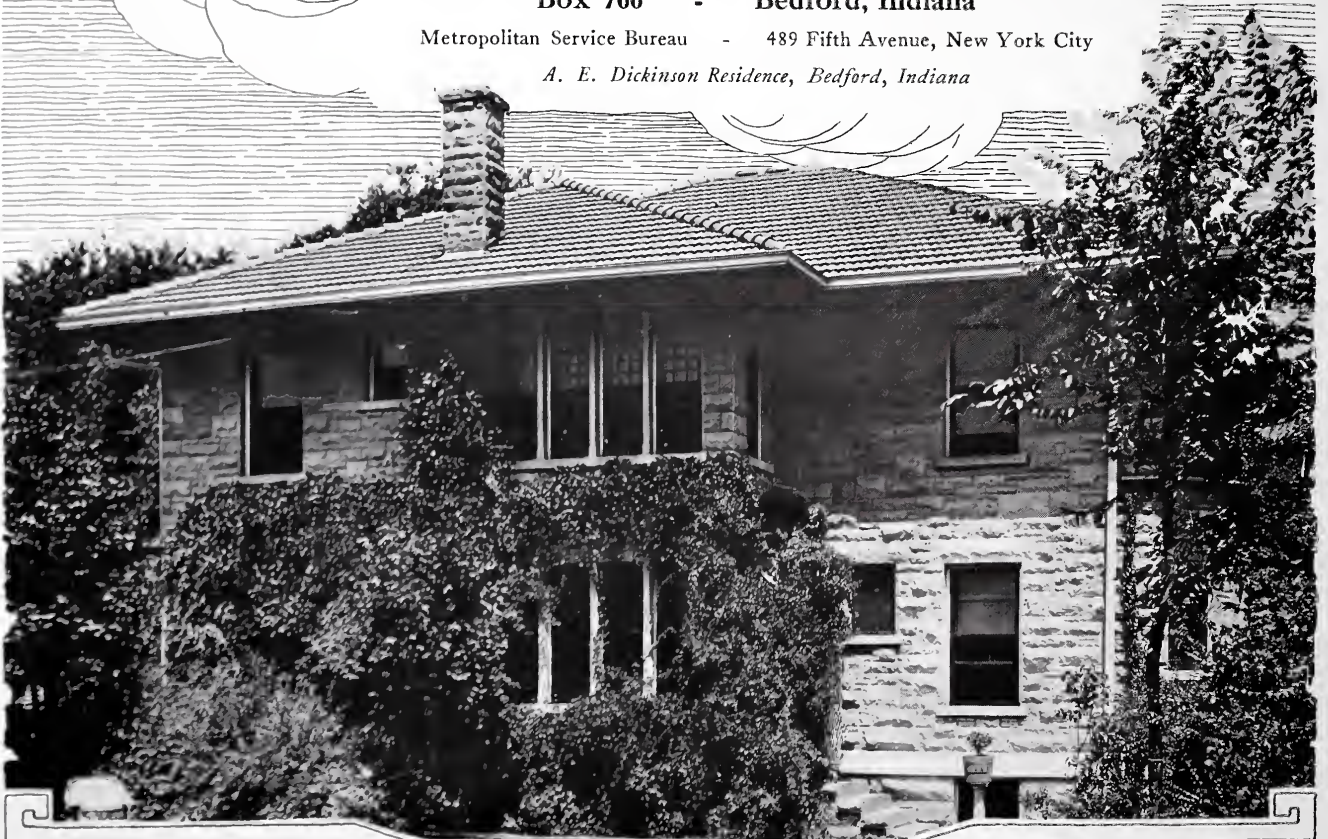
*Write for volumes 1 and 4 which
give interesting and important
data for architects who strive
to keep abreast of the times.*

INDIANA LIMESTONE QUARRYMEN'S ASSOCIATION

Box 766 - Bedford, Indiana

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FRESH beauty and clean-cut neatness lend lasting distinction to well designed dwellings. Such results can be produced in either large or small homes by the artistic use of stucco made with

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Stucco made with Medusa insures permanence and preserves original whiteness through years of exposure. It can be delicately tinted if desired.

When you specify Medusa White Cement for all kinds of interior or exterior ornamental work you make certain of beauty, service and economy for your clients.

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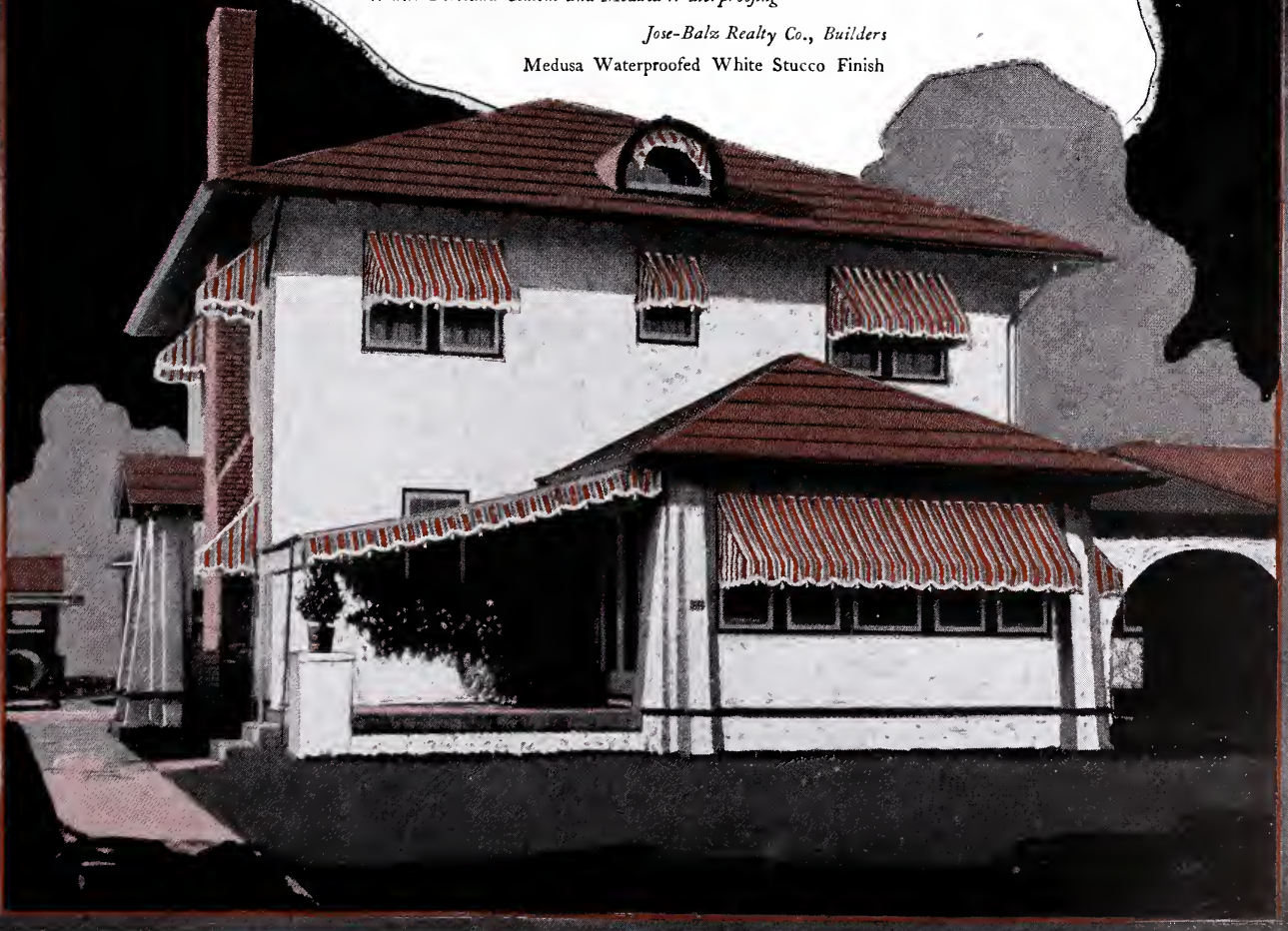
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*Also manufacturers of Medusa Grey and Medusa
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Medusa Waterproofed White Stucco Finish





Entrance Detail
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Edgar V. Seeler, Architect

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TRACON TRAVERTINE STONE

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PINK KASOTA STONE

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These are recommended for their rich, warm tone and their attractive texture.

Especially recommended for distinctive exterior and interior construction, where only the highest class of architecture can be achieved; where quality and color scheme are most essential and above all cost an after-consideration.

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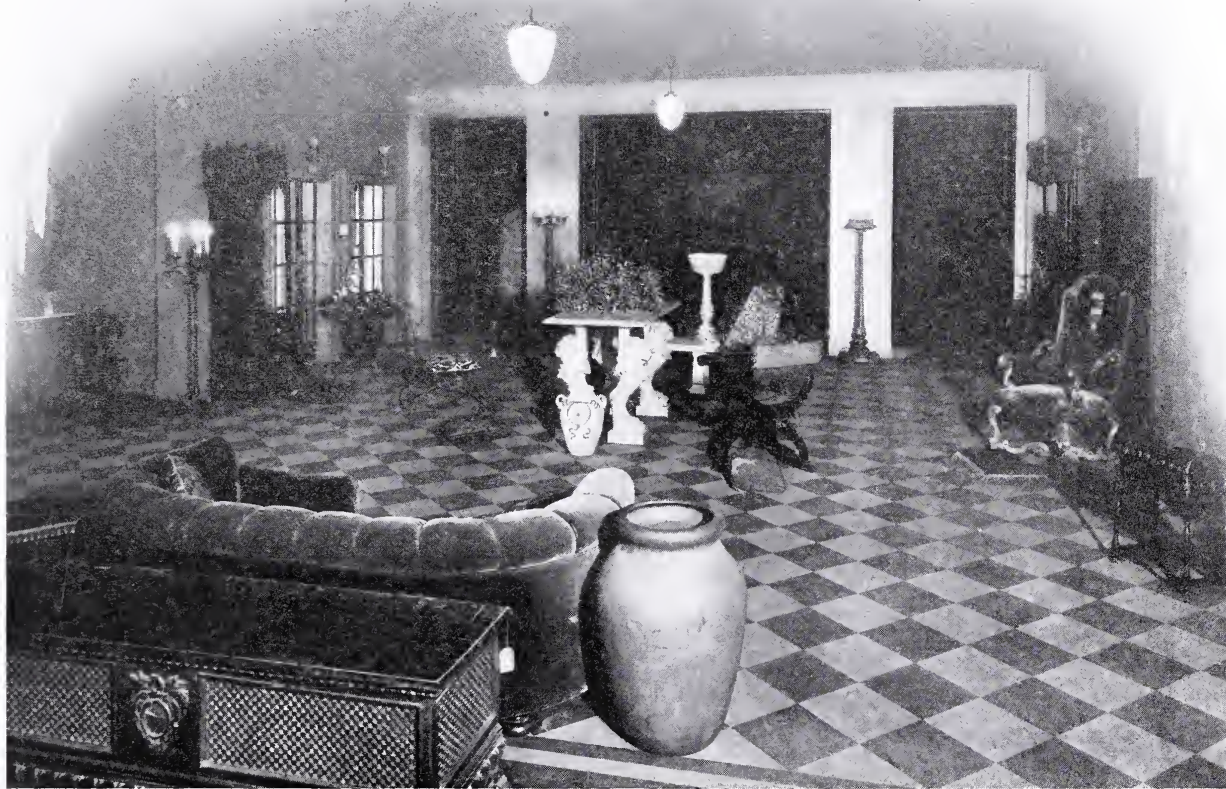
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THE STANDARD MAGNESITE STUCCO

THE STUCCO OF PERMANENT BEAUTY



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OBVIOUSLY, a floor that is devoid of everything except durability affords but one advantage—long life. But a floor in which durability is combined with beauty has *two* advantages—long life plus attractiveness of appearance. Therefore, the adaptability of a floor that possesses numerous qualities is far-reaching indeed.

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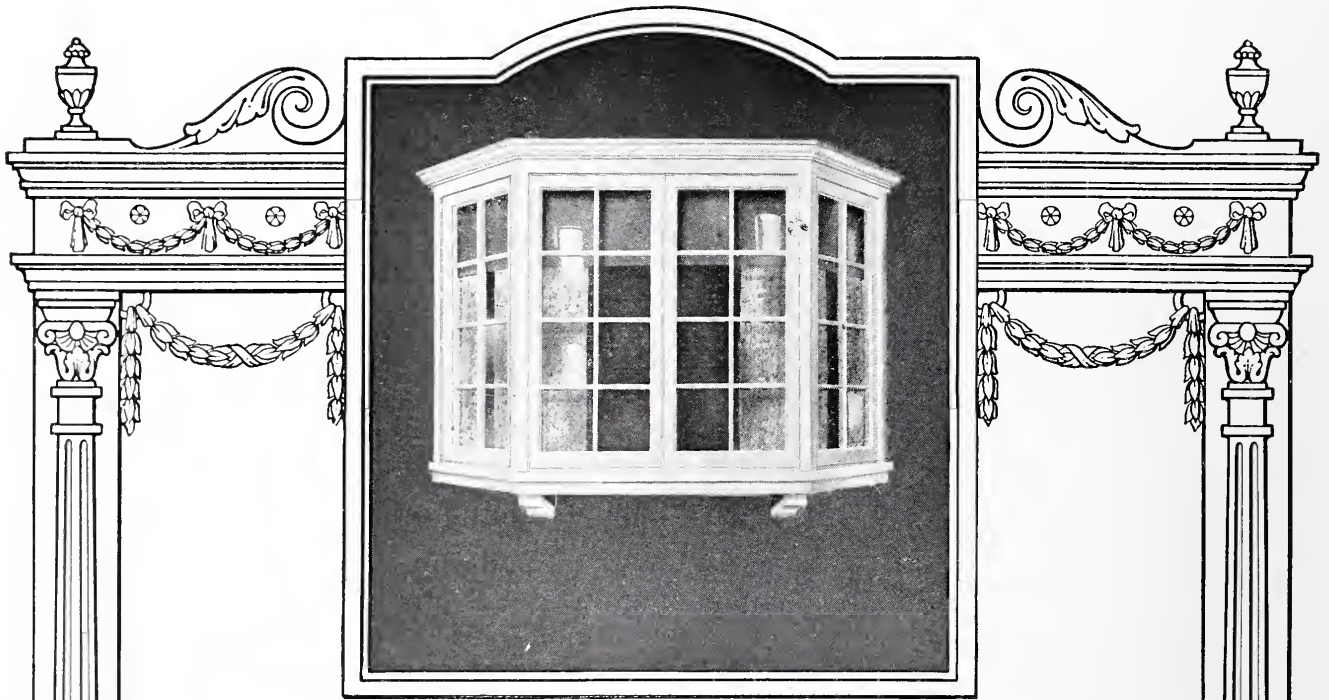
Send for the handsomely illustrated book, "Linotile Floors," and observe the character of some of the buildings in which Linotile is installed.

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Also manufacturers of Nonpareil Corkboard Insulation for cold storage rooms; Nonpareil High Pressure Covering for steam lines, feed water heaters, etc.; Nonpareil Insulating Brick for boiler settings; and Nonpareil Cork Machinery Isolation for noisy machines.

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The New Curtis Standard Designs

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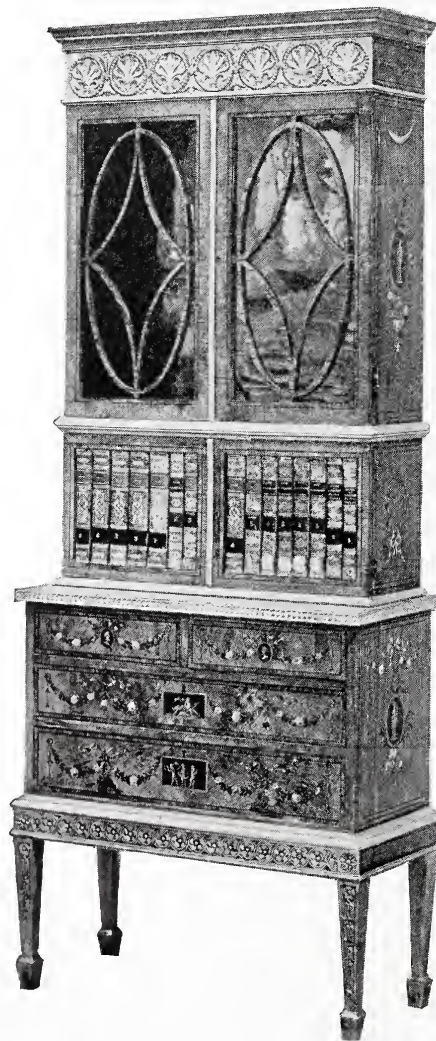


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of Antiquity*

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Adam Secretary of Satinwood. Painted wreaths and medallions in the style of Angelica Kauffmann decorate the front and sides. The center section has old book front doors. Top and base ornamented with fine gilt carvings. A Bristol production; one of a pair.



THE BRISTOL ANTIQUES IMPORTING COMPANY
154 East 55th Street, New York
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This illustration represents a design that is a 12½ inch repeat in width of 50 inch goods

A JACQUARD VELVET* AFTER THE MANNER OF A GENOESE CUT VELVET

HERE is a new achievement in American weaving—with all the characteristics of a hand-cut velvet.

The particular design shown is of the Italian Renaissance, and is truthful to the smallest detail. There are many other designs in this same type of fabric.

These new velvets are made with backgrounds which contrast with the design—

also in monotone effects. The pile is short, made of an excellent grade of silk and therefore has superior wearing qualities for furniture coverings.

In matters of color, design, construction and value we feel that we can recommend these velvets most highly to those who are seeking the unusually beautiful and meritorious.

CHENEY BROTHERS

4th Avenue at 18th Street, New York

**CHENEY
SILKS**

**Our trade name for these goods is Pompeian Velvet.*



Photo shows portion of the up-to-date offices of a large manufacturing concern where 2200 square yards of Gold Seal Battleship Linoleum are giving unexcelled floor service.

Specify a Guaranteed Floor-Covering

On every two yards of *Gold Seal Battleship Linoleum* appears a Gold Seal bearing this sturdy pledge — "Satisfaction Guaranteed or Your Money Back" — a pledge that positively guarantees satisfactory floor-service and client satisfaction.

Every yard is built to meet the exacting specifications demanded of floor-coverings for use by the U. S. Navy Department, where for years *Gold Seal Battleship Linoleum* has proved 100% satisfactory on our fighting craft.

Oak-like durability, comfort and silence under foot, ease of cleaning and quiet good looks — these qualities mark *Gold Seal Battle-*

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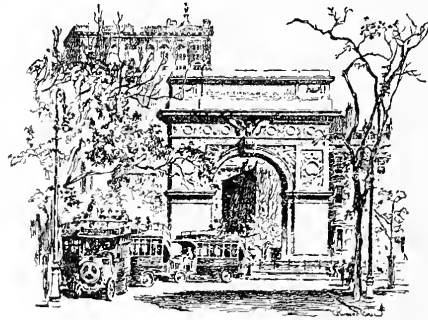
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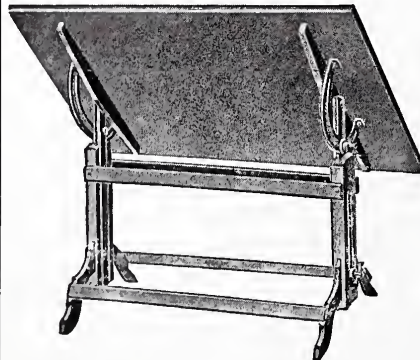
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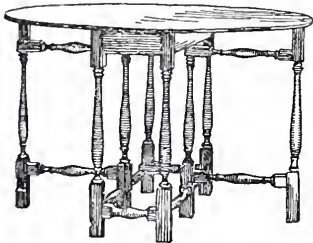
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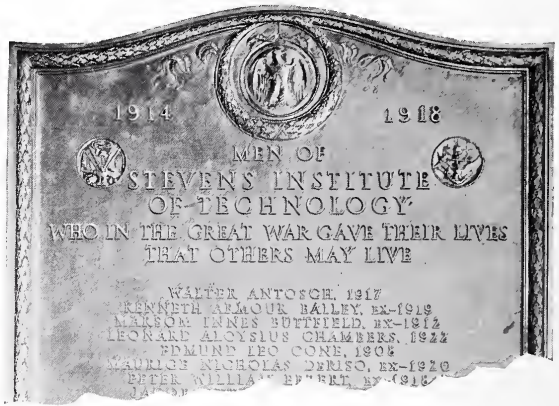
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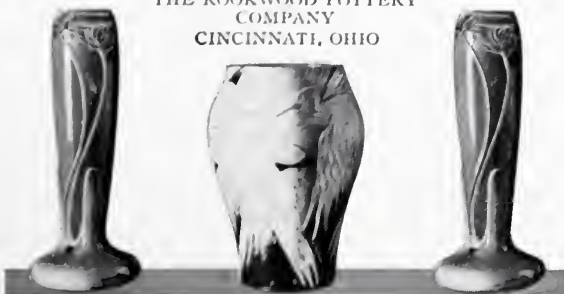


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Kubla Khan makes inquiry about Japan of a Korean Physician, Cho-I. (Marco Polo is seen on the right)

*"In Xanadu did Kubla Khan
A stately pleasure-dome decree
Where Alph, the sacred river, ran
Through caverns measureless to man
Down to a sunless sea."*

SO wrote the poet, Coleridge, recording for literature "the insubstantial fabric of a dream" in words which for fantastic imagery are possibly unequalled upon the pages of genius. As to the palace so conceived, it seems fantastic to speculate upon it. Yet what a panorama of historical movement it would bring before us, and what an evolution of decorative style could thus be visioned, compelled by the events.

One in imagination would see the mighty armies of Ghengis, of Ogotai and Batu, his son and grandson, moving to their triumphs over Mongolia, China, Persia, India, the Caucasus, Poland, Silesia, Hungary, Russia. And by comparing decorative styles before and after these achievements one would be rewarded by a suggestion, at least, of their effect upon textiles. We would discover how strongly Persian decorations reflected Chinese influence. We

would appreciate how, as the tide of conquest swept westward, the Persian-Chinese influence flowed with it. Gradually we would find the geometrical compartments and figure-groups to disappear and to be surrounded later by a wealth of flower and leaf-motifs. Parallel with this and doubtless influenced by it we could discern the development of verdure ornament, crudely rectangular in Kubla's time, but more varied and vivid in the late 15th and 16th centuries.

Finally we would come to see how closely the textiles in Kubla's* palace, in their decorative aspects, might suggest designs not unfamiliar with the motifs in our own homes. For many of the beautiful fabrics produced by Cheney Brothers whisper a far faint echo of the ancient conquerors—and perhaps even of those stately interiors which were Kubla's pleasure-dome.

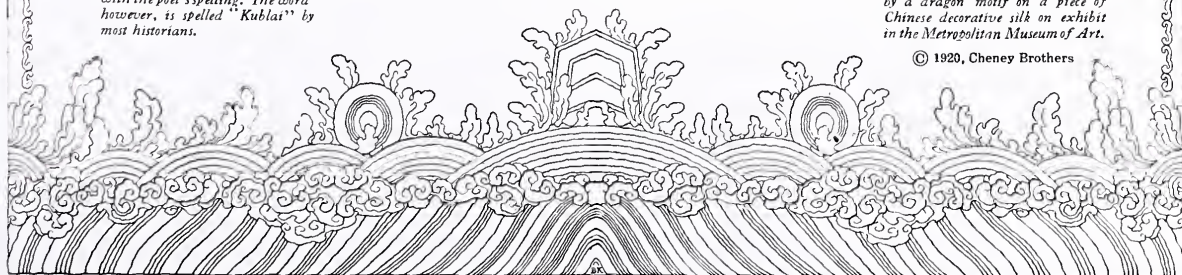
CHENEY BROTHERS

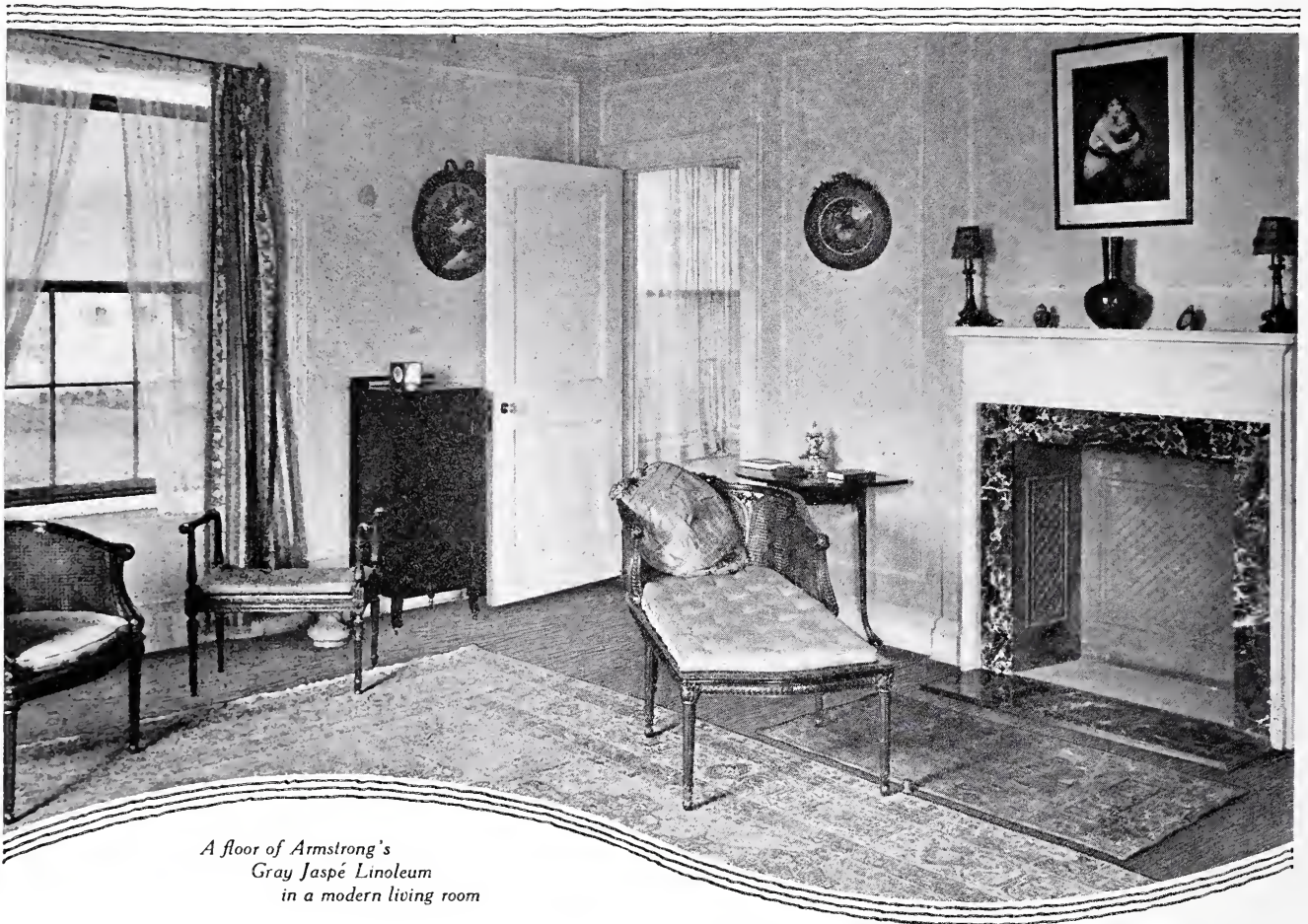
4th Avenue at 18th Street, New York

*Spelt "Kubla" here to conform with the poet's spelling. The word however, is spelled "Kublai" by most historians.

The decorative border was suggested by a dragon motif on a piece of Chinese decorative silk on exhibit in the Metropolitan Museum of Art.

© 1920, Cheney Brothers





*A floor of Armstrong's
Gray Jaspé Linoleum
in a modern living room*

Is an *Appropriate* Linoleum Floor in Good Taste?

UNTIL recently in this country, linoleum was considered appropriate only for the kitchen and bath. This was due largely to the fact that the colorings and designs were not suitable for other rooms, and linoleum was regarded as a floor-covering rather than a permanent floor on which to throw fabric rugs.

But to-day, those who are broad enough to be unhampered by tradition, especially in view of the practical advantages of linoleum, can find in the Armstrong Line a host of graceful designs and soft, pleasing colorings. These make it possible to completely round out a scheme by carrying the dominant or an analogous tone into the floor, no matter what the color combination may be. The result, if the linoleum is subordinated to the fabric rugs, is an unusually attractive effect in keeping with every edict of good taste, and a floor that has many desirable qualities.

Considering the matter in this light, can you think of any valid reason why an *appropriate* linoleum floor should not be in good taste? Colorplates which can be had for the asking will satisfy you that the designs and shades are genteel, and an investigation of actual installations will prove that when linoleum is properly cemented down over felt paper it is not only sightly and durable, but more economical and more comfortable than hardwood, and far easier to keep clean.

Might it not be possible that adherence to tradition, in respect to linoleum, has limited to a certain extent, your achievements in combining beauty and utility? Our Bureau of Interior Decoration will be glad to co-operate with suggestions and further information. There is no charge or obligation for this service.

Armstrong Cork Company, Linoleum Dept., Lancaster, Pa.

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COMPETITION FOR THE PLAN AND EQUIPMENT OF A MODEL KITCHEN

First Prize	\$500	Four Mentions	Third Prize	\$100
Second Prize	200	\$25 Each	Fourth Prize	50

Competition Closes Thursday, November 4, 1920

PROGRAM

Object

This competition is being conducted by the Hoosier Manufacturing Company of Newcastle, Indiana, to encourage the study by architects and architectural draftsmen of labor-saving devices and economies in plan and equipment for the modern small-family kitchen. The acuteness of the servant problem has resulted generally in increased kitchen activities on the part of individual members of the family and in a better understanding by the mistress of the house of the possibilities of the kitchen as a place for making or saving extra steps, wasting or conserving energy, and economy or extravagance in the use of space. That a kitchen should be a laboratory—a really pleasant room to work in, convenient, sanitary, a place for everything and everything in its place—is becoming recognized in larger measure in all communities. The Hoosier Manufacturing Company, believing that a real demand exists for standardization of at least the essentials in good kitchen planning and equipment, hopes through this competition to bring to the problem the experience and professional skill of the architect and, with the suggestions thus obtained, expects to be able to submit to the public and the architectural profession data and practical suggestions for an up-to-the-minute model kitchen. It is therefore hoped that architects and architectural draftsmen will co-operate generally and cordially in making this competition a success to the end that it may be national in scope and representative of the best thought and skill of the profession.

The Problem

The problem involves the design of a fully equipped kitchen for a family of four or five without a servant.

The floor area, exclusive of alcove, if any, shall not exceed 144 square feet; at least one wall shall have unobstructed outside exposure; and not less than two nor more than three doors, exclusive of closet door, if any, shall be provided, one of which shall be the exterior entrance door.

The doors shall be so located as to establish the relationship of the kitchen to other parts of the house and the plan of the kitchen such that it may become an integral unit of a practical house plan, the parts of which immediately adjacent to the kitchen should be sufficiently indicated in outline and designated by name to determine definitely their relation to the kitchen.

For the purpose of this competition, the essential requirements for the kitchen equipment shall be taken to be a sink with drain-board or boards, a range, a refrigerator, and a kitchen cabinet. A table, either hinged, stationary or portable and provision for surplus kitchen storage are considered desirable. The proper disposition of essentials and the addition of such other conveniences as, in the opinion of the designer, are necessary to fully equip the small model kitchen, are left to his skill and ingenuity.

Indication may be made, if desired, of the flooring material, wall and ceiling finish, color scheme, and other finish details contemplated by the author's design, but this is not required. Size and type of windows contemplated should be clearly shown and the points of the compass indicated to show the direction from which the light is obtained.

Presentation

All drawings are to be made on one sheet 19 x 27 inches in size. Plain border lines are to be drawn so that the space within them shall measure 17 x 25 inches. Whatman or similar white paper is to be used. Tracing paper, tracing cloth or Bristol board are prohibited and no drawings are to be mounted. All drawings must be made with black ink, undiluted, and without color or wash. All figures and notations shall be plainly made so as to be clearly legible at a reduced scale. A graphic scale must be shown for each scale used.

Each drawing shall be titled where space is best suited, DESIGN FOR A SMALL-FAMILY MODEL KITCHEN as submitted in the HOOSIER MANUFACTURING COMPANY'S COMPETITION, and shall be accompanied by a plain sealed envelope containing the true name and address of the competitor within. No marks shall be placed on the drawings, envelope or package by which they could be identified.

Any competitor may submit more than one design, providing each is accompanied by a sealed envelope containing his name and address.

Drawings Required

On the single sheet above referred to the following drawings shall be grouped, each rendered in outline and to the required scale. The sectional areas of the floor plan shall be filled in solid with black ink.

(a) A kitchen floor plan drawn to a $\frac{3}{8}$ -inch scale showing the size and disposition of all equipment and with dimensions from plaster line to plaster line each way clearly indicated.

(b) An outline elevation of each of the four enclosing walls and such of the equipment, doors and windows as are incidental thereto, drawn to $\frac{3}{8}$ -inch scale.

(c) A pen-and-ink perspective showing at least two-thirds of two adjacent and intersecting walls, one of which must include the kitchen cabinet. This perspective may be drawn to any scale which, in the designer's opinion, will best fit the space on the sheet and satisfy his sense of proportion.

(d) Additional sketches or notations which may be deemed necessary to illustrate or adequately interpret special features not otherwise clearly shown in plan or elevation will be permitted at the designer's option, though these are not required.

The Kitchen Essentials

For the sake of uniformity, the dimensions of the equipment hereinbefore referred to as essentials shall be as follows: sink, 20" x 30"; range, 24" x 46"; refrigerator, 23" x 38" for a maximum ice capacity of 100 pounds. The dimensions and arrangement of the kitchen cabinet are indicated in the accompanying isometric sketch.

Additional data regarding the design and construction of this cabinet may be obtained by addressing the Hoosier Manufacturing Company, Newcastle, Indiana.

Professional Adviser

Herbert Foltz, F. A. I. A., 845 Lemcke Annex, Indianapolis, Indiana, has been retained by the Hoosier Manufacturing Company as its professional adviser in conducting the competition and any inquiries regarding its terms and conditions, interpretations of the program, or requests for extra copies of the program should be addressed to him.

Delivery of Drawings

The drawing is to be rolled in a tube to prevent creasing or crushing and, with the sealed envelope, forwarded prepaid to the Professional Adviser at the address above given. If sent by mail, the first-class postage rate is to apply as required by the postal regulations. All drawings must be forwarded in time to reach their destination on or before 5 P. M. of Thursday, November 4, 1920.

The drawings will be removed from their covers by the Professional Adviser, who will place a number upon each drawing and a corresponding number on the accompanying sealed envelope for proper identification. These envelopes will then be filed and not opened until after the awards have been made.

Judgment

The competition will be judged by a jury of five members, constituted as follows:

Mr. Frederick L. Ackerman, Architect, of New York.
Miss Alice Bradley, Principal of Miss Farmer's School of Cookery, Boston.

Mr. Edwin H. Brown, Architect, of Minneapolis.
Mrs. Ida Langerwisch, Supervisor of Cooking in the Indianapolis Public Schools.

Mr. George W. Maher, Architect, of Chicago.
Each of the above has consented to serve on the Jury of Awards but the right is reserved to substitute others of equal qualifications in case of the disability of either or any for service when the jury meets.

The jury will make an award or awards to one or more of those taking part in the competition unless no design is submitted which fulfills the mandatory requirements of the program.

In making the awards, the jury will give consideration to the kitchen plan as an effective working unit; to the character and disposition of the several items of equipment and their relation each to the other; to the relation of the kitchen to other adjacent parts of a practical house plan; and to the skill and ingenuity displayed in the solution of the problem as a whole. The question of skillfulness in the execution of the drawings will not be considered, though neatness in their presentation is not to be disparaged. Drawings which are found not to conform in all respects to the conditions of the program will be eliminated from consideration by the jury.

The jury will make a full report which will include its reasons for the selection of the winning design and its reasons for the classification of the designs placed next in order of merit. A copy of this report, accompanied by the names of the prize winners, will be sent by the Professional Adviser to each competitor or announced in a magazine published in the interest of the architectural profession, promptly upon the announcement of the awards and the submission of the report.

Payment of Prizes

The Hoosier Manufacturing Company agrees that the jury above named has authority to make the awards, that its decisions shall be final, and that payment of the prizes to the respective winners will be made within ten days after judgment is rendered, on the following basis: First prize, \$500; second prize, \$200; third prize, \$100; fourth prize, \$50; for each of the four mentioned drawings, \$25.

Use of Drawings

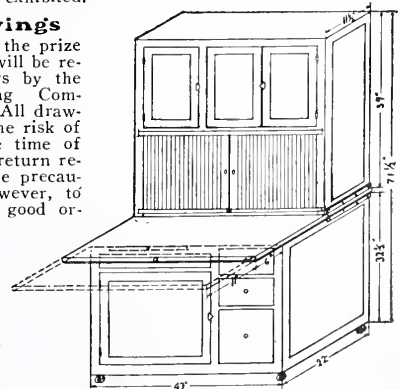
The prize and mention competition drawings are to become the property of the Hoosier Manufacturing Company and the right is reserved to use these in such manner as in its judgment may seem best without further obligation than the payment of the prizes to the authors. The right is also reserved to publish or exhibit any or all of the other drawings submitted in the competition. The name and address of the designer will be given in connection with each design so published or exhibited.

Return of Drawings

Drawings other than the prize and mention drawings will be returned to their authors by the Hoosier Manufacturing Company, postage prepaid. All drawings submitted are at the risk of their authors from the time of forwarding until their return receipt. Every reasonable precaution will be taken, however, to insure their return in good order.

Approval of Program

This program has been approved for the American Institute of Architects by the Illinois Chapter Committee on Competitions.

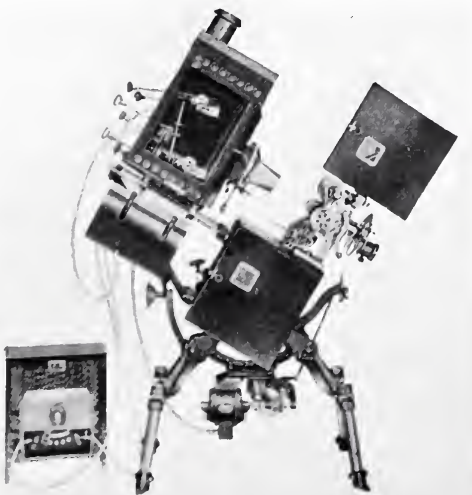


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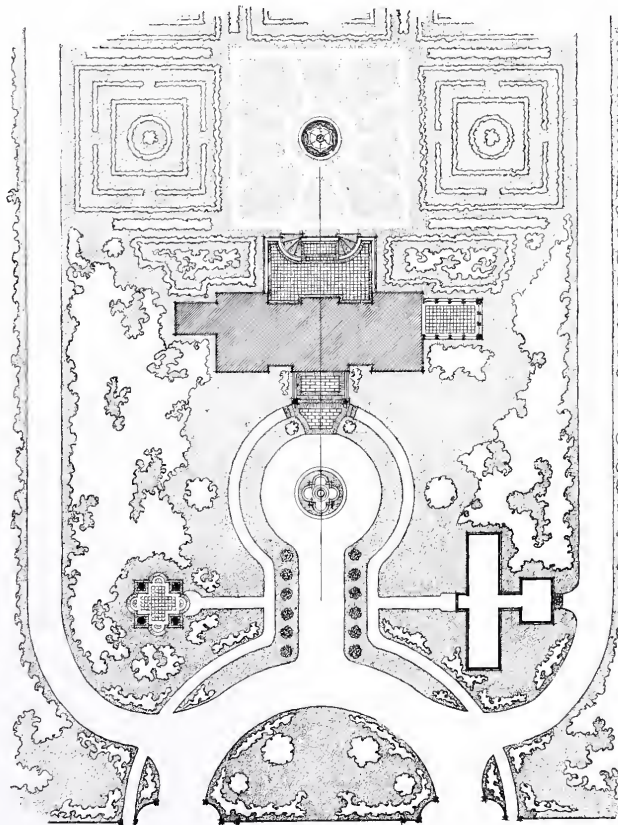

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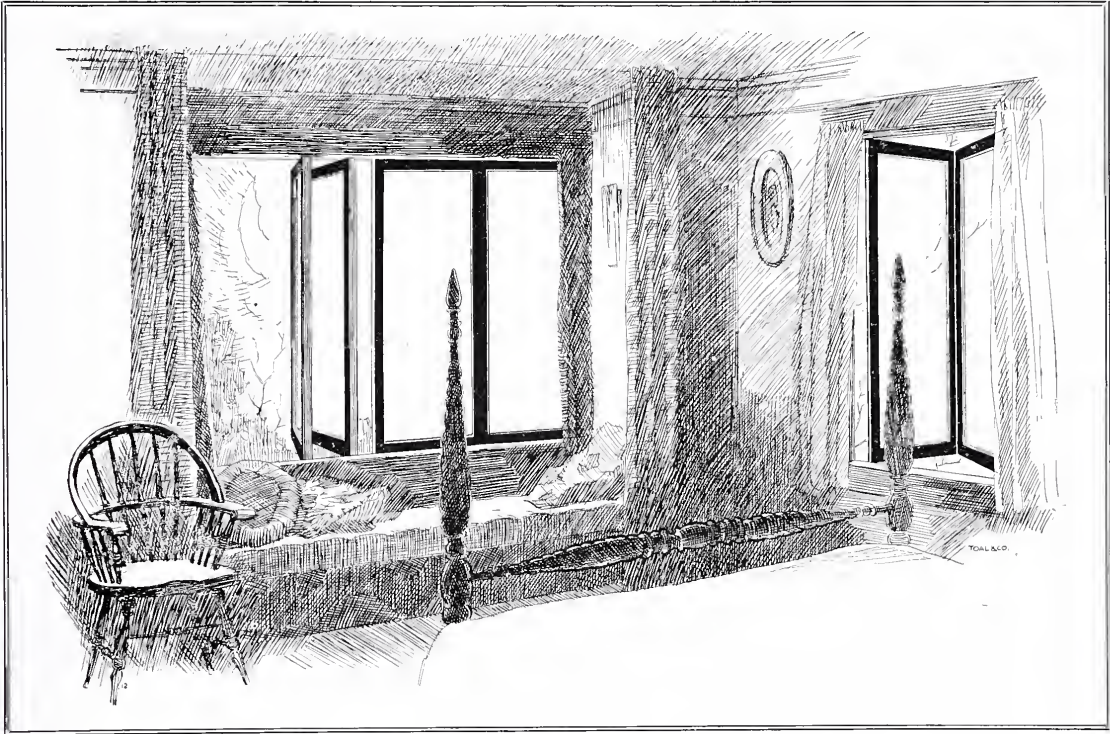
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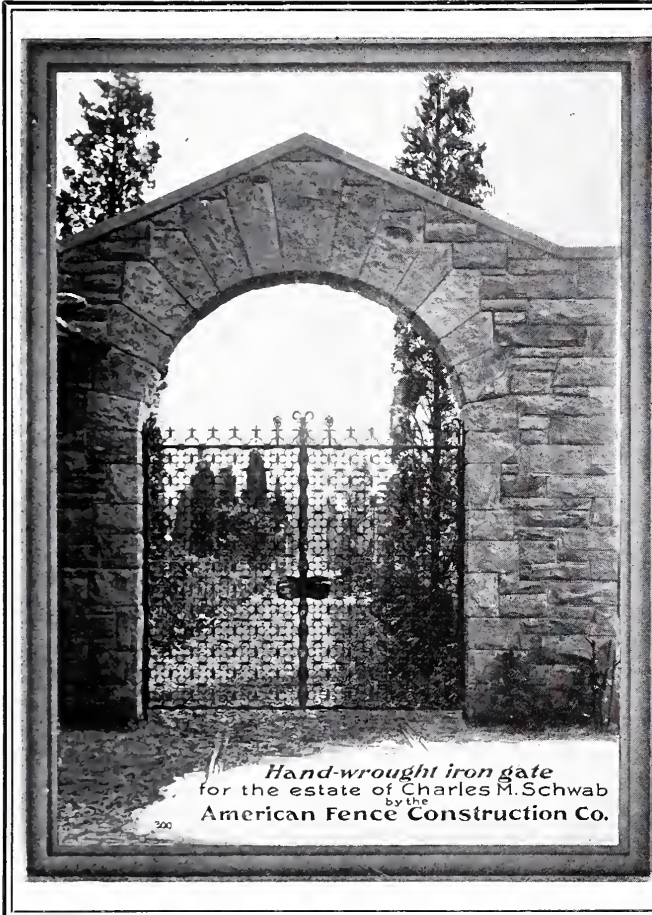
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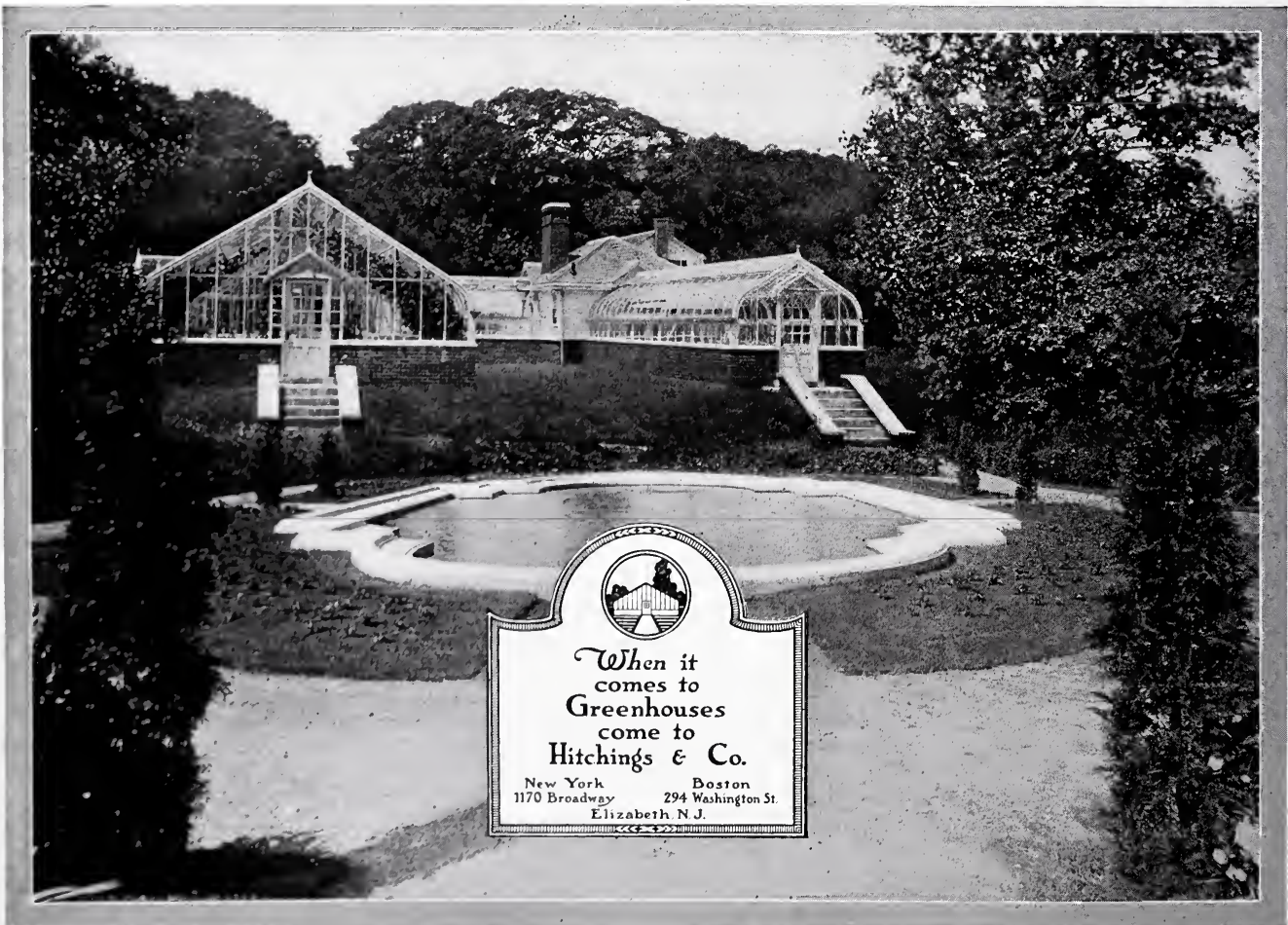
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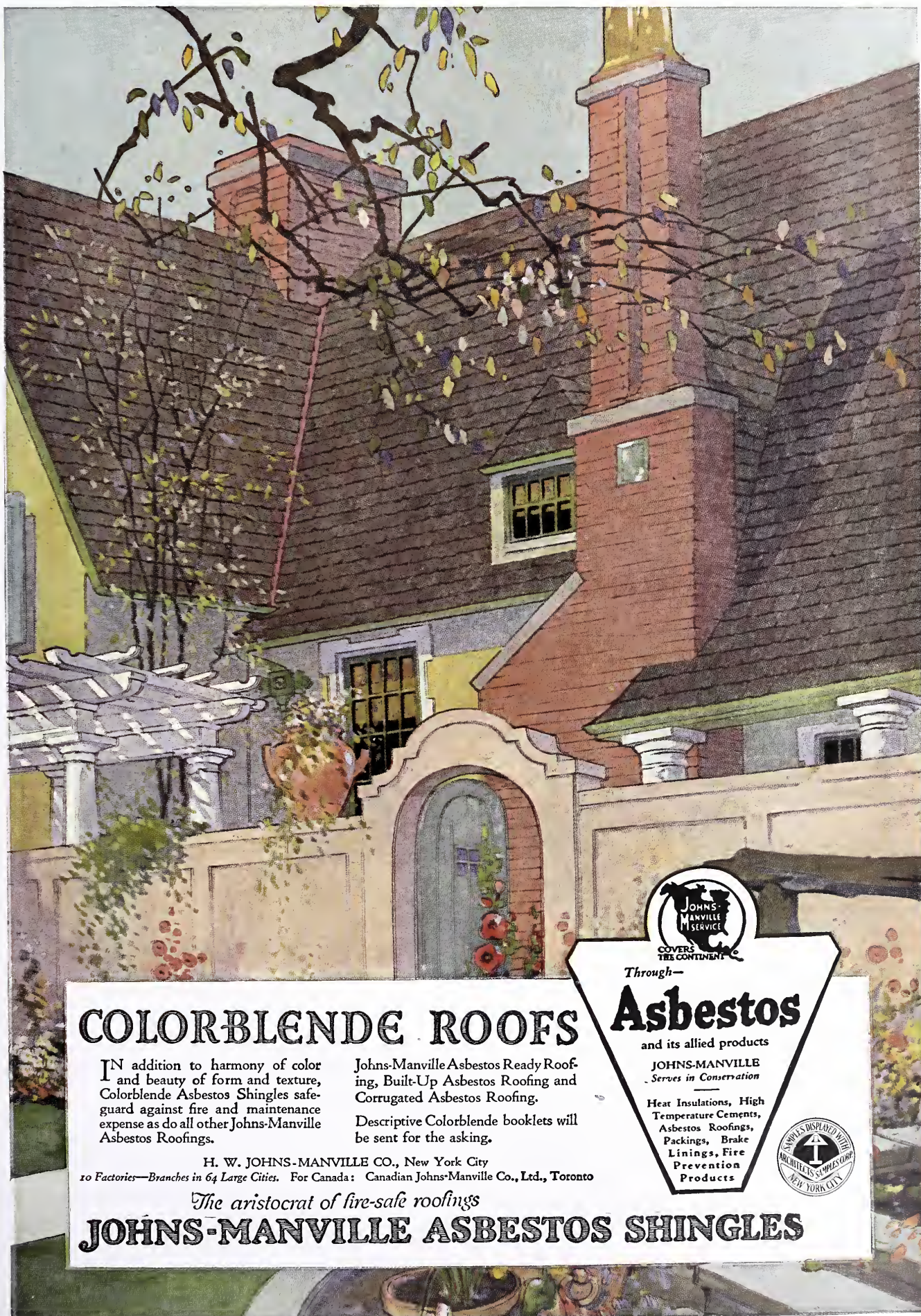
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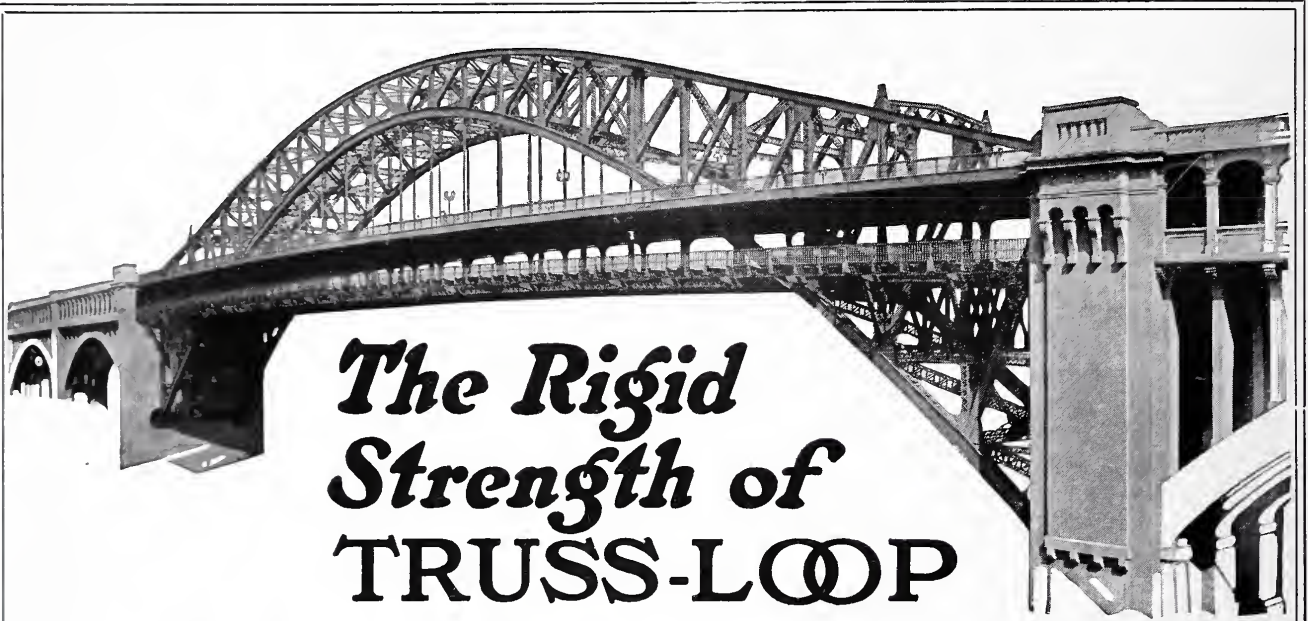
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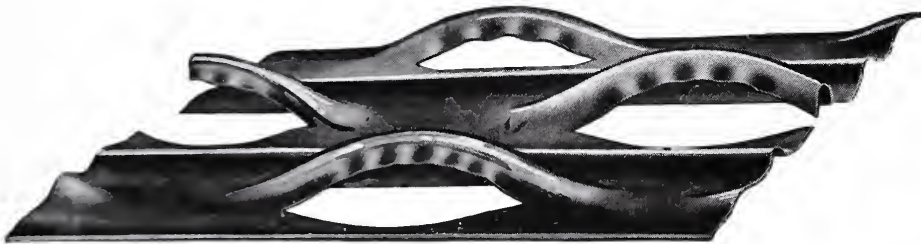
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THE ARCHITECTURAL FORUM

VOLUME XXXIII

NUMBER 3

CONTENTS for SEPTEMBER 1920

PLATE ILLUSTRATIONS

	Architect	Plate
HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.	<i>Peabody, Wilson & Brown</i>	33-38
HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO	<i>Rankin, Kellogg & Crane</i>	39-45
APARTMENT HOUSE, CONCOURSE AND 183D STREET, BRONX, NEW YORK	<i>Andrew J. Thomas</i>	46, 47
HOUSE OF DR. W. R. PARKS, EVANSTON, ILL.	<i>Tallmadge & Watson</i>	48

LETTERPRESS

	Author	Page
COVER DESIGN, TEMPLE OF CASTOR AND POLLUX, GIRGENTI, SICILY Drawn by O. R. Eggers		
THE EDITORS' FORUM		47
INTERIOR OF HARVARD HALL, HARVARD CLUB, NEW YORK		<i>Frontispiece</i>
From Pencil Drawing by Harold R. Shurtleff		
INTERIOR WOODWORK	<i>Richard B. Derby</i>	77
General Principles Which Underlie Development of Colonial Style and Suggestions for Its Proper Modern Use		
DEPARTMENT OF ENGINEERING AND CONSTRUCTION	<i>Charles A. Whittemore, Associate Editor</i>	83
Building Foundations, Part I	<i>J. R. Worcester, C.E.</i>	
Sprinkler Installations for Fire Protection, Part III	<i>W. A. Brown, C.E.</i>	
A HOUSE IN SOUTHERN COLONIAL STYLE		89
Residence of the Hon. Lathrop Brown, St. James, Long Island, N. Y. Peabody, Wilson & Brown, Architects		
THE PLANNING OF AUTOMOBILE SALES AND SERVICE BUILDINGS	<i>F. A. Fairbrother</i>	93
EARLY AMERICAN DOMESTIC ARCHITECTURE		101
II. The Wellington House near Waltham, Mass. Measured drawings by Edwin S. Hipkiss		
DEPARTMENT OF ARCHITECTURAL AND BUILDING ECONOMICS	<i>C. Stanley Taylor, Associate Editor</i>	109
The Development of Architectural Practice through Local Co-opera- tion		
Applying the Co-operative Method of Financing to Inexpensive Types of Apartment Buildings		
A Note of Optimism as to Business Conditions		
EDITORIAL COMMENT		114
Sick Housing Conditions		

ALBERT J. MacDONALD, Editor

Published Monthly by
ROGERS AND MANSON COMPANY

142 Berkeley Street, Boston 17, Mass.
Advertising Department, 103 Park Avenue, New York
Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba, \$6.00
Canada \$6.75 Foreign Countries in the Postal Union, 7.50
Single Copies 60 cents All Copies Mailed Flat

Trade Supplied by American News Company and its Branches. Entered as
Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
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The editorial and general offices of
ROGERS AND MANSON COMPANY, Publishers
are now located at 142 Berkeley Street, Boston 17, Mass.

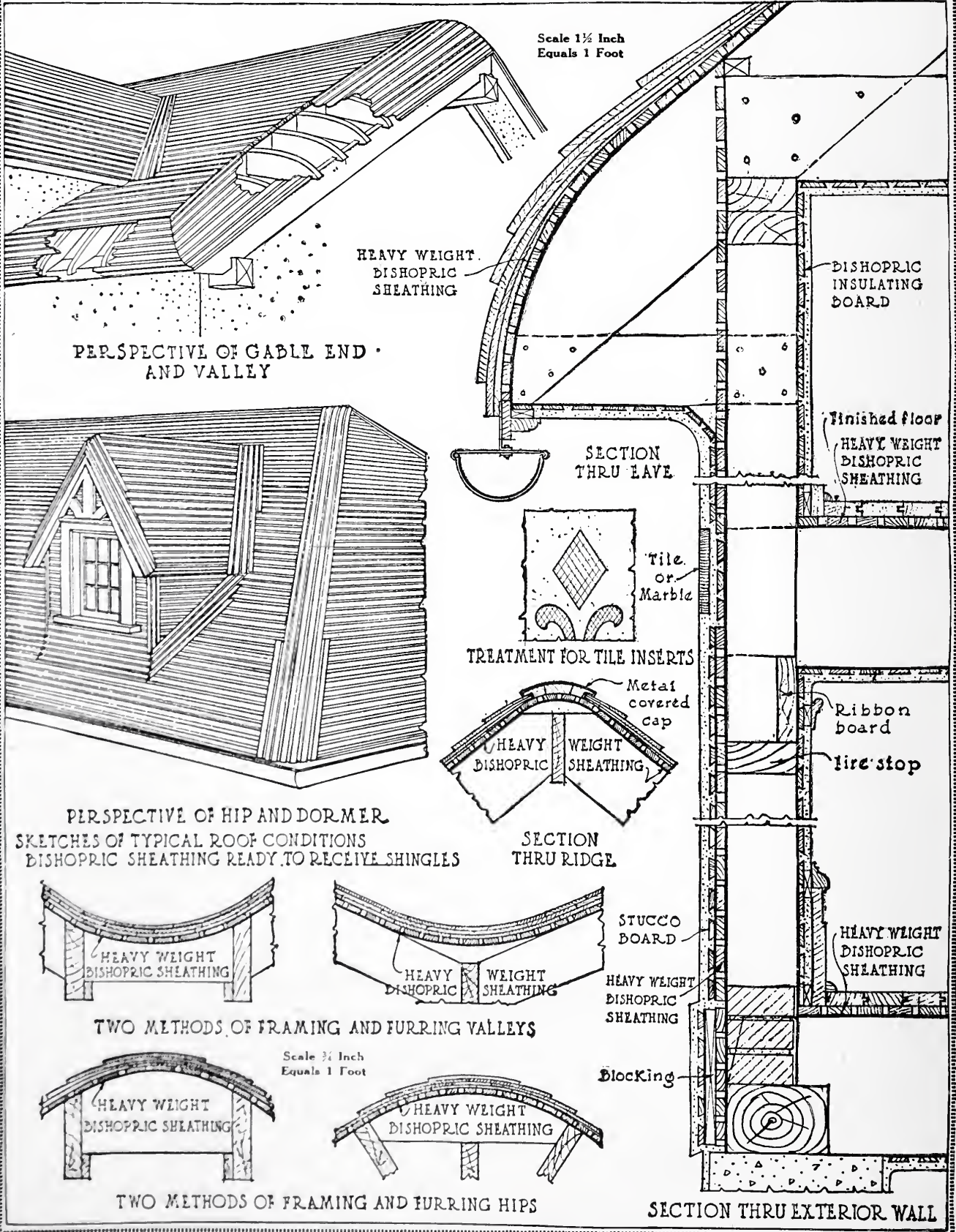


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THE EDITORS FORUM



THE difficulties with which we are contending in reconstructing the business of the country are greatly stimulating thought along economic lines, and not a few see in the widening gap between the forces of labor and capital evidence that our industrial system is founded on wrong premises. It is undeniable that all thoughtful people wish to see a community of interest developed that will guarantee contentment of all forces on which we depend for the prosperity of the country. In the following letter Mr. Ackerman asks some pertinent questions suggested by a recent editorial. His query as to what constitutes stable conditions for the majority should be of interest to architects because of their peculiar professional position.

To the Editor :

I wonder whether or not your editorial in the July FORUM expresses the attitude or the viewpoint of the Architectural Profession toward building and labor. In any event it is a subject worth discussing since it seems to me that in the viewpoint expressed we have evidence that the nature of the problem has not been discovered.

Like most arguments of the kind, this editorial points out that "while diminishing activity is not looked upon as a happy prospect, there is promise that out of the present situation will come several adjustments that will mean better and more *stable conditions*." After reciting notorious conditions relating to transportation, coal production, preferential freight rulings, the effect of deflation, the short time operation or the complete closing down of plants, the editorial states with respect to the last: "This is releasing many workers . . . the extreme shortage of *help* in the building industry is gradually being changed to a *reasonable surplus*. This will have a *steadying effect* on building labor because, . . . their success in gouging high wages has not been due essentially to their organization but to the *natural law of supply and demand* . . . and, if the present slack in building is responsible for nothing else than *bringing labor down to earth*, *any resultant sacrifice will have been wisely made.*"

Thus an attitude toward the problem before us is quite clearly defined; and what is commonly understood by *stable conditions*, by *help*, by *reasonable surplus* (labor), by the *natural law of supply and demand* is quite as clearly revealed, both by direct statement and by implication. We discover what is meant by a *steadying effect*; we are afforded an insight into how it is that the present industrial system goes at its task of providing necessary goods and services. A hope is voiced in the plan suggested and in the prophecy made.

Within the realms of Business Enterprise, a *stable condition*, a good condition, a right condition, is evidently one in which there is a *reasonable* number of men who have no jobs. This expresses one of the curious elements of the business viewpoint. We are given an insight into its limitations. It fails utterly to realize that, to those who make up the *reasonable surplus*, *stable conditions*, good conditions, right conditions *must of a necessity appear as quite the opposite in character*. There is not much reason in this scheme as viewed by the *reasonable surplus*, — those who have no jobs.

And it is curious economics. For how in the name of Common Sense is this *reasonable surplus* of men and their families, — whose existence is demanded by the scheme, — how is this surplus to live? No one has been able to make this plain.

No doubt when conditions with respect to labor supply pass from a shortage to a surplus there will appear to be a

steadiness as viewed from the outside. But the disappearance of jobs is not likely to be so viewed by one whose job suddenly disappears while the price of food, clothing and rent remains stationary or rises. But by what method of rationalization it can be worked out that things would remain *steady* with more men than jobs is not disclosed.

I suspect that it is the tenacious clinging to this concept of *stable* or *normal*, on the part of those who are certain to benefit by conditions being *stable* in this particular sense, which really accounts for the general conditions of *instability* which, as everyone knows, have obtained for a long time.

Some little light is thrown upon the nature of what is referred to as the *natural law of supply and demand*. Apparently we have gotten into a settled habit of throwing whatever operates toward a beneficent end *as regards our own pecuniary circumstances* into the category of *natural laws*. Whenever events move in the opposite direction, that is to say, when circumstances shift in such a way as to involve us in a pecuniary loss, we account for the shift by saying that it is due to "disturbing factors." There is little doubt that in the minds of a rapidly increasing number of people, faith in this law as the beneficent regulator of all social and industrial affairs is rapidly falling away. It looks as if we were rapidly approaching a period of its complete disallowance. The theory of *natural laws* — the *law of supply and demand* — does not rest, it would seem, on very secure ground.

What stands out as most clearly revealing a definite viewpoint on the part of those not rated as Labor is the reference to bringing Labor down to earth. This is said openly in the face of known facts as to the rather astonishing profits which have been made in practically all of those enterprises of financial business which have to do with supplying both necessary and unnecessary goods and services; — and also in the face of the fact that the upward curve of wages distributed with respect to the production of necessary goods has remained below that disclosing the advance in the selling price of the same. Be that as it may. Within democratic society, Labor is assumed to be free. Hence such a statement as *bringing labor down to earth* is hardly to be construed as aimed at sustaining Labor in a state of freedom. For if Labor is not free, — if it is merely relatively free, — it follows as a consequence that Labor is slave or relatively slave, which is precisely what Labor contends.

But let us return to *stable conditions* and *steadying effects* by way of adding emphasis upon one point. It is because of the demand (blameless of course, under a system of investment for a profit in terms of price) upon the part of the directors of our industrial system for a speedy return to the pre-war conditions of a *surplus* of Labor, which occasions the *lack of stability* and the lack of *steadiness* on the part of all but a small minority. For a surplus of Labor, even within a small section of the wage earning community, throws the entire wage earning community into a dangerous condition of economic insecurity. The dawn of consciousness on the part of the wage earners the world over concerning the origin of this sense of economic insecurity, — the realization that under the existing system of financial business a surplus of Labor *must somehow be maintained*, accounts for the restlessness and the tactics adopted by those primarily affected.

All that has been stated should fall within the category of the perfectly obvious. But it does not so fall; fallacious economic preconceptions shut off our vision. We go on insisting that conditions are stable when they are actually quite the reverse to the majority of people. It would seem that the first step toward securing a stable condition would be to set up some more adequate definition of the term as viewed by the majority. Since this is not likely to happen, it follows that the prospects of industrial stability are as yet somewhat remote.

Yours very truly,

FREDERICK L. ACKERMAN

August 27, 1920

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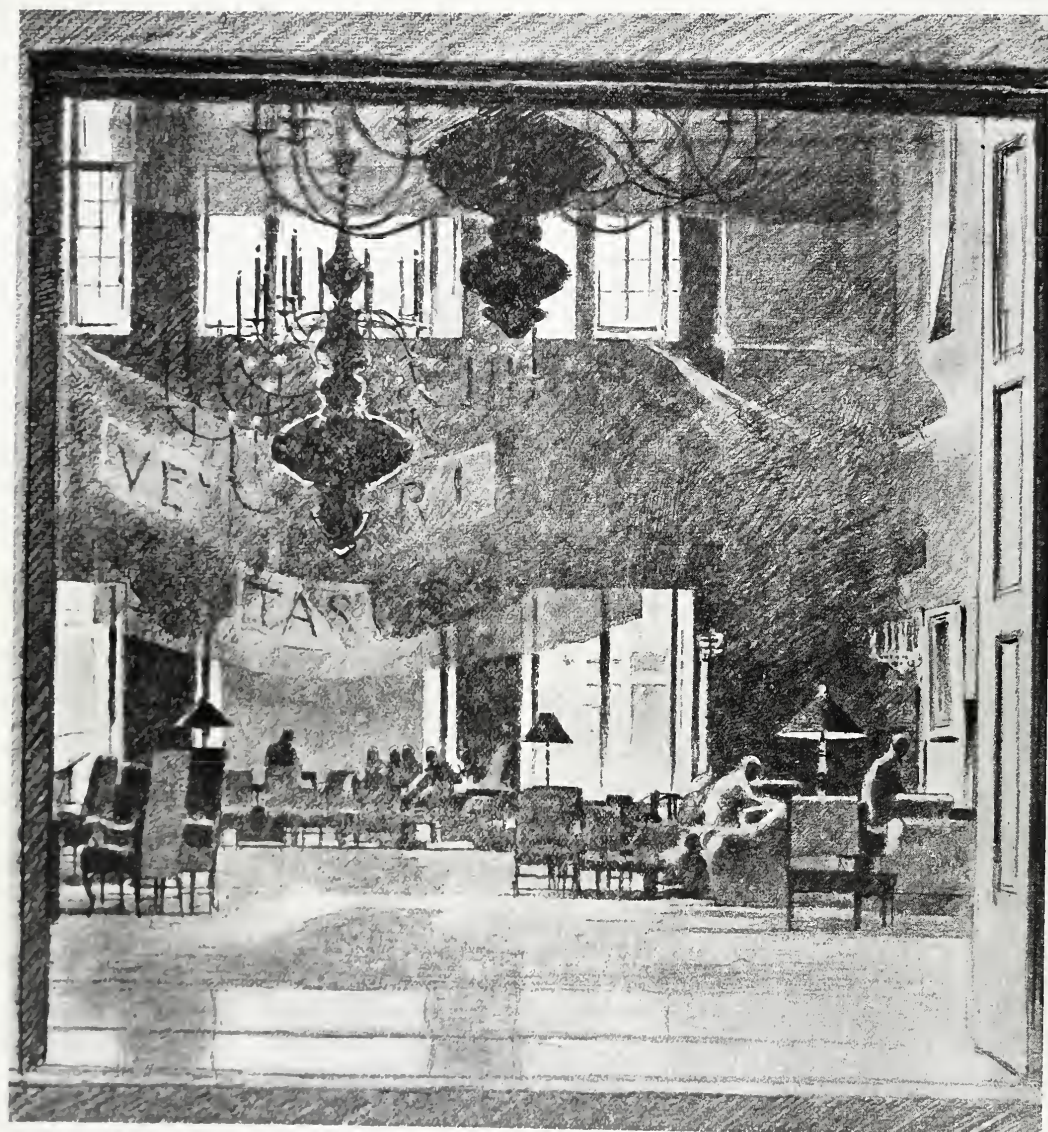


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The ARCHITECTURAL FORUM

VOLUME XXXIII

SEPTEMBER 1920

NUMBER 3

Interior Woodwork

GENERAL PRINCIPLES WHICH UNDERLIE DEVELOPMENT OF COLONIAL STYLE
AND SUGGESTIONS FOR ITS PROPER MODERN USE

By RICHARD B. DERBY

INTERIOR finish in any house is good if it solves the modern problem against a traditional background. It is not good if it is merely modern, and it is not good if it is merely a reproduction of a given prototype. In the one case, though it may be alive, the form in which this life persists is likely to be ugly; in the other case, though the form may be correct in all particulars, life is lacking and the result is a dead thing. When, however, the inside finish is reminiscent of the past and at the same time unmistakably of the present it is almost certain to be both alive and good.

This generalization applies, we believe, to any work in any place, but our emphasis is to be placed on the colonial work native to this country. While this style is coming more and more into use and recognition, it is falling into a kind of disrepute because of its frequent bad handling. The very general use of the style has elevated certain of its characteristics into conspicuous notice. These characteristics are so marked that any casual attention paid to them fixes their general outline in the mind. The result is a wide use of the common characteristics of the style, with little or no attempt on the part of the users to refer these to their source and to become acquainted with them at first hand. Modern work, in reproduction, shows all the defects of this unintelligent procedure.

Most conspicuously abused, perhaps, is the early or Gothic work, so called. In this work we find an integrity of finish which has its roots firmly fixed in an integrity of structure. The frame is a substantial, solid and unified thing; every part of it is a work of art in itself and good to look at by itself, without help from wall covering, inside or outside. And much of the inside of it was not covered but was, indeed, the finish of the completed rooms. Corner posts, ceilings and considerable portions of the interior walls were both frame and finish, yet the essentially inter-dependent relation of the two is almost completely ignored in modern reproductions of this early style. We build our frame, conceal it and then apply a finish which attempts

to simulate a structure. The result is a finish which deceives no one and is a merely effeminate brush painting of the masculine rough hewn original. Of course we usually lack the means, today, to build economically in the old way in all its strong integrity; but why debase the style by pasteboard imitations?

Similarly, though not so conspicuously, with the later colonial styles. The broad treatment of the early work is not more refined and effeminized than the refined and delicate treatment of late work is coarsened and vulgarized. The most frequent offenses are found in the size and proportion of openings and in the treatment of fireplace motives. Hardly a new house but has an open plan,— every room visible from every other room, through doorways, frequently doorless, as wide as they are high, sometimes with columns added to support the architrave. Mantels with overmantels abound, both embraced by huge and heavy pilasters. Woodwork generally is used with little or no thought of its proper relation to wall surfaces or of what, indeed, it does in any room. There seems to be a tendency to put as much finish in as the client will pay for, with little thought of appropriateness or character.

The periods too, in the essential meaning of the word, are much confused in modern work. There is little or no value, of course, in period work for its own sake, but underlying the several marked changes through which colonial work has passed are many more fundamental things than dates. Openings, size and position, story height, scale and character of detail, are some of the elements of character which give significance to period divisioning. In sum, we center our attention too much on minor details and depend on these final touches to give our houses a colonial look. And a colonial look is all that many of them have.

This is not an argument for imitation and reproduction, for adherence to period, or for strictly literal following of any part of the style whatever. It is rather a plea for a study of the

style as a whole with a view to building up a background of sufficient scope and correctness to enable designers to use it freely without debasing it. It is not to be hoped or even desired that a literal knowledge of the periods and examples will stick long in the minds of many people, but a thoroughgoing study of these things will leave the memory clear as to the general line of development and will give a sense of character. One will be able to look at a good example of some given type of door or window and know whether it is late or early and the really important thing, what the character of the related detail should properly be.

A certain stigma undoubtedly attaches and should attach to the mere copyist. But this stigma should not attach to those who are merely giving the full value to tradition. There are too many factors at work in the design of a house to permit anybody to believe that the result of their working together can ever be a product true to type. Effort should be made to prove not that an architect has reproduced a given model in a particular piece of work, but rather why he has been able to achieve his good result by way of adapting his models.

It will be found that good work results from the fact that the designer has applied fundamental ideas deduced from a well studied and thorough background. He has not learned his ideas in a

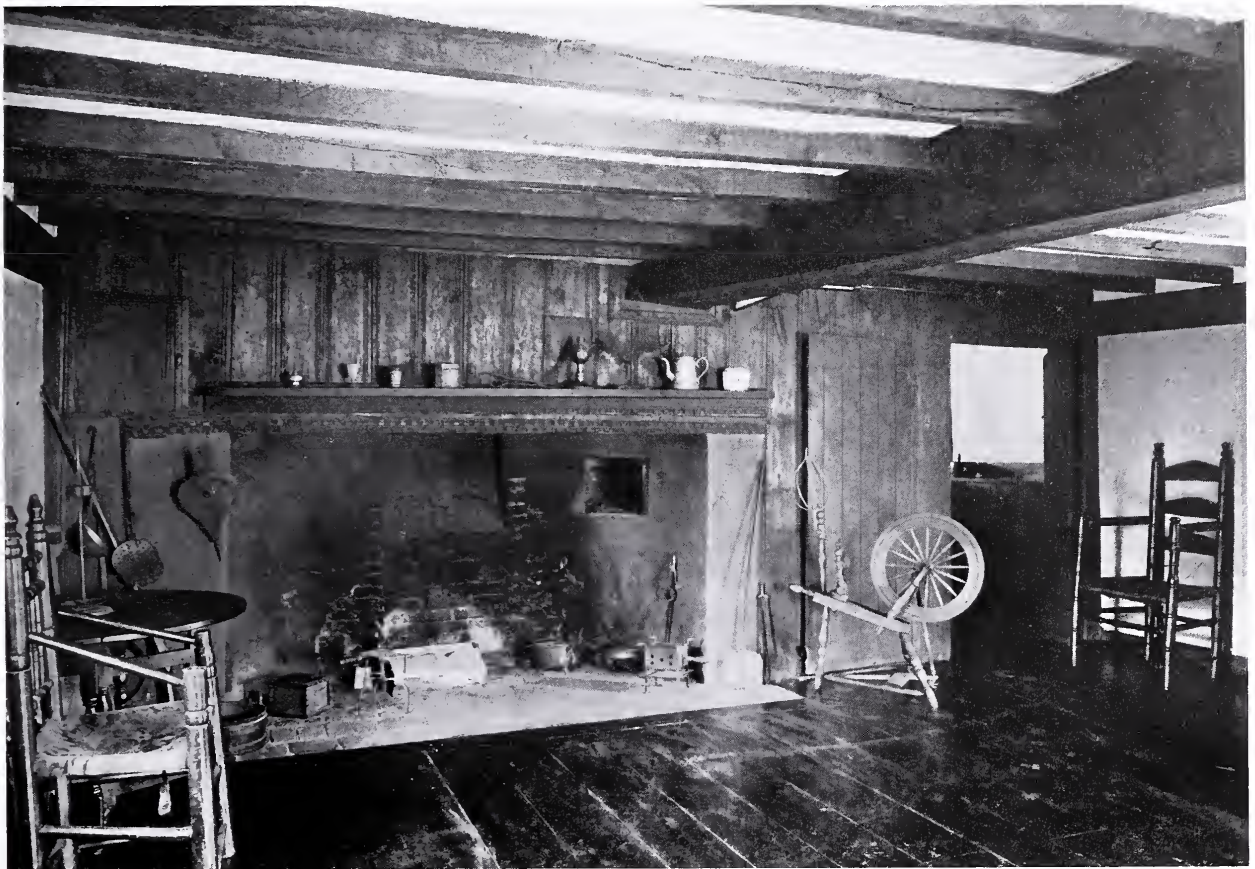
school in colonial architecture which would but shortly reduce the style to little more than a mechanical product resulting from mere technical equipment. Individuality in work, therefore, must inevitably result from a particular kind of background personal to each individual and from the method of utilizing this background.

Almost any guiding principle may be adopted as a string on which the individual can thread the results of his study of the development of inside finish. The principle of interest has proved a very excellent guide for certain people and may prove so for others. How are the rooms of a house to be made interesting by means of inside finish? This immediately calls for a study of development under the guiding principle. What are the sources of interest?

The chief source of interest in the early, or seventeenth century, work is undoubtedly the interest which results from the contrast of frame or structure with the filling in between the members of this frame, whether on ceilings or walls. The frame has, of course, an interest in itself. The members are of different sizes. Rough hewn surfaces have the interest of texture which appears in all hand made work. In addition to this, there is also the interest of value in the varied natural colors which time gives to the wood. Given the



Chamber in the Hannah Robinson House, Saunderstown, R. I. Built about 1750



Interior of the Early Type in 17th Century House at Ipswich, Mass.

strong and interesting frame, it became the object of our early builders merely to seal this up,—one room from another and all of the rooms from out of doors. This seal was of two kinds, the flooring and the plaster between the uprights of the walls. The flooring contrasted in texture and, in some degree, in color with the frame itself. The plaster of the walls afforded a great source of interest in its strong contrast with the dark values of all the wood. We have then, as sources of interest in the early work, the use of the hand made heavy frame in contrast with the sawed lumber of floors and ceiling, and with the plaster filling of the walls.

The omission of plaster or rather the covering of the plaster in the later development of the style lost, of course, the interest due to contrast which the exposed plaster gave. There were, however, certain compensations. The development of the panel began with the sheathing of this time. The sheathing was probably first used as a covering of the face of the chimney, and then extended around all the walls of the room. The detail in connection with this is, of course, one of the sources of minor interest, but it is questionable whether these are equal to the loss of the larger interest due to the concealing of plaster.

The beading of this early sheathing became ultimately the deep indentation which resulted in the raised panel. This indentation, at first merely applied vertically, extended at last all the way

around the panel. Simultaneously with this development of the panel came the casing of corner posts and beams, and the plastering of the ceiling between the larger beams. This resulted in a loss of the interest due to texture and this loss was compensated for by the use of paint. Paint afforded opportunities for new kinds of value and color contrasts in their relations to the plaster walls.

From this period on the interest due to finish is to be followed from a somewhat different angle. The woodwork is now white and its interest, aside from the interest of detail, becomes a matter of achieving variety, chiefly in the masses. We do not discover variety in the great amount of finish used as clearly as we do in a proper disposition of whatever amount is used. Some rooms are finished throughout in wood and yet are exceedingly monotonous. Variety is most easily achieved by avoiding balance within the limits of the wood finish itself. The unfinished parts of the walls of a room to which finish is applied should be employed, equally with the woodwork, to create the necessary balance in the room as a whole. Study of the old work of this period will show the way to do this. The single wood end in contrast with the three plaster walls, or in contrast with plaster walls plus dado, is the conspicuous treatment; and it is a treatment at once fundamental and capable of wide variation in handling.

The interest of the middle period work is the



Modern Hallway. Designed by Derby & Robinson

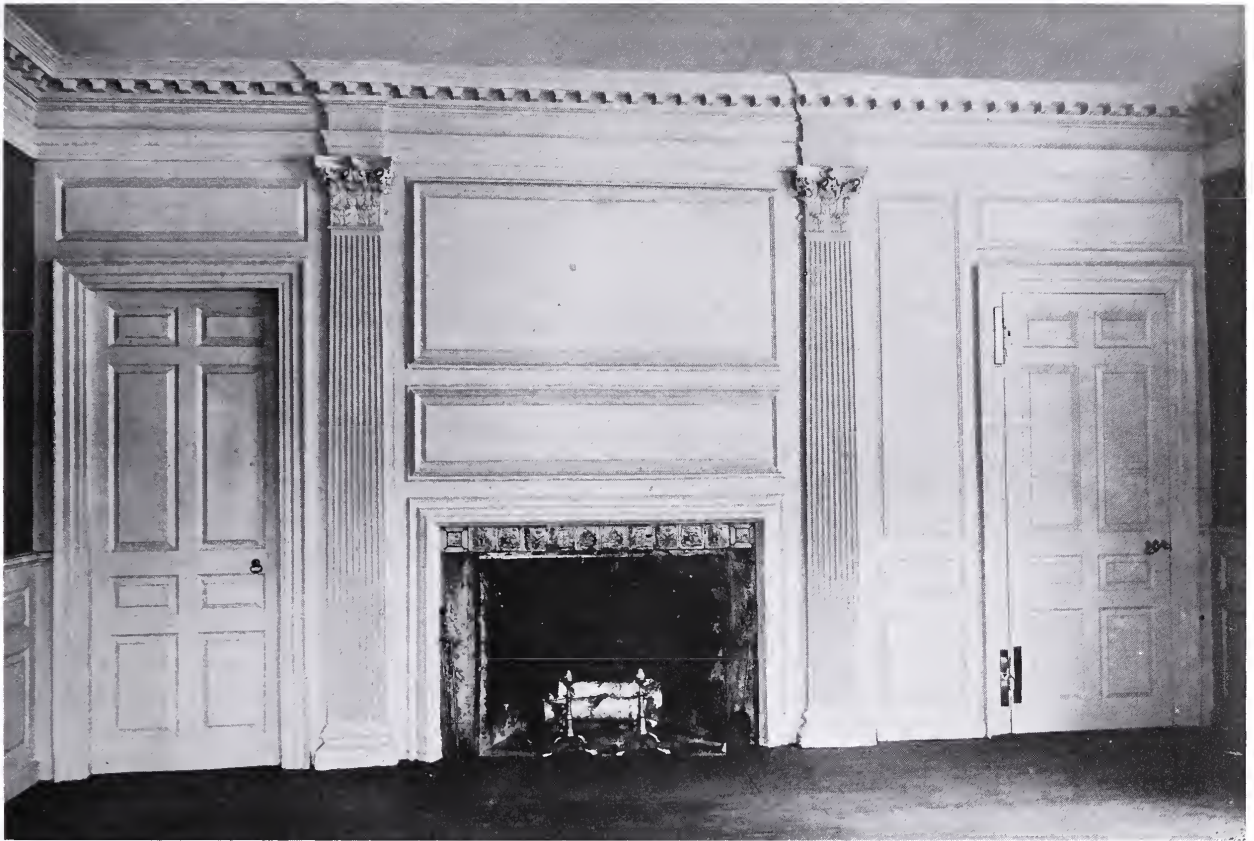
interest which attaches to transitional development. From this point of view, at any rate, the period begins with the casing of the beams and the plastering of the ceiling. All the older methods and ideas are clearly discernible beneath the white painted veneer. The chimney becomes smaller, the fireplace alcove becomes a mere recess in the wall and then disappears entirely. The door leading to the entry takes to itself panels and is duplicated

on the other side of the fireplace. The dado comes in, divided up by its horizontal panels. The paneled wall is added above the dado. Architectural forms, part by part, are added and finally the colonial which is called, or miscalled, Georgian emerges into full view. Though the middle work may lack the commonly central interest of the other periods, it nevertheless has a series of minor interests which more than compensate. Furthermore, it has furnished most of those commonly known characteristics by which the style is known and to which, in the minds of many people, it is unfortunately limited.

The work of 1800 represents the highest development in the design of inside finish which the country affords. It is in widest contrast with the early or Gothic work. This, and its development, was of what might be called the casual type. Its interest lies to a considerable extent in this very characteristic of casualness. Though fundamental, it may almost be said to have happened. The 1800 work, on the other hand, is the result of study. In 1800 work nothing ever



Room in the Fowler House, Danversport, Mass. Built in 1805



DETAIL FROM JEREMIAH LEE HOUSE, MARBLEHEAD, MASS. BUILT IN 1768



EXAMPLE OF DETAIL IN A RECENT HOUSE AT CONCORD, MASS.
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merely happens. In the best examples of it everything belongs, nothing is missing, the result is perfect. It has the interest, therefore, which attaches to any fine work of a sophisticated order. Rules were developed for the proportion of part to part and a knowledge of these rules was taken for granted among the best designers. One of the best results of these rules of proportion is found in the establishing of scale which they accomplished. Having worked out a satisfying relation between the parts they were then able to apply this relation in its integrity to each particular case. If the size of an architrave was five inches for an opening of one size, it became so much larger or smaller for a larger or a smaller opening. This, clearly, was taking a leaf from the book of the perfect Greeks. The study of 1800 work, therefore, leads in itself to an education in colonial work at its highest stage of development.

With a study of the major sources of interest it is well to combine a study of the minor sources also. The superficial characteristics of colonial work are easily noted and are reproduced without difficulty, and they have gotten so into the air that

even a layman can recognize them. But results after this pattern, though they may have a kind of vulgarized character, are always bad and are really more reprehensible than work which does not even attempt to achieve a particular style. Knowledge of detail will tend to correct the designing of bad work and a study of detail, by way of the kinds of interests involved, will build up the necessary background of knowledge.

Study of inside finish is not to be confined to the three principal epochs of our native architectural development. There are, of course, the sectional variations of the periods themselves, as Southern work, Northern work, and the work of the middle states. In addition, there are the local variations within each of the larger sections. Covering the entire field means a great deal of study, much more than most practising architects are likely to give to colonial work; but a thorough examination of however limited a part of the field will develop in the student a respect for the style and skill in his use of it which will go far toward correcting the vicious and apparently growing tendency to vulgarize it.



Detail of Parlor in the Hannah Robinson House, Saunderstown, R. I. Built about the Middle of the 18th Century

Building Foundations

PART I

By J. R. WORCESTER

THE chief function of building foundations is to transfer the weight of the building to the ground, thereby securing a safe, permanent and immovable support for the structure. Secondary results are often obtained, by use of foundations, such as retaining surrounding ground at a level higher than the basement floor, but these should not be confounded with the principal use. It is evident that to properly design foundations one of the first necessities is to calculate the load coming upon the different parts. This requirement produces the sometimes embarrassing situation that while the foundation must be constructed before the rest of the building, it cannot be properly designed until the plans are far advanced and approximate loads ascertained.

Consideration of Loads

By far the most important part of the load is the weight of the building itself, or the "dead" load as it is commonly called. This is always present and active, and the effect on the soil is much greater from a constant force than from a load suddenly applied and soon removed. There is an advantage in this circumstance in the fact that the dead load can be accurately computed, while the "live" load is always problematical and a matter of assumption. The lesser effect of the live load is recognized in most building regulations by the provision that a decrease in the assumed live load is permitted in parts supporting large areas and several stories.

In computing the loads on foundations it is necessary to know in a general way how the floors are to be framed, for not only is the weight of the floor itself dependent upon the framing, but the direction of beams and girders will determine which walls and piers are bearing walls, and which carry little or no floor loads.

It is desirable in calculating loads to keep the dead and the live separate throughout. This enables one to apply the proper reduction to the live load as a whole, and it is generally a simpler way to do it. The live load on foundations may usually be obtained with sufficient accuracy by multiplying the floor area contributory to a wall or column by the number of floors and the unit load, without following out the reactions from individual beams and girders.

Thus far we have been considering only the vertical force due to gravity. There are also certain conditions under which horizontal forces

must be taken into account. The horizontal force of the wind need be considered, as affecting foundations, only in rare instances. In the case of a tower, a tall isolated chimney, or a wall standing by itself, the wind pressure may cause an appreciable increase in the load on the foundation in the leeward side, but in buildings of common proportions this increase may be ignored.

The horizontal force of earth against a retaining wall is a real factor which often affects the design. This force is not always disadvantageous, as it tends to resist the "tipping" effect of a load on an eccentric base, and thereby may relieve what would be an excessive load on the soil. The subject of lateral earth pressures is too large to be considered within the limits of the present article.

Supporting Power of Ground

Having ascertained the vertical loads which are to be transferred by the foundations to the soil, the next step is to determine the power of resistance of the material upon which they will rest. This may vary all the way from zero to infinity or, more truly, from so small a value as to be unfit for carrying any structure, to a value greater than that of any form of building material that could be used for a foundation. At the lower end of the scale are loam, peat and mud; at the other extreme is solid ledge. Between these lie innumerable gradations.

A knowledge of the geology of the location is of great assistance in a determination of the strength of the underlying material, and with such knowledge, test pits to the level of the natural bottom of the foundations, and sounding with a bar below this grade will usually furnish the necessary data. Where the geological formation is unknown, and where there is a possibility of there being soft material below, the safe course is to obtain borings in several parts of the location, carried low enough to establish the general character of the ground. In sand, silt or clay, borings can be made with an auger; but where miscellaneous materials are encountered the simplest method is by the "wash boring" process. This in the hands of experienced men gives very reliable results.

After obtaining information as to the nature of the soil at different levels a decision must be made as to the stratum upon which to depend for support, and the carrying capacity of this stratum. Soils which have been deposited through water are

usually found to be stratified in layers approximately level. These layers, varying in the coarseness of their particles, differ as to their carrying capacity, and it is often possible to take advantage of this condition by applying the foundation to the top of a hard stratum, or crust, which will help to distribute it over a greater area of soft material below the crust. A few general rules as to choice of soil may be of service.

1—Filled ground is unreliable, and permanent structures should not be placed on filling. The reasons for this are two: first, because the filling material is generally poor and full of voids, allowing it to compress and contract for many years; and second, because in most cases the filling has been dumped upon what was top soil, containing organic matter,—mud, peat or loam. This rule, though general and always safe, may be unnecessarily severe in exceptional cases. Where a sand or gravel fill has been in position long enough to have become thoroughly consolidated, and where the original surface was not soft, the objection to resting directly upon the fill may be so slight as to be negligible.

2—Soil containing organic matter is compressible, and will contract as the organic material decomposes. It is therefore unsuitable as a support for a permanent structure. This rule, too, is to be applied with discretion, for the proportion of organic matter varies all the way from 0 to 100 per cent. Alluvial soil contains more or less organic matter and where this extends to great depth it may be necessary to depend upon it. On the other hand, where clay, sand, gravel or rock are within reach of the surface, and are overlaid with silt, peat, mud or loam, it is distinctly worth while to penetrate to the organic part of the soil.

3—A soil which has very slight carrying capacity, when free to flow, may be entirely satisfactory as a supporting medium when confined. It is important, with material of this character, to distribute the weight of the structure so that as far as possible the load per square foot will not differ greatly in different parts of the building. Two examples of the effect of unequal distribution are well known in Boston. The New Old South Church on Boylston street has settled more at the corner where the tower is than elsewhere, causing the inclination of the tower. The Public Library is loaded much more heavily in the rear, where the book stacks are located, and the rear has settled more than the front. Both of these buildings are carried by piles down to a crust of sand and gravel which, in turn, is supported upon a deep bed of very soft clay.

For the foundations of important structures in questionable localities it is worth while to test the bearing value of the soil. To be of service this testing must be done with care and judgment, particularly if the soil is plastic and likely to flow if not confined. A good way is to excavate a pit

the soil is to be tested. This pit should be large enough to allow a man to work comfortably at the bottom. A small excavation should then be made in the center which, at the bottom, will be just the size of the loading plunger, and be leveled off at the required grade. The testing plunger may be a square stick say 12 by 12 inches and long enough to reach to the surface, where it may be fitted with a platform to carry the load. The platform may be stayed in position by boards, laid horizontally, extending out in two directions and attached to stakes driven into the ground. The best way to observe the settlement is by means of a surveyor's level sighting on a rod fixed in the top of the plunger.

The most careful tests should be accepted with reservations. One should remember that, on the one hand, a long time test might show a different result from a short time experiment while, on the other hand, a load applied to a single square foot is more liable to cause a settlement in many soils than if the same pressure per square foot were applied to a larger area at the same time.

It is unsatisfactory to attempt to formulate definite rules for safe bearing pressures because of the difficulty of describing soil conditions so that they will be recognized with certainty. For instance, "soft" clay means very different consistencies to different persons. To describe it as "putty like" does not help much, for putty, as we all know, may vary in softness quite as much as clay. The same is true with sand and other materials. Building laws of different cities prescribe loads for "firm, coarse sand" all the way from one and three-quarters to ten tons per square foot. A few suggestions may help in deciding upon a safe load in some cases.

Clay in its natural position, when below permanent ground water level, may be so soft that a shovel or a bar can be pushed into it without much exertion. In this condition, unless the soil is confined so that it cannot flow laterally, it has very little supporting power. On the other hand, if it is confined by a stratum of harder material over it, with no chance of deeper excavations nearby, it will carry a considerable load, or say two tons per square foot. The clay itself is practically incompressible and is inferior in supporting power only through its flowing quality. As the percentage of water contained in the clay decreases, its consistency becomes harder. A very common consistency is that in which a shovel can be inserted with difficulty, and a bar can be forced down only a little way at a time. Three and one-half or four tons per square foot is not likely to overload the clay in this condition, and there is not much chance of its flowing laterally. Where moisture is still less, clay may be found in all degrees of hardness up to a condition of shale, on which ten tons per square foot would be perfectly safe, and intermediate degrees of hardness would warrant intermediate loads.

Sprinkler Installation for Fire Protection

PART III — RULES FOR SIZING PIPE

By W. D. BROWN, C.E.

WHEN a large floor area is divided by a fire wall, a fire starting on one side of the wall will be controlled by automatic sprinklers before it can spread to the opposite side of the wall. Under these conditions, the floor becomes two small areas in place of one large area and pipe sizes are reduced accordingly.

Note: A fire wall is a term applied to a brick, concrete or other non-combustible wall, with a parapet above the roof and all openings equipped with fire doors on both sides of wall, one of which must be self-closing.

In buildings where top flooring is thoroughly tight and all floor or wall openings on one floor are protected to prevent drafts communicating to any other floor, a fire will be controlled by sprinklers before it spreads to any other floor. Under these conditions each floor becomes a separate fire area.

Where extraordinary conditions exist and where there is likelihood of a fire passing through unprotected openings, pipe sizes should be increased accordingly. For example, in areas such as stair towers where a fire starting at the lower landings might spread rapidly above or generate sufficient heat to open sprinklers under upper landings, the entire area should be considered as one fire area and pipe sizes kept large enough to supply all the sprinklers in this enclosure.

LOCATION OF SPRINKLERS — Sprinklers should generally be located in an upright position. When construction or occupancy of a room or enclosure makes it preferable, permission may be given, except on a dry pipe system, to locate sprinklers in a pendant position.

For example, in the first story of a department store pipes are usually concealed above the plaster ceiling and sprinklers only exposed below, a small rosette or moulding placed above the sprinkler improving its appearance.

It will be seen that this takes an extra piece of pipe extending through the plaster, and two extra joints for each sprinkler. For this reason extra care must be taken with this type of installation.

Concealed sprinkler installation costs approximately 25 per cent more than exposed work, and is prohibited except where absolutely necessary.

Concealed piping should be painted two coats of good protective paint, one before and one after installation. The pipes may be placed in ducts or thoroughly enclosed in cement but in no case should they form a part of the reinforcement.

Sprinkler deflectors should be parallel to ceilings, roofs or the inclines of stairs, except when installed in the peak of a pitched roof when they should be horizontal.

Distance to the top of the deflectors from the ceiling of mill or other smooth construction, or from the bottom of joist construction, should not be less than 3 inches nor more than 10 inches; 5 to 8 inches is the best distance. With the average type of sprinklers the minimum and maximum distance from sprayed surface to center of pipe would be 7 and 14 inches.

In the case of fire-resistive building, the distance between deflectors and ceiling may be increased where conditions warrant, as, for example, under a paneled ceiling and in semi-mill or unusual construction where it is necessary to keep sprinklers below beams, or where, as in the case of a fireproof building, the object is to protect the combustibles rather than the building material.

Sprinklers should be placed everywhere throughout the premises, including basements and lofts, under stairs, inside elevator wells, in belt, cable, pipe, gear and pulley boxes, inside small enclosures, such as drying and heating boxes, tenter and dry room enclosures, chutes, conveyor trunks and all cupboards and closets unless their tops are entirely open, or arranged so that sprinklers can properly spray therein.

Special instructions should be obtained from the inspection department having jurisdiction relative to placing sprinklers inside of show windows, telephone booths, boxed machinery, metal air ducts, ventilators, concealed spaces, and under large shelves, benches, tables, overhead storage racks, platform and similar water sheds, and over electrical generating and transforming apparatus and switchboards.

Note: Paper or similar light inflammable covering is sometimes used over clothes and stock closets, and in case of fire is quickly burned away allowing the water from sprinklers a clear passage.

Experience teaches that sprinklers are often necessary where seemingly least needed. Their protection is required not alone where a fire may begin, but also wherever any fire might extend, including wet or damp locations.

Sprinklers are omitted by most insurance inspectors, in fireproof stair towers when isolated from main buildings. Sprinklers installed in such areas are at the tops of the towers which must be protected. Some inspectors require one sprinkler under the first landing in the basement of a fireproof stair tower when this space might be used for storage.

Sprinklers cannot be expected to keep out fire originating in unsprinklered territory and stringent measures should be used to properly cut off all unsprinklered portions of a building or exposures.

When a building fully equipped with sprinklers

communicates with another not so equipped, the opening must be protected by standard fire doors on both sides of the walls, one of which must be self-closing.

The danger of sprinkler protection being impaired by exposure fires should be reduced by providing shutters, wired glass or open sprinkler protection at exposed openings.

RISERS — There should be one or more separate risers in each building and each section of the building divided by fire walls. Each riser should be of sufficient size to supply all the sprinklers connected with it for any one fire area, as determined by the general schedule of pipe sizes. In case of riser pipes passing through cinder concrete, a sleeve or some other suitable device should be provided to prevent corrosion.

Risers should be located as near the center of a building as possible.

VALVES — Each water supply should be provided with a gate valve located where readily accessible. Gate valves in supply pipes to automatic sprinklers should be secured open by devices such as padlocks or riveted leather straps. A check valve should be installed on each source of water supply. Its purpose is to prevent water from one source of supply entering into some secondary source, and also to prevent the water in the sprinkler system from returning to the city main. A check valve is constructed with a clapper which allows water to flow in but one direction.

FITTINGS — Both from the standpoint of appearance and efficiency a one-piece reducing fitting of good design should be used wherever a change is made in sizes of pipe. Bushings and couplings should not be used except where unavoidable.

Long turn fittings should be used on risers and supplies to cross mains for 2½-inch and larger pipes to reduce loss of pressure due to friction.

HANGERS — Sprinkler pipes, with few exceptions, are hung or suspended from the ceiling by wrought or cast iron hangers. Hangers should be of adjustable pattern so as to allow all sprinkler pipes and fittings to thoroughly drain. Pipes should pitch ¼ inch in 10 feet on wet system and ½ inch in 10 feet in the dry system.

Fig. 5 is a view of an adjustable hanger used quite extensively. "A" is the foot piece hung to the ceiling by screws, "B" is the rod with a long thread for adjusting and "C" is the ring for the pipe.

LOCATION OF HANGERS — The ¾-inch pipe at the ends of all branch lines when over 6 feet in length should have two hangers and other lengths of pipe on branch lines should have one hanger each, located not less than 12 inches or more than 18 inches from sprinklers as shown in Fig. 6.

The first piece of pipe from a feed main on a branch line, when 1½ inches and smaller and 8 feet or more in length, should have a hanger which may be placed about 2½ or 3 feet from the cross main. When less than 8 feet no hanger is required except that in the end bays a hanger would take

up whatever sag there may be in the main pipe, from the last beam to stringer line.

Each length of feed main pipe should have a hanger located at approximately half the distance between stringer lines. Pipes connecting riser to feed main and all random pipes should be equipped with hangers spaced not more than 10 feet on centers.

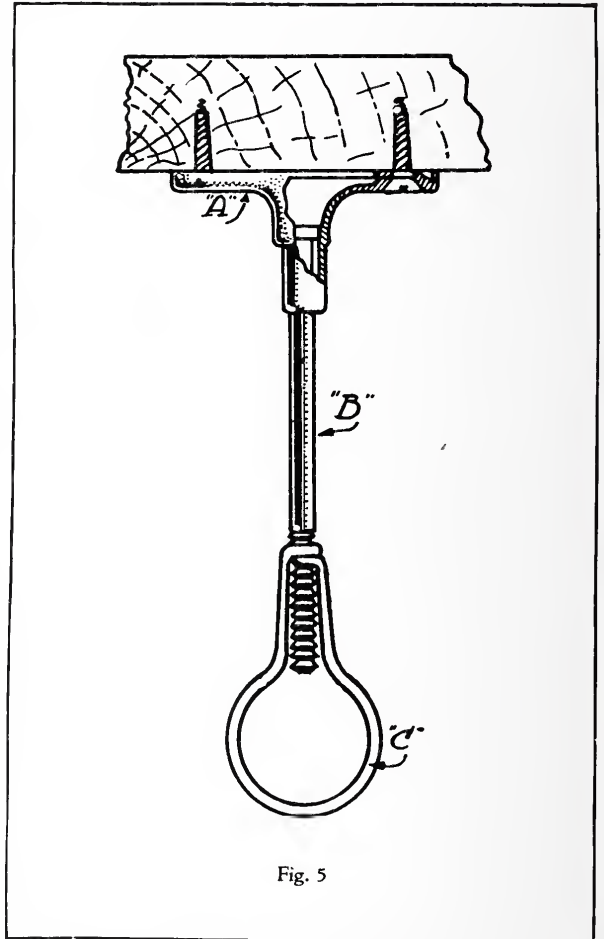


Fig. 5

When setting inserts, as in the case of a concrete building, it is recommended that sprinkler lines be located in the center of the bay. This arrangement permits even distribution of water to all portions of the bay, and in some cases reduces the required number of sprinklers. For example, in the case of a sprinkler covering its maximum allowed area with line in center of the bay, a line off center would increase the distance from line to edge of bay which would necessitate additional sprinklers.

ALARM VALVES — There should be one or more valves located in each building and each section of a building divided by fire walls. This valve should be so arranged that an alarm will be given when the opening of a sprinkler causes a flow of water through riser and valve. In general, an alarm valve is a check valve with a weighted clapper installed in the riser. Under normal conditions the pressure throughout the sprinkler system will be the same as that on the supply side

of the alarm valve, the weight of the clapper keeping it closed.

In case a sprinkler head opens, the pressure on the system side of the check valve is immediately relieved and the continued pressure on the supply side will open the clapper of the valve. The opening of the clapper in an alarm valve permits a flow of water through a small pipe which operates a mechanical gong on the outside of the building. At the same time an electric device, regulated by the flow of water or action of a clapper, operates a gong, which is usually located in the watchman's headquarters.

DRY PIPE VALVES — Buildings that have no heating facilities or such portions of a building where water in sprinkler pipes would be apt to freeze, should be equipped with a so-called "dry pipe" system.

The piping in the area exposed to freezing temperature is filled with compressed air and between the air-filled pipes and the water supply is located a dry valve, that is, a valve in which air pressure on one side balances the water pressure on the other side. When a sprinkler opens, the air escapes and the pressure of water opens the dry pipe valve which admits water to the sprinkler system. The water flowing through a dry pipe valve operates the mechanical gong and electric bell.

A dry pipe system is only used where it is inadvisable to install a wet pipe system, as the interval between the opening of the sprinkler and the arrival of water at the seat of the fire might allow the flames a start which would open up more sprinklers than necessary and cause an increased water damage. The air capacity of a system depends upon the number of sprinklers controlled by the dry pipe valve. This number should not exceed 300, and 400 should be the maximum allowed. The reason for this is that the greater the volume of air in the system, the longer it will be before water is released.

Dry pipe systems should be so designed as to eliminate long runs of pipes between dry pipe valves and sprinkler feed mains, as each gallon capacity of such pipes is equivalent to one extra sprinkler.

Where more than the number of sprinklers allowed on one dry valve are necessary and two or more valves are installed in a building containing two or more floors, the system preferably should be divided horizontally by consecutive floors. With this arrangement sprinklers opening on one floor would operate but one valve and the alarm would indicate location of operating sprinklers.

The dry pipe valve should be located in a warm room, or in a frost proof valve closet, well lighted. Space of at least 2 feet 6 inches should be allowed on all sides of the valve.

Electric, steam, hand and belt driven air compressors are used to maintain air pressure on the system. The supply for an air compressor should be taken from a location where the least possible

amount of moisture will enter the system. The loss of air pressure on the average system requires additional pumping about once a month.

FIRE DEPARTMENT CONNECTIONS — Very often the underwriters require a brass Siamese connection located on the outside of a building and fitted with couplings threaded to the same standard as used by the local fire department. The purpose of these connections is to allow the public fire department steamers to increase water pressure in sprinkler systems and standpipes. Each connection, when used for sprinklers, must be marked in raised letters, one inch high or larger, "Auto Sprinklers."

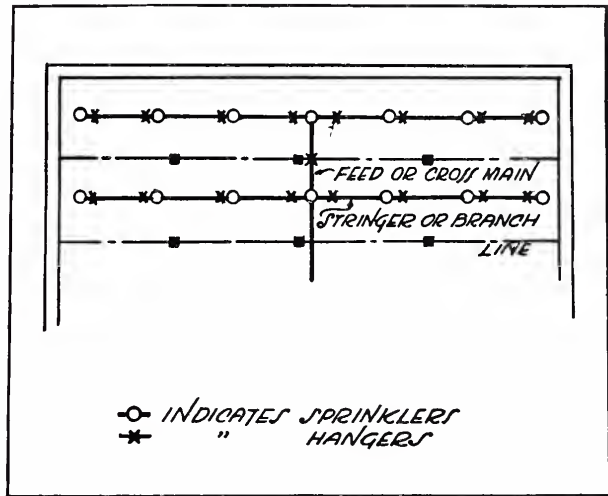


Fig. 6

TESTS — The tops of all wet pipe sprinkler risers should have a $\frac{3}{4}$ -inch pipe connection equipped with a control valve and so arranged that water will discharge through a $\frac{1}{2}$ -inch brass outlet. The flowing of water through such an outlet is equivalent to water flowing through a sprinkler and should operate alarms and it also indicates to the inspector that the water has an unobstructed passage throughout the system.

On the dry pipe system a small pipe is connected on the water side of the dry pipe valve and so arranged that the opening of a valve allows the water to operate the mechanical gong and electric bell for testing.

At alarm and dry pipe valves the main drain pipe for an entire system should be connected to some sufficient outlet so as to allow the opening of the drain valve and the full flow of water without overflowing any service connection. This drain pipe should be not less than 2 inches in size. With the full flow of water in this pipe the reading on the pressure gauge will give the reduction in pressure equivalent to the opening of sprinklers caused by an average fire.

TESTS AFTER INSTALLATION — All wet pipe systems should be tested to at least 150 pounds pressure and be subject to this pressure for two hours. If normal pressure exceeds 100 pounds this test should be made with 50 pounds above normal.

A dry pipe system should be tested to an air pressure of at least 40 pounds, and all leaks stopped so that the system will not allow a greater pressure loss than $1\frac{1}{2}$ pounds in twenty-four hours.

PRESSURE GAUGES — Pressure gauges of standard make and a $4\frac{1}{2}$ -inch dial should be installed on all water supplies. In each sprinkler system one pressure gauge should be located below the alarm valve and one above the alarm valve, also one "water" pressure gauge should be located on the supply side of a dry pipe valve and one "air" pressure gauge on the system side of the dry pipe valve.

HAND HOSE CONNECTIONS — Small hand hose connections are valuable for extinguishing small fires under decks, tables, etc., when discovered and before sprinklers operate. These hose connections are attached to sprinkler piping under certain restrictions. Connection to a sprinkler system should be through 1-inch pipe and not connected to any sprinkler pipe smaller than $2\frac{1}{2}$ inches. Hose should be $1\frac{1}{2}$ or $1\frac{3}{4}$ inches in diameter and of unlined linen. Nozzle should not be larger than $\frac{1}{2}$ inch.

OPEN SPRINKLERS — Open sprinklers have proved a great help in protecting windows, cornices and portions of frame structures from fires near by. Although satisfactory in forming water curtains they are not sufficient protection to be used in preference to fire shutters. In conjunction with them, however, a barrier is produced that fire can scarcely cross. They have deflectors similar to those of automatic sprinklers but have no struts or braces.

Unlike the automatic sprinkler open sprinklers depend upon the human element for proper functioning. Supplies to the open sprinkler are controlled by a valve which is normally kept closed and is manually operated when water is required in the system. Supply for open sprinklers should be a city connection rather than a tank or any exhaustible supply. At the top of a riser pipe a pipe should be connected inside of a building and an outlet left for pressure gauge.

SIZES OF ORIFICES FOR WINDOW SPRINKLERS —

	2	3	4	5	6
	Stories	Stories	Stories	Stories	Stories
Top line	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.
Next lower	$\frac{5}{16}$ in.	$\frac{5}{16}$ in.	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.
Next lower		$\frac{1}{4}$ in.	$\frac{5}{16}$ in.	$\frac{5}{16}$ in.	$\frac{5}{16}$ in.
Next lower			$\frac{1}{4}$ in.	$\frac{5}{16}$ in.	$\frac{5}{16}$ in.
Next lower				$\frac{1}{4}$ in.	$\frac{1}{4}$ in.

Where there are over six horizontal lines of windows it may be preferable to omit sprinklers on the first and possibly on the second stories.

PIPE SIZES — Branch lines should not have more than six sprinklers.

Branch lines — Sizing

$\frac{3}{8}$ in. orifice one head $\frac{3}{4}$ in. pipe, two heads 1 in. pipe, four heads $1\frac{1}{4}$ in. pipe, six heads $1\frac{1}{2}$ in. pipe.

$\frac{5}{16}$ in. orifice one head $\frac{3}{4}$ in. pipe, three heads 1 in. pipe, six heads $1\frac{1}{4}$ in. pipe.

$\frac{1}{4}$ in. orifice one head $\frac{3}{4}$ in. pipe, five heads 1 in. pipe, six heads $1\frac{1}{4}$ in. pipe.

SIZES FOR RISERS AND FEED MAINS —

$1\frac{1}{2}$ inch pipe not over 6 heads.

2 inch pipe not over 10 heads.

$2\frac{1}{2}$ inch pipe not over 20 heads.

3 inch pipe not over 36 heads.

$3\frac{1}{2}$ inch pipe not over 55 heads.

4 inch pipe not over 72 heads.

Where the supply pipe to a branch line is over 25 feet in length, these pipes should be at least one size larger than the table requires. At all dead ends a 6-inch nipple and brass plug should be installed for blowing out any foreign substance. All pipes, back to cast iron pipe and also all exposed material should be galvanized. Arrangements should be made to drain pipes back to control valve.

LOCATION OF OPEN SPRINKLERS — For windows not exceeding 5 feet wide one sprinkler should be placed at the center, near the top. Where windows are over 5 feet wide, or where mullions interfere, two or more sprinklers should be used. In some cases one sprinkler has been installed in a window 6 feet wide by special permission from the inspection department having jurisdiction as constituting an exceptional case.

CORNICE, SIDE WALL OR RIDGE POLE SPRINKLERS — On frame buildings, mansard roofs, etc., pipe sizes and arrangements should be the same as for window sprinklers, excepting that where water supplies admit, the inspection department having jurisdiction may revise this schedule. Sprinkler heads should be spaced so as not to exceed 8 feet on centers.

UNDERGROUND PIPING — Cast iron, bell and spigot pipe should conform to the standard approved by the inspection department having jurisdiction. This pipe is made in 12-foot lengths and fitted with a bell outlet on one end and a spigot on the opposite end.

Joints are made with lead and packing. The connection between bell and spigot pipe and inside screw pipe should be made with a flange spigot casting, the spigot joint made outside of the building and flange connection located inside of the building. This arrangement eliminates all lead joints inside. Underground pipes should be buried to a depth of at least 1 foot below lowest frost line to top of pipe. This distance varies from $2\frac{1}{2}$ feet in Southern states to 10 feet in the Northern part of Canada.

Hydrants and hydrant houses should conform to requirement issue by the inspection department having jurisdiction. Indicator post valves controlling sprinklers should be located at least 40 feet away from a building, and the name of the building and the service it controls should be plainly stenciled on the valves.



A House in the Southern Colonial Style

RESIDENCE OF THE HON. LATHROP BROWN, ST. JAMES, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS

THERE is always something of particular interest in a house that is directly inspired by some great and well known prototype which has had an important influence on the history — social or architectural — of the country. It is not necessary that the house be a copy, an exact reproduction of the original, for an added interest exists when it differs in many respects from the prototype or when the original is followed in only a general way.

This interest is found, to a very marked degree, in a country house near Stony Brook, Long Island, the home of the Hon. Lathrop Brown, designed and built under the direction of his architects, Messrs. Peabody, Wilson & Brown of New York. This very successful house is obviously inspired by Westover, but there has been no effort to make the newer house a copy of the old which would have been impossible since the Long Island house is very much the larger and the life lived on Long Island in the twentieth century differs in many respects from that which obtained in Virginia in the eighteenth.

The Brown house stands in a small valley facing Stony Brook Harbor and about 200 feet from the

beach. Like its Virginia prototype this house has two façades, that which faces the water and another front which faces what will later on become a very stately garden.

Seen from either side the house presents an appearance of a broadly planned mass of buildings which with their "informal formality" go far toward carrying out the atmosphere of an old estate in Virginia. The rich and unusual color and texture of the walls, the low, square chimneys and the widely extended service buildings contribute largely to the appearance of comfort and hospitality which is so well expressed. Upon the garden side the planting adds a more intimate note and the balanced arrangement of the buildings carries out the feeling of complete and well ordered spaciousness which is indicated by the water front.

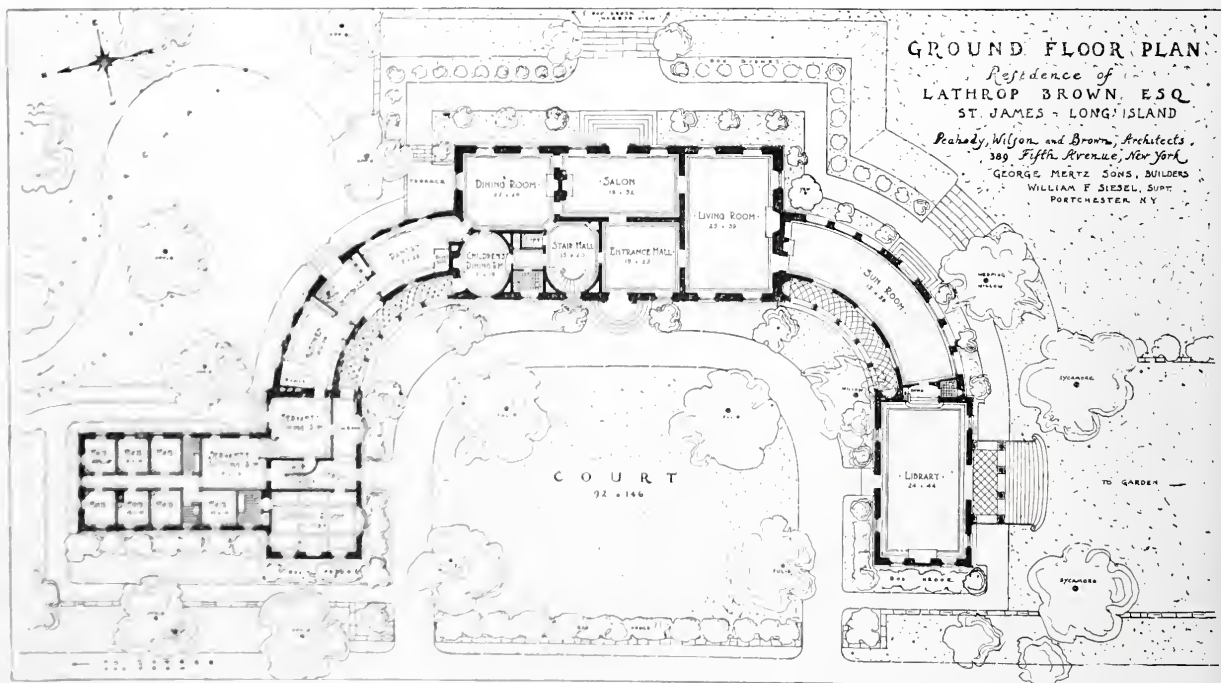
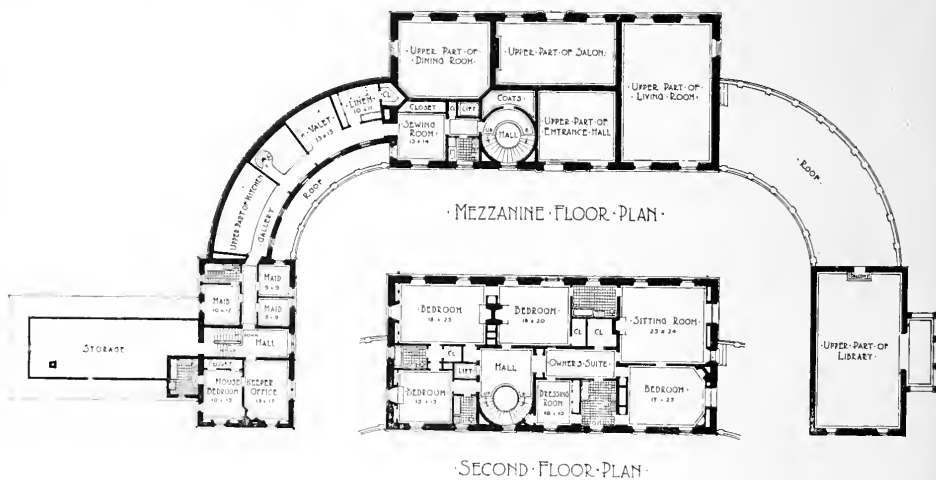
Connected with the main structure by covered, curving passageways are two minor or accessory buildings, as at Mt. Vernon, placed to allow the broad sides to face south, insuring maximum sunshine. The walls of the house are of brick transported from Virginia where they were roughly moulded by negro laborers and burnt with hickory; the bricks are somewhat larger than those ordina-

rily used to-day, and are of a strong orange-pink color and were wire brushed to obtain more texture and brilliancy of color. The yellow lime joints are rather small. Against this strong background are columns and other details about the entrance door of Petros bleaching limestone such as is used for St. Thomas' Church, New York. The slates of the roof were taken from an abandoned quarry in Virginia; cornices and window frames are of cypress which has had the soft grain removed by the use of a torch and wire brush which gives a mellowed, antique effect.

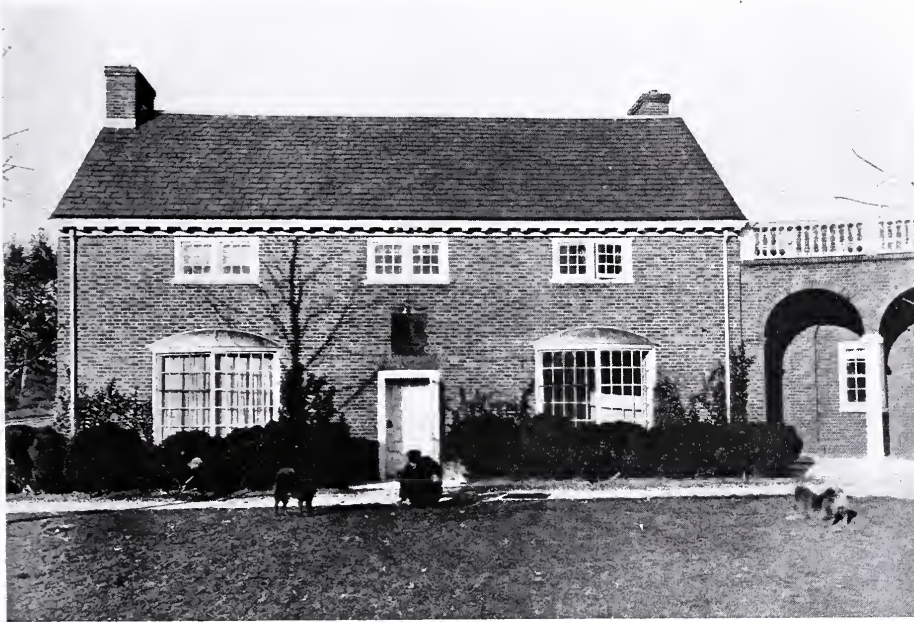
In floor plan the Long Island house follows to a great extent that of certain great Virginia country houses and in many of these earlier homes the stairs are not set in the entrance hall but are placed elsewhere. In this instance they make two turns to the second floor, and at the first landing give access to the service passage which extends over the kitchen and pantry. This plan has several advantages; it prevents the kitchen and pantry from being used as a passageway, yet they both have windows east and west; it obviates the necessity of rear stairs and, most important of all, it makes unnecessary a rear hall on the second floor, which allows the

northeast and northwest bedrooms to be intercommunicating and, therefore, cooler in summer. The only general hall space on the second and third floors, though the main building is 94 feet long, is the stair landing, as in Westover and in several of the Annapolis houses.

The children's oval dining room, with a ceiling of 8 feet 6 inches, serves as a pleasant contrast to the large, high ceiled dining room and allows for a sewing room and toilet on the mezzanine. This is used for a women's dressing room in times of entertaining and obviates the necessity of having two sets of coat rooms and toilets on the ground floor. The guest room walls on the third floor have been furred out to hide the slanting roof, and to allow of a more formal decorative treatment of the rooms. A possible sleeping porch has been



Ground Layout Showing Orientation of Group



Main Front of North Wing

arranged in the center room, the easterly wall of which is all windows of the accordion type.

The curved sun room, facing east and south, is meant to catch the sun's warmth in winter. For the summer, the arched windows have been designed to drop out of sight in pockets in the floor, making the porch entirely open. The floor of this porch is warm brown and blue flagging quarried from a mountain in Virginia by the architects themselves.

The south wing, one of the two accessory buildings which are reached by the arched and curving passageways, was designed as a Spanish library, with a vaulted ceiling 26 feet high, to contain several Zuloagas and other modern pictures. It has a huge stone Renaissance mantel and the floor is to be Mexican "Colima" oak. These two low studded wings make complete houses of moderate dimensions; the schoolroom, which balances the library at the far end of the group, is temporarily used as a living room, with early eighteenth century Georgian panels, painted. The kitchen, 17 feet high, is white with trim filled out in black, varnished orange and brown chintz in backs and sides of cupboards, orange and

brown tiles for hearth and sink-back, and black and white checked tile floor. The breakfast room, the only finished interior of the main house, has a Georgian mantel, green and red Japanese chintz on walls, painted furniture and black pine floor.

The entrance courtyard contains some magnificent box bushes, moved from Wading River and Stony Brook, and many willows and tulip trees. A white garden house with red domed roof, similar to that at Montpelier Manor, near Washing-



Entrance Front from Sun Room Porch

ton, is to terminate the long vista at the end of the garden.

This house differs from most recent examples of the so-called Georgian types in that it has been kept as simple as the models from which the architects were inspired. There are no large columns, supposed by laymen to represent "colonial," because colonial houses did not have large columns. We are indebted to an illustrious Democratic president, Thomas Jefferson, architect as well as statesman, for our era of double story porches. Nearly everything, except the front door and the cornice, was left to nature and to time to give an air of hospitality, dignity and domesticity. Without the friendly aid of big tulip trees and the warm effect of weathered brick, no large house such as this can help looking bare. But so did Whitehall and Montpelier Manor and Westover until nature did its work. One cannot make a new colonial house



Detail of Library Window

look old by covering it with white porches, shutters, columns and "stunts." It just looks unhappy and tortured. The architects' aim has been to build a background for nature's columns and ornaments,—tulip trees and box bushes, vines and green pastures, which fit infinitely better with a simple, restful structure, such as were built by our forefathers from English models, than with a complicated mass of masonry which looks interesting on a piece of tracing paper and like a nightmare in reality.

It is not often that a large country estate is created which does not for several years present the appearance of a new arrival, and many years are usually required for the complete fitting of buildings into their setting so that they have the appearance of having always existed. The creating of this appearance of settled age is one of the functions which present day architecture is often called upon to assume.



Garden Side of Service Wing



HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



VIEW FROM APPROACH



VIEW OF CENTRAL BLOCK

HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS



DETAIL VIEW ACROSS FORECOURT

HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.

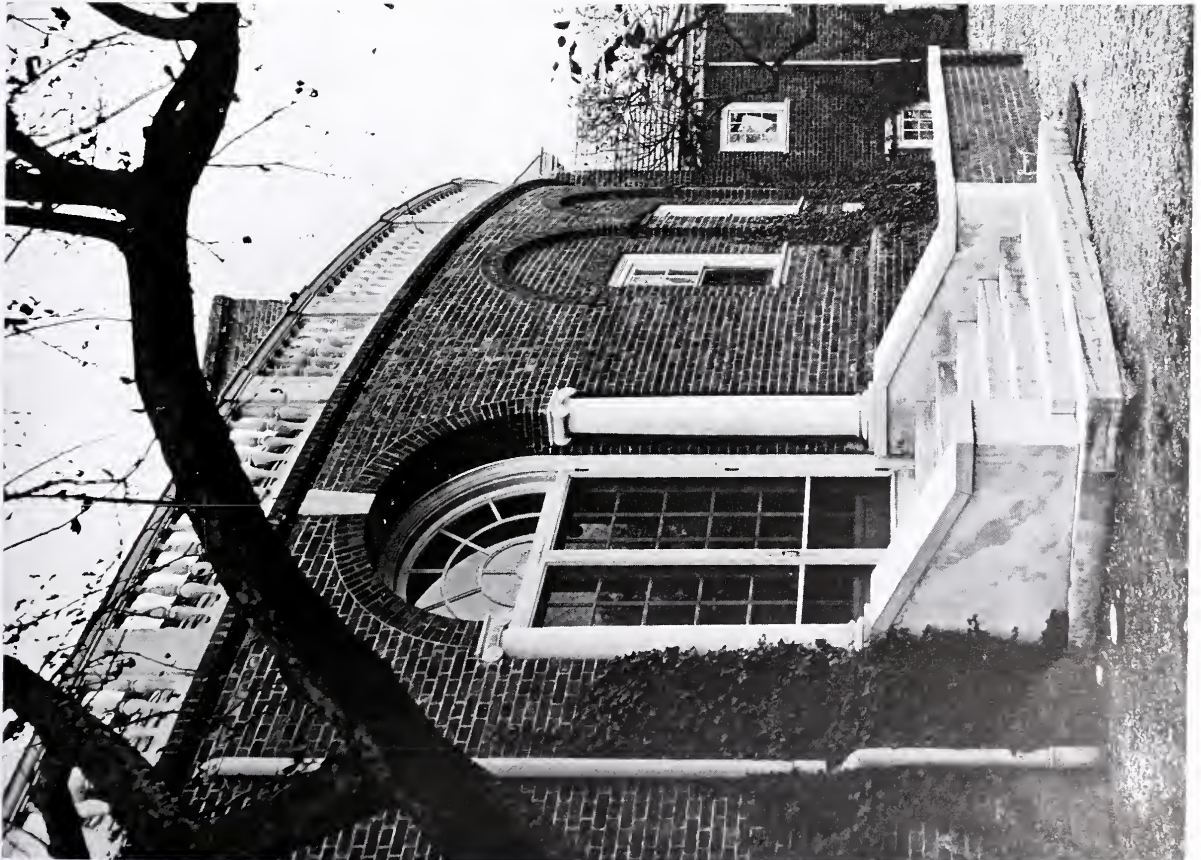
PEABODY, WILSON & BROWN, ARCHITECTS



DETAIL OF ENTRANCE

HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.

PEABODY, WILSON & BROWN, ARCHITECTS



DETAILS OF SUN ROOM CORRIDOR

HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



LIVING ROOM IN NORTH WING
HOUSE OF LATHROP BROWN, ESQ., ST. JAMES, LONG ISLAND, N. Y.
PEABODY, WILSON & BROWN, ARCHITECTS



PRINCIPAL FACADE

HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO
RANKIN, KELLOGG & CRANE, ARCHITECTS



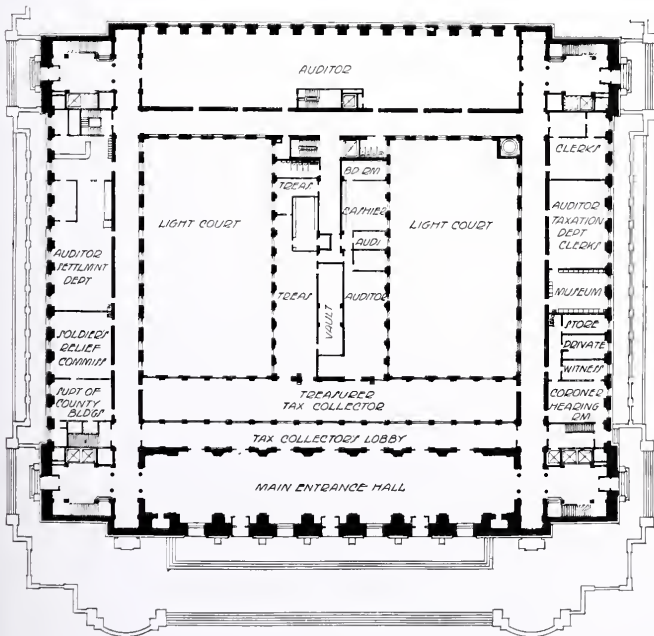
CORNER ENTRANCE PAVILION

HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO

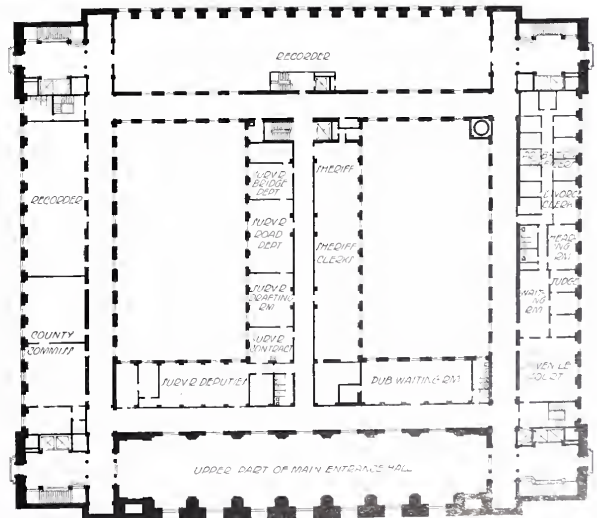
RANKIN, KELLOGG & CRANE, ARCHITECTS



DETAIL OF PRINCIPAL FACADE



FIRST FLOOR PLAN



SECOND FLOOR PLAN

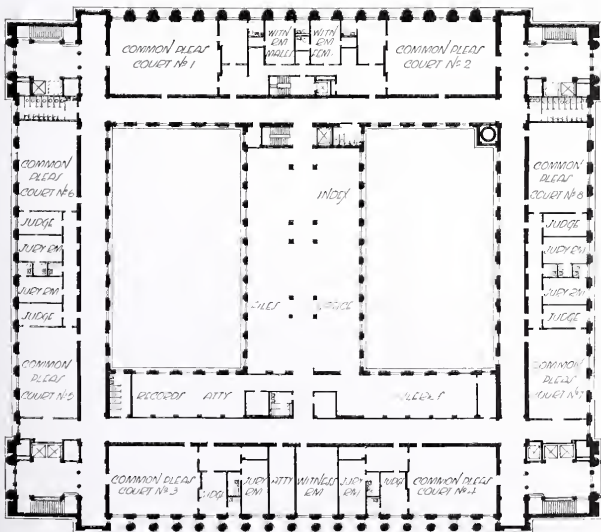


HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO

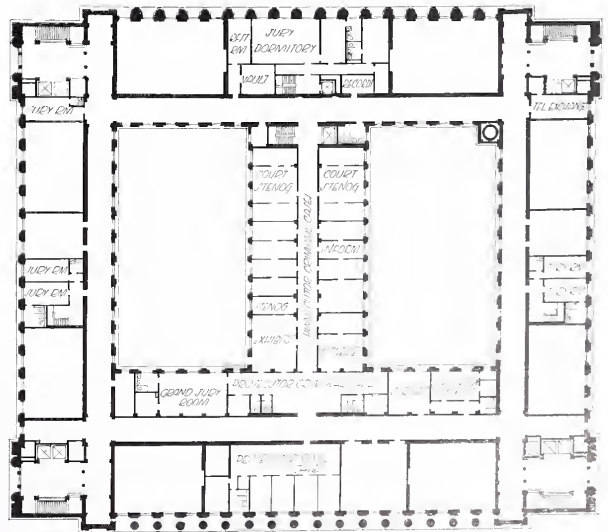
RANKIN, KELLOGG & CRANE, ARCHITECTS



VIEW OF SIDE AND PORTION OF REAR



THIRD FLOOR PLAN



FOURTH FLOOR PLAN

HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO

RANKIN, KELLOGG & CRANE, ARCHITECTS



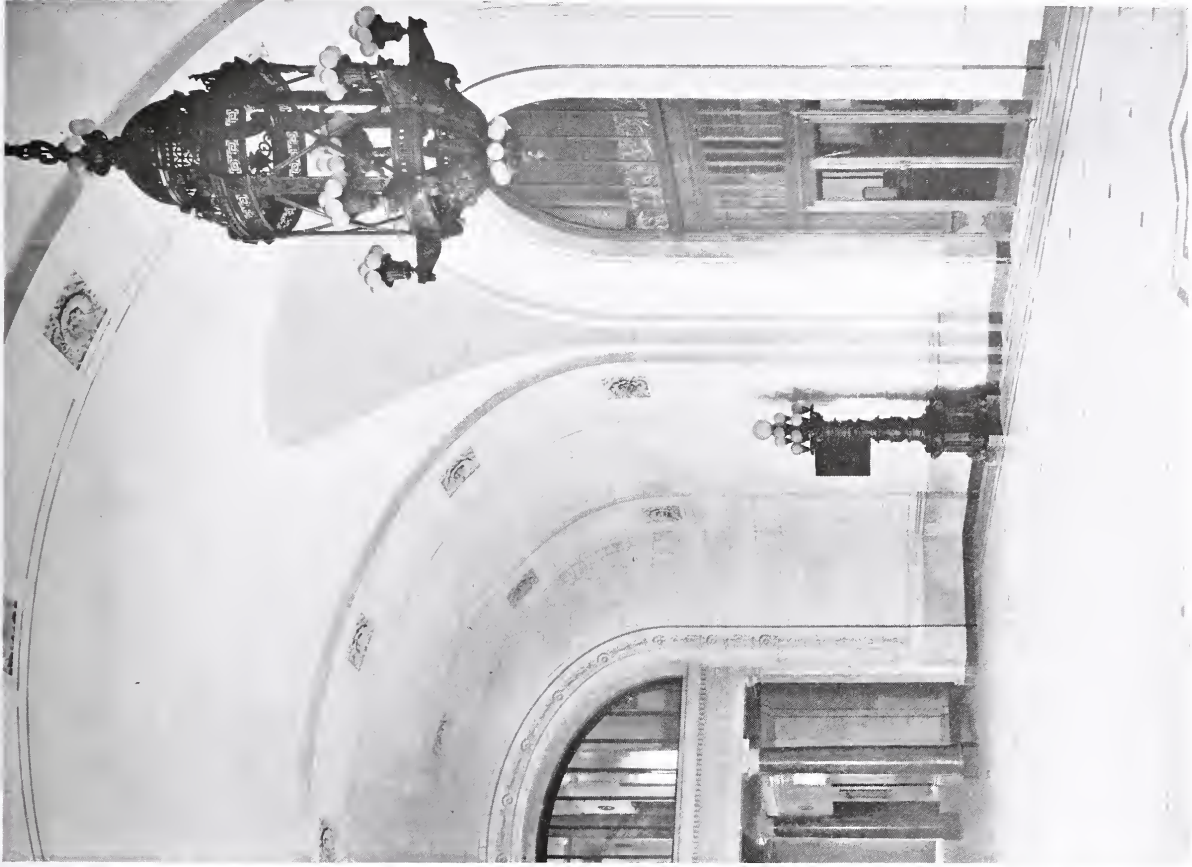
MAIN ENTRANCE HALL



LAW LIBRARY

HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO
RANKIN, KELLOGG & CRANE, ARCHITECTS

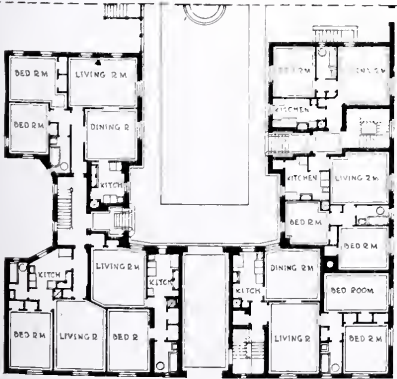
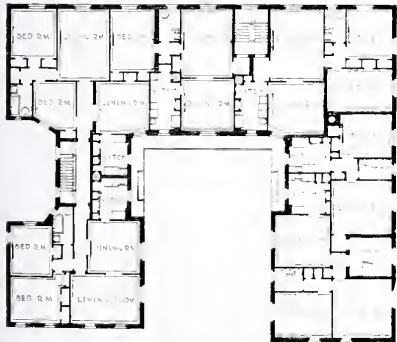




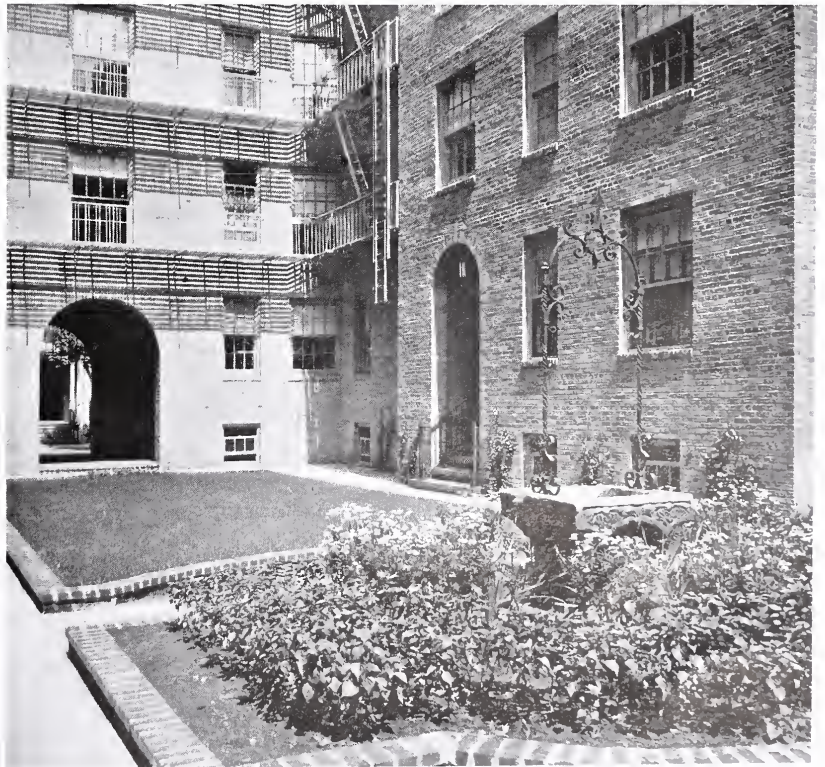
DETAILS OF LAW LIBRARY AND ENTRANCE HALL
HAMILTON COUNTY COURTHOUSE, CINCINNATI, OHIO
RANKIN, KELLOGG & CRANE, ARCHITECTS



VIEW FROM CONCOURSE

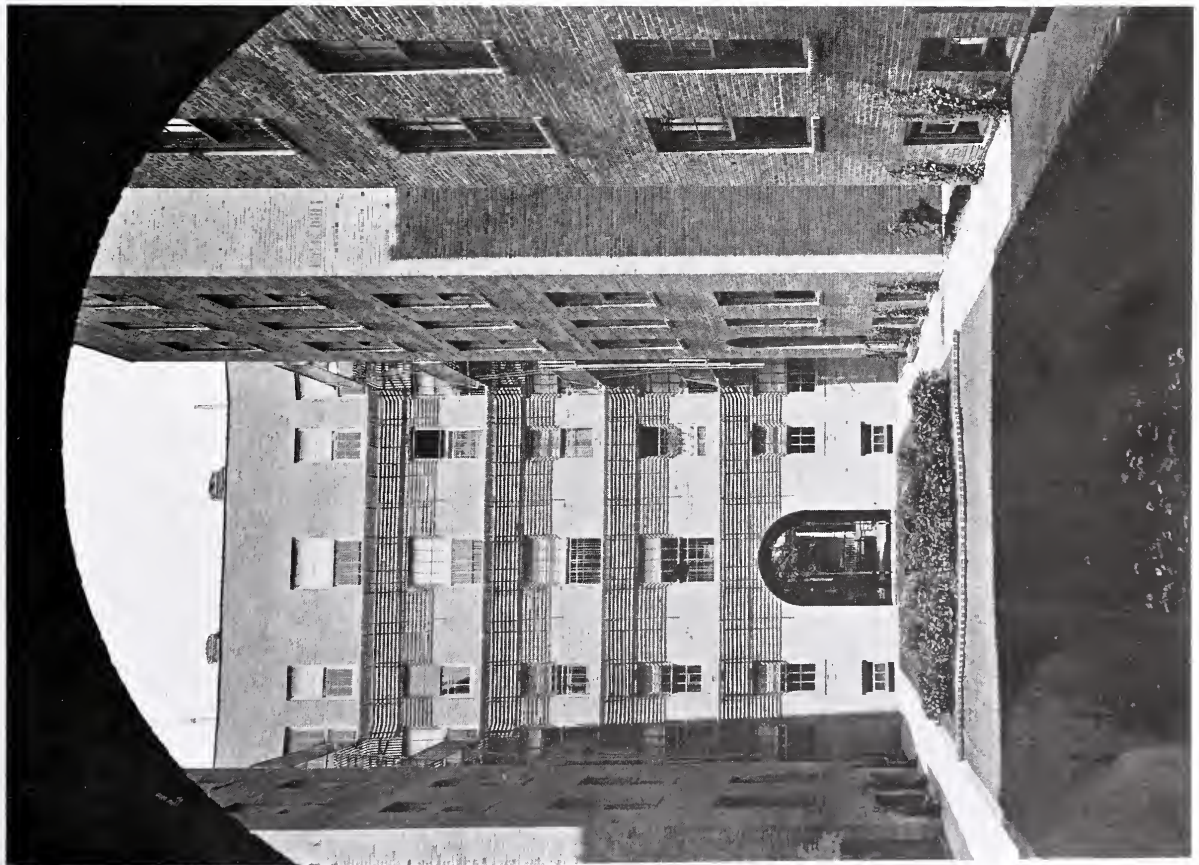
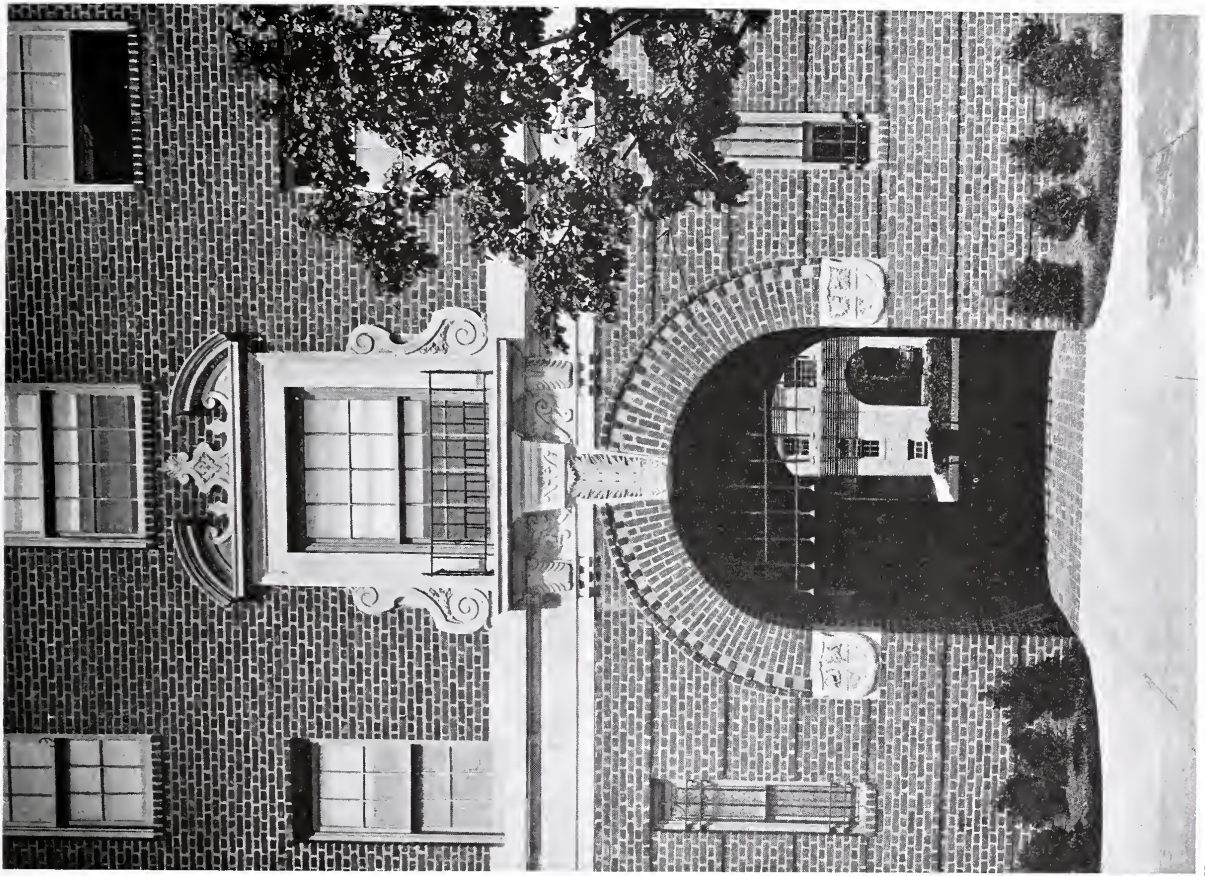


HALF FIRST AND TYPICAL PLAN

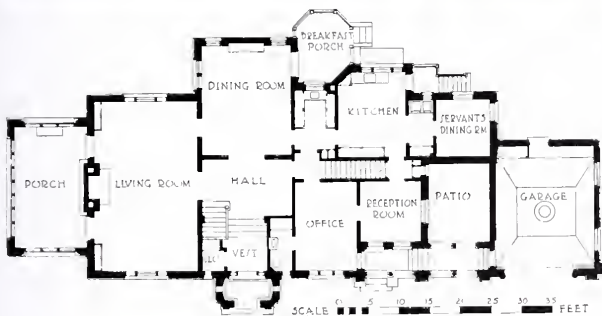


VIEW IN COURT

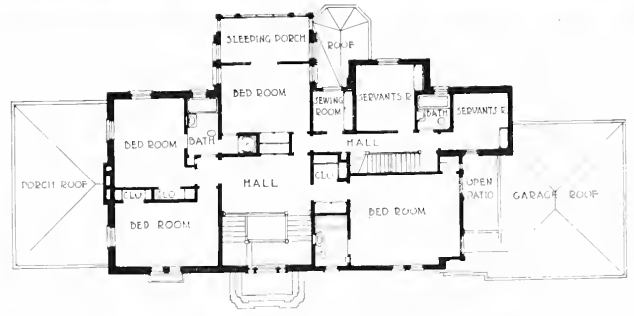
APARTMENT HOUSE, CONCOURSE AND 183D STREET, BRONX, NEW YORK
ANDREW J. THOMAS, ARCHITECT



VIEW OF COURT AND DETAIL OF ENTRANCE
APARTMENT HOUSE, CONCOURSE AND 183D STREET, BRONX, NEW YORK
ANDREW J. THOMAS, ARCHITECT



FIRST FLOOR PLAN



SECOND FLOOR PLAN



HOUSE OF DR. W. R. PARKS, EVANSTON, ILL.

TALLMADGE & WATSON, ARCHITECTS

The Planning of Automobile Sales and Service Buildings

PART II

By F. A. FAIRBROTHER
Of the Office of Albert Kahn, Architect, Detroit

A STUDY of the general characteristics of automobile sales and service buildings, with some consideration of suitable arrangements for sales and stock rooms, is contained in the first part of this article published in the August number of THE ARCHITECTURAL FORUM. The portions of the building more particularly concerned with the sales part of the business have been considered and we come to the other portions devoted to the uses which we call service.

The most important service portion of the building, if of the type where cars are received for adjustments and repairs, is the garage. A part of the ground floor of nearly every building where automobiles are sold must be set aside for this purpose. A garage would be omitted only in cases where the building is located on a very valuable and somewhat small piece of property or else where there is such a large distributing and assembly center that it could be classed as a factory. In the former case the building could be called a sales building, but not a service building, and in the latter case it could be called a service building only by reason of its serving the local dealers of a manufacturer and not because of any direct service to the owners of cars.

The size of the garage depends upon the size of the territory which is served. It must, of course, have entrances direct from the street or yard and, if large in area, it should have separate "In" and "Out" doorways.

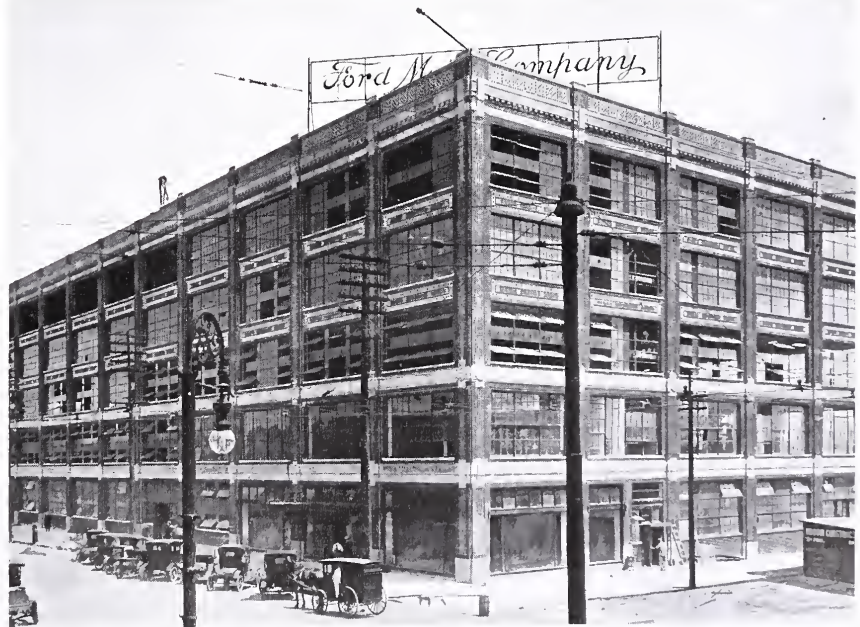
The requirements that govern the arrangements of the garage are varied. If the service building is small and it is necessary that much of the small repair work and minor adjustments be made in the garage, this will require a considerable space where cars may be run in and repaired and sent out again quickly. Still other portions must be reserved as parking places and a considerable space reserved for maneuvering cars. The problem is not greatly different from that encountered in any commercial garage except that it is not likely that cars will be taken in for day parking.

In most cases the first of

the large service stations built by the automobile manufacturers had large ground floor areas reserved for garage purposes. In the case of perhaps the largest manufacturers of motor cars in this country the space devoted to this purpose has grown steadily smaller as the selling, and consequently the need of caring for their product, has been placed in the hands of smaller dealers, until at the present time the garage provides only enough space for the employes' cars. The space formerly used for the garage is now used for the storing of the day's grist of new, assembled cars which are driven away over the roads or otherwise shipped to the stations of the dealers.

The first floor plan of the Ford Motor Company's building in Omaha, Fig. 6, shows a service building where considerable space was set aside as a garage. In this building the garage space has practically been done away with.

The garage is the place where the customer brings his troubles and it must be arranged in such a way that the sympathetic attention of the service man is readily obtained and the troubles easily taken care of, if of a minor nature fixed up expeditiously or, if of a more serious sort, some action started to relieve the difficulty. Indifference and inattention to the needs of a perhaps worried or excited customer will quickly breed dissatisfaction and will belie the name of the sort of building we



Building for the Ford Motor Company, Omaha, Neb.
Albert Kahn, Architect

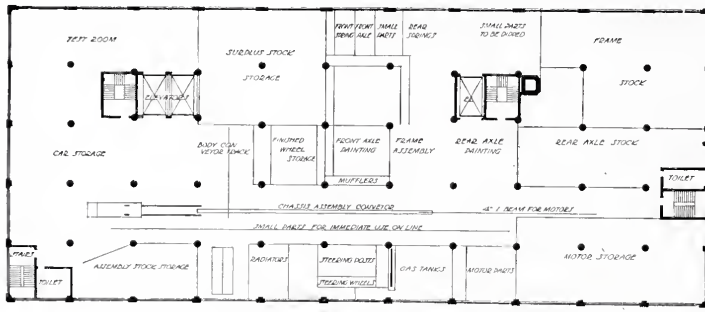


Fig. 9. Third Floor Plan

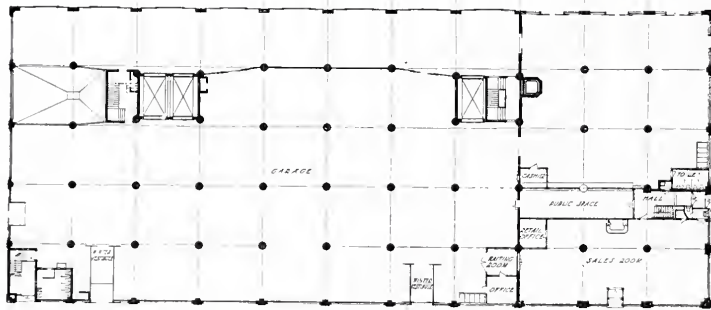


Fig. 6. First Floor Plan, Ford Motor Company, Omaha, Neb.
Albert Kahn, Architect

are discussing. Real service should be given here.

An enclosed room should be provided for the garage superintendent where the business of the service department will be directed. Some space in this office, or in an adjoining room, may well be provided where customers can sit down quietly with the service men and talk over their troubles and decide what is to be done in the way of repairs and adjustments. Provision is frequently made in some of the buildings, especially those handling high class cars, for a locker room where customers leaving their cars for repairs may lock up their robes and other valuables.

It is well to arrange that sparking devices of any sort, such as battery charging units, forges, etc., be kept somewhat remote from the garage spaces. These particular features will be touched on later.

Some provision is required for wash racks where customers' cars can be washed and put in shape before being delivered or where cars can be groomed before being placed on the show room floor. Where the garage floor rests on the ground a mere depression in the floor with a sump or floor drain at its lowest level makes a very satisfactory arrangement for washing cars. Where the wash rack is on a supported floor it should be surrounded by a curb and drained from a floor drain fixture into a separate sump or sand catcher basin to separate dirt and grease from the drainage water before it passes into the sewer.

Ventilation of the garage is necessary at certain seasons of the year if there is to be any attempt made to provide comfortable working conditions for employees. During cold weather, when all openings are closed and gases of combustion cannot readily find their way out through open door-

ways or windows, some means should be provided for removing them. In many cities the laws require that exhaust connections be provided for this purpose. These are arranged for by means of pipes or ducts brought down to a point near the floors and equipped with a flexible hose connection on the end of each branch. These connections are arranged so that cars being tested or tuned up may be linked up with the ventilating system by slipping the flexible hose connection over the exhaust pipe on the car, the fumes of gas thus being drawn away.

This arrangement is very good and should be the most satisfactory way of meeting the difficulty but it is found that the simple act of connecting the flexible hose to the exhaust is too much trouble for the average workman, who evidently prefers to work in a cloud of gas fumes in spite of the fact that it impairs his health and efficiency.

Another good plan consists of a suitable arrangement of ducts running along the wall or ceiling with branches dropped down at the proper points to draw the heavy gases from the floor. This plan is good for the reason that it is not dependent for its efficiency on couplings made directly between the pipes and the exhaust from the cars. Scuppers located in the walls near the floor level are a help in that they provide a



Entrance Ramp in Overland Building

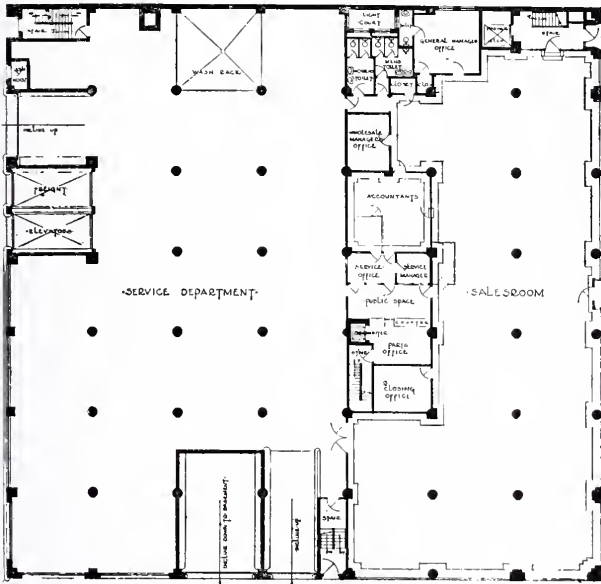


Fig. 7. First Floor Plan

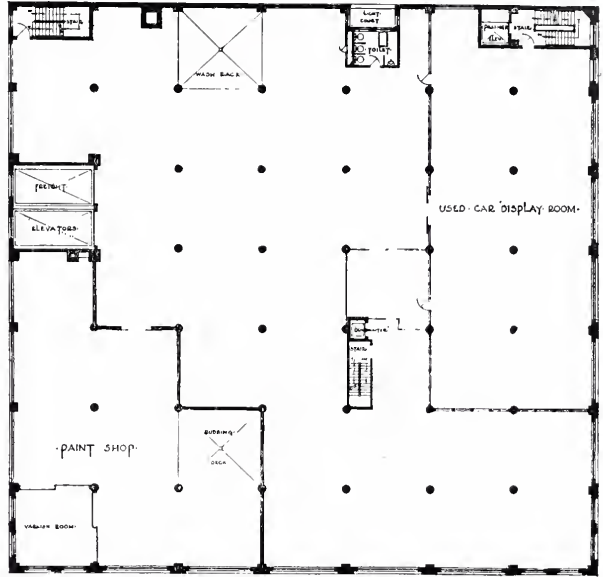


Fig. 8. Second Floor Plan

means by which heavy gases can flow out, but they should be provided with some sort of dampers to prevent the winds reversing the desired flow of gas and spreading it about the building.

If the ground area available is large and the land not too valuable it is quite possible that all the various features of the typical sales and service building can be provided on one floor level. This doubtless would be the best possible arrangement and would do away with the necessity of elevators, stairs or ramps. But this condition is the exception to the rule and we find that the majority of service buildings are of more than one story and, therefore, require that some of the departments be located above the ground floor.

These departments would naturally be those where rather extensive repair work is done and, in addition, would include the spaces where cars are assembled, if that sort of work is done in the building at all. Such space as is devoted to the storage of cars might also be on an upper floor.

The size of the repair department and machine shop will depend somewhat upon the character of the car which is dealt in, as it is certain that some cars require more repairing than others. It will also depend upon the size of the territory covered. The space must be determined by a study of the dealer's requirements and the number of repair jobs which he usually takes care of during a day. The parking space for repair jobs should be arranged

against good light and in front of a bench which extends the whole length of the department.

A cleaning tank is a desirable feature in connection with this department and in some cases has been placed at the end of a trolley beam extending along the ceiling and located over the front part of the cars below. This allows for the heavier portions of the cars, such as motor parts, being



Building for Willys-Overland Company, St. Louis, Mo.
Mills, Rhines, Bellman & Nordhoff, Architects

car painting sections by dust-proof partitions.

The problem of storage space for automobiles deserves considerable attention. In numerous cases distributors have been compelled to rent space in various places to take care of the cars at certain times of the year. One case is on record where a distributor, who was contemplating the erection of a new building, had cars stored in rented spaces in five different places. Usually ground floor space is too valuable for storage but in cases where a basement is provided, it may be used for this purpose satisfactorily. If the storage space has a reasonably high ceiling it may be possible to store cars in two tiers by providing inserts in the ceilings from which the cars may be suspended by cables or by constructing a steel framework having angle iron tracks on which cars are placed upon the suspended framework by means of a traveling transfer platform. Both of these arrangements have been used in the service buildings of the Willys-Overland Company, designed by Messrs. Mills, Rhines, Bellman & Nordhoff.

Inclined ramps have been used in a considerable number of recent city garages and to some extent in sales and service buildings. They afford an inexpensive and easy means of passage from floor to floor, but require considerable room. Where it is not necessary that cars be handled with speed it is quite probable that elevators will suffice.

Ramps giving access to both the basement and first floor of the Willys-Overland Company's building in St. Louis are shown in the plans of this building in Figs. 7 and 8. This arrangement gives easy access to these two floors and relieves the elevator considerably but it would evidently use up too much room to extend them to upper floors.

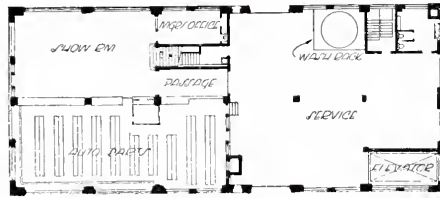
A 10 by 20 elevator platform will suffice to handle any pleasure car. If trucks are handled in the building the platform will have to be longer and perhaps wider. It is the practice of one of the manufacturers of large passenger cars, who also makes trucks, to provide elevator platforms 12 feet wide and 30 feet long and in some cases even 35 feet. The longer platform will accommodate

two passenger cars. An example of an elevator platform wide enough for two cars abreast is seen in the plan of the service building for Mr. C. C. Coddington, Fig. 5, in the first part of this article.

The location of the elevators is very important and considerable study will be required to place them in the best positions. They should be located, when possible, adjacent to the main aisles on all floors, but often it will be desirable to place them against outside walls that they may be entered from the street or yard, thus avoiding considerable traffic through the ground floor.

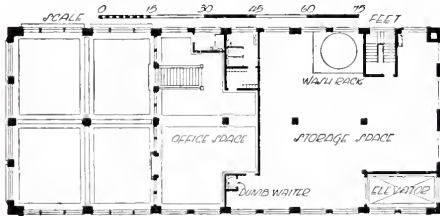
Regard should be paid to the ease of turning off or on to the elevator platforms. Service men say that it should be arranged as far as possible that cars can be driven head on to or from them instead of being backed on or off, especially if cars are driven to or from the elevators by anyone other than the employes of the station.

Numerous arrangements of elevator doors and gates are used and it is difficult to tell which scheme in the long run is the best. The most common arrangement is to provide some sort of a fire curtain at each floor and a smaller gate on the inside of the opening which will slide up out of the way when the car is at the floor level. The greatest disadvantage of this plan is that the elevator shaft is always open and heat from the lower stories is very apt to find its way to the top. The elevator shaft openings may be equipped with solid



Second Floor Plan

Third Floor. All Work Space



First Floor Plan



Fig. 12. Ford Agency for R. P. Rice, Kansas City, Kan.
Smith, Rea & Lovitt, Architects

doors which will be heavier than the gates just mentioned, but which have been found to work satisfactorily. Both the gates and the solid doors should be provided with some form of mechanical operators. The ordinary type of full automatic gates which lift and fall every time the elevator platform passes a floor are too cumbersome for the usual freight elevator.

A lifting capacity of 10,000 pounds is as great as will be required for any building unless especially heavy trucks are to be handled. Usually a lesser capacity is sufficient. The speed will vary with the number of floors to be served, from 50 to 150 feet per minute being about the usual range.

In many cases it is customary to extend the freight elevator to the roof, thus giving an open air space where engines may be tested and tuned up. When the roof is used at all extensively some durable paving should be provided on top of the composition roofing.

The proper spacing of columns for the most convenient use requires careful consideration. It is found that the ideas of different service building owners vary as to what is most suitable. While the size and shape of the property will influence the natural widths of the bays it is desirable that the spacing be adjusted to allow of parking cars between the columns without waste of room.

The kind of car to be used will have a definite bearing on the space required. While the overall width of the largest passenger car is not much greater than the smaller, the radius for turning of the larger cars is considerably greater and this must be taken into consideration in determining what is best.

A spacing of 23 feet 6 inches in width works out very well and will allow of parking large pleasure cars and still leave plenty of room for getting in and out. A length of 16 feet, approximately, is required for parking. The width of aisle will vary with the length of the car to be accommodated but 28 feet between column centers will prove an ample space for maneuvering the largest passenger cars or trucks with ease. An aisle between columns 20 feet on centers is nearly the minimum.

In some cases it has been found that the equipment to be installed in the building, such as motors, trolley beams, sleeves, etc., can be laid out in advance and the proper bolts for supporting them can be placed in the floor or ceiling construction when the concrete is poured. But in most cases it is better to provide some system of threaded or slotted inserts placed at regular intervals to support equipment which may be placed. These inserts can be used for supporting pipes. It will be necessary to provide a system of compressed air piping and a compressor in practically every building. Outlets for tire inflation and numerous other purposes may be provided wherever required.

Gasolene and lubricating oil storage is regulated by law in different cities. The rules governing installation vary greatly and it is necessary to con-

sult the codes to find exactly what is allowed. Some cities will allow tanks buried beneath the floors of the building and some will insist that tanks be placed at a distance or under the sidewalk. The amount of gasolene which it is permissible to store also varies. If the building is large and possesses a railroad siding it may be possible to provide one or two large tanks sufficient to hold somewhat more than the standard railroad tank car. The quantities of gasolene which different service stations require will range from the large tank capacity to the amount which can be contained in the portable gasolene buggies used in the smaller garages. For the average service station, say one with 35,000 square feet of floor space, two one-thousand gallon tanks should be ample.

The quantities of lubricating oil which it is desirable to keep on hand will likewise vary and unless a very large amount is required it can be handled very well by providing some sort of cradles on which oil drums can be placed and equipped with a barrel lift over the top for convenience in handling them. It will be found a good scheme to provide a sort of curb around the gasolene pumps or oil barrels to keep the drippings from spreading around the floor.

Pumping stations can usually be arranged so that gasolene can be drawn by direct suction to points on the first floor of the building provided the pull is not much over 12 feet in localities near sea level. When it is desired to raise it to upper floors it will either be necessary to arrange the pumps so that they will occur directly over the suction valves below and the gas raised above the suction valves by a direct lift, or else to install a pressure supply system delivering gasolene according to measure at the outlets. The latter system is somewhat more expensive but, naturally, more flexible.

Car assembly is an activity which is carried on to some extent in most large service stations. In most of the buildings owned by the Ford Motor Company, cars are assembled and in the large buildings bodies are likewise assembled and all the painting and upholstering done. The various parts are arranged in suitable locations to allow of feeding into the travel line of the assembly conveyor at the proper point.

The third floor plan of the Ford Motor Company's assembly and sales building in Omaha, Fig. 9, shows the arrangement of the assembly conveyor and the disposition of the stock parts to be incorporated in the finished car. As will be noted frames, rear axles and motors require the largest storage spaces on the floor. Preliminary assembly of frames and rear axles is made near the storage space and placed on the traveling conveyor at the end. As the conveyor travels along, the additional parts, such as front axle, springs, gas tanks, steering posts, etc., are secured to the chassis.

The bodies which are assembled and prepared on the floor above are brought down to the main

assembly on the elevator and placed on the chassis just before it is run off the conveyor as a practically completed automobile.

From the point of assembly where the engine has been started running by a device which spins the rear wheels rapidly while the clutch is engaged, the car is run by its own power to the test room where necessary adjustments are made, after which it is taken to another floor for storage or to the yard for driving away or for shipment.

The Ford building in Chicago, a plan of which is shown in Fig. 10, was originally arranged with a craneway in the center by

means of which railroad cars could be unloaded and their contents distributed to the upper floors. The feature of unloading from railroad cars by the overhead crane has been done away with in this building but the space previously used for this purpose is now used for the assembly of cars. Different parts of the cars, as will be noted by the diagram, are brought down from the upper floor on chutes or slides: wheels, frames and gas tanks come from the third floor and bodies from the fourth floor.

The plans of the building for the Noyes-Buick Company in Boston, Figs. 13 and 14, Arthur H. Bowditch, Architect, show a very complete layout of a sales and service building for a distributor controlling a large and populous territory.

In this building separate sales rooms are provided, one for trucks and one for pleasure cars, both located on the main floor. In addition is a show room located on the second floor for the display of special

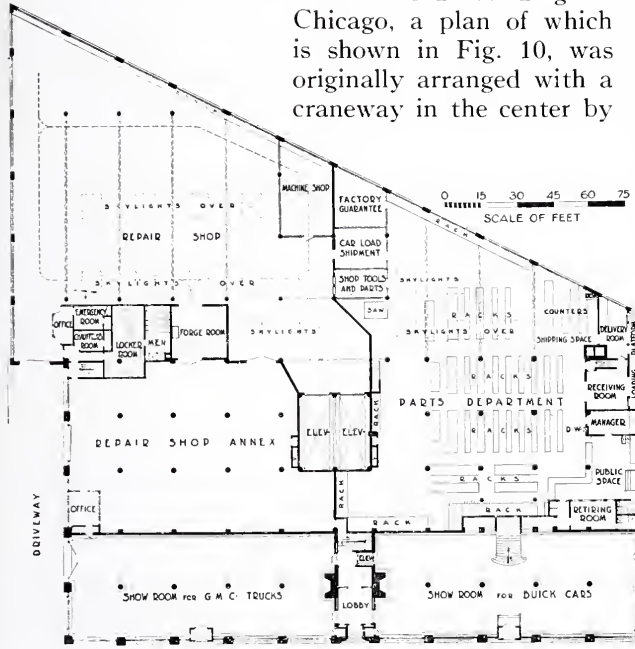


Fig. 13. First Floor Plan

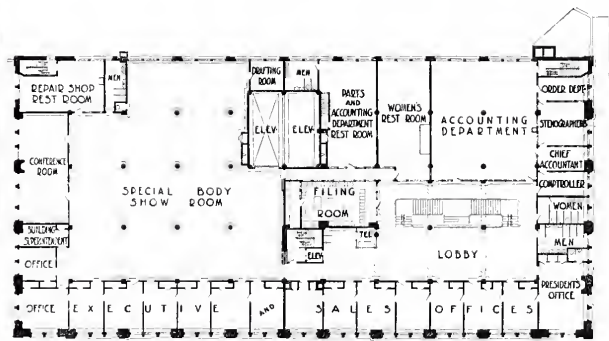


Fig. 14. Second Floor Plan



Sales and Service Building for the Noyes-Buick Company, Boston, Mass.
Arthur H. Bowditch, Architect

bodies. The entire basement, which is reached by an outside inclined driveway, is used as a garage where new cars and trucks are prepared for delivery. The main access to the elevators is arranged for at this lower level. The greater part of the third, fourth and fifth floors are given over to the storage of pleasure cars and trucks.

The planning of this structure, which is now regarded as the last word in sales and service buildings, embodies every conceivable convenience for patrons as well as for employes. Everything has been carefully planned for a reason. The object was to secure ample room for the transaction of business and to provide for constant expansion and also to be able to carry on the work with all possible efficiency. Every effort has been made to create agreeable surroundings for those whose work plays so great a part in the success of the business.

The buildings now under construction in Kansas City, Kan., for the Perry Motor Company, Fig. 11, and for Mr. R. P. Rice, in the same city, Fig. 12, illustrate an excellent type of service station adapted to the needs of the local city dealer. In

each of these buildings the contour of the ground is such that the lower story may be used as the garage, giving the greater part of the main floor for sales room, used car show room, offices and sales rooms for parts. The upper floors are open spaces and are used for repairs, storage, etc.

The question of the arrangement of offices is entirely dependent on the requirements of the occupant of the building. For the smaller service building it is very often possible to use a mezzanine back of the show room as is done in the service buildings in Kansas City just mentioned. Where the offices are larger the usual space available on a mezzanine is apt to be too restricted and too low and the second floor or an adjoining space on the main floor is more desirable.

We have attempted to point out only the salient points of the problem and to describe them in a general way. Problems will be found to vary greatly but the different points which have been brought out, it is hoped, will be of some assistance to anyone engaged in the study of the problem of planning an automobile sales and service building.



Repair Shop in Sales and Service Building for the Noyes-Buick Company, Boston, Mass.

Arthur H. Bowditch, Architect

Early American Domestic Architecture

II. THE WELLINGTON HOUSE, NEAR WALTHAM, MASS.

MEASURED DRAWINGS BY EDWIN J. HIPKISS

(Member of Staff, Museum of Fine Arts, Boston)

DESIGNING in the spirit of any period is greatly aided by study of good examples of the work of the period being interpreted.

It is fortunate that notwithstanding our past indifference to noteworthy early American work and the vandalism which has destroyed so many examples, a more intelligent interest is now caring for the best work *in situ* and is garnering into museums many old doorways and mantels.

The Wellington house, near Waltham, Mass., built about 1750, affords an opportunity for the study of eighteenth century American work for, thanks to intelligent ownership, most of its old-time dignity and simplicity have been preserved. The tiny bay window shown in one exterior view is of course an architectural aberration, and the removal of the cyma of the cornice to make way for a wooden gutter is distinctly unfortunate, but both errors may be easily remedied.

Tradition asserts that the lumber for both frame and finish of the house was cut and worked into

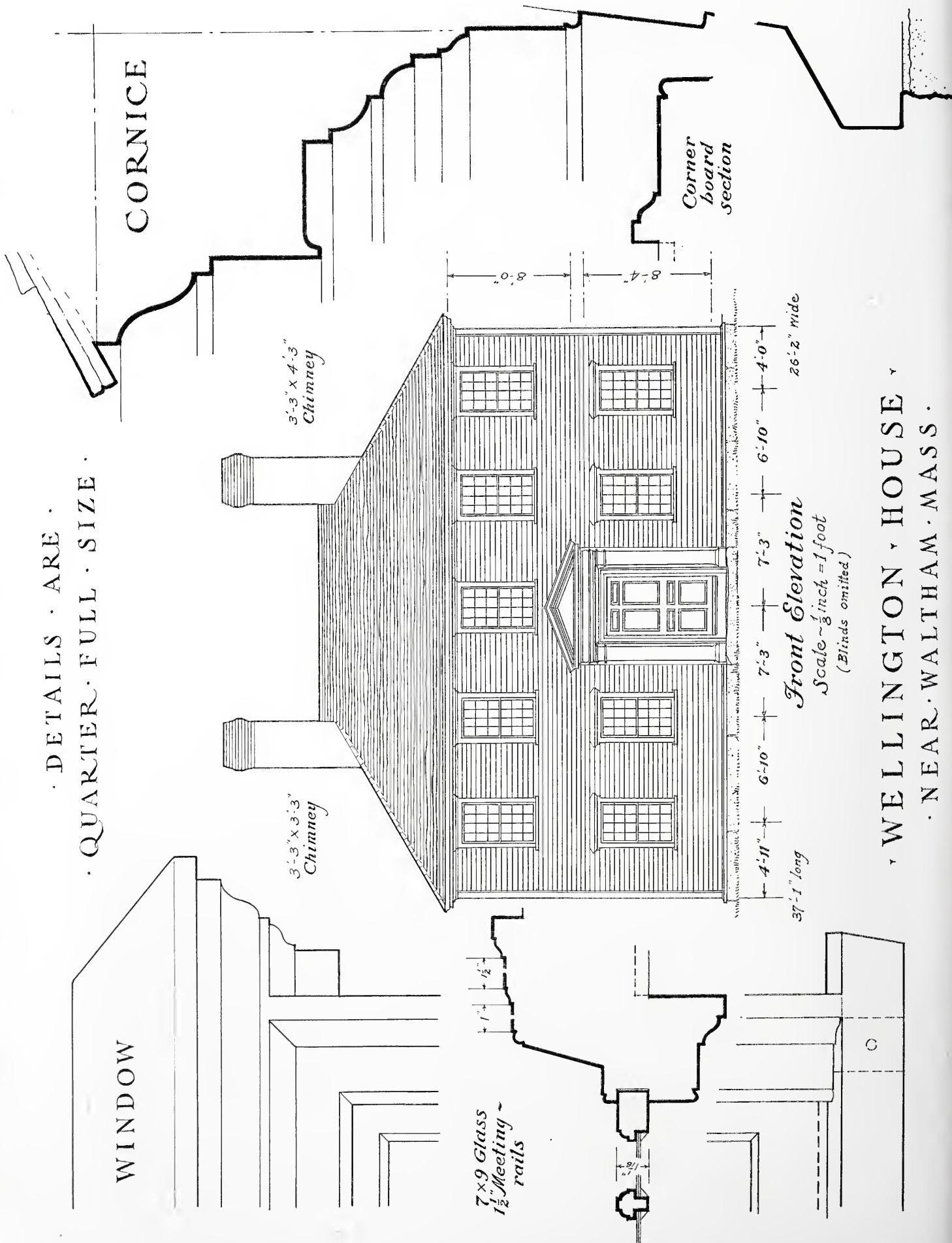
form on the property, but tradition is silent as to the designer whose eye and hand determined the scale and sequence of details which possess individuality though they conform to a type.

Architects are often puzzled to account for the excellence of design in most eighteenth century American work. We know, however, that by the middle of that period taste and building tradition had become well established. Every skilled worker in wood owned his set of moulding planes and close study reveals the simplicity of their geometrical forms. There were, in general, convex and concave quarter rounds, thumb mouldings and ogees of various sizes—the very elements of good form.

Under the Georgian influence of England this simplicity of expression took on a high quality of directness and sincerity which resulted in great excellence of work by thoughtful designers. Such work was no doubt then taken as a matter of course while it is now valued as a matter of American art.



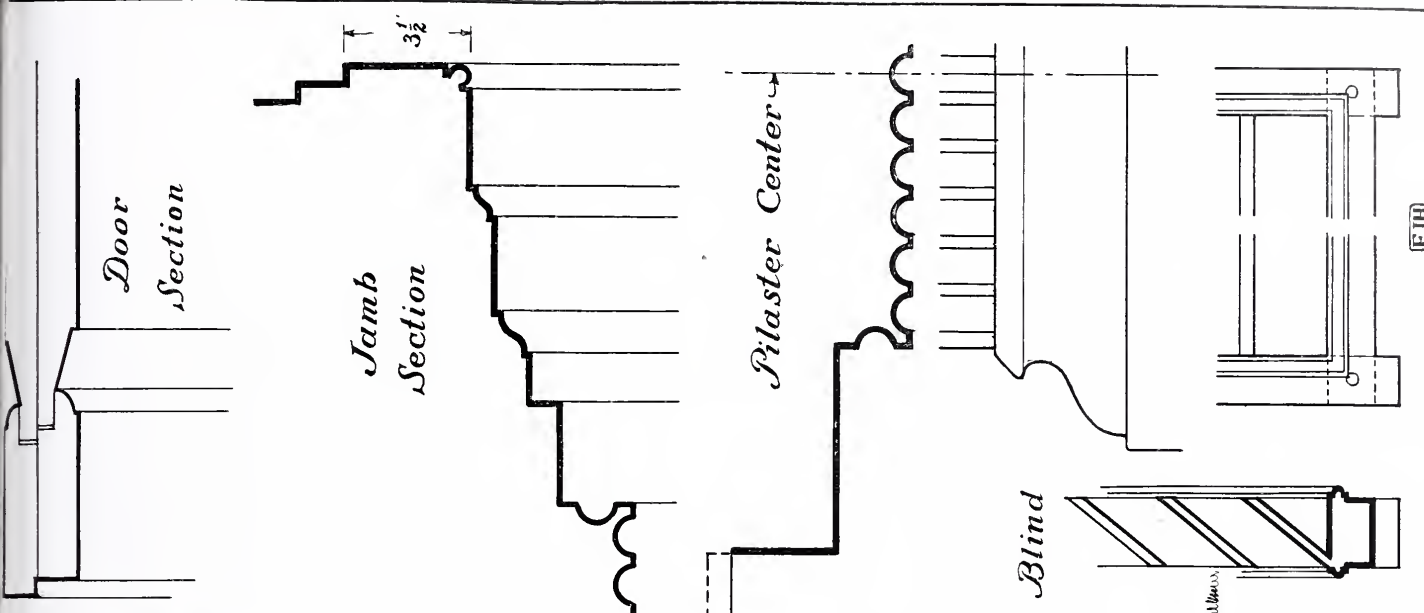
· DETAILS · ARE ·
· QUARTER · FULL · SIZE ·



Front Elevation

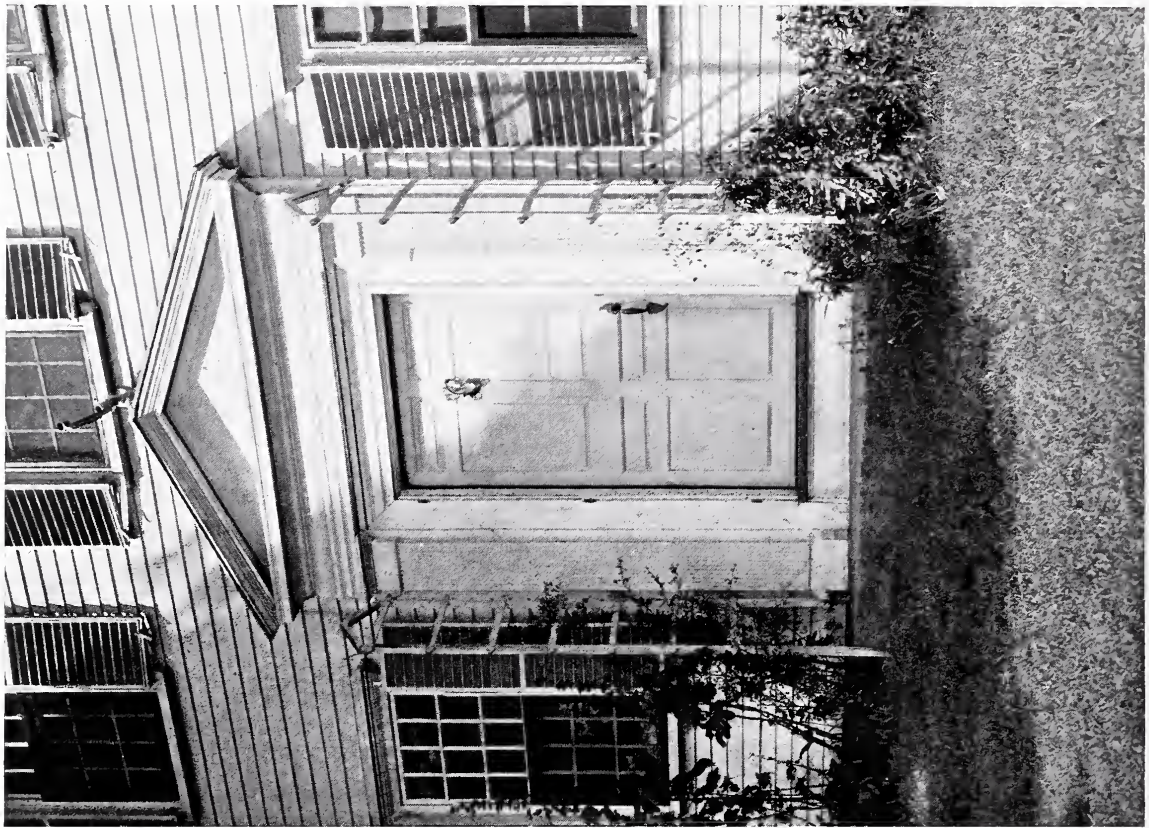
Scale ~ 1/8 inch = 1 foot
(Blinds omitted)

· WELLINGTON · HOUSE ·
· NEAR · WALTHAM · MASS ·

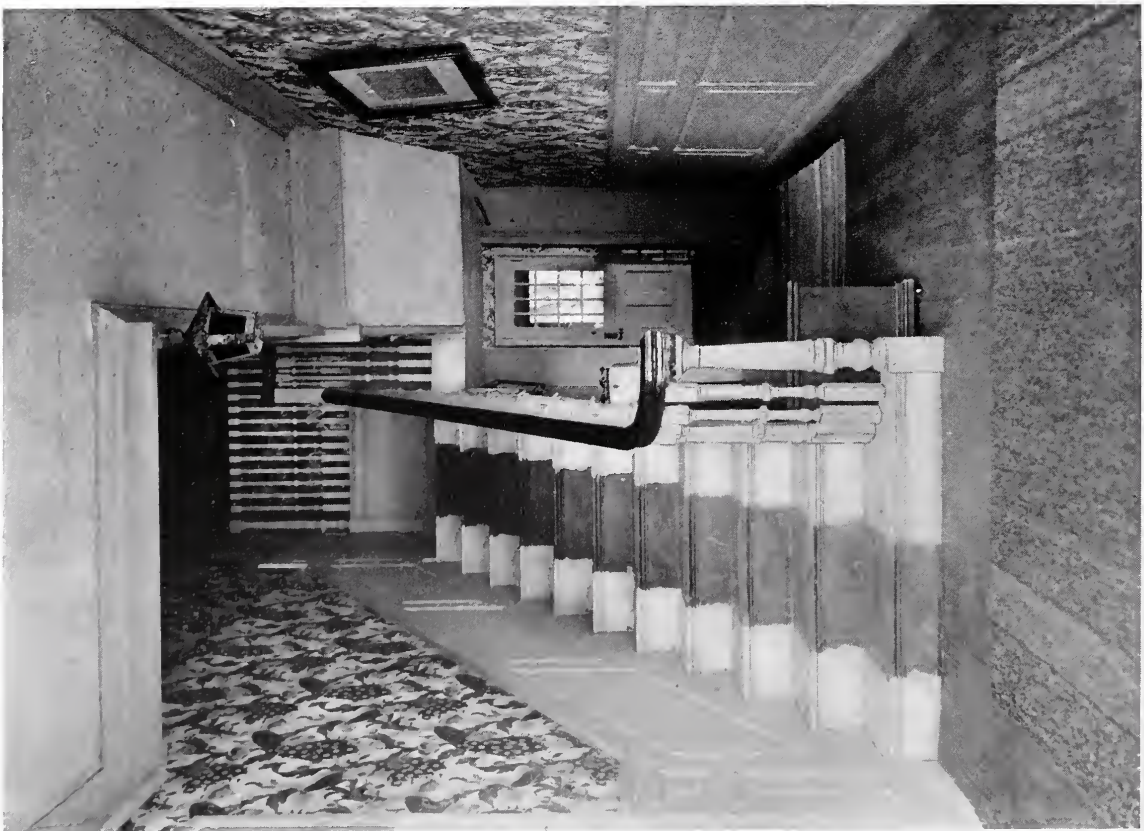


Scale - $\frac{1}{2}$ inch = 1 foot

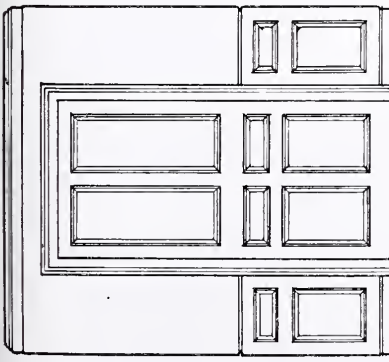
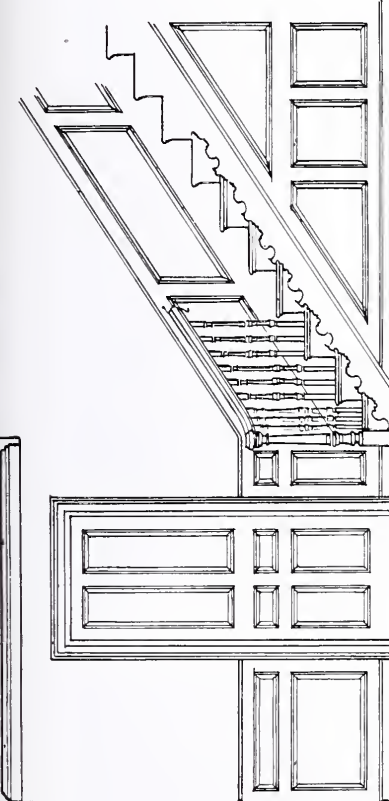
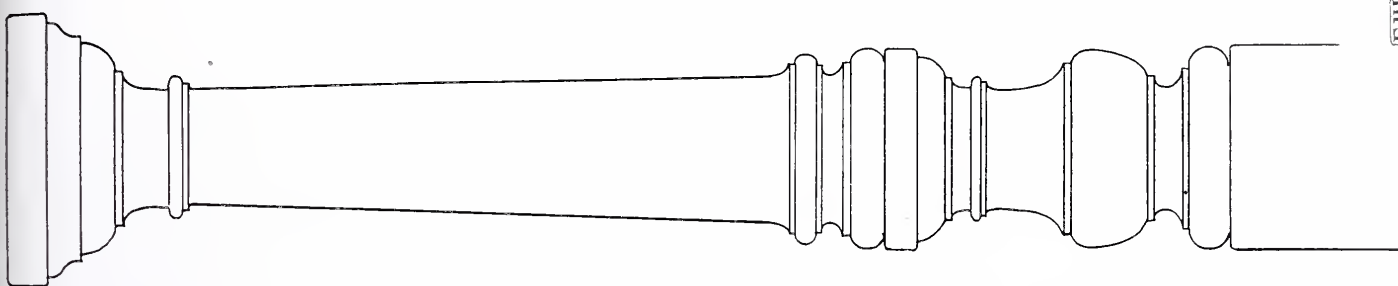
WELLINGTON HOUSE
NEAR WALTHAM · MASS.



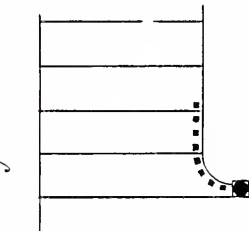
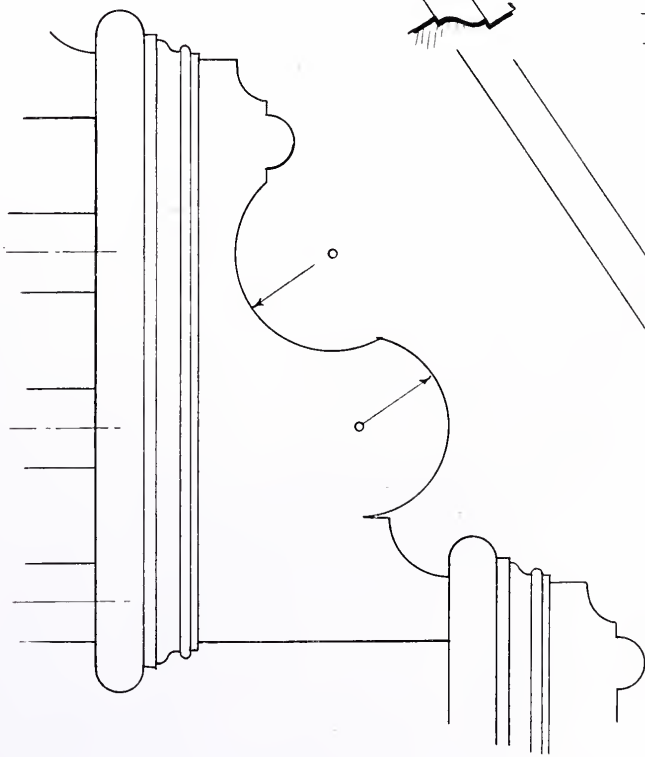
MAIN DOORWAY
WELLINGTON HOUSE, NEAR WALTHAM, MASS. BUILT ABOUT 1750



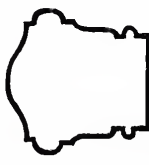
STAIR HALL



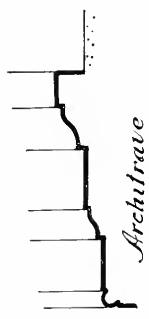
Stair Stall
Scale $\frac{1}{4}$ inch = 1 foot



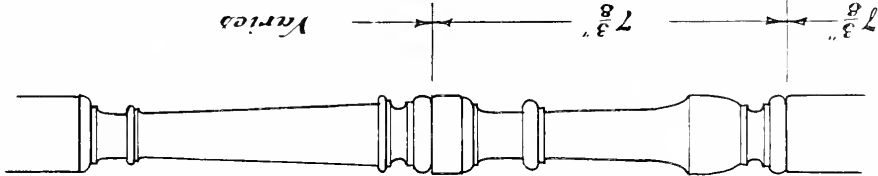
Plan



Hand Rail



Architrave



Varies

7 3/8"

WELLINGTON HOUSE
NEAR WALTHAM MASS.

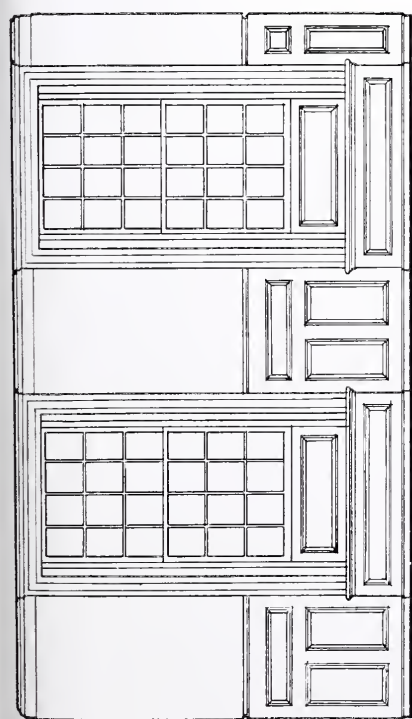
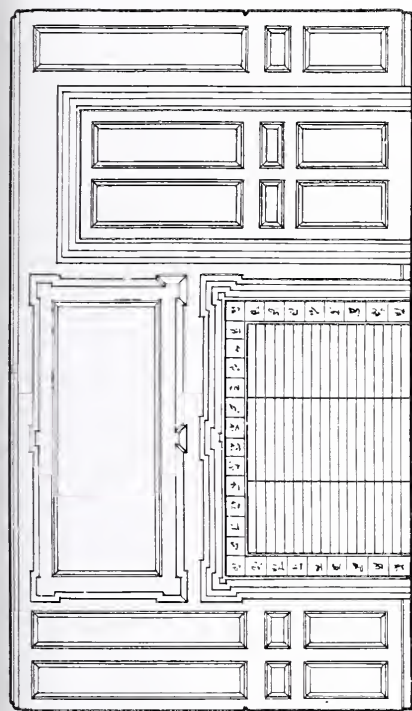


DINING ROOM MANTEL

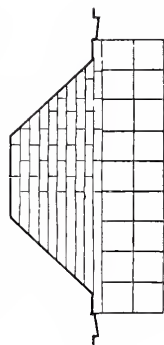


PARLOR MANTEL

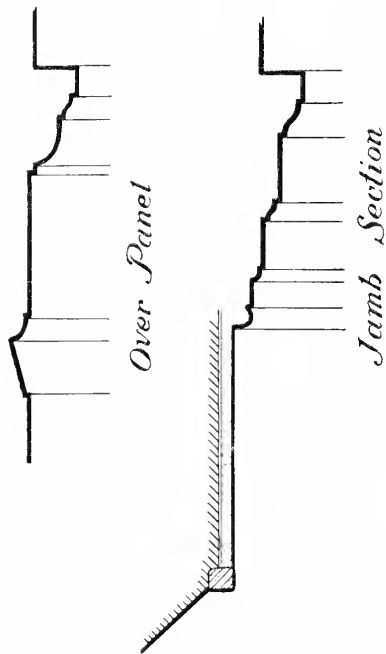
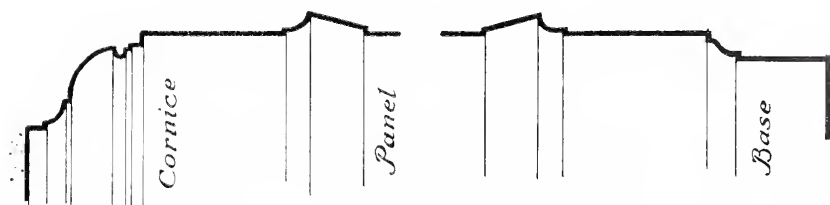
WELLINGTON HOUSE, NEAR WALTHAM, MASS.



Parlor
 Scale - 1/4 inch = 1 foot

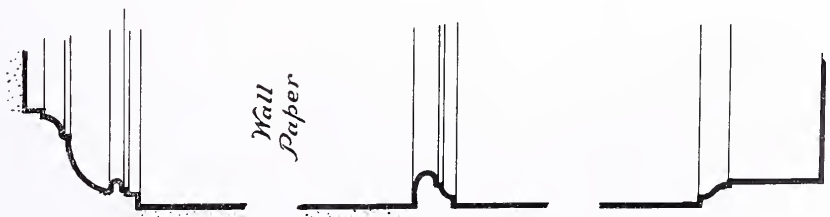
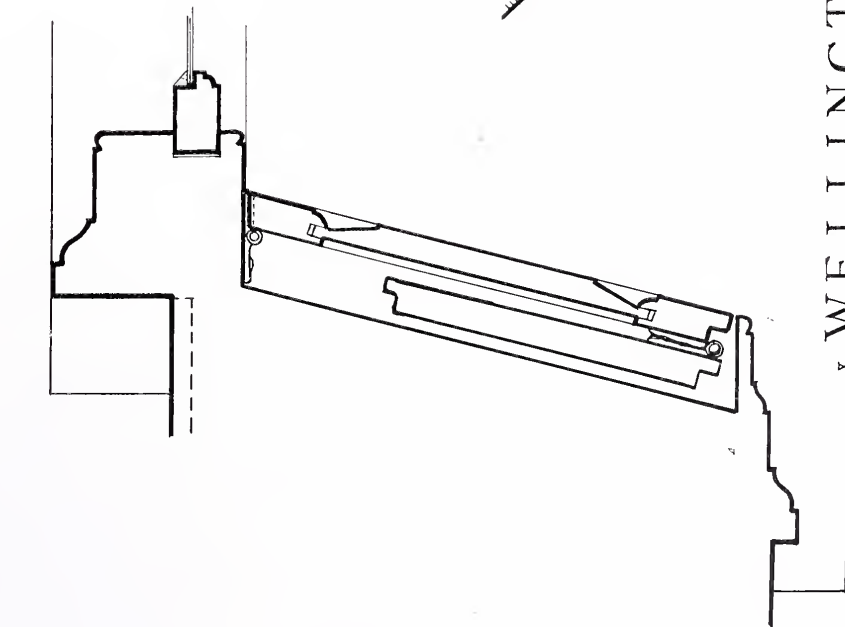


Hearth



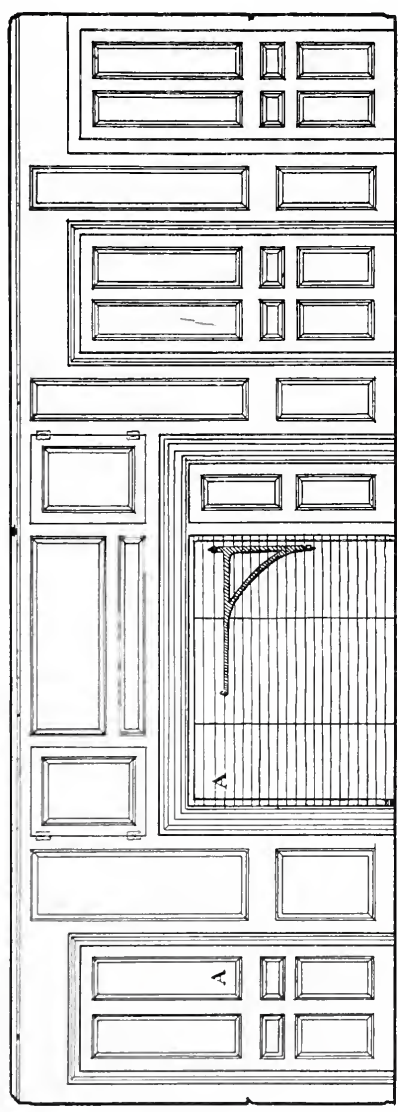
Over Panel

Jamb Section

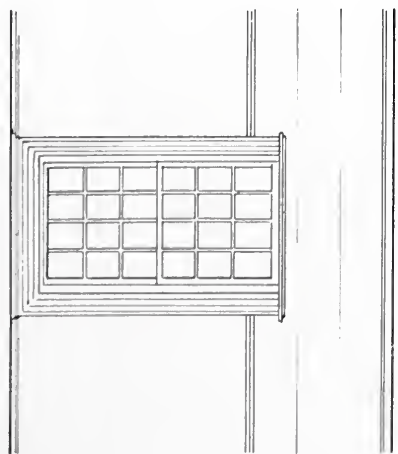


Wall Paper

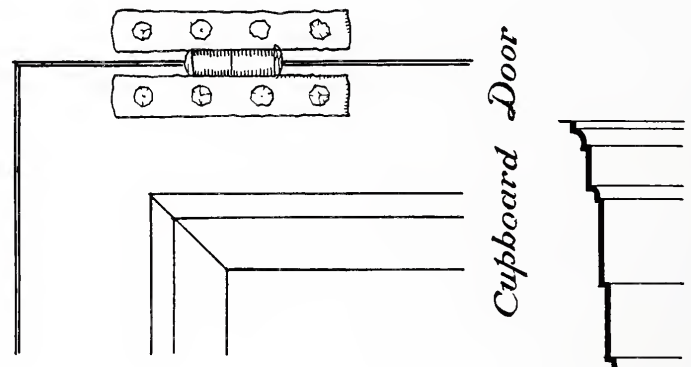
WELLINGTON HOUSE
 NEAR WALTHAM, MASS.



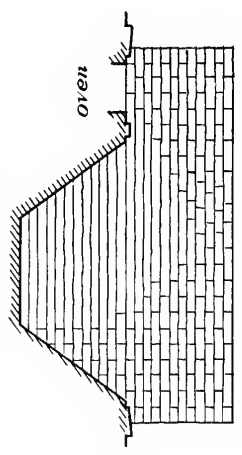
Dining Room
Scale - $\frac{1}{4}$ inch = 1 foot



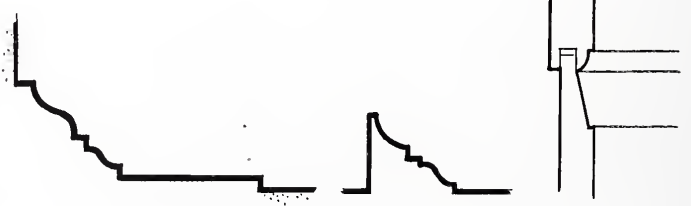
Dado of horizontal boards



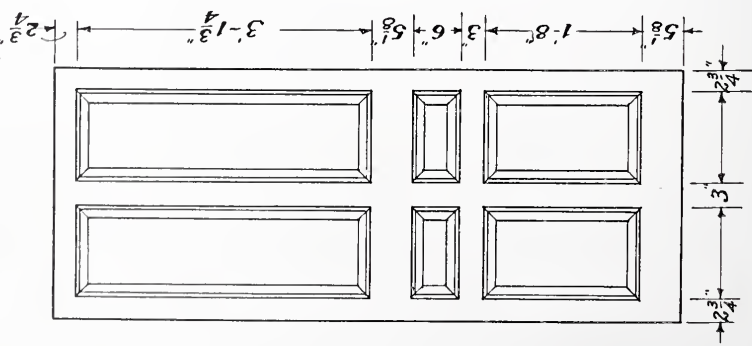
Cupboard Door



Hearth



Section A-A



WELLINGTON HOUSE
NEAR WALTHAM, MASS.

The Development of Architectural Practice through Local Co-operation

MUCH has been said and written during the past few years regarding the use of publicity by the architectural profession. Many recommendations have been made, some of a very practical nature, and it would seem to be the consensus of opinion that there is no ethical reason why architects should not advertise. But in spite of this fact there seems to be little activity in this method of promoting practice. It remains, therefore, for constructive suggestion to be made, and to outline one method of activity which should not only assist in developing local practice, but should have the added value of community benefit.

Briefly, we have in mind the possibility of forming local groups of architects co-operating to produce general publicity which will promote in the public mind a better conception of the value of architectural service, both to the individual and to the community.

In traveling through various smaller cities and towns of the East and middle West, particularly in industrial centers, it is amazing to note the lack of architectural merit in the designs of dwellings, small store groups and other smaller types of construction. Naturally, many comments have been made regarding such conditions, but it is also evident in starting new construction that very little progress is being made in impressing owners and communities as to the value of architecture applied not only to the design of individual dwellings, but in relation to unity of mass, which is so lacking even in the newly constructed residential and business sections of our cities and towns.

We may refer for instance, to the great volume of dwelling construction which has been recently carried out in Detroit and other Western cities. In Detroit many millions of dollars have been spent in the construction of so-called duplex houses, which are in reality two-apartment houses. Thousands of buildings of this nature have been constructed in Detroit in the last two years, and the average cost has been from \$16,000 to \$30,000. Of all these buildings not one-half of one per cent possess any architectural merit. The houses are constructed on narrow lots, the average allowance between houses being simply space wide enough for an automobile driveway. To the fact that land values are high may be attributed the general use of small lots.

Upon inquiry regarding the lack of character, variety and mass unit in these buildings, it was found that very few of the houses were designed by architects,—at least for the type of location in

which they were placed. These houses are built usually from stock plans developed by builders, and while they may include every practical comfort for living, they are usually devoid of that attractiveness which is evident in an artistically planned building.

It is a safe estimate that in one year \$40,000,000 worth of construction of this type has been carried out in Detroit, in which work architects have received no consideration; nor has the community benefited in proportion to the possibilities. In making inquiry as to real estate values it was found that in certain blocks where houses of good design had been constructed the appearance of the entire block was better and consequently real estate values were higher, as a definite character had been given to that locality.

The development of really good stock plans for homes which has been carried out through various manufacturers' associations and through the activities of certain publications has had beneficial influence on the modest cost domestic architecture of the United States. The fact, however, that a very large percentage of this construction is carried out without the services of good architects is plainly evidenced in a study of new building developments of a residential character.

The same criticism may be made of store blocks, usually two stories in height, containing space for several stores and possibly residential quarters for storekeepers' families. Here and there one may see a new store block which has character and consequently attractiveness. Casual inquiry seems to show that in blocks of this kind store rentals are higher, not because cost of construction is higher, but because atmosphere has been created.

The public at large, and particularly the building public, has no mentor to point out the basic reason why certain houses or certain blocks are more attractive. There is no simple manner through which appreciation in the public mind is being developed regarding the fact that the more attractive units or sections of the community are those which have received architectural study. Consequently, as millions of dollars are being spent in the development of new homes and smaller buildings of various types, there is not an increasing percentage of this work coming under the control of trained designers.

It would seem logical, therefore, that under normal conditions, and particularly in smaller communities, definite co-operation could be carried out among local architects to enter into a campaign

to develop public appreciation of the value of their work,— not only in its value to the individual, but from a community aspect. As we enter the smaller industrial towns where the business section is made up usually of one main artery consisting of one block with offshoots extending into the side streets, we are amazed by the haphazard and unattractive development of these blocks. Here enters not only the question of city planning, but the possibility of an art commission, even in a small town, which, to a certain extent, could control the designing of groups of buildings of a semi-public nature. Certainly much improvement has been developed in residential sections through the medium of restrictions regarding setbacks, sizes of lots, etc., but in the more closely built up sections where real estate values are high, we cannot look to landscape architecture as a means of promoting better design. We must look directly to architecture, particularly in neighborhoods where houses such as the Western duplex houses are in danger of developing into monotonous and unattractive rows.

Through the activities of a committee or group of local architects there is no reason why certain funds should not be raised and expended in developing public appreciation in order that prospective builders of homes and smaller building groups may be induced to at least give consideration to the possibility of using good plans, both from an artistic, community and real estate valuation viewpoint.

Not long ago the directors of the New Jersey Association of Architects were considering a proposition of furnishing plans and designs for inexpensive homes at special and reasonable rates. Other groups of architects have given some consideration to this idea, but in view of the fact that practically every home built from such plans would normally not be planned by an architect, it would seem that co-operation in the preparation of plans would constitute a valuable feature for local application. In fact, this might be a means of publicity.

Suppose a group of local architects were to prepare a number of attractive house plans and offer them to prospective builders in the community at a comparatively low cost. Certainly there would be considerable publicity not only for the architects who entered into such an activity, but for the idea of bettering residential design, and this spirit, once established locally, would result in practical elimination of ugly stock plans and the untrained conceptions of the average builder.

To the lay mind, in considering the construction of an inexpensive home the services of an architect mean added expense. If, however, the architect be of practical mind, he will usually be able to produce a design involving additional features which would more than offset any charge which he might make for the work.

The possibilities of local co-operation among

architects for the public benefit as well as the development of their own practice are so great that it is difficult to describe in a brief article the activities which might be undertaken. The home-owning public is always interested in an activity which tends to improve home surroundings or to increase or stabilize real estate values. The speculative builder is ready to be impressed with the value of improved design if some one is willing to undertake his education, and to show him that a well designed house is more saleable. From the viewpoint of community improvements there is no doubt that newspapers would be glad to cooperate in a campaign for the betterment of individual dwelling and community architecture.

Through the activities of such an organized group of architects real estate developers could be induced to avoid common errors in locating dwellings on subdivisions. With a studied campaign of education carried out along simple and dignified lines of community benefit there can be no doubt that a very large percentage of money to be expended for building construction in the community would carry an architect's commission.

In isolated cases some effort has been made in this regard, but as yet there has not come to our attention any well defined local co-operation among architects tending toward the accomplishment of the purposes as outlined here. We are much interested in receiving information from architects regarding the feasibility of the use of publicity in the way indicated.

There is no doubt that the chamber of commerce in the average town would co-operate in activities of this nature. Usually the architect is not a progressive member of the chamber of commerce, even though every other line of effort in the community which depends upon public demand for its support enters actively into co-operation, both for community and individual benefit.

There is no doubt that architects have been somewhat lax in at least one respect,— that is, in waiting for prospective builders to learn, through one manner or another, appreciation of the practical, artistic element in the preparation of building plans, and consequently awaiting calls for their services. In other lines of activity demand for services is definitely developed by some more or less scientific plan of publicity.

No serious obstacle can be foreseen which might preclude co-operative activity of this nature on the part of local architects. The actual division of the work would naturally be left to individual selection, but it is certain that if the demand for architectural services can be increased through the development of public appreciation, there would be more work to go around, and consequently more work for the individual architect who may lend his aid in establishing a better public appreciation of the practical methods of architectural service in the design of dwellings and structures housing business dependent upon the support of local trade.

Applying the Co-operative Method of Financing to Inexpensive Types of Apartment Buildings

AS interest in the idea of co-operative apartment house financing is becoming national in its aspect, it is but natural that this interest should take definite form in a consideration of the possibilities of applying the co-operative idea to the financing of moderate cost apartment houses. The great wave of co-operative financing of apartment houses and office buildings which has found its center in New York has, to a certain extent, been developed in high cost buildings; but in view of the number of inquiries in regard to this question, it will undoubtedly interest architects and speculative builders to know that there is no reason why the co-operative method of financing should not be applied to less expensive types of buildings. In fact a number of such buildings have been recently developed in and near New York, and while sufficient time has not yet elapsed to determine the ultimate success of the proposition this method has been successful to the point of making it possible to design a number of buildings.

The basic elements of co-operative building ownership do not preclude the application of this principle to moderate cost buildings, except in the limitation of promoters' fees. In fact it might be said that as the inducement to the promoter is greater in developing high cost buildings it is but natural that real estate activity of this kind should be directed chiefly toward the promotion of the more expensive types of apartment dwellings. Possibly this is why the co-operative plan has been applied, in most instances, to costly developments.

On the other hand, there is a great need of studied application of the co-operative principle in the development of apartment units costing in gross figures not over \$8,000 per family. In order to give some idea how a comparatively inexpensive co-operative project can be developed it may be interesting to know of a simple development of this nature which is now being successfully carried out, in so far as the financing is concerned, and which promises to be successful from the tenants' side.

For the development of the operation in question it was first determined that in a rapidly growing industrial city there were a number of families who would be interested in buying an apartment on the co-operative plan provided the cash payment were not too high. It was further learned that as far as a building loan was concerned co-operation might be expected either from a financing corporation, definitely developed to aid in meeting the housing shortage, or from an insurance company which had set aside a certain amount of money to assist in solving the housing problem.

The first step was to work out sketch plans and to outline specifications for an apartment building simple in design and equipped and planned to

include every possible economy, but at the same time providing comfortable dwelling quarters for a class of people represented by the employes of local factories. Having determined that the element of financing and demand could be definitely counted upon, the advancing of the necessary equity to carry out this project was undertaken by a group of business men representing employers of labor, and others interested in meeting the local housing shortage.

The general figures on this project were worked out somewhat in this manner:

1— That a building should be constructed providing ten apartments averaging six rooms each at a cost of \$6,500 per family, consequently making the total cost of the building \$65,000. The building in question is a four-story, walk-up apartment having simple modern conveniences.

2— That suitable land for the location of this building should be obtained for \$5,000.

3— That a mortgage loan, bearing an amortization clause as later described, could be obtained, amounting to 60 per cent of the cost of land and building or 60 per cent of \$70,000, being a building and first mortgage loan of \$42,000, 20 per cent of which was to be paid off over a period of five years. This meant in simple figures that, adding a profit of \$500 per family for those who financed the equity in this building, each apartment might be put on the market for purchase at \$7,500 made up as:

Pro rata cost of building	\$6,500
Pro rata cost of land	500
Pro rata allowance for profit	500
	<hr/>
	\$7,500

Of this amount the advancement of \$4,200 as part of the building loan was assured, leaving an actual cost balance of the difference between \$7,000 and \$4,200, or \$2,800 per family, this being the amount of equity advanced by the promoting group.

Having completed the details of the operation thus far a stock company was formed representing the equity in the sales price of the building,— the sales price as given being \$75,000; the first mortgage being \$42,000, and the original owners having agreed to allow a second mortgage of \$15,000 to be paid off on an amortization plan by those who purchased stock carrying occupancy privilege in the building.

From the viewpoint of the buyer, therefore, an apartment in this building could be purchased for the gross price of \$7,500 of which \$4,200 represented a pro rata share in the first mortgage, and \$1,500 represented a pro rata share in the second mortgage, which is to be paid off in five years. Taking this total of \$5,700 it is found that the purchaser of an apartment must pay \$1,800 in

cash for which he receives one-tenth of the stock of the corporation carrying with it the perpetual leasehold privileges for one apartment. Having paid \$1,800 the tenant has assumed these liabilities which might be termed owner's annual rental:

Interest on first mortgage of \$4,200 at 6%	\$252
Interest on second mortgage of \$1,500 at 6%	90
Amortization of 20% of first mort- gage over 5 years, or 20% of \$840	168
Amortization of second mortgage over 5 years	300
Pro rata cost of maintenance and service charges	300
	\$1,110

In this total of \$1,110 the items of \$168 and \$300 representing amortization payments cannot be figured as actual rental, but are actually installments on the purchase of the apartment and consequently represent savings. Therefore the actual rental of the apartments approximates \$642 or about \$54 a month which is actually decreased by the cessation of interest on the amortization payments until, at the end of five years, the owner of one-tenth of the stock representing the tenancy of one apartment actually pays as a rental charge:

Interest on reduced first mortgage, \$3,360 at 6%	\$201.60
Second mortgage has been paid off	
Cost of maintenance and service charges	300.00

Owner's rental, after fifth year . . \$501.60
or approximately \$40 per month, to which must be added any repairs which the owner may wish to make to his own apartment, as the owner always assumes interior repairs and decoration in the co-operative plan.

No item is included, of course, on money invested as this interest is returned in the form of reduced rental cost.

In the purchasing of apartments as here outlined the purchaser's viewpoint is that by paying an annual amount, not exceeding normal rental in the locality, he is obtaining the use of an apartment and at the same time buying his share in the building in the same manner that furniture might be purchased on the installment plan.

From the viewpoint of the developers of this project, each is receiving interest on his money and a profit of \$500 on a \$2,800 five-year interest bearing investment, at the same time helping in the relief of the housing situation.

In later issues we expect to give detailed examples of actual operations where the co-operative idea has been applied to the development of inexpensive types of apartment houses. It is plainly evident that the co-operative apartment of comparatively inexpensive type can be developed for the family which can afford a moderate cash payment, and a low but definite investment each year over a period of years until amortization or indebtedness has been cleared off.

Another method of developing an operation of this type is, of course, getting together a group of future tenants who will do the necessary financing, thus eliminating the middleman who first provides the equity. This requires a larger amount of capital per family for immediate investment, unless it is possible to borrow second mortgage money, paying relatively high fees which may be distributed over the first few years as owner's rental.

In general, however, the successful co-operative developments carried out thus far have included a promoting entity of some sort, which for the sake of profit has either carried out the operation and then sold stock, or has been the actuating force to bring together a group of prospective tenants, receiving a promoter's fee which has been made chargeable to building cost.

A Note of Optimism as to Business Conditions

FROM the viewpoint of increased business for next year, it will be interesting to architects to realize that in the circles of big business there is an increasing spirit of optimism as to future business conditions. This desirable state of mind is supplanting a former condition in which important things seemed to indicate conditions varying from possible acute business panic to the generally accepted belief that we were doomed for at least a short period of depression.

The last two months have been months of readjustment. In many industries labor has been finding itself. According to the monthly review of the Federal Reserve Board for July these interesting conditions bearing upon general business have been thus defined:

"One notable feature of the business situation during the month has been a change in labor conditions. An important factor in this connection has been the development of unemployment in various parts of the country. This unemployment has been apparently chiefly due to three factors. Where poor transportation prevented deliveries of fuel and raw materials some plants have been obliged to curtail operations and thereby reduce opportunities for employment pending better conditions; in other manufacturing districts the shutting down of mills as a result of cancellation of orders and lack of demand has also thrown considerable numbers of men out of work; elsewhere, inability to obtain capital for construction and the consequent abandonment or delay of

undertakings that had been contemplated have produced a certain amount of unemployment.

"An effect of the changed labor situation, which has been the subject of general comment in the various Federal Reserve districts, is an increase in the efficiency of labor. One of the largest producing companies in the Cleveland district reports the greatest four months in our history of pounds produced per man.

"Boston reports that labor is less insistent in its demands and during the first half of July only ten new strikes were reported to the Massachusetts Department of Labor, but two of these involving any considerable number of men. During the latter part of June and the first two weeks of July there was a marked decrease in the demand for factory help. The Boston Public Employment Office reports a surplus of machinists, mechanics and general factory helpers.

"Retrenchment in government manufacturing operations has released some labor. Unskilled labor is also more plentiful than heretofore. In the agricultural regions, however, there is little or no relief from the shortage of farm labor. In the extreme Southern part of the country a better supply of agricultural labor has resulted from the slackening of industrial production.

"In New York there has been a distinct, though not large, increase in unemployment and this is more noticeable than usual at this season in the clothing trades. The labor difficulties at the port of New York have been reduced. Generally speaking, conditions are more stable than they were several months ago. Local shortage of unskilled labor due to the scarcity of immigrant hands is observable.

"A notable event of the month has been the decision of the Railway Wage Adjustment Board, which has resulted in awarding a wage increase to railway workers estimated to aggregate \$600,000,000, and presumed to represent an average increase of 21 per cent or over for railway employes as a whole, although the increase granted has been greatest in the lower paid grades of employment.

"Labor in many parts of the country is reported as increasing in efficiency, and a better spirit of co-operation is said to exist between employer and employe."

Another interesting and important prediction is contained in this recent statement made by Judge Gary before sailing for Europe:

"From my viewpoint I think conditions should be considered satisfactory. In some respects I think there has been a lack of prudence in business management since the armistice of 1918. I refer especially to prices. There seems to have been a disposition on the part of large numbers to ask and accept the highest prices which could be obtained. Consequently there has been added to going prices the amount which the producer has been obliged to pay, with profits on the whole, and the purchaser has thus been obliged to charge

an increased price to his customers. Besides there have been added many government taxes and other expenses. Therefore, increases in costs of production and consequently in selling prices have been passed on from one to another.

"In addition to this situation the disposition to work and produce has been materially diminished. The workman in the field, at 4 o'clock or some other early hour, drops his tools and leaves the hay or grain unsheltered, to be spoiled or injured by rains during the night, when under old methods it would be stacked or housed before quitting work. This practice has been followed in many different lines of work.

"In order to remove and replace a headlight on a locomotive it has been necessary to employ four different men, because of labor regulations, where one man heretofore performed the service in less time. It has been recently published that the tailors have announced an increase of 15 per cent in selling prices because the workmen advanced their rates 15 per cent. These common illustrations are well known to the average individual. The custom has prevailed of doing as little work as possible and of securing as large a pecuniary result as could be obtained.

"However, somewhat to my surprise, I have, upon inquiry during the last thirty or forty days, ascertained that labor at our various plants is more efficient per man than it has been at any time during the last five years."

The *New York Times* in commenting on an interview with Judge Gary says that in his opinion everyone who has been increasing his profits beyond reason and doing it intentionally has been operating against his own interests. He asserted that if the tailor had borne the additional cost to him resulting from higher wages he would probably have had a reasonable profit left and would have used his influence in keeping prices from advancing further and in restoring a fair equilibrium.

Such inexcusable conditions, in his opinion, have naturally been followed by a diminution in the buying movement. This applies to many different lines, but apparently it has not as yet reached the steel business to a large extent. In calling attention to the disposition on the part of the average man to be more careful in his buying, he gave it as his opinion that this tendency probably would become more and more noticeable throughout the country in the next few months.

In conclusion Judge Gary said: "While I recognize, and for many months have comprehended, dangers in the general situation, I am more optimistic in regard to the future of this country than I have been at any time during the last six years. If people generally will recognize the possible dangers which have been hinted at and will, each for himself or herself, do everything possible and practicable to improve conditions, we shall soon return to a basis of living which should be entirely satisfactory."

EDITORIAL COMMENT

SICK HOUSING CONDITIONS

INTEREST is focusing on the national housing shortage in accelerated degrees as the fall season approaches. While the sick condition of the building industry as far as it relates to housing has been patent to any one who gave the matter a thought, difficulties growing out of hurried, thoughtless legislation, lack of transportation, speculation in materials, and the unwillingness of loaning institutions to extend financial aid have steadily increased till there is now created a situation in which it is impossible to provide a satisfactory house for a family of average income within a cost they can assume.

Shelter is an absolute necessity and it must be provided; if it will not be furnished through the channels to which we are accustomed it will have to be recognized as a duty of State or Federal Government and provided from public funds. This is not in accord with American principles and it should not be made necessary. It would be the most expensive and most inefficient way of meeting the problem.

The solution should be sought in removing from house construction or at least in reducing them, the harassing conditions which have held back building since the armistice. The greatest single difficulty is the lack of money for building loans; others are comparatively incidental and will be lessened with the normal increase in production, but if new money is not made available a deadlock will occur which will have disastrous results for the building industry.

The Associated Metal Lath Manufacturers in a recent bulletin have set forth in detail the reaction on the mortgage market of the Federal Income Tax and recommend most strongly that every one interested in the welfare of building exert his influence in developing a demand that Congress exempt mortgage income from this tax.

The bulletin says: "The banks were obliged to stop construction loans, not because of prices of materials, but because they could not dispose of real estate mortgages to their customers. This was largely due to the Federal Income Tax which, with its heavy Surtax on

the larger incomes, makes mortgage buying at 6% absolutely impossible.

"No one can blame the man with an annual income of \$50,000 for refusing to make investments that will yield but \$412 on \$10,000 when he can get \$600.

"The bulk of new money for mortgages must come from estates and individuals having such excess funds as are not available until incomes of \$20,000 or over are reached. As an example, an income of \$30,000 is subject to a Federal Normal and Surtax totalling 21% in addition to the income taxes levied by several of the states. This income tax must be deducted from the gross return on the mortgage before the net return to the investor is found.

"To compete with the 6% Municipal Bond which is exempt from income tax, the banks cannot offer a \$30,000 investor anything less than 7.6% on a taxable mortgage, or to the \$50,000 investor anything less than 8.7% and have him come out even. With mortgages tax exempt, however, they could readily be sold on a 5% and 6% basis."

It is evident from these figures that the present burden of taxation is a very important factor in holding back construction. Examples of the practical effect of this condition are being brought out in the hearings conducted by the Senate Committee on Reconstruction and Production in various

important cities of the country and one of the recommendations which this committee will undoubtedly make will be the exemption of mortgage income from taxation.

As we go to press preliminary meetings are being held in New York to consider the proposals for housing relief that will be presented to the New York State Legislature which convenes in a special session on September 20 to be devoted entirely to housing matters. It is expected that this legislature will exempt mortgages from the State Income Tax and that it will memorialize Congress to adopt similar legislation with reference to the Federal Tax.

There is then a movement started in this direction, but it will need the concerted support of all who are anxious to see our housing difficulties met, if the object is to be realized to a satisfactory degree.

LE BRUN TRAVELING SCHOLARSHIP COMPETITION

THE executive committee of the New York Chapter of The American Institute of Architects, as trustees of the Traveling Scholarship, founded by Pierre L. Le Brun, announces a competition for the selection of a beneficiary, the program of which will be issued about November 1, 1920, calling for drawing to be delivered about January 15, 1921.

The following excerpts from the deed of gift explain the award and conditions:

"Fourteen hundred dollars is to be awarded to some deserving and meritorious architect or architectural draftsman, resident anywhere in the United States, to aid him in paying the expenses of an European trip, lasting not less than six months."

"Any architect or architectural draftsman, a citizen and resident of the United States, not under twenty-three or over thirty years of age, who shall, for at least three years, have been either engaged in active practice, or employed as an architectural draftsman and who is not and has not been the beneficiary of any other traveling scholarship, shall be eligible to compete."

"Every competitor must be nominated by a member of the American Institute of Architects who shall certify in writing that the above conditions are fulfilled, and that in his opinion the competitor is deserving of the Scholarship. No member of the Institute shall nominate more than one (1) candidate."

It is requested that those wishing to enter the competition arrange at once for their nomination by any member of the American Institute of Architects, according to the conditions outlined above, which nomination should be sent with his application so that it may be received before November 1, 1920, to Louis Ayres, 50 East 41st Street, New York City.

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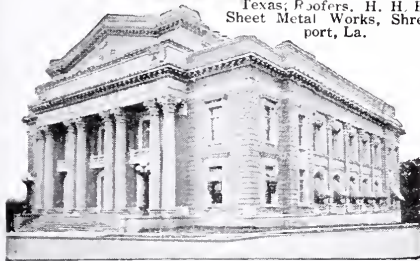
City National Bank Building, Shreveport, La.; Architects: Langhuet & Statton, Fort Worth, Texas; Associate Architect, E. F. Neild, Shreveport, La.; Gen'l Cont., Central Contracting Co., Houston, Texas; Roofers, H. H. Bain Sheet Metal Works, Shreveport, La.

Another "Specification" City—

AMERICA'S leading architects and construction engineers are practically unanimous in their endorsement of Barrett Specification Roofs. This is best proved by the fact that most of the permanent modern buildings all over the country have roofs of this type.

or more, and in many smaller places where our inspection service is available.

Our only stipulations are that The Barrett Specification revised April 15, 1920, shall be strictly followed and that the roofing contractor shall be approved by us and his work subject to our inspection.



Scottish Rite Cathedral, Shreveport, La. Arch., E. F. Neild, Shreveport, La.; Gen'l Cont., Stewart-McGhee, Little Rock, Arkansas; Roofers, H. H. Bain Sheet Metal Works, Shreveport, La.

Take Shreveport, La., for instance— This thriving city—the center of one of the richest sections of the South—is carrying forward an ambitious program of civic improvement and commercial expansion.

Important Notice

The Barrett Specification Type "AA" 20-Year Bonded Roof represents the most permanent roof covering it is possible to construct, and while we bond it for twenty years only, we can name many roofs of this type that have been in service over forty years and are still in good condition.

The soundness of the city's rapid development is attested by the substantial character of the new buildings, a few of which are shown on this page.

Where the character of the building does not justify a roof of such extreme length of service, we recommend the Barrett Specification Type "A" Roof, bonded for 10 years. Both roofs are built of the same high-grade materials, the only difference being in the quantity used.



The Highland Sanitarium and Addition, Arch., C. W. King, Shreveport, La.; Gen'l Cont., Stewart-McGhee, Little Rock, Ark.; Roofers, H. H. Bain Sheet Metal Wks., Shreveport, La.

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Selected List of Manufacturers' Literature

FOR THE SERVICE OF ARCHITECTS, ENGINEERS, DECORATORS AND CONTRACTORS

The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to *The Architectural Forum*, 142 Berkeley St., Boston, Mass., or the manufacturer direct, in which case kindly mention this publication.

Listings in this Department are available to any manufacturer at the rate of \$5 per listing per month.

BOILERS—See Heating Equipment

BRICK

- American Enameled Brick and Tile Co.**, 52 Vanderbilt Avenue, New York.
Enameled Brick. Circular. Illustrated.
Fire Brick. Circular. Illustrated.
- American Face Brick Association**, 1151 Westminster Bldg., Chicago, Ill.
The Story of Brick. Booklet. 7 x 9½ in. 55 pp. Illustrated. Presents the merits of face brick from structural and artistic standpoints. Tables of comparative costs.
The Home of Beauty. Booklet. 8 x 10 in. 72 pp. Color plates. Presents fifty designs for small face brick houses submitted in national competition by architects. Text by Aymar Embury II, Architect.
- Bradford Brick Co.**, 2 Main Street, Bradford, Pa.
"Red" Catalog. 7½ x 5 in. 30 pp. Illustrated. Covers dry pressed and impervious smooth-faced brick.
- Common Brick Manufacturers Association of America**, 1312 Schofield Bldg., Cleveland, Ohio.
Brick for the Average Man's Home. Book. 8½ x 11 in. 72 pp. Color plates. Book of plans for bungalows, houses and apartments for which working drawings are available. Price \$1.00.
Brick—How to Build and Estimate. Book. 8½ x 11 in. 48 pp. Illustrated. A manual for the brick builder on estimating and details of brick construction. Price 25c.

CEMENT

- American Materials Company**, 101 Park Avenue, New York; Weed Street and Sheffield Avenue, Chicago, Ill.
Elastica, the Stucco of Permanent Beauty. Catalog. 8½ x 11 in. 32 pp. Illustrated. Treatise on composition and application of Elastica Stucco.
- Carney's Cement Company**, Mankato, Minn. Booklet. 8 x 10 in. 20 pp. Illustrated. Complete information on product, showing prominent buildings in which this cement has been used.
- Muller, Franklyn R. Co.**, Waukegan, Ill.
Everlastic Magnesian Stucco. Booklet. 8½ x 11 in.
- Sandusky Cement Co.**, Dept. F, Cleveland, Ohio.
Medusa White Portland Cement, Stainless. Booklet. 8½ x 11 in. 48 pp. Illustrated.
Medusa Waterproof White Portland Cement. Booklet. 6 x 9 in. 32 pp. Illustrated.
Medusa Review. 6 x 9 in. 18 pp. Illustrated. House organ issued bi-monthly.
- United States Materials Co.**, Weed Street and Sheffield Avenue, Chicago, Ill. See American Materials Co.

CONDUIT

- National Metal Molding Co.**, 1113 Fulton Building, Pittsburgh, Pa.
Bulletin of all National Metal Molding Products. In correspondence folder. 9½ x 11½ in.
Sherarduct. Circular. 5 x 8 in. Illustrated.
Flexsteel. Circular. 5 x 8 in. Illustrated.

CONSTRUCTION, FIREPROOF

- General Fireproofing Co., The**, Youngstown, Ohio.
Fireproofing Handbook. Catalog. 6 x 9 in. 112 pp. A book dealing with the problems of fireproof construction, using as a basis the reinforcing materials—Self-Sentering, Trusset and Expanded Metal.
General Fireproofing. 8½ x 11 in. 16 pp. House organ issued monthly.
- National Fire Proofing Co.**, 250 Federal St., Pittsburgh, Pa.
Standard Fire Proofing Bulletin 171. 8½ x 11 in. 32 pp. Illustrated. A treatise on fire proof floor construction.
- Northwestern Expanded Metal Co.**, 934 Old Colony Building, Chicago, Ill.
Fireproof Construction. Catalog. 6 x 9 in. 72 pp. Illustrated.
Handbook of practical suggestions for architects and contractors. Describing Nemo Expanded Metal Lath.
- Fire-Proof Construction**. Handbook. 6 x 9 in. 72 pp. Illustrated. Describing Kno-Burn expanded metal lath.
- Republic Fireproofing Co.**, 26 Cortlandt Street, New York.
Republic Fireproofing Construction for Buildings. Booklet. 8½ x 11 in. 28 pp. Illustrated. A complete description on the two-way construction, its lightness, distribution of loads, saving of loads, saving in structural steel or concrete and its general adaptability to Fireproof Construction.

DOORS, WINDOWS AND TRIM, METAL

- Merchant & Evans Co.**, 2019 Washington Avenue, Philadelphia, Pa.
Evans "Almetl" Fire Doors and Shutters. Catalog. 8½ x 10½ in. 24 pp. Describes the entire line including "Star" Ventilators.

DOORS, WINDOWS AND TRIM, WOOD

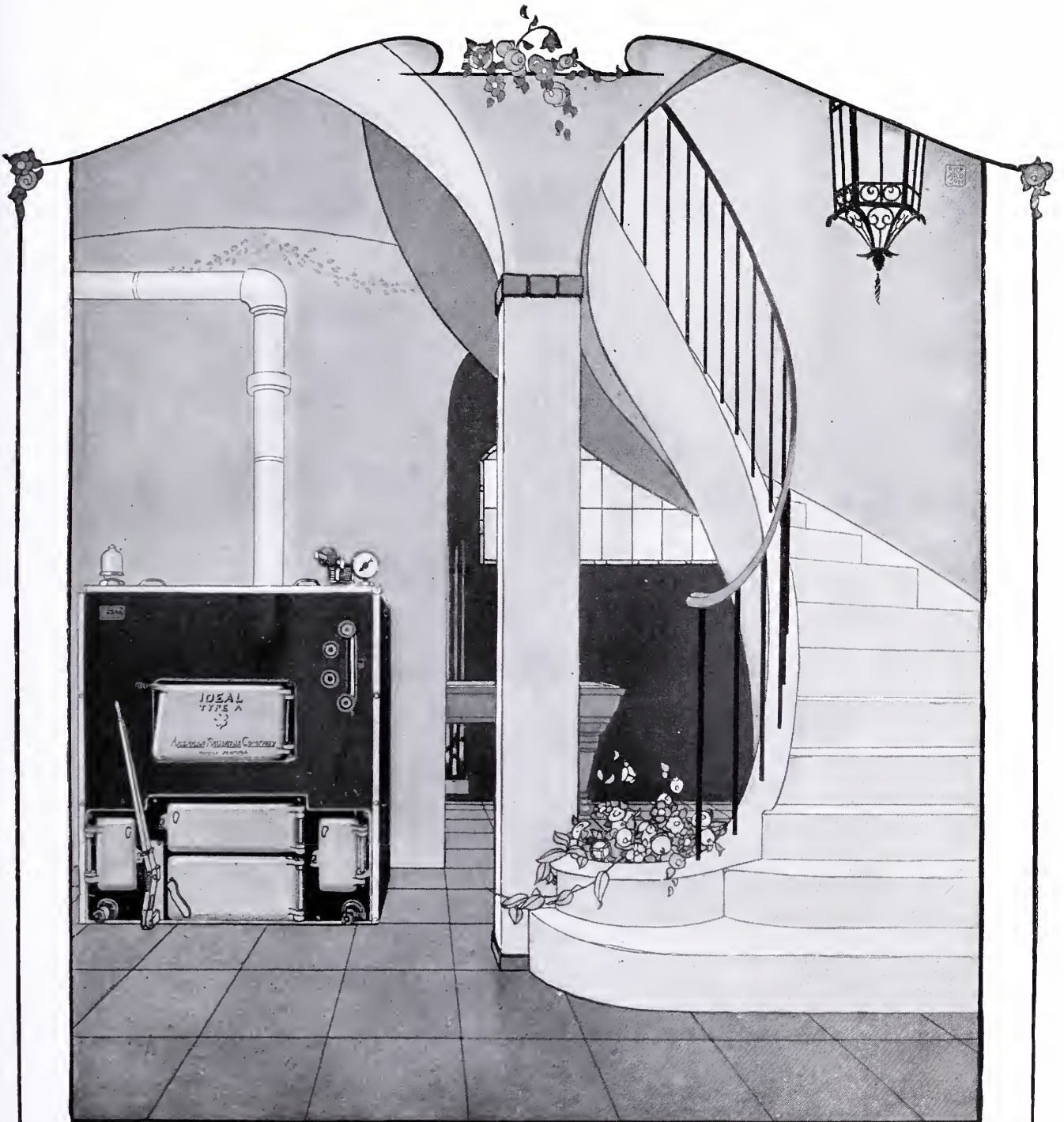
- Curtis Service Bureau**, 6031-7031 S. Second Street, Clinton, Iowa.
Architectural Exterior and Interior Woodwork, Standardized. Catalog. 9 x 11½ in. 238 pp. Illustrated. Covers a complete line of architectural woodwork, standardized both as to designs and sizes. Builders are requested to apply through their dealer.
- Morgan Sash and Door Co.**, Chicago, Ill.
The Door Beautiful. Catalog. 8½ x 11 in. 50 pp. Color plates. Showing doors in appropriate interior settings.
Masterpieces of Doorcraft. Catalog. 6½ x 8 in. 23 pp. Color plates. Doors and types of architecture for which they are appropriate.
Adding Distinction to the Home. Catalog. 5 x 7½ in. 32 pp. Illustrated. Showing a number of entrances, various uses of French doors, mirror doors, flush doors, etc.
- Reliance Fireproof Door Co.**, 47 Milton Street, Brooklyn, N. Y.
Reliance Fireproof Doors. Catalog. 6¼ x 9¼ in. 44 pp. Illustrated. Contains details of door and window construction, including molding and trim dies.
- Stearns Lumber Co., A. T.**, Neponset, Mass.
Catalog "K." 9 x 12 in. 80 pp. Illustrated. Covering the entire line of exterior and interior finish, including Stearns' "Florida-Gulf" Cypress.

DUMBWAITERS

- Kaestner & Hecht Co.**, Chicago, Ill.
Bulletin 520. Describes K. & H. Co. electric dumbwaiters. 8 pp.
- Sedgwick Machine Works**, 151 West 15th Street, New York.
Catalog and Service Sheets. Standard specifications, plans and prices for various types, etc. 4¼ x 8¼ in. 60 pp. Illustrated.

ELECTRICAL EQUIPMENT

- Frink, I. P., Inc.**, 24th Street and 10th Avenue, New York, N. Y.
Catalogue 415. 8½ x 11 in. 46 pp. Photographs and scaled cross sections. Specialized bank lighting, screen and partition reflectors, double and single desk reflectors and Polaralite Signs.
Catalogue 421. 8½ x 11 in. 12 pp. Illustrated. Various reflectors for use in operating rooms and ward of the modern hospital.
- General Electric Co.**, Schenectady, N. Y.
G. E. Specialty Catalog. 3¼ x 4½ in. 210 pp. Illustrated. Pocket size descriptive booklet with cloth binding. Gives dimensions, catalog numbers, capacities, package weights, etc., of a complete line of essential wiring devices.
Novanux. Booklet. 8 x 10½ in. 36 pp. Illustrated. Ornamental street lighting units.
Standard Unit Switchboard Panels. Booklet. 8 x 10½ in. Illustrated. An index to types of standard unit panels for large and small plants, alternating current and direct current, giving references to descriptive bulletins on each type.
- Habirshaw Electric Cable Company, Inc.**, 10 East 43d Street, New York.
Plans and Specifications for the Home Electrical. Catalog. 11 x 14 in. 20 pp. Rubber, oiled paper, varnished cambric insulated wires and cables for every condition of service.
- Hart & Hegeman Mfg. Co., The**, 342 Capitol Avenue, Hartford, Conn.
Catalog "P." 4¾ x 6¼ in. 183 pp. Illustrated. H. & H. Switches and Paiste Wiring Materials.
- Prometheus Electric Co.**, 511 West 42nd Street, New York.
Electrical Equipment. Booklet. 6 x 9 in. 5 pp. Illustrated. Electric plate warmers, sterilizers and mechanical heating devices.
- Simplex Wire & Cable Co.**, 201 Devonshire Street, Boston, Mass.
Simplex Manual. Catalog and reference book. 6¾ x 4¼ in. 92 pp. Contains in addition to information regarding Simplex products, tables and data for the ready reference of architects, electrical engineers and contractors.
- United Electric Co.**, Canton Ohio.
The Tuec in the Factory. Booklet. 8½ x 11 in. 6 pp. Illustrated. The application of air suction cleaning to factory practice.
The 260 Truck type Tuec. Booklet. 8½ x 11 in. Illustrated. 6 pp. A portable type vacuum cleaner combining the power of the stationary type with portability. Can be attached to any lamp socket.
The 260 Tuec. Booklet. 8½ x 11 in. 16 pp. Illustrated. A ¾ H. P. universal motor driven household stationary vacuum cleaner weighing less than 200 lbs.
The Tuec Pool Cleaning Tool. Booklet. 8½ x 11 in. 6 pp. Illustrated. A practical durable tool for removing sediment from vats, swimming pools, etc.
- Western Electric Co.**, 195 Broadway, New York.
Western Electric Electrical Supply Year Book. Catalog. 6½ x 9½ in. 1248 pp. Illustrated. Listing equipment for every electrical need for homes, institutions, office buildings and industrial plants. Prices for estimating included.



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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 52

ELECTRICAL EQUIPMENT—Continued

Western Electric Flip Switches. Folders. Illustrated. Listing a complete line of lighting switches operated by levers thrown up or down.

Western Electric Decorations for Duplexalites. Bulletin L-1. 6½ x 9½ in. 8 pp. Illustrated. Listing a great variety of shades and decorations in parchment, silk, etc., for standard Duplexalites.

ELEVATORS

Kaestner & Hecht Co., Chicago, Ill.
Bulletin 500. Contains 32 pp. Giving general information on passenger elevators for high buildings.

Sedgwick Machine Works, 151 West 15th Street, New York.
Catalog and descriptive pamphlets. 4¼ x 8¼ in. 70 pp. Illustrated. Descriptive pamphlets on hand power freight elevators, sidewalk elevators, automobile elevators, etc.

FENCES

American Fence Construction Co., 106 Church Street, New York.
Alfco Factory Fences. Booklet. 9 x 12 in. 32 pp. Illustrated.
Residential Fences. Booklets. 7 x 2½ in. Illustrated. A series of booklets on residential fences consisting of photographs, productions and brief descriptions.

FIRE DOORS—See Doors, Windows and Trim, Metal

FLOORING

Armstrong Cork & Insulation Co., 132 24th Street, Pittsburgh, Pa.
Linoleum Floors. Catalog. 6 x 9 in. 40 pp. Color plates. Describes Linoleum, a composition of ground cork, wood flour, linseed oil and various gums and pigments in tile form.
The Ten-Point Cork Floor. Booklet. 3½ x 6 in. 16 pp. Shows design panels in color for Cork Tile floors.

Armstrong Cork Co. (Linoleum Dept.), Lancaster, Pa.
Armstrong's Linoleum Floors. Catalog. 8½ x 11 in. 54 pp. Color plates. A technical treatise on linoleum, including tables and specifications for installing linoleum floors.
The Artistic Possibilities of Armstrong's Linoleum Floors. Booklet. 11¼ x 16½ in. 12 pp. Color plates.

Armstrong's Linoleum Pattern Book, 1920. Catalog. 3½ x 6 in. 176 pp. Color plates. Reproductions in color of all patterns of linoleum and cork carpet in the Armstrong line.

Quality Sample Book. Three books. 3½ x 5¼ in. Showing all grades and thicknesses in the Armstrong line of linoleum and cork carpets.

Johns-Manville Co., H. W., New York City.
A Flooring That's "Made to Fit." Booklet. 3½ x 6 in. 14 pp. Illustrated. Descriptive of Johns-Manville Asphalt Mastic Flooring.

Muller Co., Franklyn R., Waukegan, Ill.
Asbestos Composition Flooring. Circulars. 8½ x 11 in. Descriptions and Specifications.

FLOOR HARDENERS

Anti-Hydro Waterproofing Co., 299 Broadway, New York.
Floor Hardening. Circular. 6½ x 8½ in. 4 pp. Describes an inexpensive method for producing permanently smooth, dustless and wearproof floors.

Sonneborn Sons, Inc., L., 266 Pearl Street, New York.
Concrete and Lapidolith. Booklet. 5½ x 8¼ in. 24 pp. Illustrated. Describing relation of Lapidolith chemical floor hardener to concrete construction.
Why Lapidolize? Booklet. 8½ x 11 in. 11 pp. Illustrated. Reasons why Lapidolith should be specified.
Lapidolith Specifications. Circular. 8½ x 10¾ in. 2 pp.

Truscon Laboratories, The. Cor. Caniff Avenue and Grand Trunk R. R., Detroit, Mich.
Agatex and Its Performances. Booklet. 8½ x 11 in. Describes the methods of hardening concrete floors by the application of a chemical which forms a new surface as hard as agate.

FURNACES—See Heating Equipment

FURNITURE

Leavens Co., Inc., The William, 32 Canal Street, Boston, Mass.
Catalog. 7 x 9 in. 200 loose leaved pp. Illustrated with wood cuts.

GARAGE CONSTRUCTION

Ramp Building Corporation, 50 Church Street, New York, N. Y.
The d'Humy Motoramp System of Building Design. Booklet. 8½ x 11 in. 20 pp. Illustrated. Describing the d'Humy system of ramp construction for garages, service buildings, factories, warehouses, etc., where it is desirable to drive automobiles and motor trucks or industrial tractors under their own power from floor to floor.

GLASS CONSTRUCTION

Mississippi Wire Glass, 220 Fifth Avenue, New York.
Mississippi Wire Glass. Catalog. 3¾ x 8½ in. 32 pp. Illustrated. Covers the complete line.

HARDWARE

McKinney Mfg. Co., Pittsburgh, Pa.
McKinney Cabinet Hardware. Catalog. 6 x 9 in. 32 pp. Illustrated. Describes complete line of hardware for cabinet and furniture work.

McKinney Hardware for Sliding Doors. Booklet. 6 x 9 in. 18 pp. Illustrated. Describes different types of sliding door hardware.

Smith & Egge Mfg. Co., The, Bridgeport, Conn.
Catalog No. 10. 6¼ x 9 in. 42 pp. Illustrated. Covers a complete line of chains, hardware and specialties.

Stanley Works, The, New Britain, Conn.
Wrought Hardware. Catalog. 6½ x 10 in. Color plates. Shows all of the Stanley Works products made of steel from their own mills.

Eight Garages and their Stanley Garage Hardware. Booklet. 5 x 6¼ in. 32 pp. Illustrated. Illustrations and floor plans of eight typical garages that have been correctly equipped with Stanley Garage Hardware.

Ball Bearing Butts. Booklet. BS. 5 x 7¼ in. 32 pp. Illustrated. Concise description of various butts manufactured.

Stanley Specially Designed Garage Hardware. Booklet. B-50. 6 x 9 in. 24 pp. Illustrated. Detailed pictures and descriptions of various garage hardware equipment.

Vonnegut Hardware Co., Indianapolis, Ind.
Von Duprin Self-Releasing Fire Exit Devices. Catalog 12F. 8 x 11 in. 41 pp. Illustrated.
"Saving Lives." Booklet. 3¼ x 6 in. 16 pp. Illustrated. A brief outline why Self-Releasing Fire Exit Devices should be used.

Yale & Towne Mfg. Co., The, Stamford, Conn.
Burglar Foils. Booklet. 3½ x 6 in. 12 pp. Illustrated. Describing an important new lock.

HEATING EQUIPMENT

American Radiator Co., 816 South Michigan Avenue, Chicago, Ill.
Engineers' Data Book. 8 x 10¼ in. 48 pp. Illustrated. Valuable engineering data for estimating heating and ventilating requirements.

Ventilation for Vento Heaters. Catalog. 8 x 10¼ in. 24 pp. Illustrated. Examples of installation.

Ideal Type "A" Boiler. Catalog. 6 x 8½ in. 46 pp. Illustrated. Describes this new type of boiler accompanied by charts and tables.

James B. Clow & Sons, 534 S. Franklin Street, Chicago, Ill.
Gasteam Catalog. 6 x 9 in. 16 pp. Illustrated. New radiator using gas for fuel.

Abram Cox, American & Dauphin Streets, Philadelphia, Pa.
Catalog 73. 9 x 12 in. 40 pp. Illustrated. Covers the complete line.

Industrial Housing Circular. 8 x 10½ in. 12 pp. Illustrated. Modern industrial housing projects with specifications for heating equipment.

Gorton & Lidgerwood Co., 96 Liberty Street, New York.
Gorton Self-Feeding Boilers. Booklet. 4¼ x 7¼ in. 32 pp. Illustrated. Descriptions, specifications and prices.

Graver Corporation, East Chicago, Ind.
Hot Water Service Heaters. Booklet. 8½ x 11 in. 4 pp. Illustrated. Describing Graver vertical and horizontal service heaters which utilize exhaust steam for heating.

Kelly Controller Co., 175 W. Jackson Blvd., Chicago, Ill.
The Kelly Low Pressure Controller. Booklet. 4 x 9 in. 22 pp. Illustrated. Describing what The Kelly Controller accomplishes, its mechanical operation, and its application.

Kewanee Boiler Co., Kewanee, Ill.
Kewanee on the Job. Catalog. 8½ x 11 in. 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators, etc.

Catalog No. 73. 6 x 9 in. 35 pp. Illustrated. Describes Kewanee steel power boilers with complete specifications.

Catalog No. 74. 6 x 9 in. 35 pp. Illustrated. Describes Kewanee steel heating boilers with specifications.

Catalog No. 75. 8½ x 11 in. 6 pp. Illustrated. Specifications on Tabasco Water Heaters, Kewanee water heating garbage burners and Kewanee steel tanks.

Moline Heat, Dept. C, Moline, Ill.
Moline Heat. Catalog. 8½ x 11 in. 46 pp. Illustrated. Covers the complete line.

Moline Heat Supplement A. 8½ x 11 in. 32 pp. Illustrated. Moline Heat as applied to factories, central station, dry kiln heating, etc.

Page Boiler Co., The Wm. H., 141 West 36th Street, New York.
Page Boilers. Catalog. 4½ x 8 in. 84 pp. Illustrated. Descriptions, specifications and methods of installing Page Round and Square Sectional Boilers.
Monarch Smokeless Boilers. Circular. 8½ x 11 in. Illustrated. Describing the Monarch Down-draft Smokeless Boilers.

Pratt & Cady Co., Hartford, Conn.
Heaters and Pumps. Booklet. 6¼ x 3½ in. 12 pp. Illustrated. Covering feed water heaters, hot water generators, duplex and triplex power pumps.

Riverside Boiler Works, Cambridge, Mass.
Riverside Range Boilers and Tanks. Catalog. 6 x 3 in. 35 pp. Illustrated. Shows sizes regularly manufactured, methods of installation and descriptions of processes used in manufacturing.

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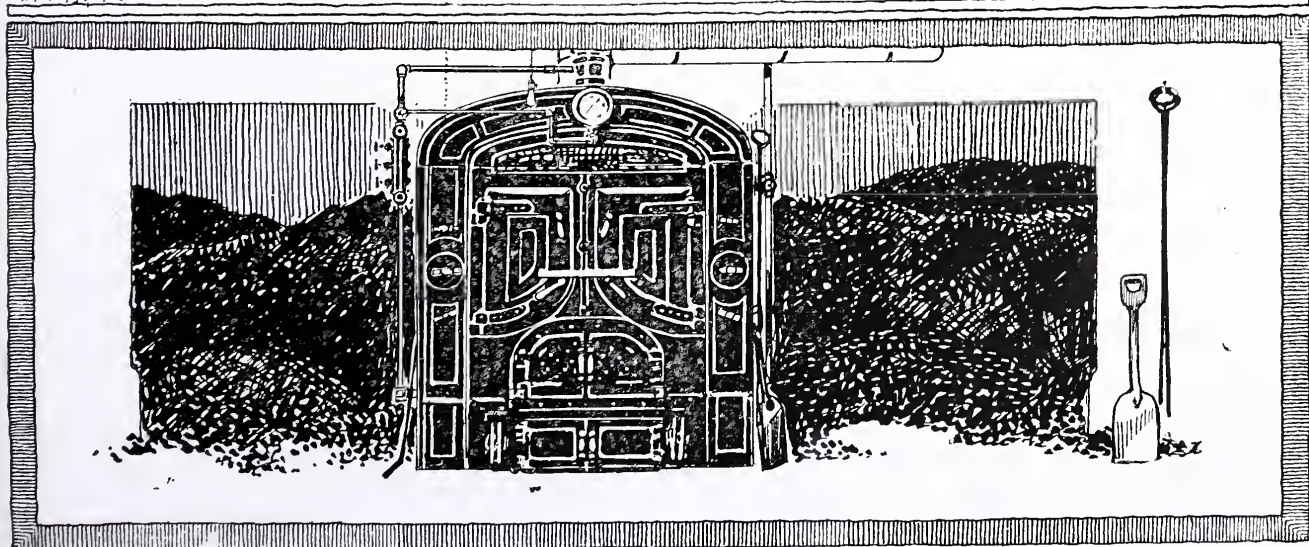
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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 54

HEATING EQUIPMENT—Continued

- Smith Co., H. B.**, 57 Main Street, Westfield, Mass.
General Boiler and Radiator Catalog. 4 x 7 in. 90 pp. Illustrated. Giving ratings, dimensions, capacities and working pressures.
Engineer's Data Ring Book. 4 x 7 in. 125 pp. Illustrated.
Architect's and Contractor's Binders. These binders are made up of 9½ x 11 in. folders of different kinds giving dimensions, price lists, and erecting directions on the different lines of our manufacture.
- United States Radiator Corporation**, Detroit, Mich.
The Complete Line. Catalog. 4¼ x 7¼ in. 255 pp. Illustrated. Contains important technical information of special interest to architects and heating engineers.
A Day's Work. Booklet. 3½ x 6 in. 20 pp. Suggestions from employees for the purpose of promoting service and good will.
- Utica Heating Co.**, Utica, N. Y.
Imperial Boilers & Heating Supplies. Catalog. 3½ x 6½ in. 52 pp. Illustrated.
Imperial Super Smokeless Boilers. Loose leaf catalog. 8½ x 11 in. 24 pp.
Superior Warm Air Furnaces. Catalog. 4½ x 8 in. 36 pp. Illustrated.
New Idea Pipeless Furnaces. Circular. 8½ x 11 in. 4 pp. Illustrated.

HOISTS

- Gillis & Geoghegan**, 544 West Broadway, New York.
Man Saving Load Lifting. Booklet. 6 x 8¾ in. 8 pp. Illustrated. Labor saving service in the lifting or lowering of lighter loads, through the use of G. & G. Telescopic and Non-telescopic Hoists.
Removing Ashes. Booklet. 6 x 8¾ in. 6 pp. Illustrated. Removing ashes from boiler room directly to wagon by electrically operated Telescopic Hoists.

HOLLOW TILE—See Tile, Hollow

INSULATION

- Armstrong Cork Co.**, 132 Twenty-fourth Street, Pittsburgh, Pa.
Nonpareil Corkboard Insulation. Catalog. 6 x 9 in. 152 pp. Illustrated. Describes use in cold storage warehouses and wherever constant low temperatures are necessary.
Nonpareil Cork Covering. Catalog. 6 x 9 in. 64 pp. Illustrated. Describes the insulation of cold pipes and tanks of all kinds.
- Philip Carey Co.**, The, Cincinnati, Ohio.
Carey Asbestos and Magnesia Products. Catalog. 6 x 9 in. 72 pp. Illustrated.
- Magnesia Association of America**, 721 Bulletin Building, Philadelphia, Pa.
Defend Your Steam. Booklet. 7½ x 10 in. 80 pp. Illustrated. A treatise covering every phase of heat insulation.
Standard Specifications. Booklet. 8½ x 11 in. 12 pp. Specifications for the application of 85 per cent Magnesia pipe covering.
Better Heated Houses. Catalog. 6 x 3½ in. 12 pp. Illustrated.
Coal Saving Tables. Booklet. 6 x 3¼ in. 4 pp.
- United States Mineral Wool Co.**, 280 Madison Avenue, New York.
Uses of Mineral Wool in Building. Catalog. 5¼ x 6¾ in. 23 pp. Illustrated.

INCINERATORS

- Kerner Incinerator Co.**, 595 Clinton Street, Milwaukee, Wis.
The Kernerator. Booklet. 5½ x 9¼ in. 40 pp. Illustrated. Descriptions, installations and testimonials.

JOISTS AND STUDS, PRESSED STEEL

- General Fireproofing Co.**, Youngstown, Ohio.
Steel Lumber. Hand Book. 4 x 6½ in. 72 pp. Illustrated. Data on the use of Steel Lumber and Metal Lath for economical fireproof construction. Tables and Specifications.
- North Western Expanded Metal Co.**, 934 Old Colony Building, Chicago, Ill.
Pressed Steel Lumber Manual. Catalog. 6 x 9 in. 56 pp. Illustrated. Describes a new system of light weight fireproof construction.
- Truscon Steel Co.**, Youngstown, Ohio.
Truscon Standard Buildings, 4th ed. Catalog. 8½ x 11 in. 40 pp. Illustrated. Erection details, cross-section diagrams and adaptations are given.
Truscon Structural Pressed Steel. Catalog. 8½ x 11 in. 24 pp. Illustrated. Information on Pressed Steel Beams and Joists for light occupancy buildings. Tables, specifications and views of installations.

KITCHEN EQUIPMENT

- Aluminum Cooking Utensils Co.**, New Kensington, Pa.
Wear-Ever. Catalog. 6 x 9 in. 55 pp. Illustrated.

LATH, METAL AND REINFORCING

- The Bostwick Steel Lath Co.**, Niles, Ohio.
Bostwick Steel Lath, Revised Edition 1920. Catalog. 9 x 11½ in. 28 pp. Illustrated. Covers the entire line. Drawings and Specifications.

LATH, METAL AND REINFORCING—Continued

- General Fireproofing Co.**, Youngstown, Ohio.
Herringbone Rigid Metal Lath. Catalog. 8½ x 11 in. 32 pp. Illustrated. A treatise on the many uses of Metal Lath.
Trussit. Booklet. 6 x 9 in. 16 pp. Illustrated. Detailed descriptions on the use of Trussit as a reinforcement for Concrete.
Self-Sentering—A Reinforcement for Concrete Floors, Roofs and Walls. Booklet. 8½ x 11 in. 36 pp. Illustrated.
- North Western Expanded Metal Co.**, 934 Old Colony Building, Chicago, Ill.
Designing Data. Catalog. 6 x 9 in. 94 pp. Illustrated. Describes most efficient use of Econo Expanded Metal Reinforcing.
Formless Concrete Construction. Catalog. 6 x 9 in. 80 pp. Illustrated. Describes use of T-Rib Chancelath, a form and reinforcing for concrete.
- Truscon Steel Co.**, Youngstown, Ohio.
High Rib and Metal Lath. 18th ed. Catalog. 8½ x 11 in. 64 pp. Illustrated. Gives properties of laths, specifications, special uses and views of installations.

LIME

- Kelley Island Lime & Transport Co.**, Leader News Building, Cleveland, Ohio.
The Perfect Finishing Lime. Catalog. 4½ x 7¼ in. 32 pp. Illustrated. Describes use and advantage of "Tiger Finish" and gives illustrations of several large jobs.
For Finish-Coat Plastering. Booklet. 3½ x 6½ in. 12 pp. Illustrated.

LUMBER

- American Hardwood Mfrs. Association**, Room 1402, 14 Main Street, Memphis, Tenn.
Technical Information about Red Gum. Booklet. 6 x 9 in. 16 pp. Illustrated.
Red Gum Facts. Booklet. 5½ x 8½ in. 14 pp. Illustrated.
Oak Catalog. 6 x 9 in. 31 pp. Illustrated.
- American Walnut Mfrs. Assoc.**, Rm. 1000, 616 S. Michigan Blvd., Chicago, Ill.
American Walnut, the Choice of the Master Craftsman. Booklet. 7 x 9 in. 45 pp. Illustrated. The use of walnut in fine furniture and woodwork.
Specification Notes for American Walnut Interior Trim. 8½ x 11 in. 3 pp. Includes notes on the different styles of finish suitable for walnut.
- Arkansas Soft Pine Bureau**, 1551 Boyle Building, Little Rock, Ark.
Arkansas Soft Pine Handbook. 8½ x 11 in. 64 pp. Illustrated. Treatise on soft pine.
Arkansas Soft Pine. How to Finish and Paint it. Booklet. 5 x 7 in. 36 pp. Illustrated. Information on proper painting and finishing for outside work and inside trim.
The Home You Long For. Loose Leaf Folder. 8½ x 11 in. 36 pp. Illustrated. Contains 8 home designs, by Robert Seyfarth, Architect, Chicago. Illustrations include exterior and floor plans with architect's estimate.
- California Redwood Association**, 760 Exposition Building, San Francisco, Calif.
California Redwood Homes. Booklet. 6 x 9 in. 16 pp. Illustrated.
Specialty Uses of California Redwood. Booklet. 6 x 9 in. 24 pp. Illustrated.
California Redwood on the Farm. Booklet. 3¼ x 9¼ in. 40 pp. Illustrated.
How to Finish California Redwood. Booklet. 3¼ x 9¼ in. 16 pp. Illustrated. Formulae and instructions.
- Long Bell Lumber Co.**, R. A. Long Building, Kansas City, Mo.
The Post Everlasting. Booklet. 10½ x 7½ in. 32 pp. Illustrated. Information regarding creosoted yellow pine fence posts, barn poles, paving blocks, etc.
Poles That Resist Decay. Booklet. 9¼ x 4 in. 16 pp. Illustrated. Poles for telegraph, telephone, high power transmission lines.
- North Carolina Pine Association**, 91 Bank of Commerce Building, Norfolk, Va.
Home Builders Book. 8½ x 11 in. 24 pp. Color plates. A book for the consumer, with plans and suggestions on attractive modern rooms.
Book of Interiors. 8½ x 11 in. 16 pp. Color plates. A book for the architect or consumer, showing many beautiful woodwork effects.
Architect's Specification Manual. 9½ x 11½ in. 8 pp. Illustrated.

METAL LATH—See Lath, Metal and Reinforcing

METALS

- American Brass Co.**, Waterbury, Conn.
Price List and Data Book. Loose Leaf Catalog. 3¼ x 7 in. 168 pp. Illustrated. Covers entire line of sheets, rods, tubes, etc., in various metals. Useful tables.
Price List and Tables of Weights of Seamless Brass and Copper Tubes. 4¼ x 6¾ in. 60 pp.
Price List No. 12. 4¼ x 6¾ in. 40 pp. Useful tables of weights and data pages for brass, bronze and nickel silver sheets, wire and rods.
Tobin Bronze. Catalog. 4¼ x 6¾ in. 304 pp. Illustrated. Describes its use and gives specifications.

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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — *Continued from page 56*

METALS — Continued

- American Sheet & Tin Plate Co.**, Frick Building, Pittsburgh, Pa. Reference Book. Pocket Ed. $2\frac{1}{2} \times 4\frac{1}{2}$ in. 168 pp. Illustrated. Covers the complete line of Sheet and Tin Mill Products.
- Copper—Its Effect Upon Steel for Roofing Tin.** Catalog. $8\frac{1}{2} \times 11$ in. 28 pp. Illustrated. Describes the merits of high grade roofing tin plates and the advantages of the copper-steel alloy.
- Apollo and Apollo-Keystone Galvanized Sheets.** Catalog. $8\frac{1}{2} \times 11$ in. 20 pp. Illustrated.
- Research on the Corrosion Resistance of Copper Steel.** Booklet. $8\frac{1}{2} \times 11$ in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.
- Facts Simply and Briefly Told.** Booklet. $8\frac{1}{2} \times 11$ in. 16 pp. Illustrated. Non-technical statements relating to Keystone Copper Steel.
- Black Sheets and Special Sheets.** Catalog. $8\frac{1}{2} \times 11$ in. 28 pp. Illustrated. Describes standard grades of Black and Uncoated Sheets, together with weights, bundling tables, etc.
- Bright Tin Plates.** Catalog. $8\frac{1}{2} \times 11$ in. 16 pp.
- International Nickel Company**, 43 Exchange Place, New York, N. Y. Pamphlet. $3\frac{1}{2} \times 6$ in. 8 pp. Illustrated. Describing the wire strength and durability of Monel Screens.

METAL TRIM — See Doors, Windows and Trim, Metal

METAL WORK, ORNAMENTAL

- Hope & Sons, Henry**, 103 Park Avenue, New York. Hope's Leadwork Catalog. 9×12 in. 46 pp. Illustrated.
- Palachek Bronze & Iron Co., John**, 476 Hancock Street and 579 Boulevard, Long Island City, N. Y. Honor Roll Tablets, Memorial Tablets and Monuments in Bronze. Booklet. 6×9 in. 28 pp. Illustrated. Distinctive Metal Work. Booklet. $8\frac{1}{2} \times 11$ in. 8 pp. Illustrated. Special Design Portfolio. Looseleaf Catalog. 6×9 in. 32 pp. Illustrated. Information as to size, number of names or letters accommodated on Memorial Tablets.

NURSERIES

- Bobbink & Atkins**, Rutherford, N. J. Nursery Catalog. 10×7 in. 82 pp. Illustrated. Home Grounds Book. $7\frac{3}{4} \times 5\frac{1}{4}$ in. 50 pp. Illustrated. Concise explanatory notes on residential landscape work. World's Choicest Roses. Catalog. 7×10 in. 32 pp. Illustrated. Complete list of roses hardy in Northern States.
- Davey Tree Expert Co., The**, Kent, Ohio. When Your Trees Need the Tree Surgeon. Booklet. $9\frac{1}{4} \times 8$ in. 16 pp. Illustrated.

OFFICE SUPPLIES

- Angel, Inc., H. Reeve**, 7-11 Spruce St., New York. Drawing Papers. Sample Book. $3\frac{1}{2} \times 5\frac{1}{2}$ in. Showing all the surfaces and substances in general demand.
- American Lead Pencil Co.**, 220 Fifth Avenue, New York. Venus Pencil in Mechanical Drafting. Booklet. 6×9 in. 16 pp. Illustrated. Venus Pencil in Your School. Booklet. 6×9 in. 16 pp. Illustrated.
- Dixon Crucible Co., Joseph**, Pencil Dept., 224 J. Jersey City, N.J. Finding Your Pencil. Booklet. $6\frac{1}{4} \times 3\frac{1}{4}$ in. 16 pp. Illustrated. The First Five. Booklet. $3\frac{1}{2} \times 5\frac{1}{4}$ in. 10 pp. Illustrated. A Study in Sepia. Booklet. $7 \times 4\frac{1}{2}$ in. 5 pp. Illustrated.
- Faber Co., Eberhard**, 37 Greenpoint Avenue, Brooklyn, N. Y. Eberhard Faber Pencils, How They Are Made. Booklet. $4\frac{3}{4} \times 6\frac{3}{4}$ in. 23 pp. Illustrated.
- N. Y. Blueprint Paper Co.**, 102 Reade St., New York. Catalog of Drawing Materials, Mathematical and Engineering Instruments. 4×6 in. 400 pp. Illustrated. Covers the complete line.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES

- Berry Brothers**, Detroit, Michigan. "Natural Woods and How to Finish Them." Booklet. $6\frac{1}{2} \times 4\frac{3}{4}$ in. 95 pp. Containing technical information and advice concerning wood finishing. "Beautiful Homes." Booklet. $8\frac{1}{2} \times 6\frac{1}{2}$ in. 26 pp. Illustrated in colors. Giving information to home builders and others on interior finishing.
- Boston Varnish Co.**, Everett Station, Boston, Mass. The Inviting Home. Booklet. $5\frac{1}{2} \times 9$ in. 16 pp. Color Plates. A briefly worded book on painting for the busy architect or decorator. The White Enamel Specification Book. 6×9 in. 12 pp. Explaining the use of Kyanize White Enamel on interior or exterior surfaces.
- Cabot, Inc., Samuel**, Boston, Mass. Cabot's Creosote Stains. Booklet. $4 \times 8\frac{1}{2}$ in. 16 pp. Illustrated.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES — Cont.

- Creo-Dipt Company, Inc.**, 1025 Oliver St., Tonawanda, N. Y. Dixie White. Folder. $3\frac{1}{2} \times 8$ in. 3 pp. Illustrated. A heavy white stain which produces the whitewashed effect.
- Devoe & Reynolds Co., Inc.**, 101 Fulton Street, New York. Architectural Finishes. Catalog. 5×7 in. 40 pp. Specifications and suggestions for painting, varnishing, staining and enameling. Harmony in the Home. Booklet. $4\frac{1}{2} \times 6$ in. 24 pp. Illustrated. Flat finish wall paints, color suggestions and specifications.
- Eagle-Picher Lead Co., The**, 208 S. La Salle Street, Chicago, Ill. Protective Coatings for Structural Metals. Book. 6×9 in. 48 pp. Illustrated.
- Fox Co., M. Ewing**, New York, N. Y. Calcimines. Booklet. $3\frac{1}{4} \times 6\frac{1}{4}$ in. 8 pp. Color cards. Water Paints. Booklet. $3\frac{1}{4} \times 6\frac{1}{4}$ in. 6 pp. Color cards.
- Murphy Varnish Co., The**, Chicago, Ill. Beautiful Floors and How to Care for Them. Booklet. $3\frac{3}{8} \times 6\frac{1}{4}$ in. 16 pp. Illustrated. Murphy Varnish. Booklet. $3\frac{3}{8} \times 6\frac{1}{4}$ in. 12 pp. Illustrated. Advantages of Waterproof Varnishes. How to Have a Modern Bathroom. Leaflet. $3\frac{3}{8} \times 6\frac{1}{4}$ in. 4 pp. Illustrated. Modern Sanitary Kitchen. Leaflet. $3\frac{3}{8} \times 6\frac{1}{4}$ in. 4 pp. Illustrated.
- O'Brien Varnish Co.**, 1121 Washington Avenue, South Bend, Ind. That Magic Thing Called Color. Booklet. $5\frac{1}{2} \times 8\frac{1}{2}$ in. 24 pp. Illustrated. Short treatise on the use of color in the home, special reference to walls and ceilings. Architects' Specification Manual. $8\frac{1}{2} \times 11$ in. 50 pp. Complete specifications for all paint products.
- The Sherwin-Williams Co.**, 882 Canal Road, Cleveland, Ohio. A Book of Painting and Varnishing Specifications. $8\frac{1}{2} \times 11$ in. 30 pp. A text book on painting and finishing. Announcement of Sherwin-Williams Flat-Tone Multi-Color Effects. Booklet. $2\frac{1}{2} \times 6$ in. 10 pp. Illustrated. Development of a new system of wall decoration. Monthly Architectural Bulletin. $8\frac{1}{2} \times 11$ in. Bulletin issued periodically on painting and finishing.
- Smith & Co., Edward**, P. O. Box 76, City Hall Station, New York, N. Y. Architect's Hand Book. $4\frac{3}{4} \times 7\frac{1}{2}$ in. 24 pp. Specifications and suggestions for painting, varnishing, enameling, etc.
- Sonneborn Sons, Inc., L.**, Dept. 4, 264 Pearl Street, New York. Paint Specifications. Booklet. $8\frac{1}{2} \times 10\frac{1}{4}$ in. 4 pp.
- Truscon Laboratories, The**, Cor. Caniff Avenue and Grand Trunk R. R., Detroit, Mich. Spread the Sunshine Inside. Booklet. 5×8 in. 24 pp. Describes methods for light saving by the application of light reflecting enamels to interior walls of factories and workrooms.
- Wadsworth-Howland Co., Inc.**, Boston, Mass. Paints and Varnishes. Catalog. $5\frac{3}{4} \times 8\frac{1}{2}$ in. 140 pp. Illustrated. Covers the complete line.

PIPE

- Byers Co., A. M.**, Pittsburgh, Pa. General Information for Pipe Users. Bulletin No. 26. $8\frac{1}{2} \times 11$ in. 24 pp. Illustrated. Description of materials and processes employed in the manufacture of Byers Pipe. Contains many useful tables. An investigation of Pipe Corrosion. Bulletin No. 30. $8\frac{1}{2} \times 11$ in. 20 pp. Illustrated. A report of general interest to architects, engineers and builders. Corrosion of Wrought Iron, Cast Iron and Steel Pipe in House Drainage Systems. Bulletin No. 32. $8\frac{1}{2} \times 11$ in. 36 pp. Illustrated. Data obtained through investigations conducted in New York and Chicago. The Installation Cost of Pipe. Bulletin No. 8. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Cost analyses of 20 different pipe installations in power and industrial plants, office buildings, hotels, residences, etc.
- Clow & Sons, James B.**, 534 S. Franklin Street, Chicago, Ill. Catalog "A." $4 \times 6\frac{1}{2}$ in. 706 pp. Illustrated. Shows a full line of steam, gas and water works supplies.
- National Tube Co.**, Frick Building, Pittsburgh, Pa. National Bulletin No. 11, History, Characteristics and Advantages of National Pipe. Catalog. $8\frac{1}{2} \times 11$ in. 48 pp. Illustrated. National Bulletin No. 25. National Pipe in Large Buildings. Catalog. $8\frac{1}{2} \times 11$ in. 88 pp. Illustrated. National Bulletin No. 7, Manufacture and Advantages of National Welding Scale Free Pipe. Booklet. $8\frac{1}{2} \times 11$ in. 16 pp. Illustrated. National Bulletin No. 3, Prevention of Corrosion in Pipe. Booklet. $8\frac{1}{2} \times 11$ in. 24 pp. Illustrated. Contains the results of carefully conducted investigations.
- U. S. Cast Iron Pipe & Foundry Co.**, Burlington, N. J. Keystone Columns. Architectural Service Sheet. $16\frac{1}{2} \times 21\frac{1}{2}$ in. Illustrated. Standard specifications with description and formula for calculating cast iron building columns.

PLUMBING EQUIPMENT

- Brunswick-Balke-Collender Co.**, 623 S. Wabash Avenue, Chicago, Ill. Whale-bone-ite Seat. Booklet. $3\frac{1}{2} \times 6\frac{1}{4}$ in. 4 pp. Illustrated. Whale-bone-ite Seat. Booklet. $3\frac{1}{2} \times 6\frac{1}{4}$ in. 8 pp. Illustrated.



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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — *Continued from page 58*PLUMBING EQUIPMENT — *Continued*

- Clow & Sons, James B.**, 534 S. Franklin Street, Chicago, Ill.
Catalog "M." 9½ x 12 in. 184 pp. Illustrated. Shows complete line of plumbing fixtures for Schools, Railroads and Industrial Plants.
- Crane Company**, 836 S. Michigan Avenue, Chicago, Ill.
Crane Products in World Wide Use. Catalog. 5 x 9½ in. 24 pp. Illustrated.
Plumbing Suggestions for Home Builders. Catalog. 3 x 6 in. 80 pp. Illustrated.
Plumbing Suggestions for Industrial Plants. Catalog. 4 x 6½ in. 43 pp. Illustrated.
No. 50 Steam Pocket Catalog. 4 x 6½ in. 775 pp. Illustrated. Describes the complete line of the Crane Co.
- Eagle-Picher Lead Co., The**, 208 S. La Salle Street, Chicago, Ill.
Plumbers' Lead Guide. Catalog. 4½ x 7¾ in. 52 pp. Illustrated.
- Maddock's Sons Co., Thomas**, Trenton, N. J.
Highest Grade Standardized Plumbing Fixtures for Every Need. Catalog. 5 x 7½ in. 94 pp. Illustrated. Covers the complete line.
Bathroom Individuality. Booklet. 6 x 9 in. 28 pp. Illustrated. Showing view of complete bathrooms with complete descriptions of floor plans.
Specifications for plumbing fixtures. Booklet. 9 x 12 in. 8 pp. Tables of specifications for industrial buildings, schools, apartments, hotels, etc.
- Rundle-Spence Mfg. Co.**, Milwaukee, Wis.
Bubbling Fountains. Catalog. 5½ x 8 in. 74 pp. Illustrated.

PUMPS

- Goolds Mfg. Co., The**, Seneca Falls, N. Y.
Set of Twenty Bulletins. 7¼ x 10½ in. 12 to 32 pp. each. Illustrated. Covers complete line of power and centrifugal pumps for all services.
Catalog "K." 6 x 9 in. 216 pp. Illustrated. Covers complete line of smaller size pumps.

REFRIGERATION

- Isko Co., The**, Chicago, Ill.
Electrical Refrigeration. Booklet. 8 x 3¼ in. 16 pp. Illustrated. Services and advantages of the household machine.
Bulletin No. 142. 8½ x 11 in. 4 pp. Illustrated. Isko electrical refrigeration for cooling drinking water systems.
Bulletin No. 140. 8½ x 11 in. 4 pp. Illustrated. Isko electrical refrigeration for both household and commercial use.
- Johns-Manville Co., The H. W.**, Madison Avenue and 41st Street, New York, N. Y.
Johns-Manville System of Refrigeration. Booklet. 3½ x 6 in. 16 pp. Illustrated.

ROOFING

- American Sheet and Tin Plate Co.**, Friek Building, Pittsburgh, Pa.
Better Buildings. Catalog. 8½ x 11 in. 32 pp. Illustrated. Describes corrugated and formed roofing together with table of weights and methods of application.
- Barrett Co., The**, Chicago, Ill.
Barrett Everlastic Fiber Coating. Booklet. 3½ x 6 in. 8 pp. Illustrated. A new liquid cement for covering roofs and how to apply it.
Barrett Service Sheets. 8½ x 11 in. For architects, builders and contractors.
- Philip Carey Co., The**, Cincinnati, Ohio.
Architects' Specifications for Carey Building Material. 8½ x 11 in. 48 pp. Illustrated.
- Creo-Dipt Company Inc.**, North Tonawanda, N. Y.
Thatch Roofs. Booklet. 8½ x 11 in. Illustrated. Showing the varied effects obtainable with Stained Shingles.
- Johns-Manville Co., The H. W.**, Madison Avenue and 41st Street, New York.
Johns-Manville Asbestos Shingles. Booklet. 3½ x 6 in. 32 pp. Illustrated. Prices, construction data and specifications.
Johns-Manville Roofing and Building Materials. Catalog. 8½ x 6 in. 24 pp. Illustrated. Describes building materials such as asbestos wood, sound deadening and insulating felts, waterproofing, etc.
- Keasbey & Mattison Co.**, Ambler, Pa.
Ambler Asbestos Shingles. Catalog. 5½ x 8½ in. 40 pp. Illustrated.
Ambler Asbestos Corrugated Roofing and Siding. Catalog. 8½ x 11 in. 36 pp. Illustrated. Standard Purin Spacing Tables.
Ambler Asbestos Corrugated Roofing and Siding. Catalog. 8½ x 11 in. 20 pp. Illustrated. Prices and specifications.
Ambler Asbestos Building Lumber. Catalog. 8½ x 11 in. 32 pp. Illustrated.
- Ludowici-Celadon Co.**, Chicago, Ill.
Roofing Tile. A Detailed Reference for Architects' Use. Handbook. 9 x 13 in. 106 pp. Illustrated. A working handbook for architects.
Roof Beautiful. Catalog. 6½ x 8½ in. 39 pp. Illustrated.
Folder No. 8. 3¾ x 9 in. 10 pp. Illustrated. A condensed catalog.

SEWAGE DISPOSAL

- Kewanee Private Utilities**, 442 Franklin St., Kewanee, Ill.
Specification Sheets. 7¾ x 10¼ in. 46 pp. Illustrated. Detailed drawings and specifications covering water supply and sewage disposal systems.

SHRUBS, TREES, ETC.—See Nurseries

STORE FRONTS

- Kawneer Co., The**, Niles, Mich.
Kawneer Solid Copper Store Fronts. Catalog "K." 8½ x 11 in. 32 pp. Illustrated. Information about various members used in the pioneer Kawneer construction.
Book of Designs. Catalog. 6 x 9 in. 64 pp. Illustrated.
- New Jersey Terra Cotta Co.**, Singer Building, New York.
Store Front. Booklet. 8½ x 11 in. 20 pp. Illustrated.
- Zouri Drawn Metal Co.**, Chicago Heights, Ill.
Key to Getting the People In. Catalog BJS. 6 x 9 in. 68 pp. Illustrated. Zouri Safety Sash, corner and division bars have been approved by the Underwriter's Laboratories and are manufactured under their supervision.

STUCCO—See Cement, Portland.

STUCCO AND WALL BOARD

- Bishopric Manufacturing Co.**, 9 Este Avenue, Cincinnati, Ohio.
Homes Built on the Wisdom of Ages. Catalog. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco board and Bishopric sheathing board.
- Carey Co., The Philip**, Cincinnati, Ohio.
Carey Board for Better Building. Catalog. 6 x 9 in. 32 pp. Illustrated.

TELEPHONE, INTER-COMMUNICATING

- Western Electric Co.**, 195 Broadway, New York.
Specification for W. E. Inter-phones and Private Telephone Systems. 8 x 10½ in. 88 pp. Illustrated.

TERRA COTTA

- Northwestern Terra Cotta Co., The**, 2525 Clybourn Ave., Chicago, Ill.
Booklet. 8½ x 11 in. 77 pp. Illustrated. Showing in a concise way the usefulness of terra cotta.

TILE, FLOOR AND WALL

- Associated Tile Manufacturers, The**, Beaver Falls, Pa.
Tile Floors and Walls for Hospitals. Booklet. 8½ x 11 in. 40 pp. Illustrated. Reasons for selecting Tile for hospitals.
Bring the Crowds to Your Market. Booklet. 8½ x 11 in. 16 pp. Illustrated. The use of Tile for the modern sanitary market.
Preparation for Tile. Booklet. 6 x 9 in. 32 pp. Illustrated. Describing the manner in which Tile is set and the various types of construction which are used as a foundation for the product.
Swimming Pools. Booklet. 8½ x 11 in. 32 pp. Illustrated. A handbook on swimming pools and their construction.

TILE, HOLLOW

- Hollow Building Tile Association**, Dept. 189, Conway Bldg., Chicago, Ill.
Handbook of Hollow Building Tile Construction. 8½ x 11 in. 104 pp. Illustrated. Complete treatise on most approved methods of hollow tile building construction and fireproofing.
- National Fire Proofing Co.**, 250 Federal St., Pittsburgh, Pa.
Standard Wall Construction Bulletin 174. 8½ x 11 in. 32 pp. Illustrated. A complete treatise on the subject of hollow tile wall construction.
Industrial Housing Bulletin 172. 8½ x 11 in. 14 pp. Illustrated. Photographs and floor plans of typical workingmen's homes.
Nateo on the Farm. 8½ x 11 in. 38 pp. Illustrated. A treatise on the subject of fire safe and permanent farm building construction.

VALVES

- Jenkins Bros.**, 80 White Street, New York.
The Valve Behind a Good Heating System. Booklet. 4½ x 7¼ in. 16 pp. Color plates.
Jenkins Valves for Plumbing Service. Booklet. 4½ x 7¼ in. 16 pp. Illustrated.
- Pratt & Cady Co., Inc.**, Hartford, Conn.
Valves. Catalog. 9 x 6 in. 221 pp. Illustrated. Covers the complete line.

VENTILATION

- Clarage Fan Co.**, Porter Street, Kalamazoo, Mich.
Clarage Multiblade Fans. Catalog No. 51. 8½ x 11 in. 64 pp. Illustrated.
Type S. P. Exhaust Fans. Catalog No. 111. 8½ x 11 in. 36 pp. Illustrated.
Type C. I. Fans and Blowers. Catalog No. 112. 8½ x 11 in. 8 pp. Illustrated.
Type S. P. Blowers. Catalog No. 23. 8½ x 11 in. 20 pp. Illustrated.
- Globe Ventilator Co.**, Dept. P., Troy, N. Y.
Globe Ventilator's Catalog. 6 x 9 in. 32 pp. Illustrated.

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Department I-21

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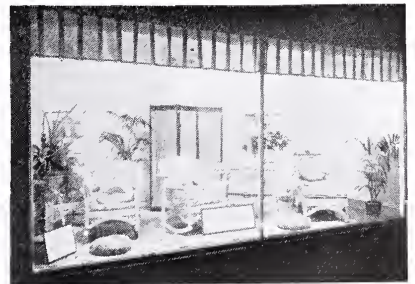
HOLOPHANE



Holophane Installation Reflector Type No. 983



Holophane Installation Reflector Type No. 922



Holophane Installation Reflector Type No. 983

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 60

VENTILATION—Continued

- Moline Heat**, Dept., C. Moline, Ill.
Univent. Catalog. $8\frac{1}{2} \times 11$ in. 32 pp. Color plates. Ventilation in all its phases.
Architect's and Engineer's Univent Data Book. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Technical information on ventilating.
- Royal Ventilator Co.**, 415 Locust Street, Philadelphia, Pa.
Ventilation. Catalog. $4\frac{1}{4} \times 9$ in. 48 pp. Illustrated.

WATERPROOFING

- Anti-Hydro Waterproofing Co.**, 299 Broadway, N. Y.
Waterproofing. Booklet. $3\frac{1}{2} \times 6$ in. 4 pp. Methods used for waterproofing concrete and mortars.
- Barrett Co., The**, Chicago, Ill.
Barrett Elastigum. Booklet. $3\frac{3}{4} \times 8\frac{1}{2}$ in. 8 pp. Illustrated. Describes elastigum, a waterproof cement, and its application to parapet walls.
Barrett No-Aer-Leeks. Booklet. $3\frac{3}{8} \times 6$ in. 8 pp. Illustrated. How it is applied to make air-tight and moisture proof walls around boiler settings.
- Sandusky Cement Co.**, Dept. F, Cleveland, Ohio.
Medusa Waterproofing. Booklet. $6\frac{3}{4} \times 9$ in. 37 pp. Illustrated.
- Toch Brothers**, 320 Fifth Ave., New York, N. Y.
Toxement. Booklet. $5\frac{1}{4} \times 8\frac{1}{8}$ in. Illustrated. 24 pp. Describes Toxement, an integral waterproofing compound for concrete, stucco, cement, mortar, etc.
- Truscon Laboratories, The**, Cor. Caniff Avenue and Grand Trunk R. R. Detroit, Mich.
Structural Waterproofing. Handbook. $8\frac{1}{2} \times 11$ in. 100 pp. Illustrated. A reliable and trustworthy text-book on modern waterproofing practice.
Truscon Stonetex. Booklet. 5×8 in. 36 pp. Illustrated. A booklet telling of methods to decorate and make brick, stucco and masonry free from stains by the application of a cement coating.
- Wadsworth-Howland Co., Inc.**, Boston, Mass.
Bay State Waterproofings. Booklet. No. 10. $8\frac{1}{2} \times 11$ in. Illustrated. Methods of applying Cement Coating.

WATER SOFTENERS

- Graver Corp.**, East Chicago, Ind.
Graver Zeolite Softeners. Bulletin 509. $8\frac{1}{2} \times 11$ in. 16 pp. Illustrated. Water softeners for homes, institutions, hotels, apartments, etc.
Graver Vertical Pressure Water Feeders. Bulletin 502. $8\frac{1}{2} \times 11$ in. 8 pp. Illustrated. Detailed description of parts, capacities and dimensions.
Graver Small Continuous Water Softener. Bulletin 507. $8\frac{1}{2} \times 11$ in. 12 pp. Illustrated. A softener for raw water ice plants and small steam power plants.
- Permutit Company, The**, 440 Fourth Ave., New York, N. Y.
Permutit-Water softened to No (Zero) Hardness. Booklet. $8\frac{1}{2} \times 11$ in. 32 pp. Describing the original Zeolite process of softening water to zero hardness. An essential for homes, hotels, apartment houses, swimming pools, laundries, textile mills, paper mills, ice plants, etc., in hard water districts.

WATER STERILIZATION

- R. U. V. Company, Inc.**, 165 Broadway, New York, N. Y.
Bound Bulletins. $8\frac{1}{2} \times 11$ in. 27 pp. Illustrated.
Information on the sterilization of water and the sources of ultra violet rays.

WATER SYSTEMS

- Kewanee Private Utilities**, 442 Franklin St., Kewanee, Ill.
Modernize Your Farm. Booklet. $7\frac{3}{4} \times 10\frac{1}{4}$ in. 16 pp. Illustrated. Description of water systems and lighting equipment.

WINDOW CORD

- Samson Cordage Works**, Boston, Mass.
Catalog. $3\frac{1}{2} \times 6\frac{1}{4}$ in. 24 pp. Illustrated. Covers complete line.

WINDOWS, CASEMENT

- Crittall Casement Window Co.**, 685 East Atwater Street, Detroit, Mich.
Catalog No. 18. 9×12 in. 56 pp. Illustrated.
- Hoffman Mfg. Co., Andrew**, 900 Steger Building, Chicago, Ill.
Hoffman Casements. Catalog. $5\frac{1}{2} \times 8$ in. 8 pp. Illustrated. Miniature details and phantom drawings.
F. S. Details. 22×34 in. Full size working details for mill work and installation with isometric views.
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- Hope & Sons, Henry**, 103 Park Avenue, New York.
Catalog. $12\frac{1}{4} \times 18\frac{1}{2}$ in. 30 pp. Illustrated. Full size details of outward and inward opening casements.
- International Casement Co., Inc.**, Jamestown, N. Y.
Casements for Banks and Public Buildings. Catalog. $8\frac{1}{2} \times 11$ in. 24 pp. Illustrated. Shows construction of steel windows and surrounding masonry.

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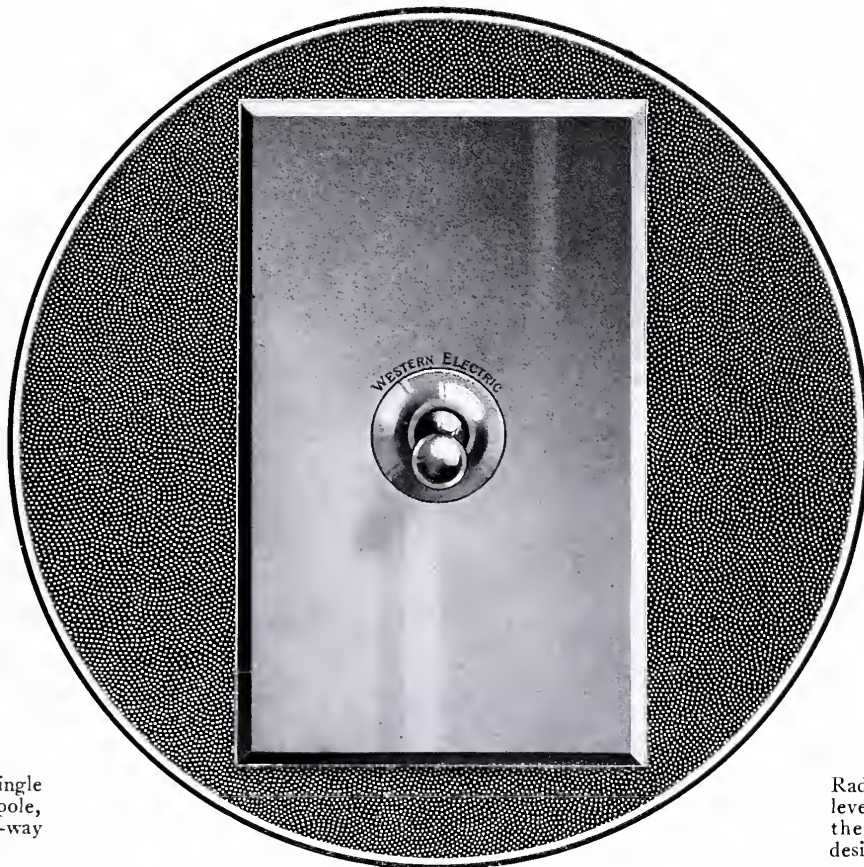
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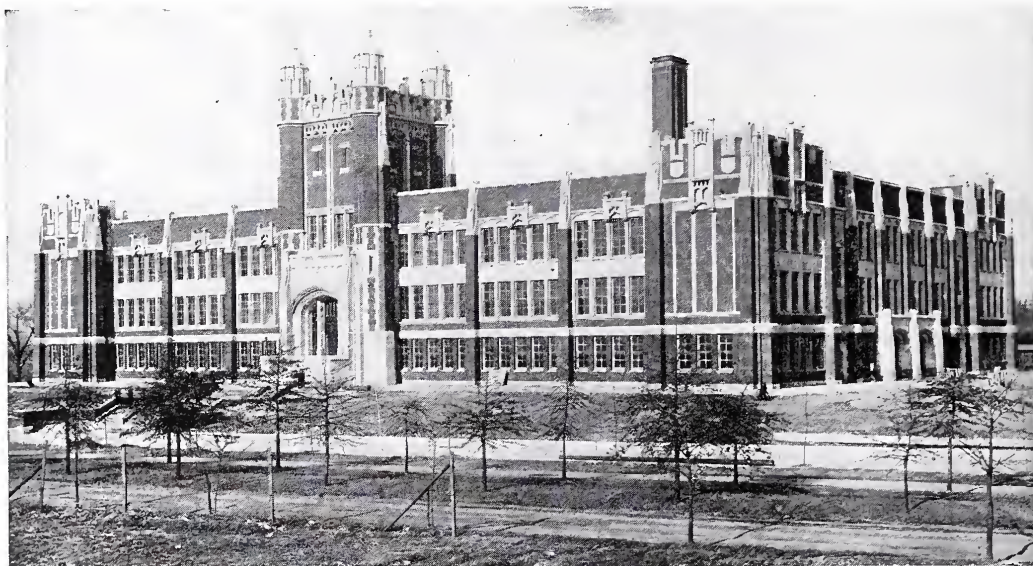
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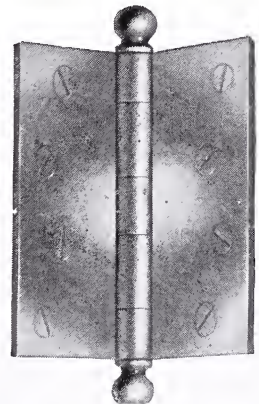
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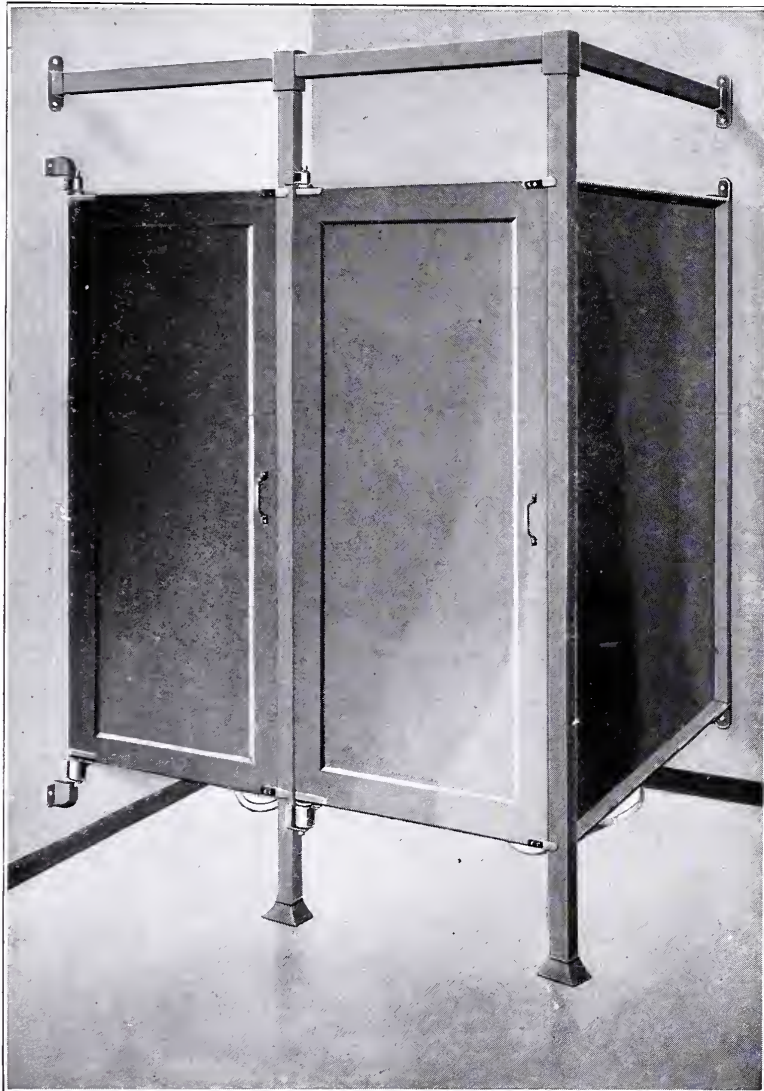
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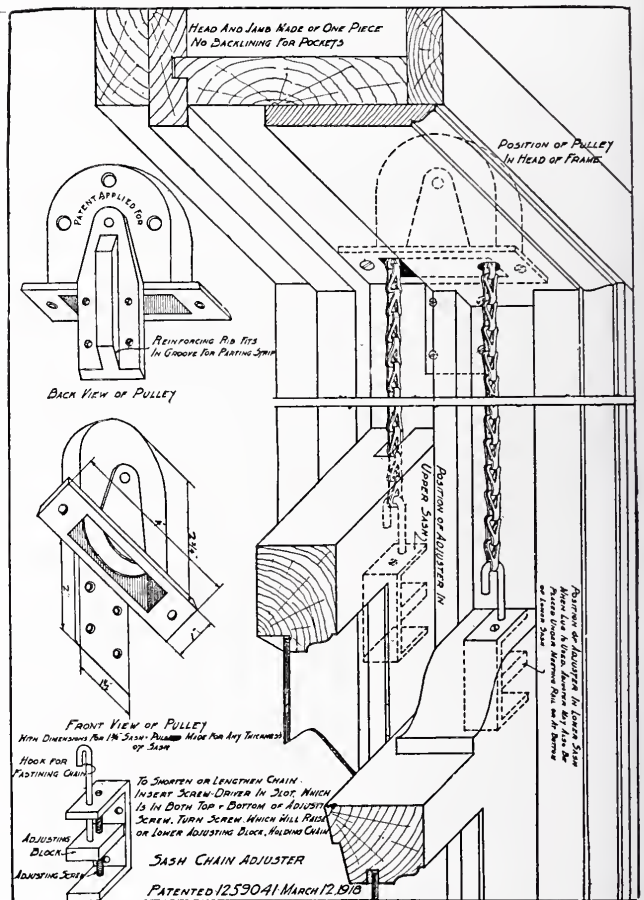
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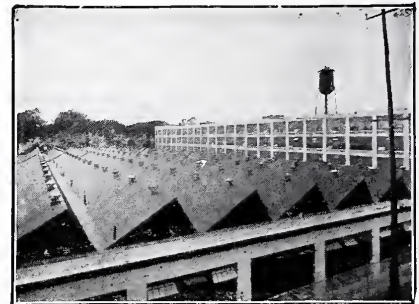
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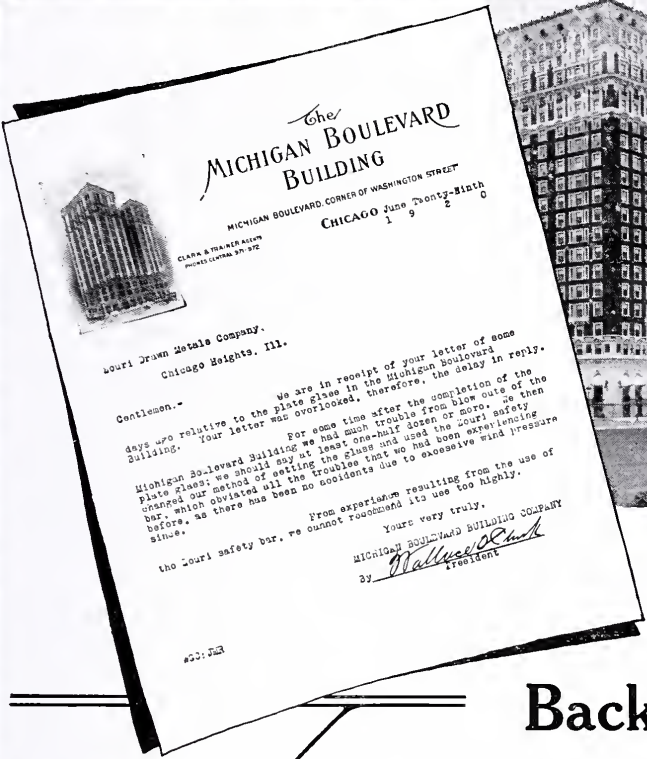


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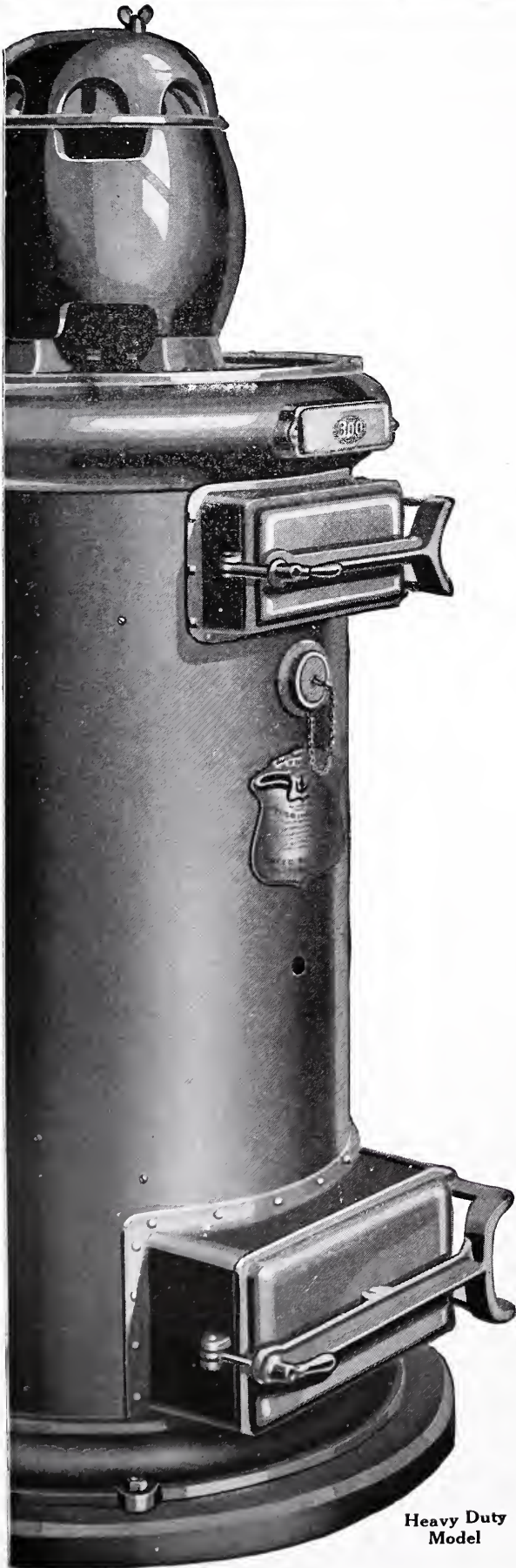
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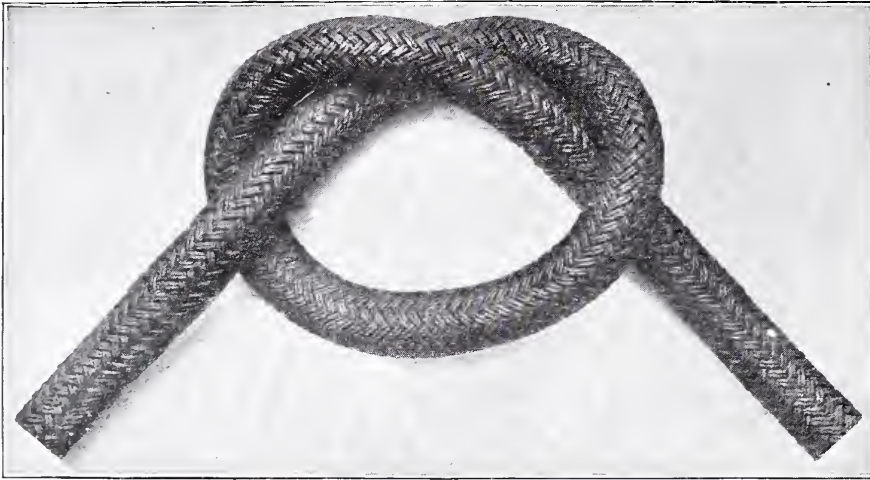
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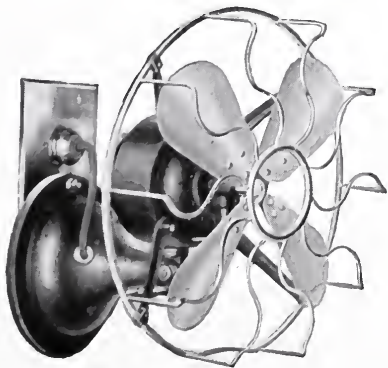
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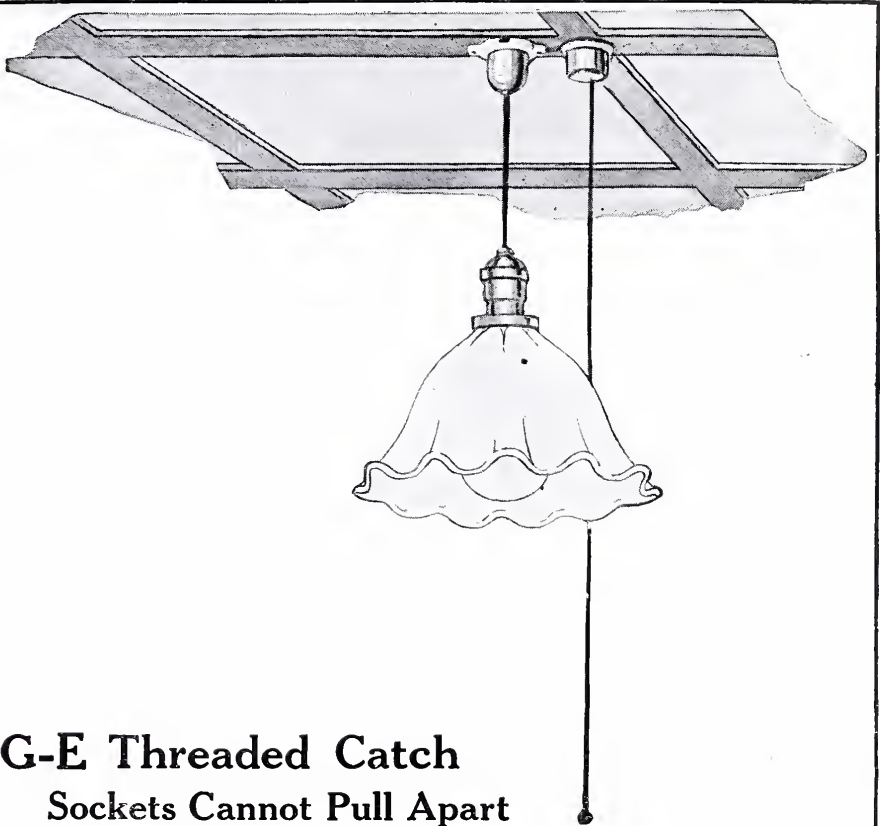
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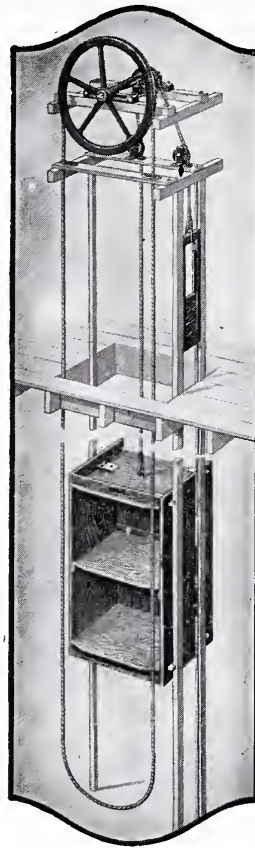
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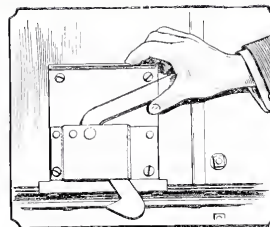
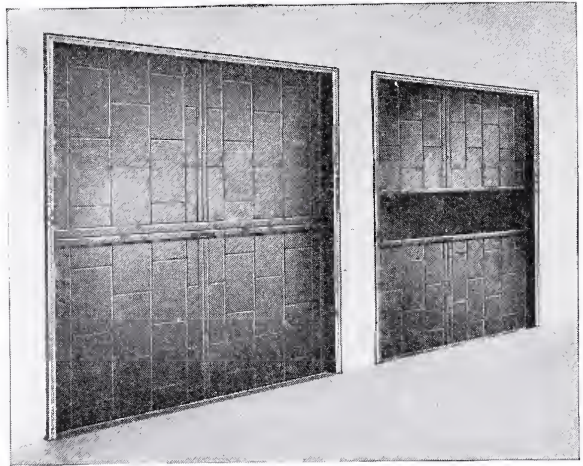
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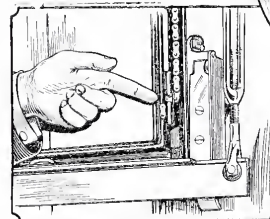
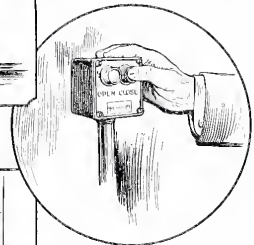
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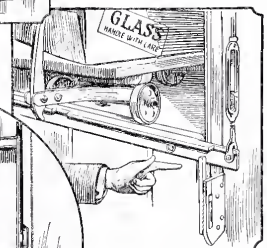
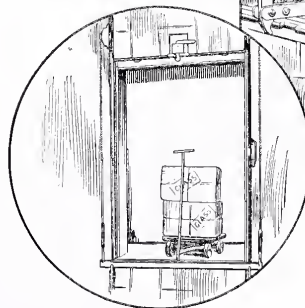


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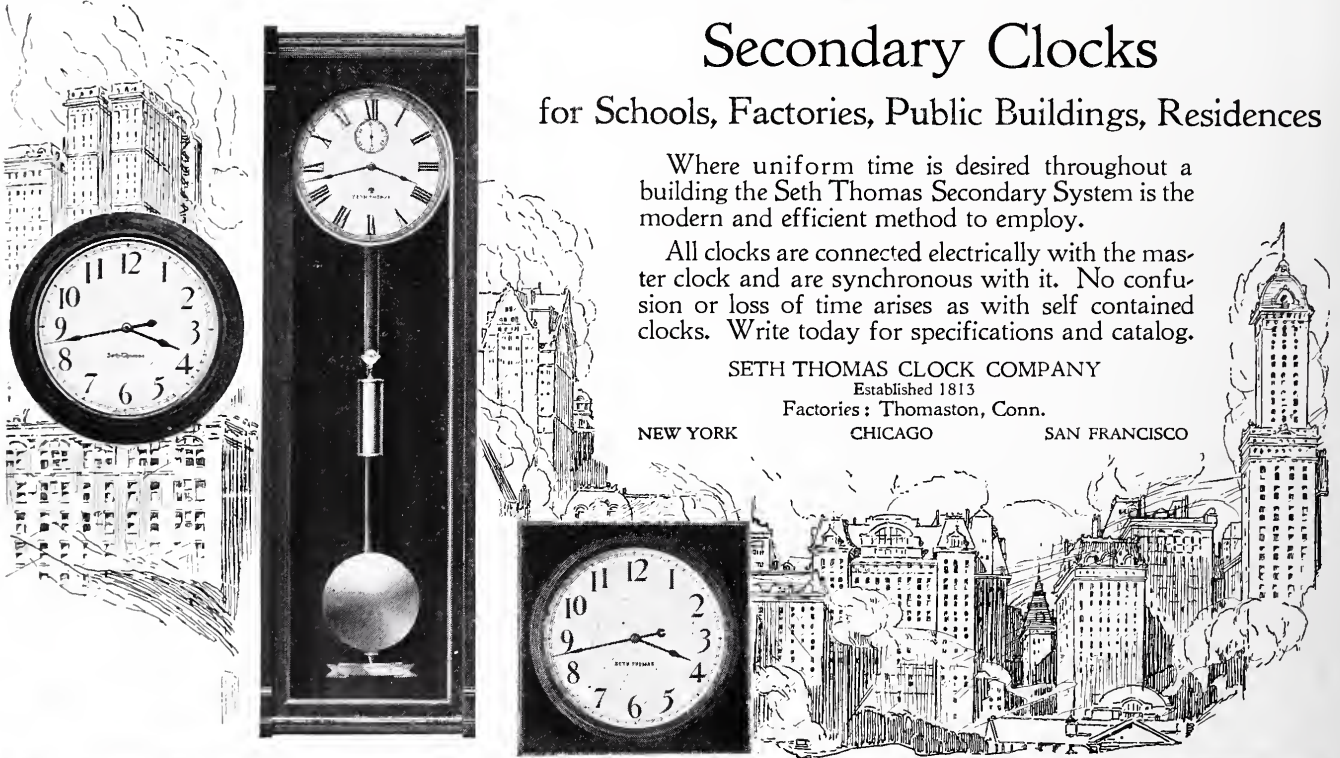
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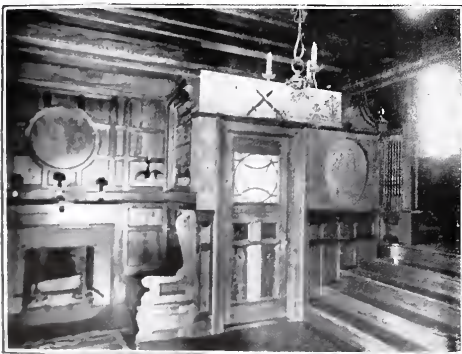
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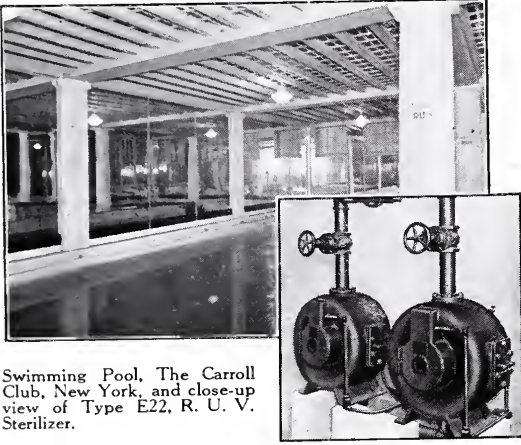
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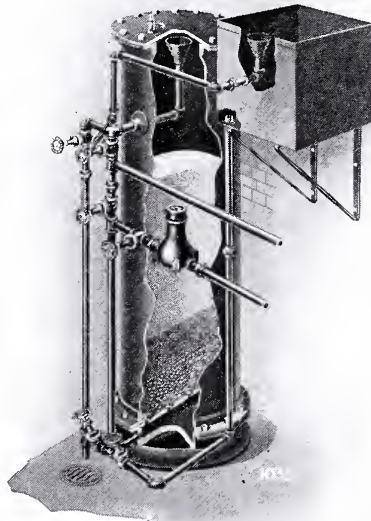
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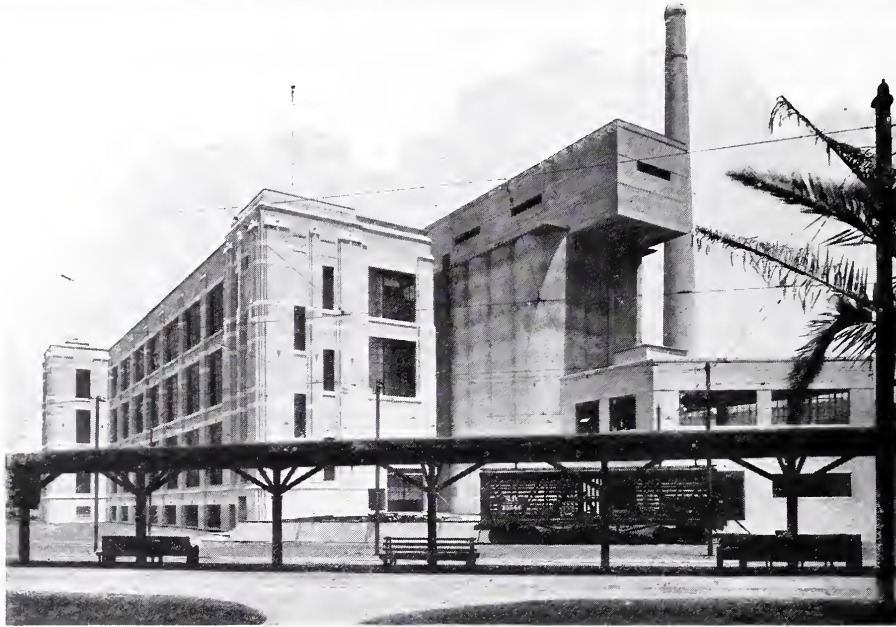
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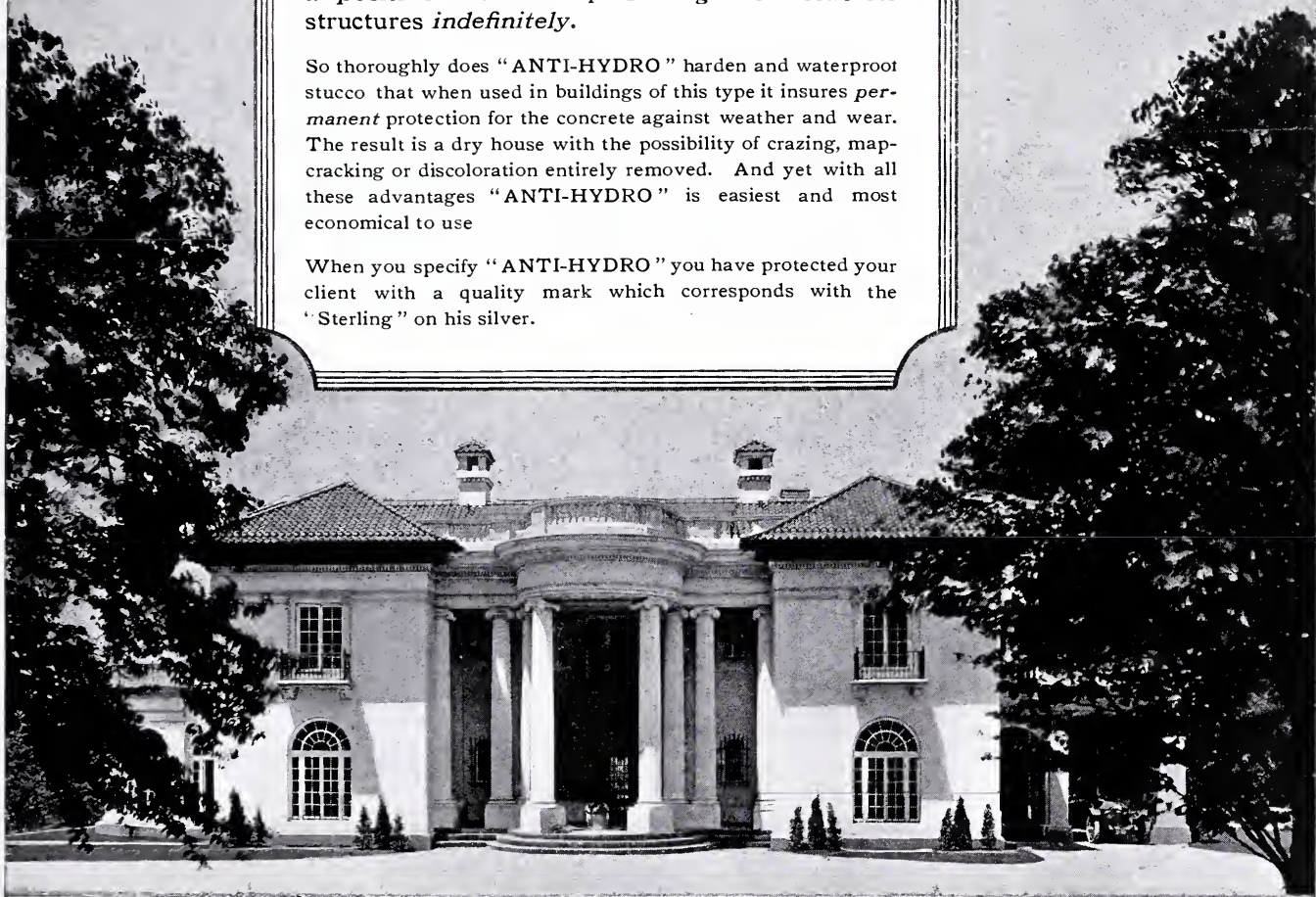


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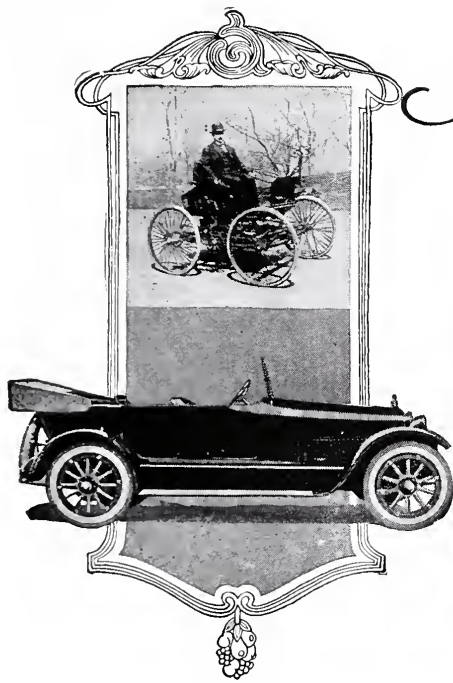
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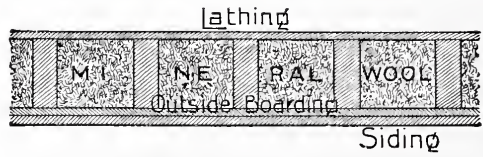
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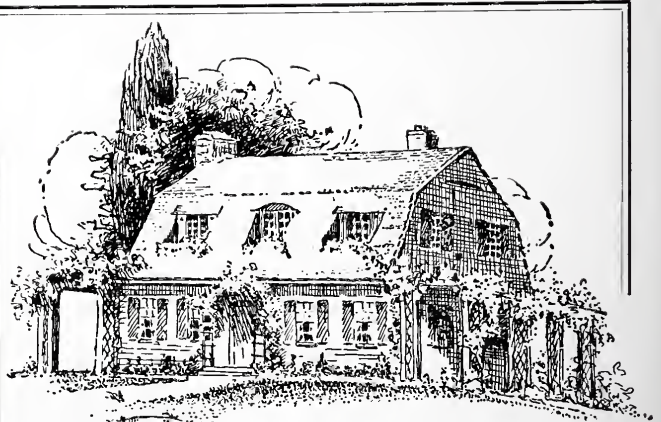
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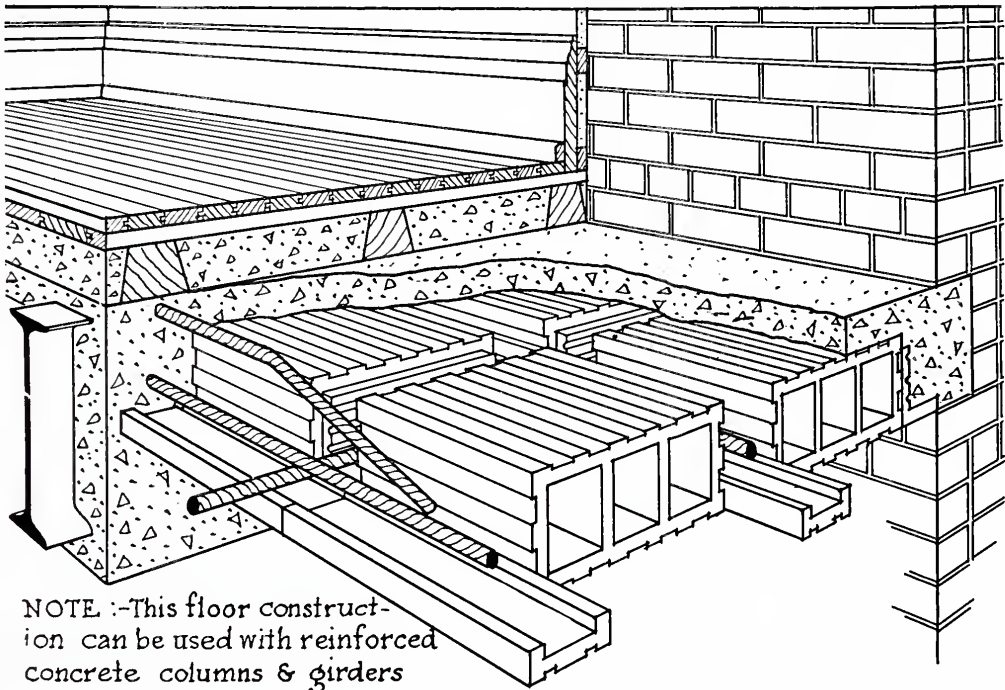
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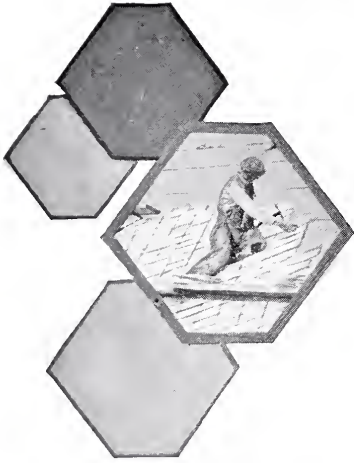
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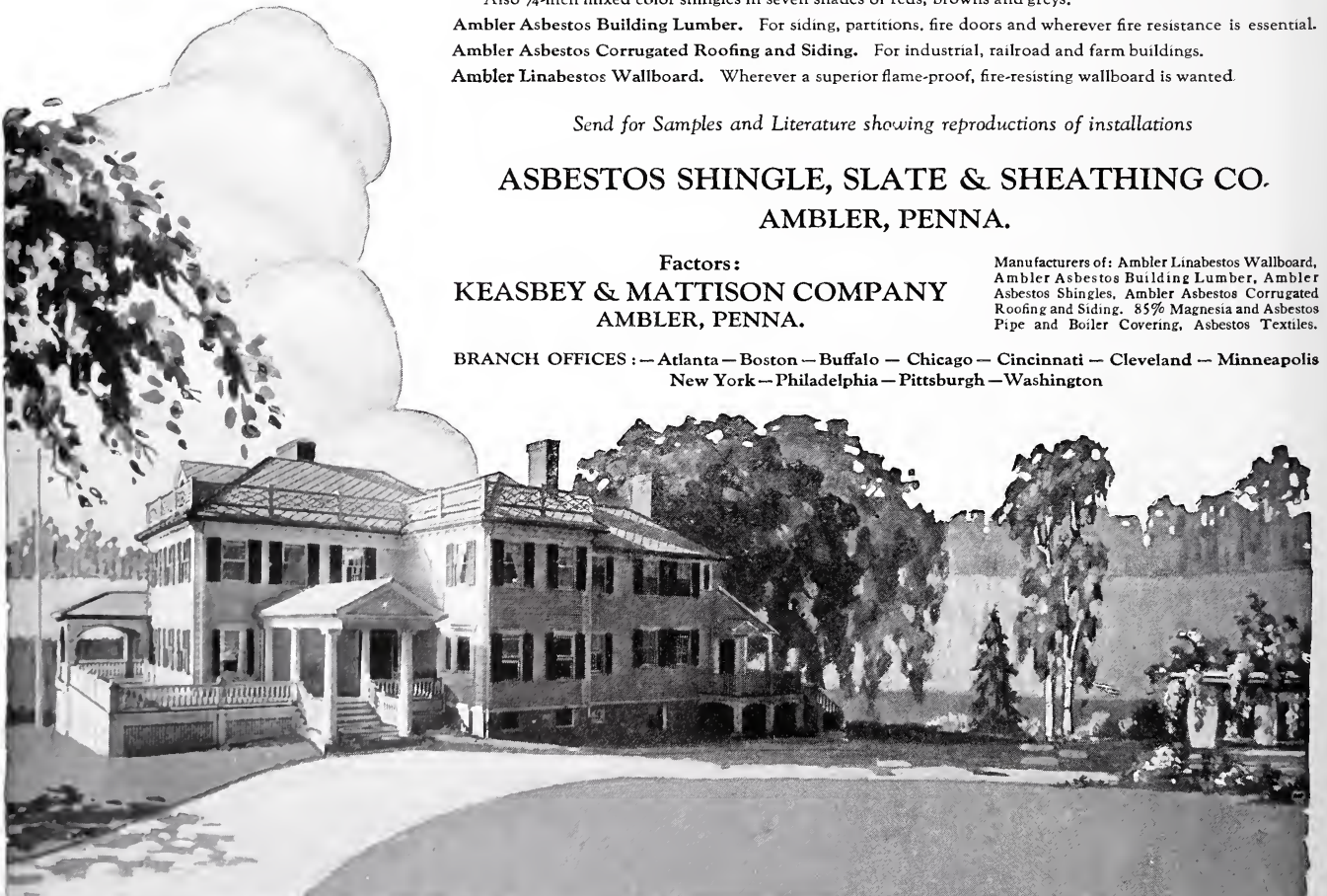
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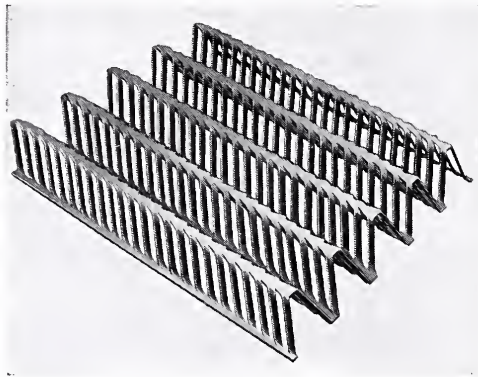
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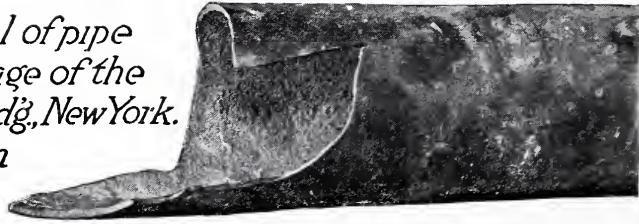


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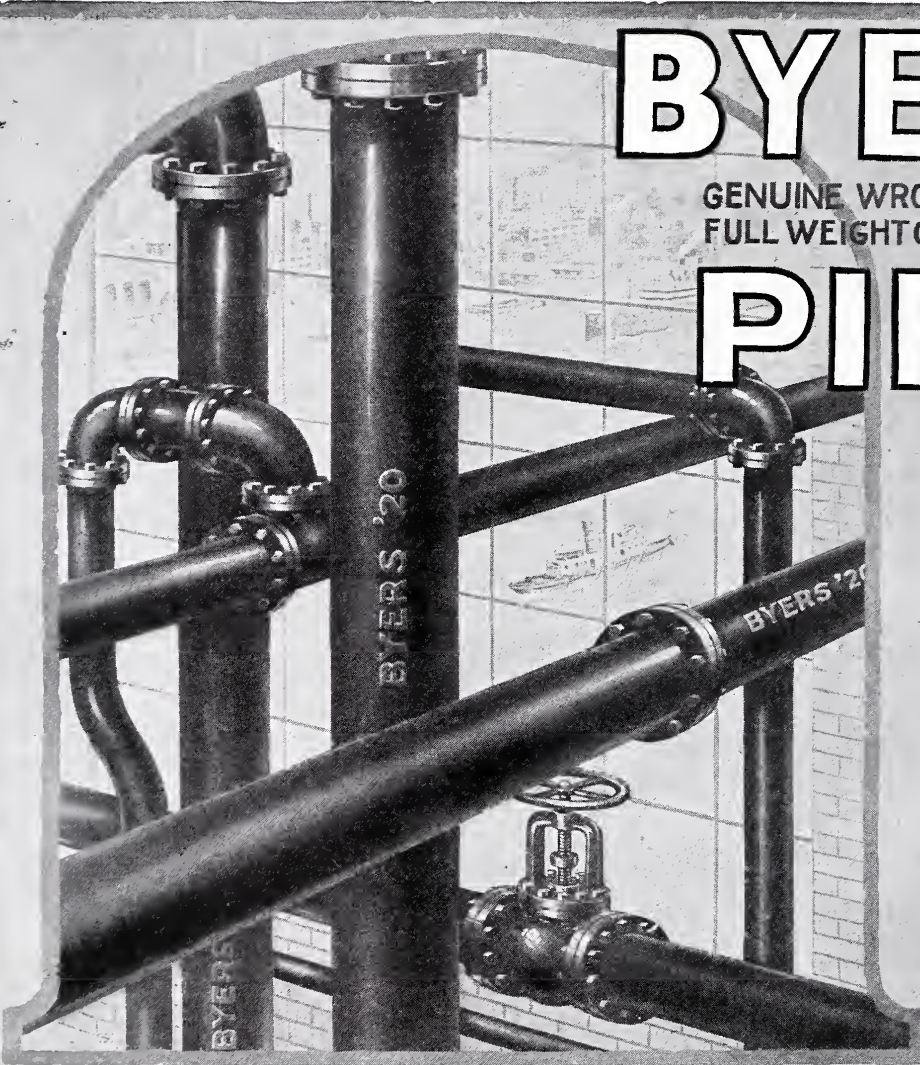
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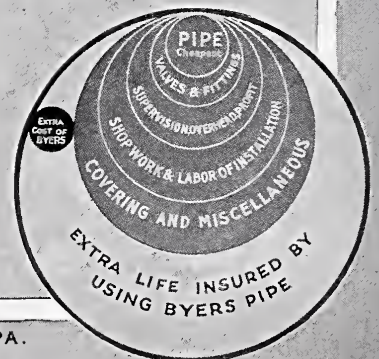
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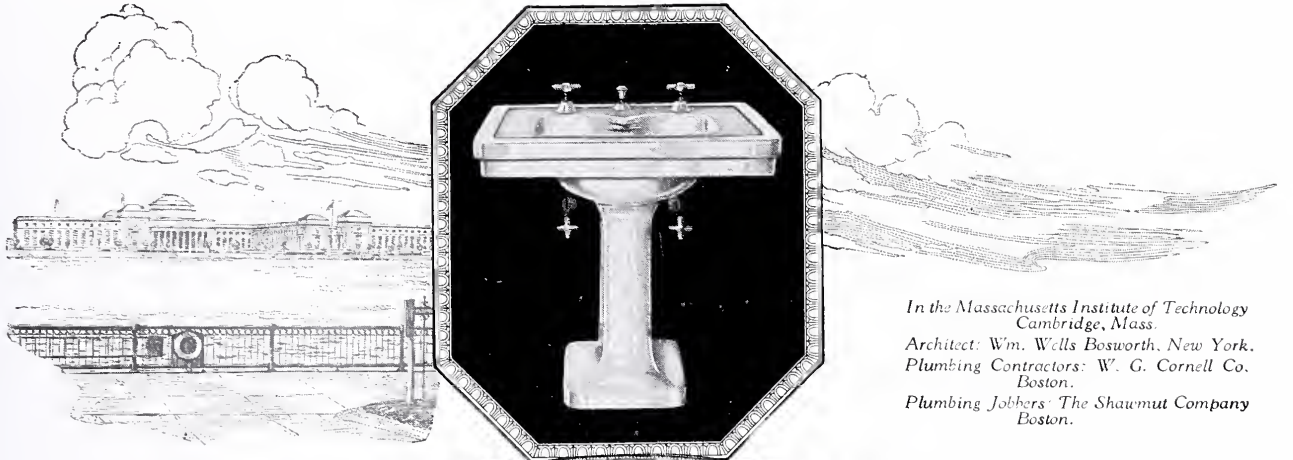
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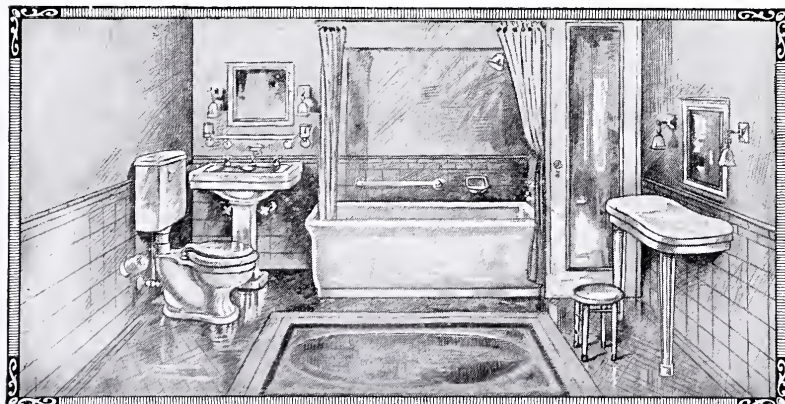
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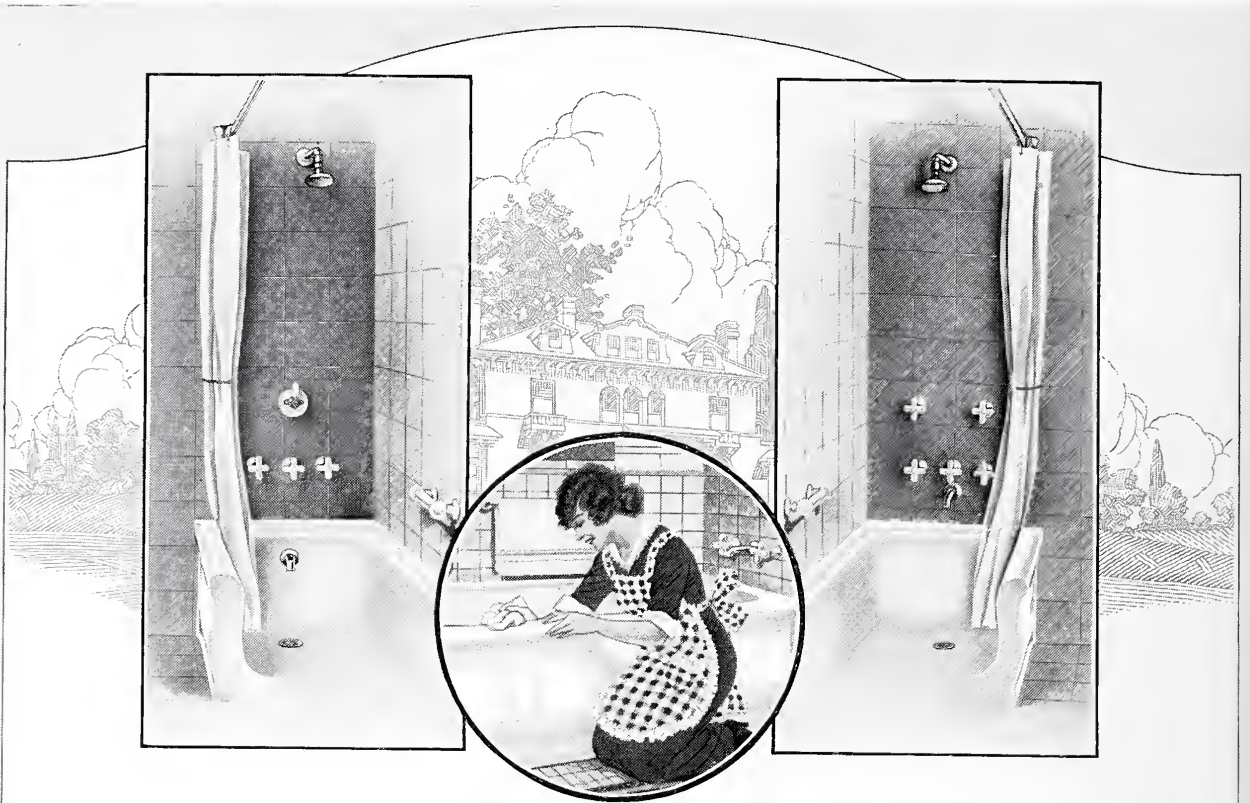


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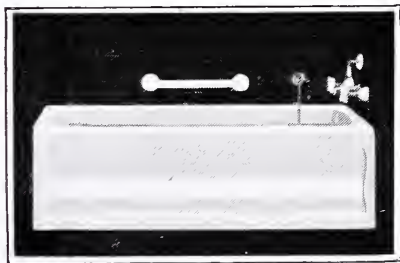


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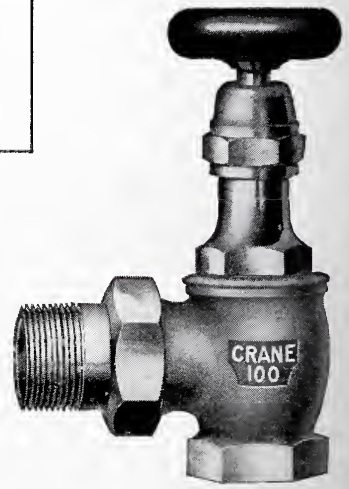
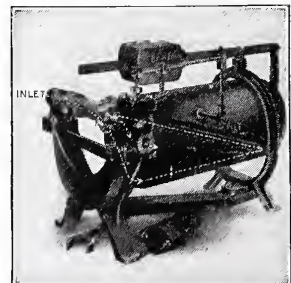
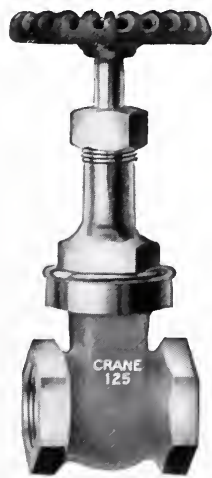
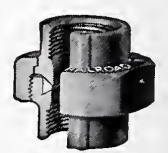
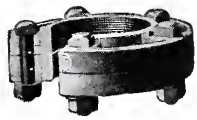
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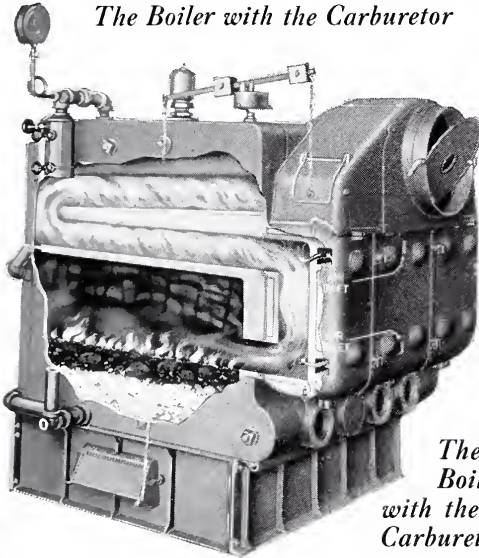
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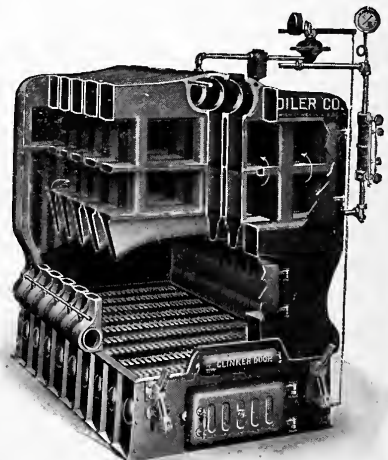
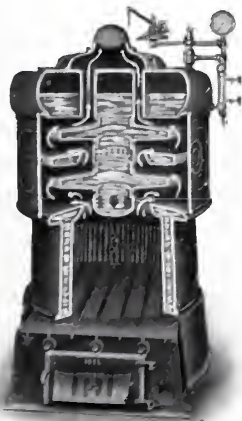
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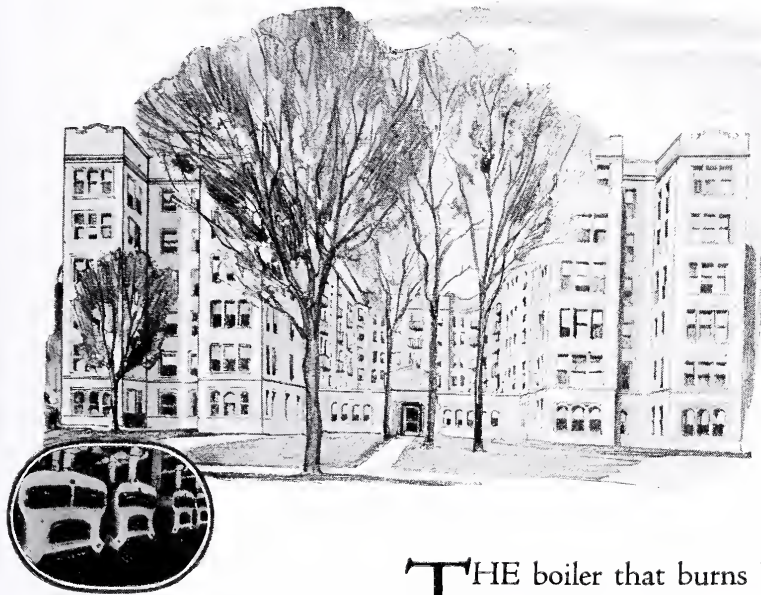
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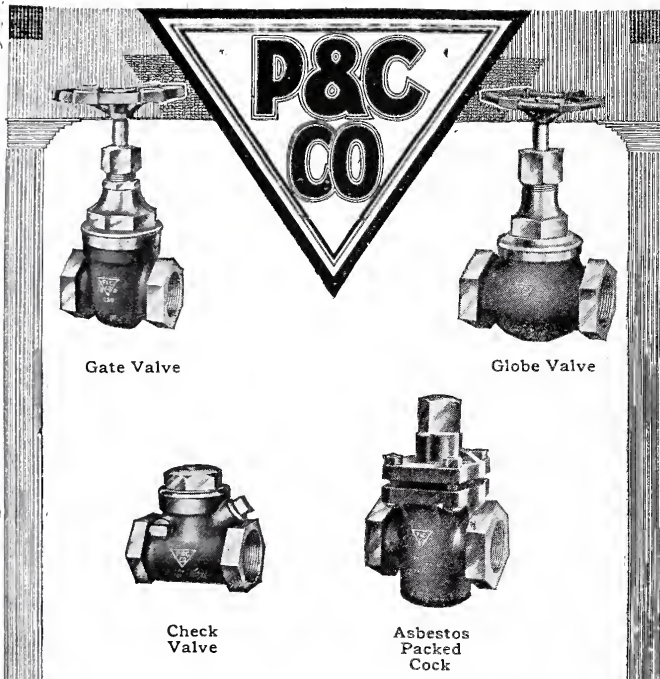
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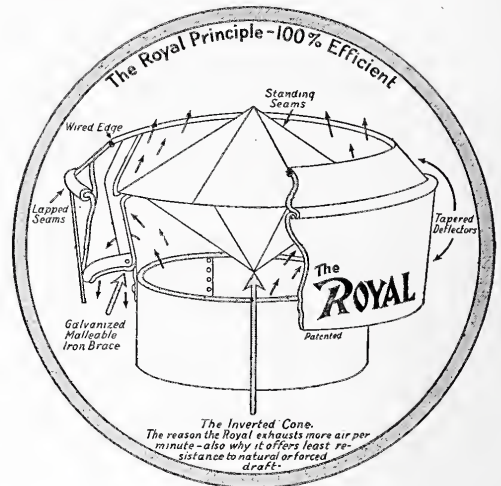
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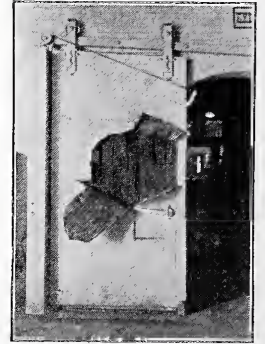
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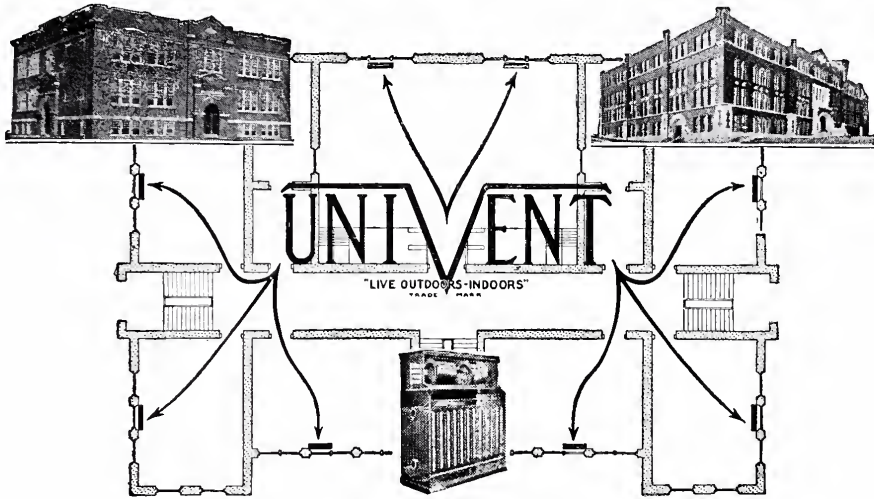
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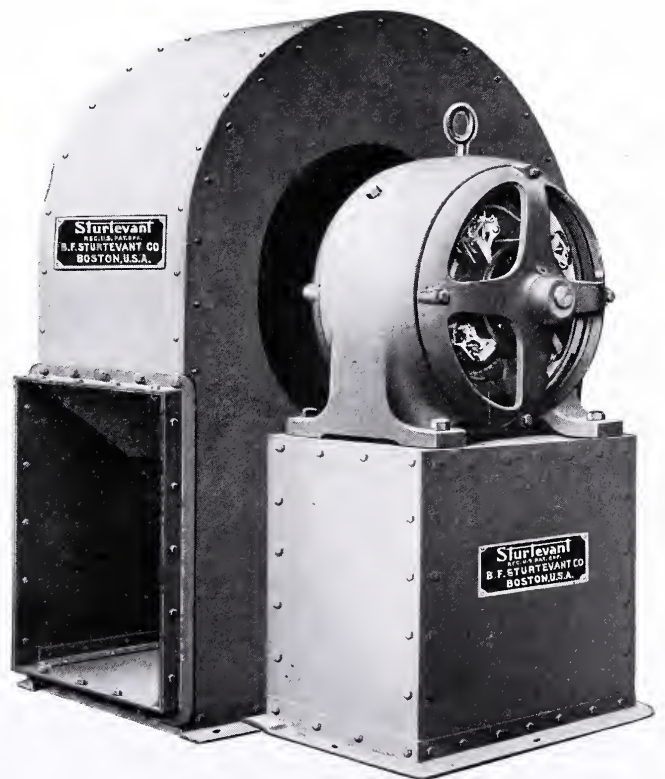
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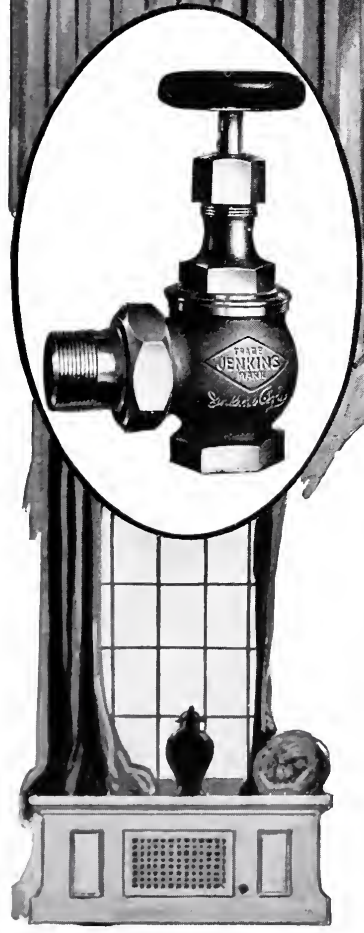
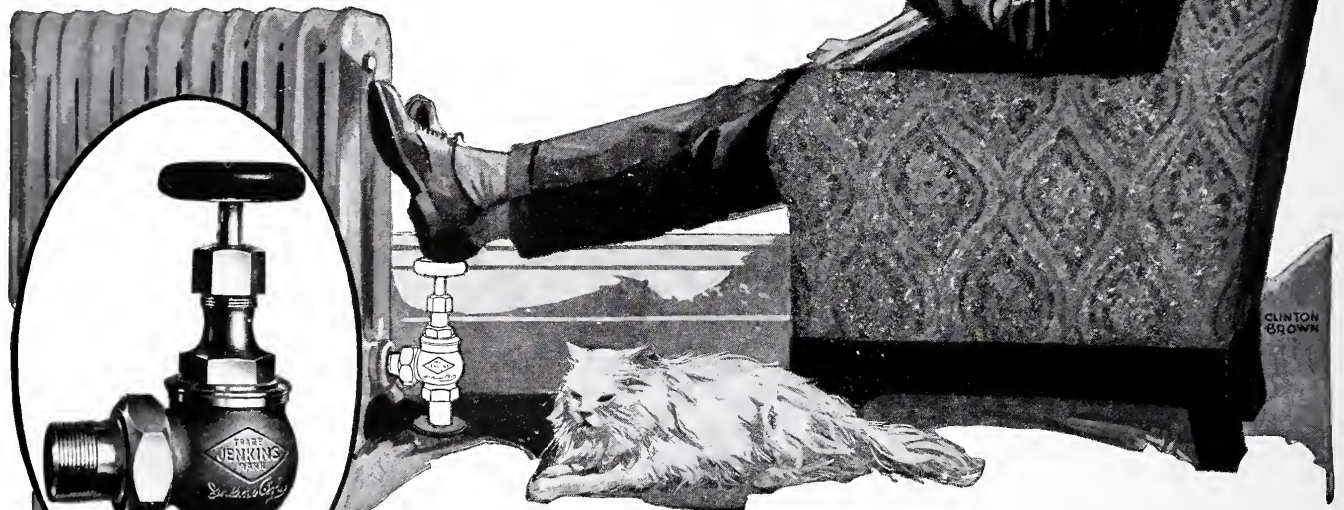
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Jenkins Radiator Valves with their unbreakable wood wheels and sturdy manganese bronze spindles are more than equal to the abuse to which valves are often subjected. They are made of the best brass, contain more metal than other valves and are constructed in every part to withstand severe service, rough usage and careless handling.

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can be forgotten as far as trouble is concerned.

Jenkins Valves, of the renewable disc type, are fitted with a Jenkins Disc of rubber composition. There is no wearing metal-to-metal action between the disc and seat. The disc takes up the wear and gives the valve practically unlimited life.

Jenkins Valves are made of brass, iron and steel in types and sizes to meet all requirements. They are known by the name and Jenkins "Diamond Mark" cast on the body.

Specify: Genuine Jenkins Valves bearing the name "Jenkins" within a Diamond Mark. Interesting literature on request.

JENKINS BROS.

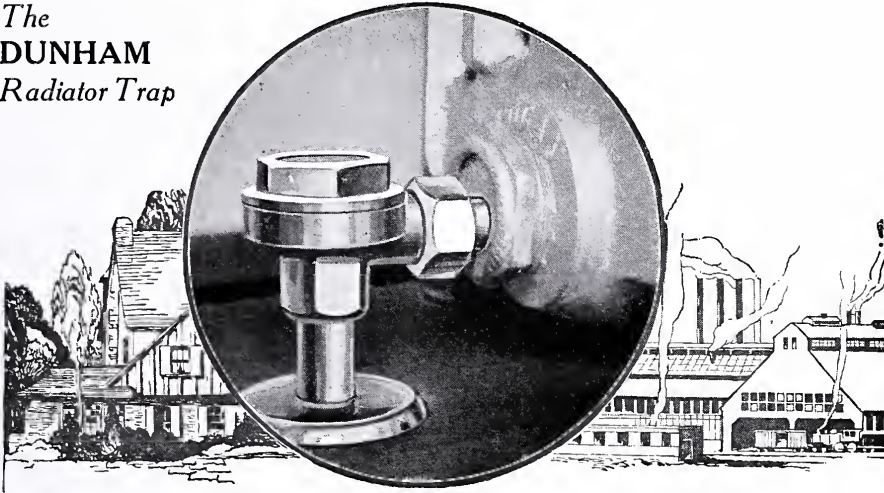
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- Washington
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2205-J

Jenkins Valves

Since 1864

The
DUNHAM
Radiator Trap



Where better heat is demanded, there specify Dunham Specialties

Almost without exception, there is a place for some one or other of the Dunham Specialties on every job where steam is used for heating purposes.

In placing before you so often, the merits of the Dunham Radiator Trap, we perhaps risk your overlooking its companions in efficiency. Yet we most earnestly desire you to associate with all of them, that merit which has marked the Dunham Radiator Trap since its entrance on the market in 1903.

We stand ready to serve you without limit in the advancement of low pressure steam heating, and in the application of the particular Dunham Specialties needed for the job in hand.

"The Dunham Hand Book" is full of facts. Send for your copy.

DUNHAM SPECIALTIES

*Packless Radiator Valves
Radiator Traps
Drip Traps
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Vacuum Pump Governors
Reducing Pressure Valves
Oil Separators
Suction Strainers
Air Vents
Return Traps
Check Dampers
Damper Regulators*

The DUNHAM
HEATING SERVICE

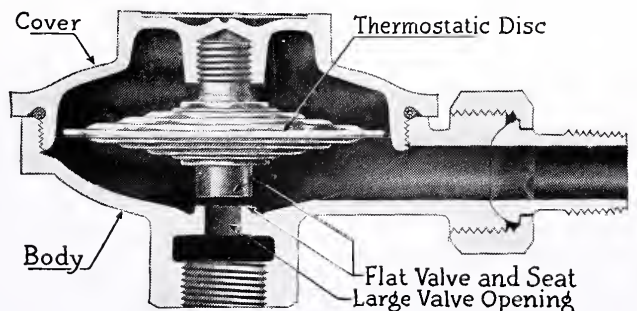
C. A. DUNHAM CO., Fisher Building, CHICAGO

Factories: Marshalltown, Iowa
Toronto, Canada

Branches in 36 cities in
United States and Canada

London: 64 Regent House, Regent Street, W. 1.

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Cross Section of No. 2 Trap

The Completing Touch



The Kernerator is built in an extended base of any chimney when the building is erected and requires but little masonry work. The hopper door shown above is all that is seen on the living floors.

EFFICIENCY in a residence or apartment house is as important as beauty, and no better contribution can be made to household efficiency than the installation of the Kernerator.

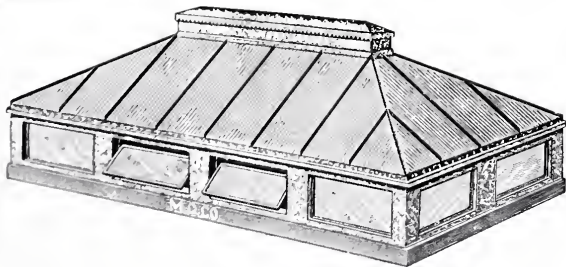
It destroys all kitchen and household waste without the use of any fuel other than the dry waste deposited. It also disposes of tin cans and bottles. Costs nothing to operate.

KERNERATOR Built-in-the-Chimney

is installed in fully 85% of all new apartment houses and fine residences erected in cities where the company is established. Although installed under a guarantee, not one Kernerator has ever been returned. The Kernerator abolishes garbage cans, thus saving labor and helping to secure sanitary and beautiful homes.

See page 1132, Sweet's Catalog

KERNER INCINERATOR CO.
709 Clinton Street, Milwaukee, Wis.



SPECIFY

Puttyless
SKYLIGHTS

They are great time, labor and trouble savers. We make them in single or double pitch or hipped, with or without louvres or ventilators. All metal. Bar construction and condensation gutters provide for carrying off rain and condensation.

All styles of skylights made in either puttyless or glass-laid-in-putty construction.

Write for New Puttyless Skylight Circular



Milwaukee Corrugating Co.

Milwaukee, Wis.

Branch at Kansas City, Mo.

Minneapolis Sales Office, 929 Lumber Exchange



A Quarter Turn of the Wrist Opens or Closes this Valve

A Packing Lock Stem, with Ground Shoulder seating in bonnet insures a Tight Valve that Stays Tight. Send for Catalogue showing why.

GORTON & LIDGERWOOD COMPANY

96 LIBERTY STREET, NEW YORK, N. Y.

Fisher Building, Chicago, Illinois

No Home is Too Good

for the

"Riverside" Range Boiler

To-day you will find the "Riverside" Range Boiler in all sorts of homes. It matters not whether the home be a high class residence or one of an industrial housing proposition. The "Riverside" is made good enough for any and all uses. It is made in several classes, and it is purely a question of what the owner wants to pay. It has real Quality built into it. It is not merely a receptacle for water.

"Riverside" Kopsteel Boilers

These boilers are the best of the "Riverside" family. They are made of specially selected rust-resisting copper steel, and a double extra thickness is used throughout. Each boiler is tested to 300 lbs., but is marked with and carries a definite guarantee of six years at 150 lbs. working pressure. Tests of this boiler made under the supervision of a former President of the Massachusetts State Association of Master Plumbers showed that at 300 lbs. plus the bottom did not bulge a hair! This boiler represents the last word in galvanized range boiler construction, and, of course, like every "Riverside," it is riveted and brazed. Remember that it is marked and guaranteed for six years at 150 lbs. working pressure.

If the owner cannot afford the extra cost of the "Riverside Kopsteel" Boiler (which, by the way, should not cost more than one-half to one-third of the best copper boiler made), then specify the "Riverside" Extra Heavy, 150 lbs. working pressure, which, compared with other so-called Extra Heavy Boilers, is really a "Super-Extra Heavy" Boiler.

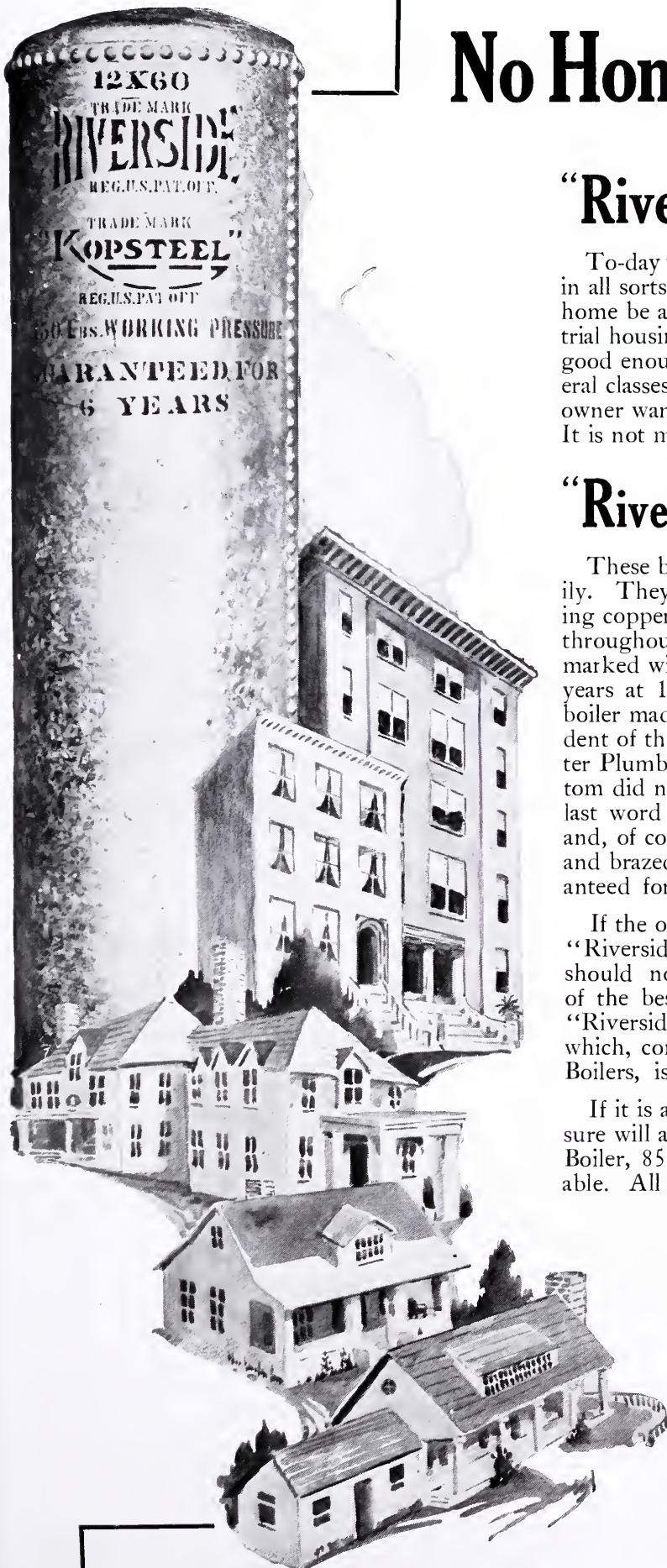
If it is a question of price entirely, and if the pressure will allow it, the "Riverside" Standard Range Boiler, 85 lbs. working pressure, will be found suitable. All of these boilers are Riveted and Brazed.

"Look us up in Sweet's"

**RIVERSIDE BOILER
WORKS, Inc.**

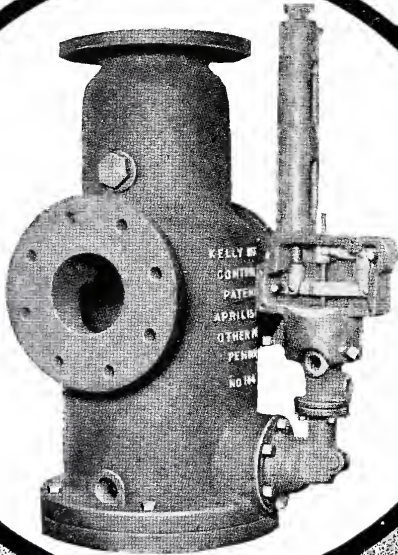
The Quality Range Boiler Builders

Cambridge, Mass.



Kelly Controller

"The Boiler Master"



**Lengthens Life
and Increases
Efficiency of
any Steam
or Vacuum
Heating System**

Guards against Carelessness Prevents Cracked Sections

ARE you familiar with the many conditions that constantly threaten the heating boiler operated by the average unskilled attendant? Cracked sections, due to "priming" and "syphoning," are everyday occurrences. Explosions are not at all uncommon.

The Kelly Controller was developed after a study of all the conditions which can arise in the everyday operation of steam heating plants, large and small. It successfully overcomes every error in operation the moment the faulty condition arises — and does it automatically and dependably.

If the boiler contains grease, or other foreign matter which causes a surging condition, the controller acts as a *steam separator*, returning the water to the boiler through a bleeder pipe. If, as a result of improper firing, the surging becomes violent, a water valve is opened, automatically injecting a small amount of

feed water into the overheated boiler reducing temperature and restoring normal conditions. When the water threatens to syphon and conditions become acute, the boiler is cut off from the system until errors can be corrected. The controller is therefore an absolute safety device.

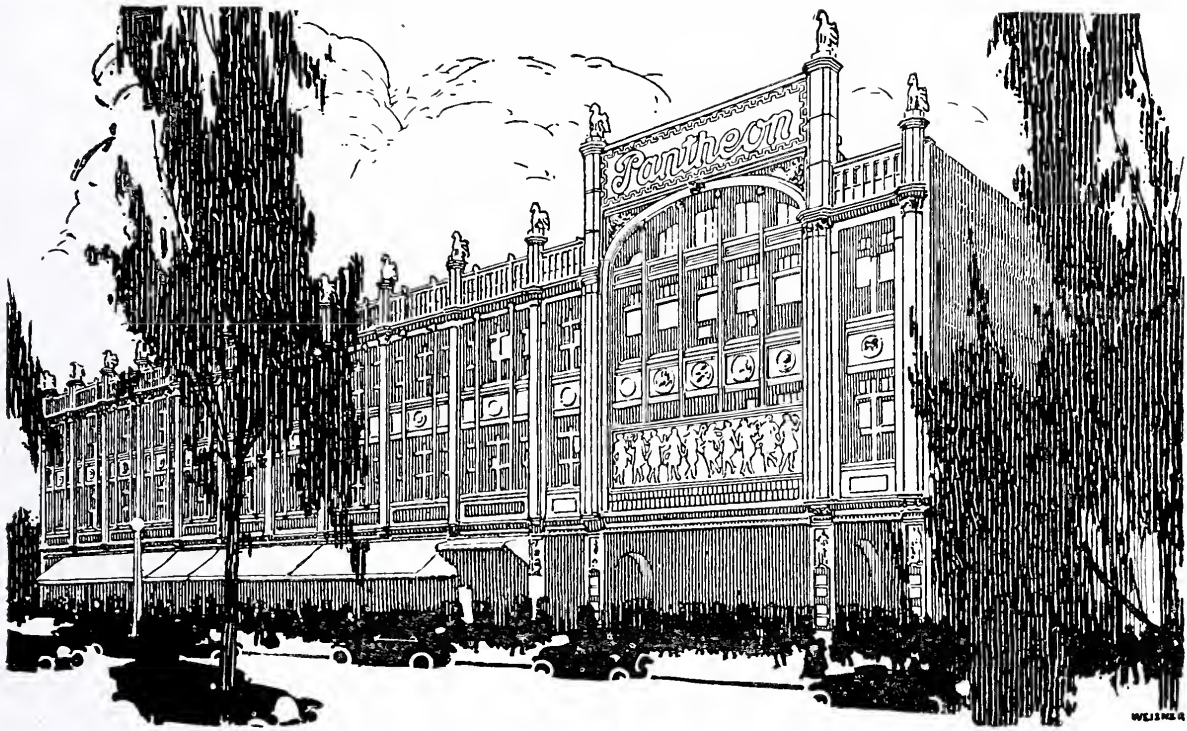
An automatic feed-water regulator completes the scheme of entirely automatic control. It is furnished as optional equipment.

Manufactured by
THE KELLY CONTROLLER CO.
175 West Jackson Blvd., Chicago

Sold exclusively by
THE FAIRBANKS COMPANY
Administrative Offices: New York
Branch Offices in 23 Principal Cities

Tested, Approved and
Sold Exclusively by
The Fairbanks Company. (Accorded the
famous Fairbanks
Company "O. K.")





KEWANEE For Big Buildings

The Pantheon Theatre, Chicago, is one of the biggest and finest motion picture theatres in the world. It is heated with three Kewanee Smokeless Boilers, having a total capacity of 42,000 sq. ft. of radiation.

The owners, Lubliner and Trinz; the Architect, Walter W. Ahlschlager; and the Heating Contractors, Glennon-Bielke Co., *know* buildings and boilers. They selected Kewanee for this fine theatre because they couldn't afford to monkey with a boiler that might lay down and quit just when heat was most needed. And they *knew* Kewanee Boilers *make more heat, with less coal, than any other boilers in existence.*

A Kewanee Smokeless Boiler burns *any* coal. Good coal is getting scarcer than hen's teeth; hence it is getting more costly. But if buildings are Kewanee heated, the owner can whistle and dance and forget about coal troubles, because he can use the cheapest coal he can get. Also, if a boiler burns *all* the coal it can't make any smoke. *Smoke is nothing but unconsumed fuel.*

A Kewanee Smokeless is smokeless because it uses all the coal to make heat and none of it is wasted up the stack. That's a big saving no owner can afford to pass up.

Why take chances with building investments? It won't do a bit of good to weep and moan *after* some worthless boiler is installed. The cue is to play safe and get a Kewanee in every big building.

Kewanee Boilers are heating the top-notch buildings of every kind, everywhere; Factories, Schools, Apartments, Theatres, Garages, Churches, Post Offices, etc. That could not be true if Kewanee wasn't the best boiler built.

KEWANEE BOILER COMPANY

Kewanee, Illinois

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NEW YORK	47 W. 42nd St.	DETROIT	1925 Ford Bldg.
DES MOINES	315 Hubbell Bldg.	TOLEDO	629 Nicholas Bldg.
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	WASHINGTON, D. C.	534 Southern Bldg.	
	INDIANAPOLIS	3105 N. Pennsylvania St.	
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Van's Kitchen Installations Stand the Test of Time

We point with pride to the unqualified endorsements received from hotels and institutions all over the nation as proof of our claim. The letter illustrated here is but one of many.

Our Food Serving Equipment in dining rooms, lunch rooms and cafeterias receives like comment.

Whether your needs call for a complete installation or a single piece of apparatus, Van's Food Service Engineers will capably serve you.

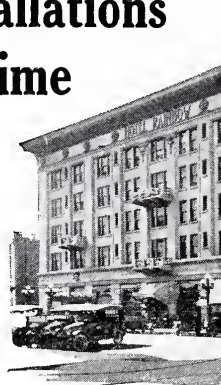
Correspondence Invited

Write for Supplement A

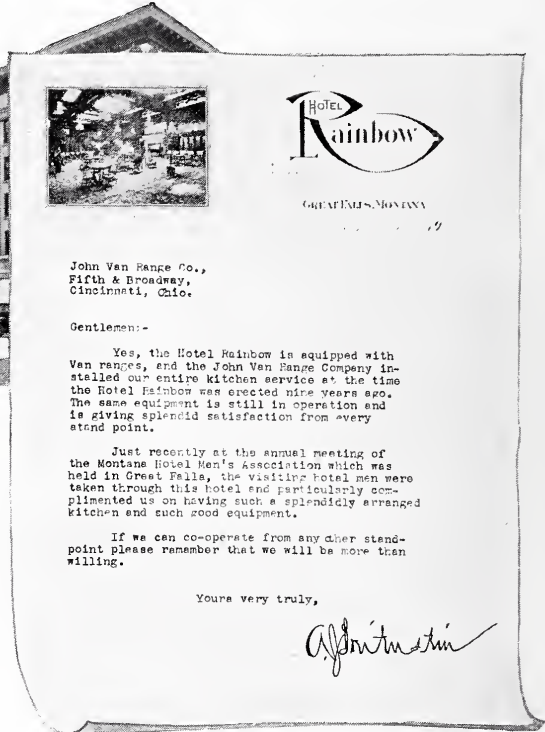
The John Van Range Co.
EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD
Cincinnati

CHICAGO

DETROIT



*Hotel Rainbow
Great Falls, Mont.*



Ask almost any

architect to name a popular type of ventilator that is thoroughly efficient under all weather conditions.

The answer will be "GLOBE"

The fact that for over forty years the "GLOBE" has served and served well on all types of buildings is reason enough for the high esteem in which it is held wherever the problem of ventilation is most frequently met.

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Cynthia Ward's Agency

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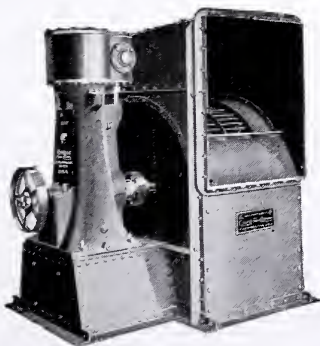
*Architects
Perkins, Fellows & Hamilton
Chicago, Ill.*

Pontiac is Twenty-Six Miles from Detroit -

Moreover, Pontiac Schools are famous. Great care has been taken to provide adequate buildings for the school children. This High School in Pontiac, Michigan, is an architectural feast from without and a marvel for convenience and health within.

It is only to be expected that Clarage Fan Equipment was selected for heating and ventilation. Every day, winter and summer, these students enjoy the comfort and beneficial effects of clean, fresh air, correctly temperatured.

Why not allow Clarage Engineers to co-operate with you on your next proposition? Anyway, write for literature to-day.



HEATING AND
VENTILATING UNIT
Clarage Multiblade Fan and
Clarage Steam Engine

CLARAGE FAN COMPANY

PORTER STREET, KALAMAZOO, MICHIGAN

Engineering and Sales Offices in Principal Cities

Manufacturers of Fans, Blowers, Heaters, Steam Engines, Etc.

Daylight and Production

Volume of production — accuracy of workmanship — elimination of wastage, together with the health and contentment of employees, are furthered by daylighting and ventilation.

Truscon Daylight Engineers

Located in our main office and forty branches are men familiar with industrial requirements who have specialized in solving daylighting problems through the use of steel sash.

Supporting these Truscon Daylight Engineers is an organization having complete building experience in 30,000 important buildings in all parts of the world.

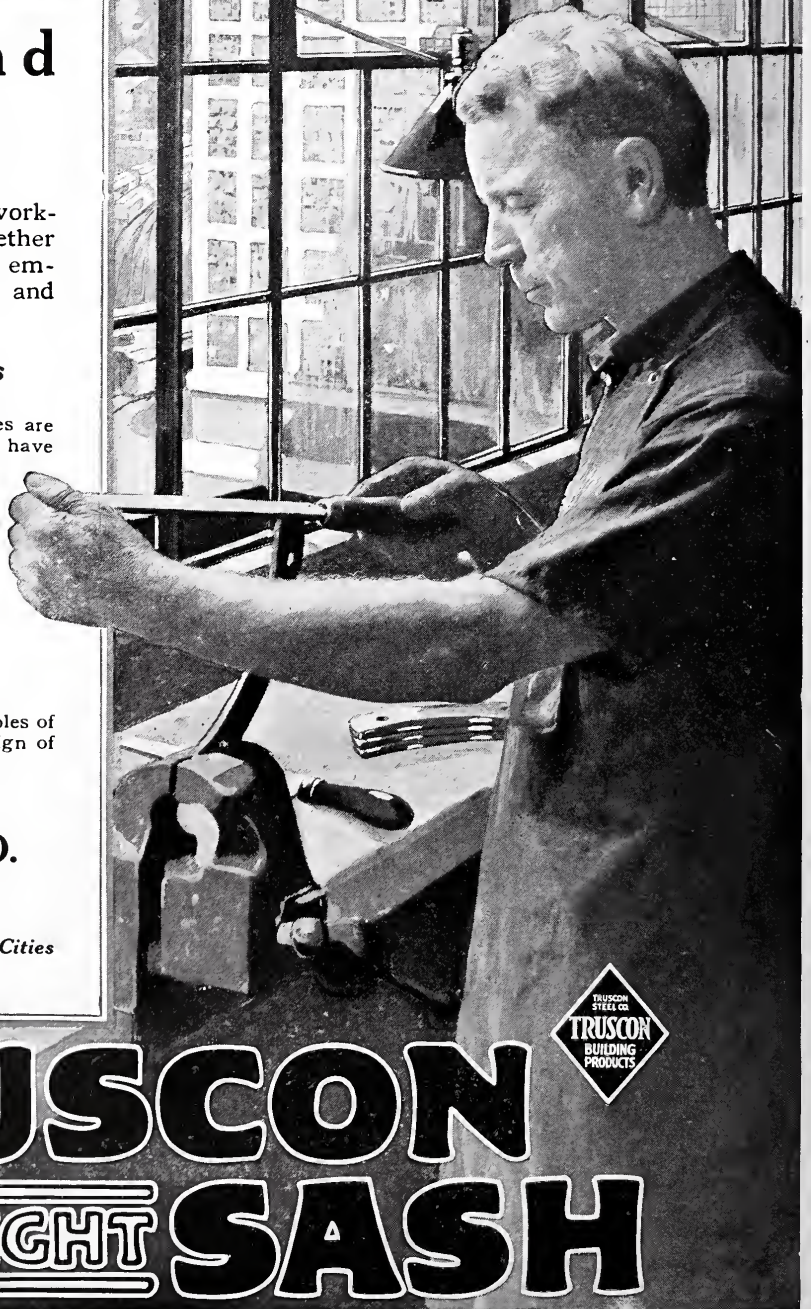
“Human Nature and the Factory Building”

This interesting book showing how the principles of modern industrial engineering affect the design of factory buildings will be sent free on request.

TRUSCON STEEL CO.

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TRUSCON
DAYLIGHT SASH



Metal Lath and Solid Plaster Partitions Found Most Sound-Proof

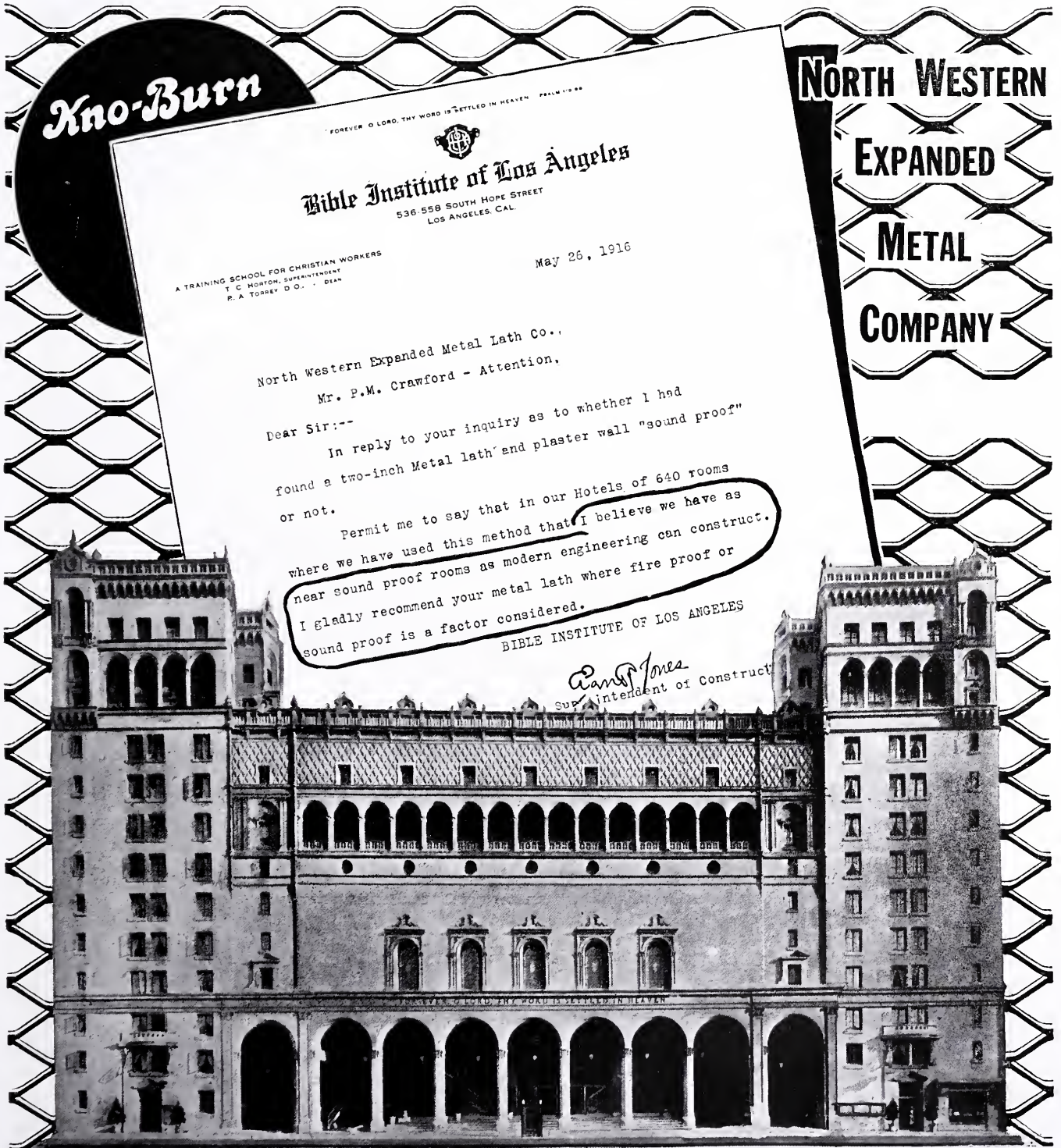
OF the five types of partition construction recently tested by Professor Watson—the Acoustical Expert—the 2-inch solid plaster partition on Expanded Metal Lath proved to be the most sound-proof.

This fact is of great importance to architects, contractors and others handling hotel work, apartment buildings, hospitals, etc., wherein

these economical *space-saving*, sound-proof partitions can be used so satisfactorily. Detailed reports of Professor Watson's tests, also "FIRE-PROOF CONSTRUCTION" and samples sent free.

North Western Expanded Metal Co.
934 Old Colony Building
Chicago

New York Atlanta
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Kno-Burn

**NORTH WESTERN
EXPANDED
METAL
COMPANY**

FOREVER O LORD, THY WORD IS SETTLED IN HEAVEN
Bible Institute of Los Angeles
536 558 SOUTH HOPE STREET
LOS ANGELES, CAL.

A TRAINING SCHOOL FOR CHRISTIAN WORKERS
T. C. HORTON, SUPERINTENDENT
R. A. TORREY, D. D., DEAN

May 26, 1916

North Western Expanded Metal Lath Co.,
Mr. P.M. Crawford - Attention,

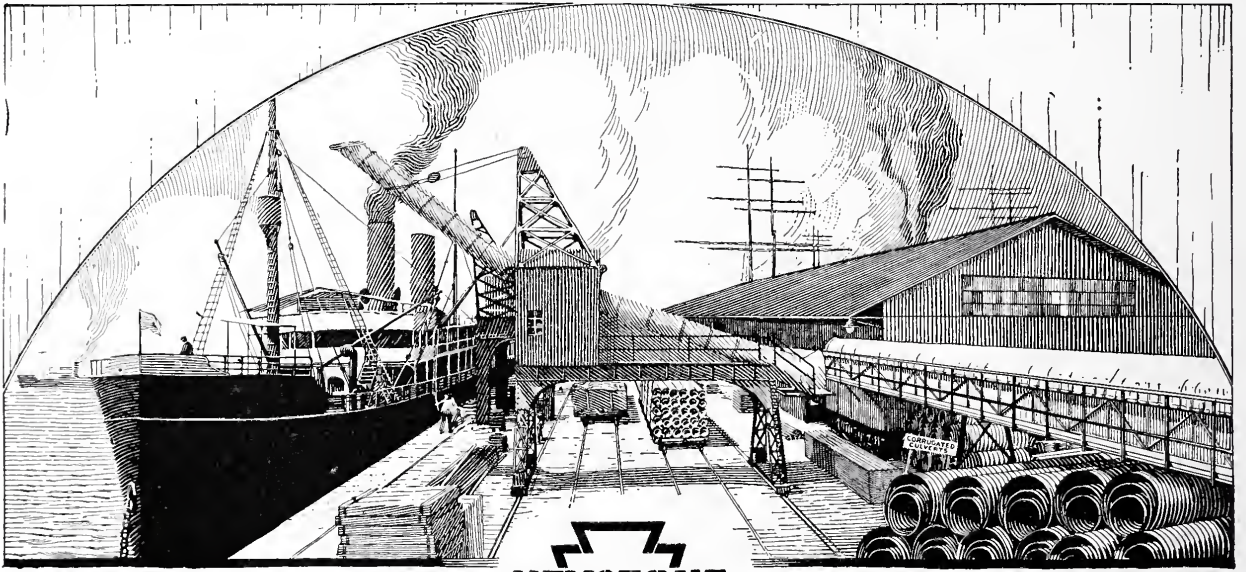
Dear Sir:--

In reply to your inquiry as to whether I had found a two-inch Metal lath and plaster wall "sound proof" or not.

Permit me to say that in our Hotels of 640 rooms where we have used this method that I believe we have as near sound proof rooms as modern engineering can construct. I gladly recommend your metal lath where fire proof or sound proof is a factor considered.

BIBLE INSTITUTE OF LOS ANGELES

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Superintendent of Construction



RUST-RESISTANCE—by all odds a quality of *first importance* in the selection of roofing and sheet metal products—is found in predominant degree in KEYSTONE Copper Steel. Actual service has proved this.

When we tell you that KEYSTONE Copper Steel sheets and terne plates will resist rust and withstand wear more effectively than any other steel or iron, we base our claims upon the indisputable tests of time and weather.

By skillful alloying of copper and steel, the makers have perfected a material that retards corrosion, saves replacement costs, and gives greater endurance under the most exacting conditions of weather or wear. No matter what the structure, or where the location — under the destructive action of seaboard storms, or from the ruinous acid fumes of industry — specify KEYSTONE Copper Steel for roofing, spouting, gutters and all sheet metal work.

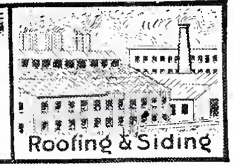
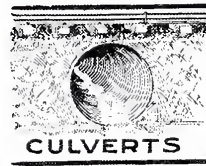
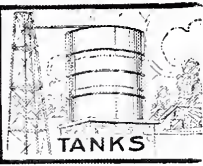
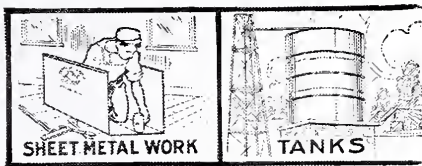
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THIS COMPANY is bending every effort, under very trying industrial conditions, to meet the insistent demands of its good friends and customers for its products. Progress is being made—but patience should be exercised until times become more normal.



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We manufacture Sheets and Plates for every known purpose. Leading metal merchants sell these products. Write nearest District Sales Office for booklets and full information.

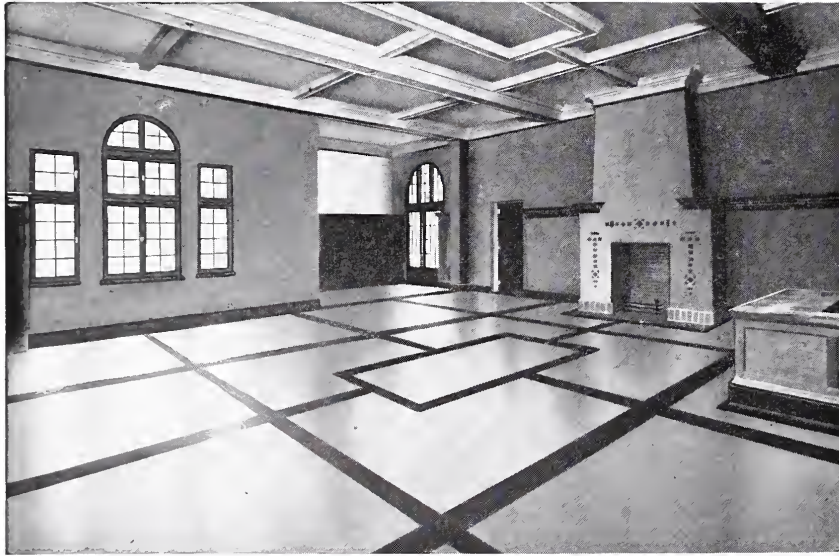
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Hygienic, Durable, Fireproof

Floors are the most used and most abused portions of every building and demand that only the best flooring material be specified.

ASBESTONE Composition Flooring is an ideal flooring for all interior purposes. It is recognized to be the most perfect Hygienic, Fireproof, Durable flooring that is installed plastic, presents a monolithic surface, smooth, jointless and artistic, is easy to keep clean, noiseless, resilient and easy to the tread.

ASBESTONE Composition Flooring is not cold or hard, like

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ASBESTONE can be installed over either new or old cement or wood, and can be supplied in a variety of artistic colors.

Specify ASBESTONE and insist on its installation. Installations made in all parts of the world.

Samples, prices and full particulars on application.

FRANKLYN R. MULLER & CO. Manufacturers Waukegan, Illinois

Established 1906



PAINT

For Interior Surfaces
of Industrial Buildings,
Garages, Etc.

The result required is a coating which is *white, light-diffusing, fire-retarding* and which *holds firmly and permanently* to the surface.

PERMANITE meets these requirements at about 50c. per gallon. PERMANITE is expressly made for use on brick, cement, wood, iron; it is the *right paint* (irrespective of price) for industrial buildings, garages, pier sheds, etc.

MADE BY

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NEW YORK

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"Quality First"



Mortar

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BRIGHTEST, STRONGEST, UNFADING

Manufacturers of

BUCK WHITE LEAD
The Best White Paint

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Ready Mixed or Semi-Liquid

**COLORS IN OIL, ALSO JAPAN
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REG. U.S. PAT. OFF.

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The new Pennsylvania Hotel in New York City (the largest and finest in the world) used 150,000 square yards of BRIKLATH.



*Eight
Years'
Record
Behind
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A Supervisory Service

Complete Supervisory and Inspection Service follows

Each Sale of **BRIKLATH**
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When you specify BrikLath your lathing job is supervised by expert lathers, employed by us. These men are well versed in the various uses of BrikLath, and architects should avail themselves of this service.

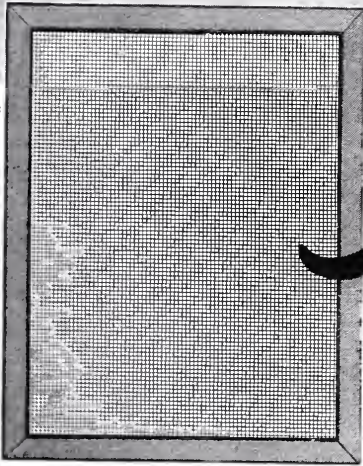
The Best Lath for Plastering

Composite Metal Lath Co.

1006 Majestic Building
Chicago

*What is
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*Factories at
New Chicago, Ind.
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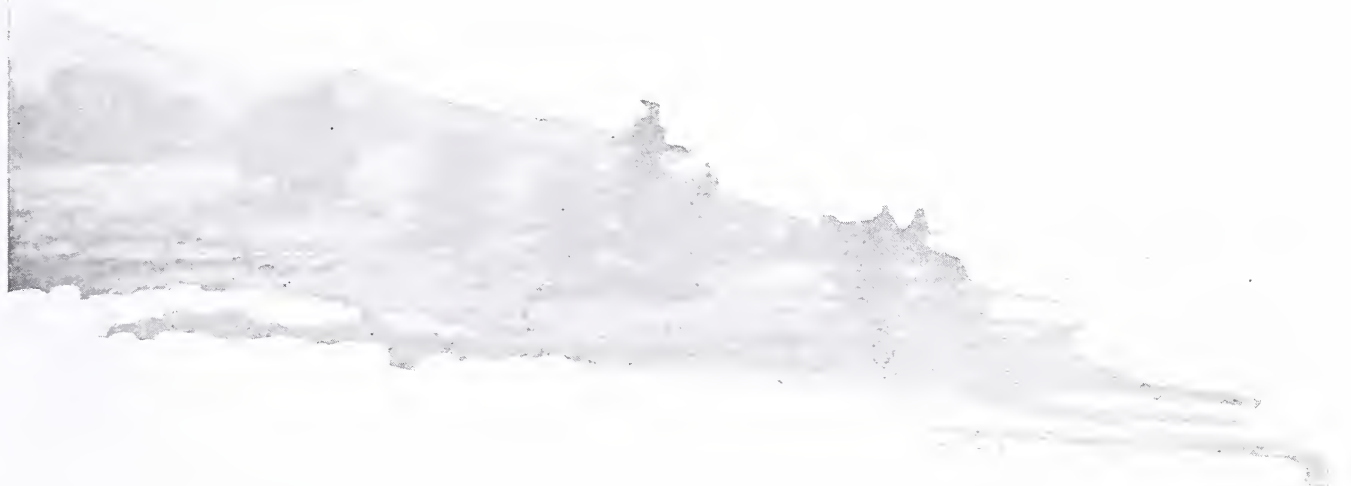
fog

How long does the screening you specify withstand its destructive action?

AT best, the most expensive grades of copper or bronze screen survive but a comparatively few years when subjected to the metal-eating action of salt-laden sea mists or acid-contaminated city fog. And steel screen under the most favorable climatic conditions is as quickly destroyed by the purest fog because it furnishes just the proper amount of moisture for rapid corrosion.

INCo
MONEL metal

THE INTERNATIONAL NICKEL COMPANY



But the most injurious fog has little or no effect on Monel Metal screen. Experience has shown that this screening stands up unharmed for many years exposed to the continuous attacks of salt spray, smoke and chemical fumes. It is practically everlasting even under the most severe service conditions. Besides, Monel Metal wire is so remarkably strong that Monel Screen resists knocks and blows that quickly ruin other screens.

The extraordinary durability of Monel Metal wire is indicated by its wide employment for unusually exacting service, such as screen used in manufacturing processes by the sugar, paper, oil and various other industries, and also for chemical filter cloth.

Monel screen is made in the usual widths, meshes and gauges. Write us for names of manufacturers where Monel Metal screen may be obtained.

THE INTERNATIONAL NICKEL COMPANY
43 Exchange Place **New York**

The International Nickel Company of Canada, Ltd., Toronto, Ontario

The name Monel is given to a line of metal products produced by The International Nickel Company from a natural nickel alloy—67% nickel, 28% copper and 5% other metals. These products include Monel blocks, Monel rods, Monel castings, Monel wire, Monel strip stock, Monel sheets, etc. The name Monel identifies the natural nickel alloy as produced by The International Nickel Company.

screen



THE INTERNATIONAL NICKEL COMPANY



The Architect and Painter Agree—

that *Liquid Velvet* absolutely satisfies every individual preference, as well as meets the most exacting demands.

They know that *Liquid Velvet* gives an immaculate, smooth, and washable surface to interior walls and ceilings. They know its economy in use makes it available for every grade of work from the modest to the sumptuous.

You have probably observed the growing use of *Liquid Velvet* in the last few years. Architects have found that *Liquid Velvet* is distinguished for its enduring qualities, it wears for years and years. It combines quick and hard drying properties without sacrificing elasticity or durability in any degree.

As an architect, you render your clients a valuable service when you specify *Liquid Velvet* and other O'Brien interior finishes including *Master Varnish*, *Flexico White Enamel* and *Pyramid Natural Wood Finishes*.

O'BRIEN VARNISH COMPANY
 1126 Washington Avenue SOUTH BEND, INDIANA
"Varnish Makers for Half a Century"



Liquid Velvet
 THE SPECIFIED BRAND



W. F. Dominick, Architect, N. Y.

The Outside Timbers and Boarding of this House are stained with

Cabot's Creosote Stains

All kinds of Exterior Lumber can be Stained at less than half the cost of Painting

THE Coloring Effects are much handsomer, because the Stains are transparent and bring out the beauty of the grain and texture of the wood, while a painty coating covers and spoils it.

Cabot's Stains cost 50% less than paint, look 100% better, and wear just as long, or longer. The Creosote penetrates and thoroughly preserves the wood.

Full information sent on request

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Cabot's Stucco and Brick Stains, "Quilt," Damp-proofing, Conservo Wood Preservative, etc.



Residence of W. W. Orcutt, 408 So. Mariposa St., Los Angeles, Calif., H. F. Dierker, Architect.

BAY STATE Brick and Cement COATING

A HOUSE takes its place in the front rank of beautiful homes after one or two applications of Bay State Brick and Cement Coating. And it protects as it beautifies. It waterproofs all walls of brick, cement or stucco. Rain can't beat through it.

In white, and a large range of delightful tints. Let us send you a sample. Write for Booklet No. 10. It shows many Bay State Coated Homes.

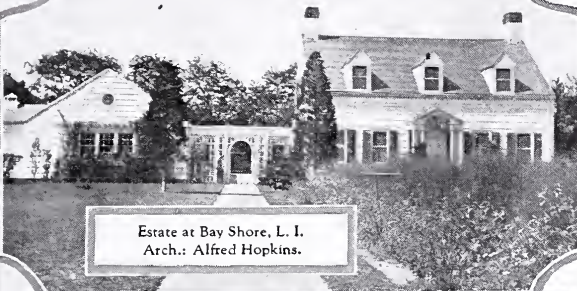


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“CREO-DIPT” Stained Shingles



Estate at Bay Shore, L. I.
Arch.: Alfred Hopkins.



Estate at Brockport, L. I.
Arch.: Alfred Hopkins.



Estate at Locust Valley, L. I.
Arch.: Alfred Hopkins.



Mr. Alfred Hopkins and other well known architects, use **“CREO-DIPT”** Dixie White for the true Colonial white effect, because our special factory treatment of **“CREO-DIPT”** Stained Shingles and the application of the Dixie White, is the only proven way of getting a true white that is clean, lasting and soft and will not wash off or scale.

Home builders can now realize their desire for those charming white walls with beautiful harmonizing color roofs, at a saving in cost of labor and materials, by using **“CREO-DIPT”** Stained Shingles.

Extra quality large 24-inch **“CREO-DIPT”** Stained Shingles, with heavy butts and wide exposure, afford that delightful wide shingle appearance of the old fashioned shingles of Colonial days.

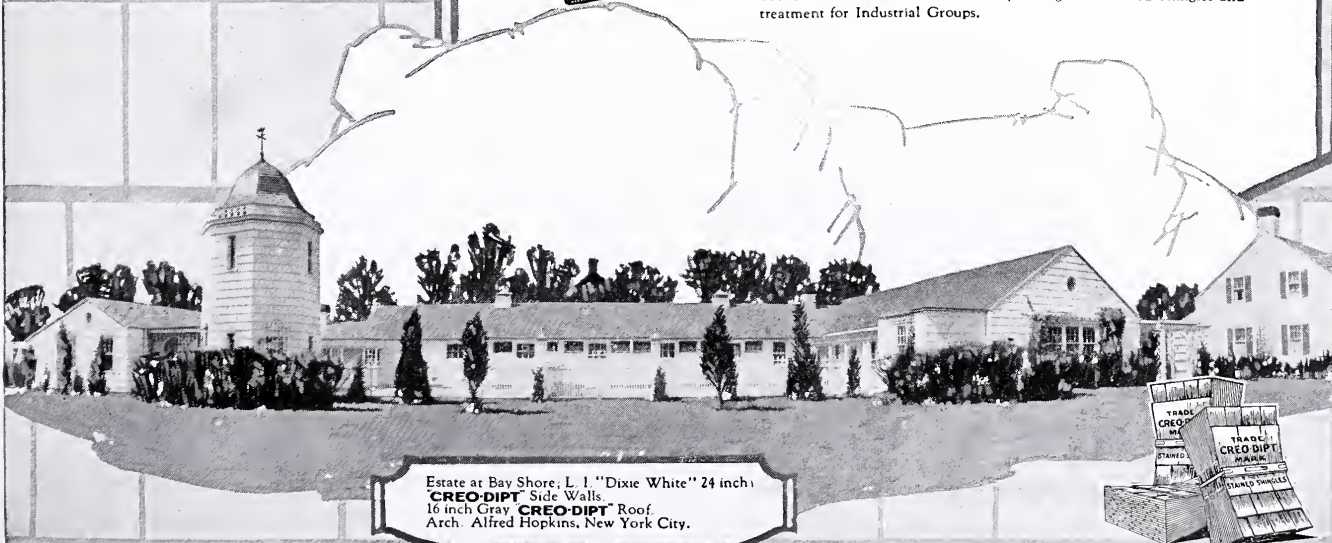
The open market does not afford such quality in either shingles or stain. **“CREO-DIPT”** Stained Shingles are furnished in 16", 18", and 24" lengths in any shade of brown, green, red or gray, as well as Dixie White.

CREO-DIPT COMPANY, Inc.

1025 OLIVER ST., NORTH TONAWANDA, N. Y.

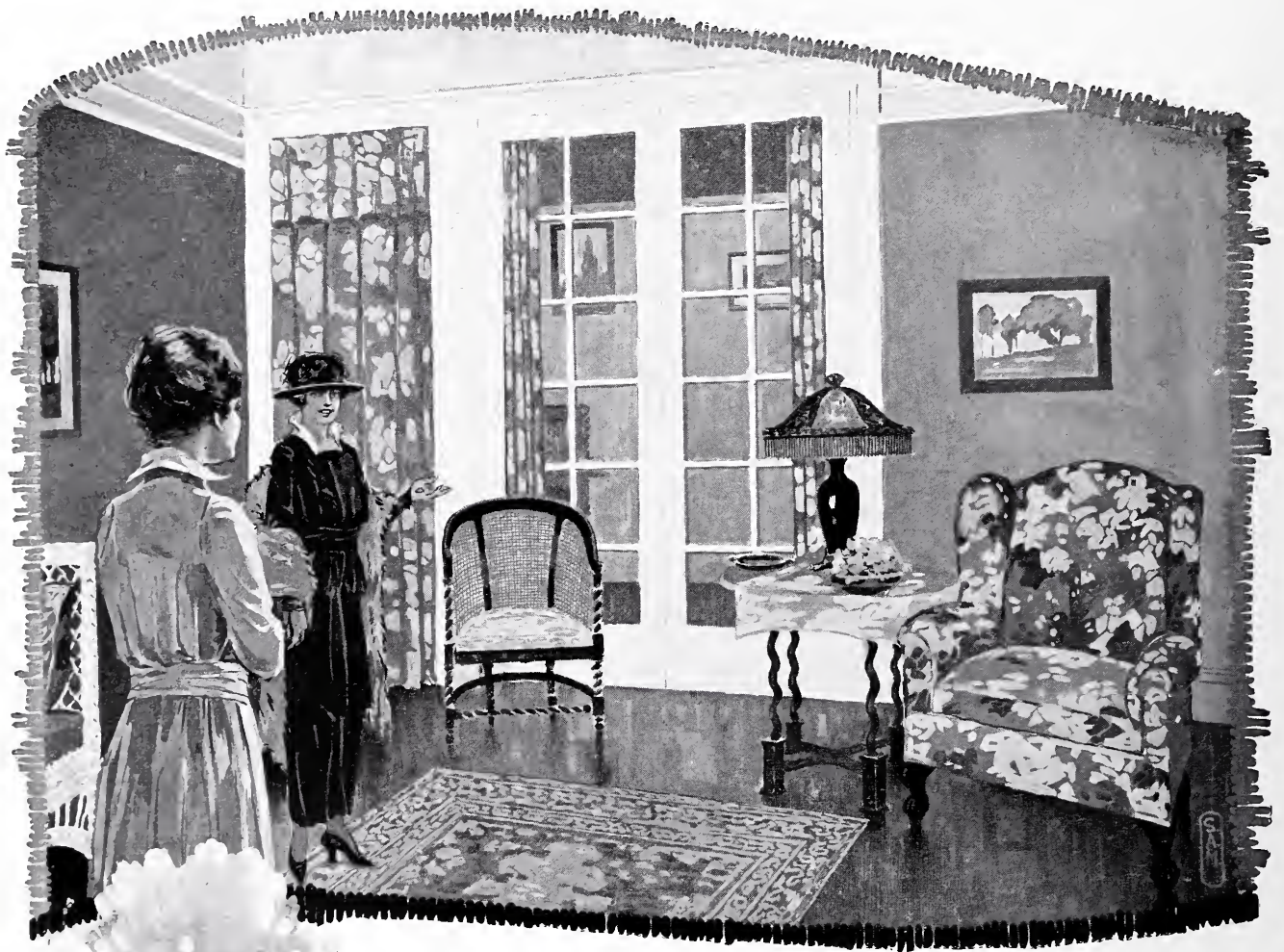
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Estate at Bay Shore; L. I. "Dixie White" 24 inch
“CREO-DIPT” Side Walls.
16 inch Gray **“CREO-DIPT”** Roof.
Arch. Alfred Hopkins, New York City.





I had a living room like this in mind long before we started to build," said the hostess, smiling reminiscently. "I wanted white enameled woodwork because I knew it would be so cheery and restful. It makes such a charming contrast with the dark walls and polished floors. We could never have afforded it in a hundred years had it not been for our architect."

"Oh, tell me about it," said the guest.

"Well, you see at first we figured on using expensive hardwood for our interior woodwork. The cost was much more than we could stand. Our architect then suggested that we use North Carolina Pine. He told us that it was the equal of most high-priced woods in every way when stained and polished, and in addition took enamels with no discoloration whatever. You can see for yourself that he knew what he was talking about."

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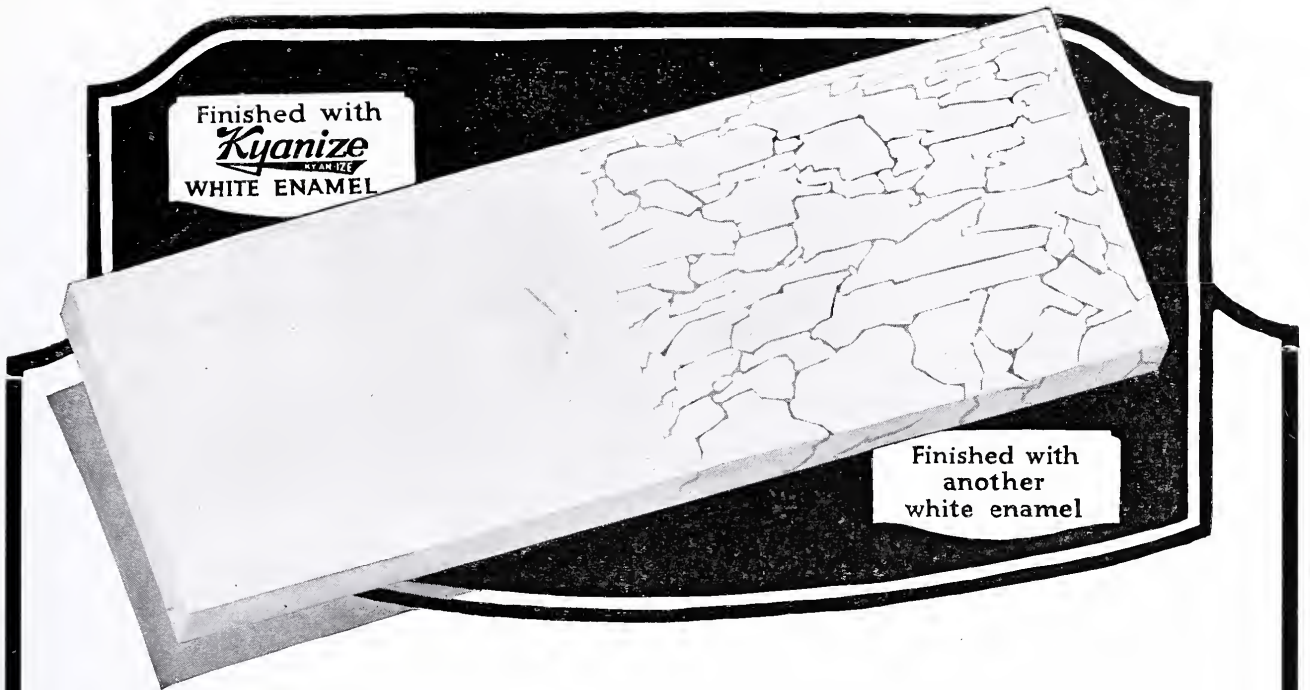
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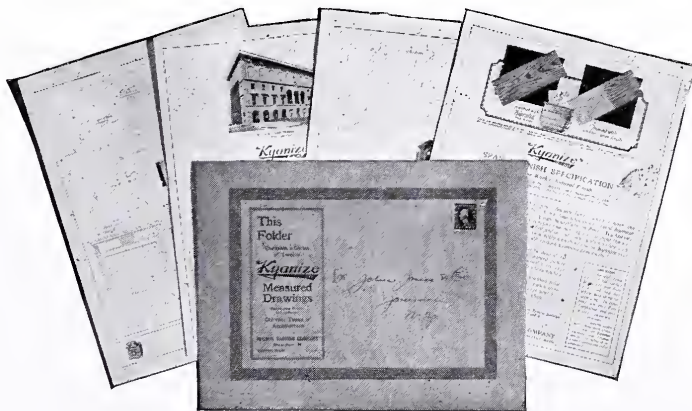


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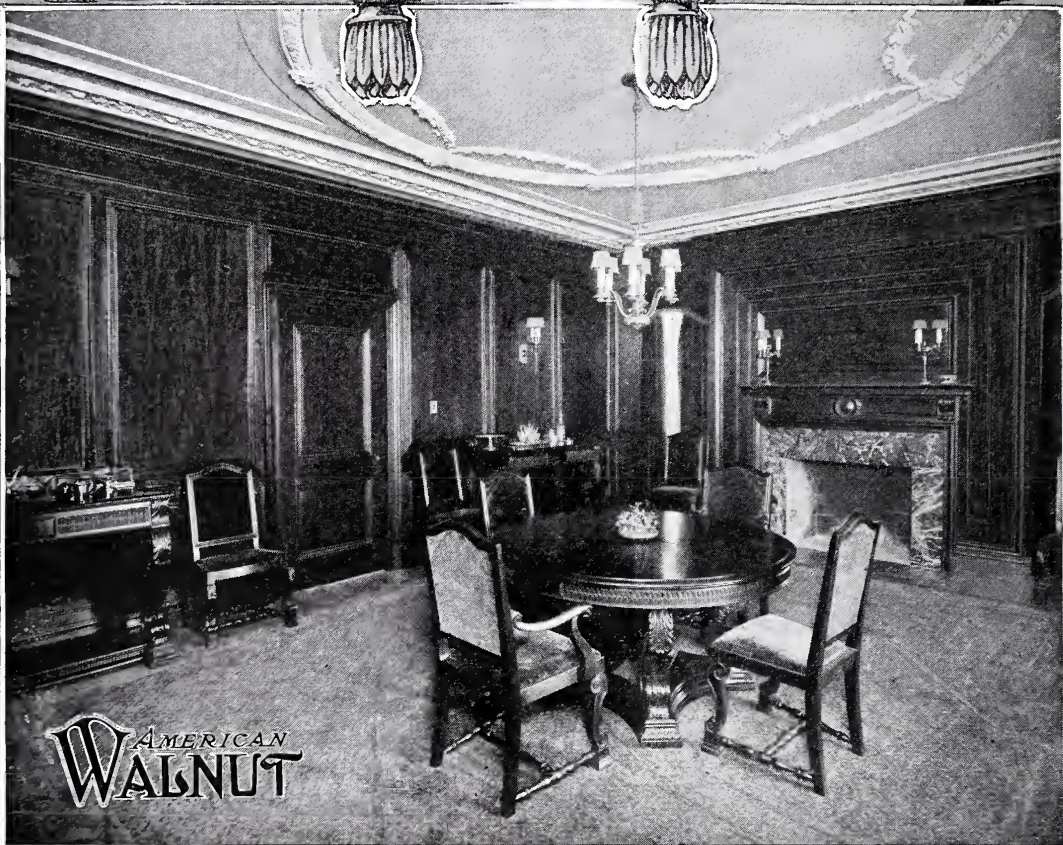
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American Walnut Paneling and Furniture*

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WHEN you are searching your imagination for that "precisely right," yet elusive "something," which will express your deepest conception of dignity, quiet, beauty, comfort, reserve, and rich but unostentatious luxury in the rooms of a home, consider *American Walnut*.

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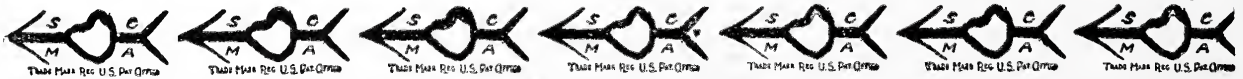
offers a practical solution of the problem of holding down interior finishing costs. It is a thoroughly satisfactory wood for trim, paneling and stair work. Stains may be applied with the definite knowledge that the grain will not raise. As a base for White Enamel, it is unexcelled.

Our Hand Book gives complete details, grading rules and other valuable data. A copy will be sent on request. Finished samples if desired.

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LITTLE ROCK, ARKANSAS





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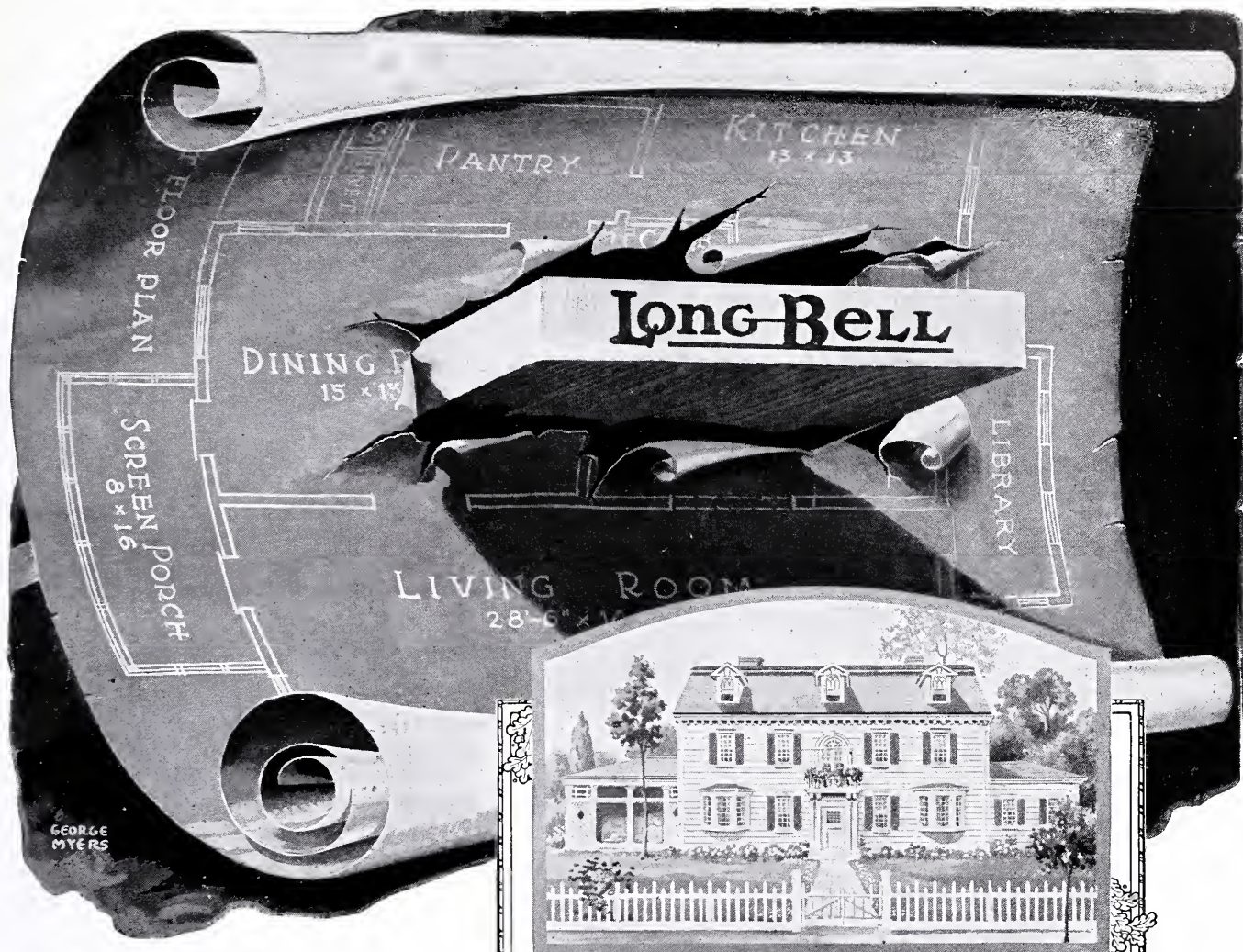
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IDENTIFIED BY THE CYPRESS ASSN'S. REGISTERED TRADE-MARK.
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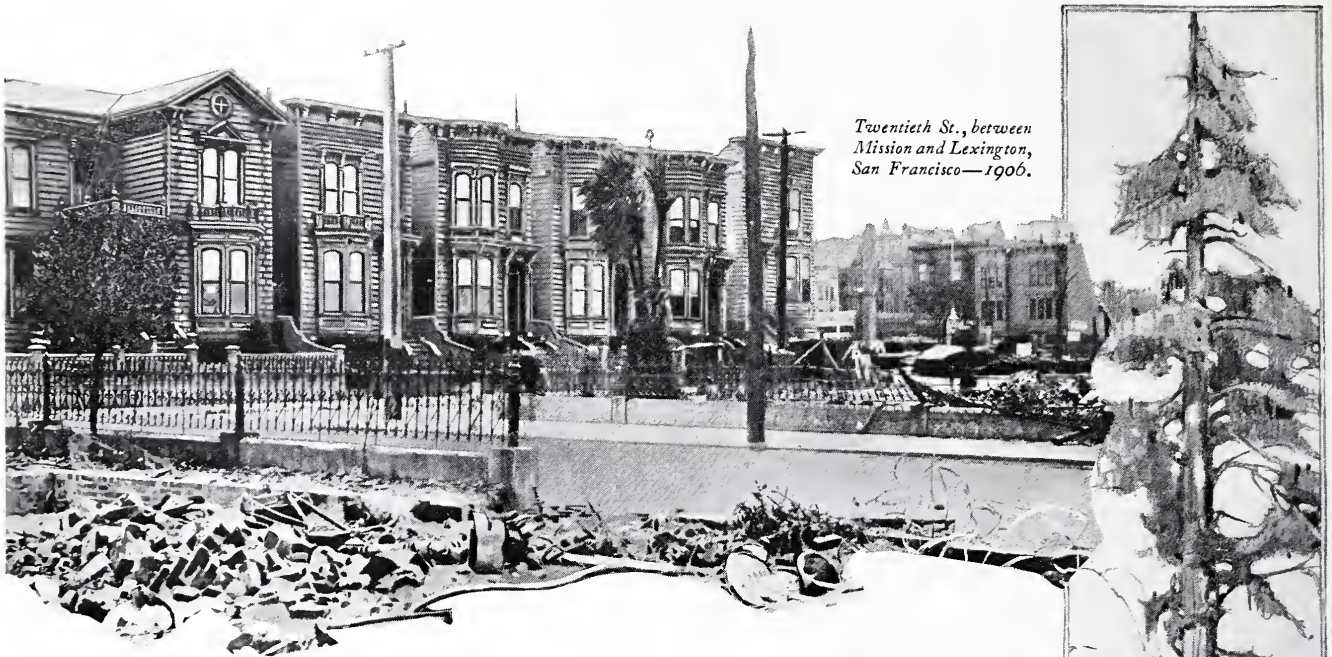
Another Reason Why Long-Bell is Branded on Lumber

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Long-Bell THE MARK ON QUALITY Lumber

is the name on lumber made in the mills of The Long-Bell Lumber Company, the largest manufacturer of Southern Pine in the United States. This lumber has back of it 45 years of thought and study to provide a product that would commend itself to builders everywhere because of its uniform high quality. Both as a matter of pride in good workmanship and as a guide to lumber users, the manufacturer's name is branded upon the ends of the boards.

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P. H. Shaughnessy, formerly Chief Engineer of the San Francisco Fire Department, says:

“After an extended experience of more than 22 years in active connection with the San Francisco Fire Department, the results of my observations convince me that under similar conditions of heat-exposure, Redwood lumber ignites much less quickly and burns much more slowly than . . . other resinous soft building woods with which I am familiar; and I am also convinced that when Redwood becomes ignited the fire is much more easily extinguished.”

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Redwood also resists *rot* to a remarkable degree, an added advantage in hundreds of construction and specialty uses. A *natural* preservative is present in the Redwood tree.

Gradually increasing knowledge of the unusual and peculiar properties of Redwood for many building, industrial and specialty purposes, has resulted in a demand for this lumber to the extent of taxing the present facilities of the Redwood mills. The mills are making every effort to enlarge their production to take care of the increased demand. There has also been a persistent demand from lumber users and prospective users for further information about this remarkable wood, and this series of advertisements is for the purpose of providing such information.

CALIFORNIA REDWOOD ASSOCIATION
760 EXPOSITION BUILDING, SAN FRANCISCO

California Redwood

Resists Fire and Rot

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Dusting Wearing Concrete Floors Are a
Thing of the Past Wherever
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the durable Mill White. Washable, of exceptional covering capacity. Gloss, Flat and Egg-shell; also all colors.

LIGNOPHOL
FOR WOODEN FLOORS

the modern wood preservative, gives new life to old or new wooden floors.

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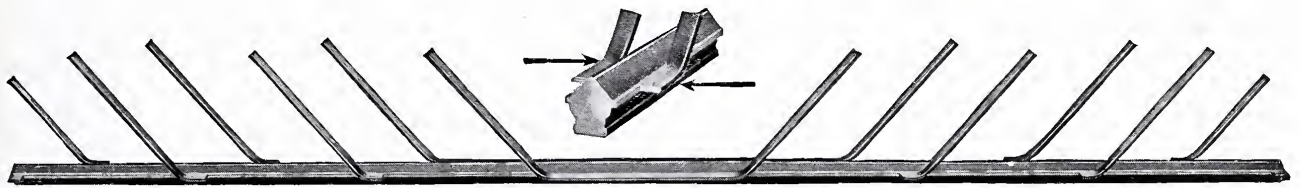
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Lapidolith for Dustlessness.

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Dept. 4, 264 Pearl St., New York

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Index to Advertising Announcements

Abendroth Brothers	96	Kelly Controller Company	114
Adam Electric Company, Frank	76	Kerner Incinerator Co., The	112
Alabama Pipe and Foundry Co.	96	Kewanee Boiler Company	115
American Brass Co., The	94	Kewanee Private Utilities Co.	82
American Enameled Brick and Tile Company	14	Kohler Company	101
American Enameling Manufacturing Corporation	96	Krupp Foundry Co.	96
American Face Brick Association, The	15	Lawson Manufacturing Company	69
American Fence Construction Co.	40	Leavens & Co., Inc., William	30
American Foundry and Pipe Co.	96	Long-Bell Lumber Co., The	41
American Lead Pencil Company	28	Lorillard Refrigerator Company, The	135
American Materials Co.	20	L. P. T. Specialty Co.	70
American Radiator Company	53	Ludowici-Celadon Company	11
American Sheet and Tin Plate Co.	120, 121	Lutton Company, Inc., W. H.	35
American Terra Cotta and Ceramic Co., The	10	Maddock's Sons Company, Thomas	99
American Walnut Manufacturers' Assn.	132	Magnesia Association of America	57
American Window Glass Company	70	Maurer & Son, Henry	14
Anchor Post Iron Works	38	McKinney Manufacturing Company	67
Angel & Co., Inc., H. Reeve	28	Medina Foundry Co.	96
Anniston Foundry Co.	96	Merchant & Evans Co.	106
Anti-Hydro Waterproofing Co.	87	Milwaukee Corrugating Co.	112
Arkansas Soft Pine Bureau	133	Minwax Company, Inc.	85
Armstrong Cork Company	21	Mississippi Wire Glass Co.	72
Armstrong's Linoleum	32	Moline Heat	107
Associated Tile Manufacturers, The	9	Morgan Sash and Door Company	Second Cover
Atlantic Terra Cotta Co.	3	Muller & Co., Franklyn R.	122
Barrett Company, The	51	National Building Granite Quarries Association, Inc.	20
Berry Brothers, Inc.	42	National Fire Proofing Company	1
Bessemer Soil Pipe Co.	96	National Foundry Co. of New York, Inc.	96
Bishopric Manufacturing Co., The	46	National Lead Company	Back Cover
Bobbin & Atkins	36	National Metal Molding Co.	95
Boston Varnish Company	131	National Pipe and Foundry Co.	96
Bostwick Steel Lath Co., The	44	National Tracing Cloth Co.	29
Boyle & Co., Inc., John	86	National Tube Co.	97
Bradford Brick Co.	16	New Jersey Terra Cotta Company	6
Bristol Company, The	24	New York Blue Print Paper Co.	28
Brunswick-Balke-Collender Co.	140	Nicholas Power Company, Inc.	34
Byers Co., A. M.	98	North Carolina Pine Association	128
Cabot, Inc., Samuel	126	North Western Expanded Metal Co.	119
California Redwood Association	136	Northwestern Terra Cotta Co., The	2
Campbell Manufacturing Co.	96	Notman & Co., A. H.	23
Carey Co., The Philip	88	O'Brien Varnish Co.	126
Carney's Cement Company	17	Page Boiler Co., The Wm. H.	104
Casey Hedges Co., The	96	Peelle Company, The	79
Central Foundry Co.	96	Pierson, F. R.	36
Charlotte Pipe and Foundry Co.	96	Polachek Bronze & Iron Co., John	30
Cheney Brothers	25, 31	Pratt & Cady Co., Inc.	106
Clarage Fan Company	117	Prometheus Electric Company	76
Clow & Sons, James B.	103	Ramp Buildings Corporation	5
Cohen, Michael & Co.	20	Raymond Concrete Pile Company	59
Composite Metal Lath Co.	123	Reading Foundry and Supply Co.	96
Congoleum Company, Inc.	26	Reliance Fireproof Door Co.	62
Conkling-Armstrong Terra Cotta Co.	6	Republic Fireproofing Co.	91
Cousa Pipe and Foundry Co.	96	Riverside Boiler Works, Inc.	113
Cox Stove Co., Abram	104	Rookwood Pottery Company, The	30
Crane Company	102	Royal Ventilator Co.	106
Creo-Dipt Company, Inc.	127	Rundle-Spence Manufacturing Company, The	80
Crittall Casement Window Co.	38	R. U. V. Company, Inc.	82
Crown Pipe and Foundry Co.	96	Salem Brass and Iron Manufacturing Co.	96
Curtis Companies, The	22	Samson Cordage Works	68
Cutler Mail Chute Co.	30	Sandusky Cement Co., The	19
Davey Tree Surgeons	37	Sargent & Company	64
Devoo & Reynolds Company, Inc.	130	Sedgwick Machine Works	78
Dixon Crucible Co., Joseph	27	Sherwin-Williams Co., The	129
Dunham Co., C. A.	111	Simplex Wire and Cable Co.	76
Eagle Picher Lead Co., The	130	Smith Co., The H. B.	55
Emack Co., The John D.	86	Smith & Co., Edw.	130
Fiske & Company, Inc.	13	Smith & Egge Mfg. Co., The	68
Fox Co., M. Ewing	122	Solry Tile Manufacturing Co., Inc.	14
French & Co., Samuel H.	122	Somerville Iron Works	96
Frink, I. P., Inc.	72	Sonneborn Sons, Inc., L.	137
Gadsden Pipe Co.	96	South Amboy Terra Cotta Co., The	4
General Electric Company	77	Southern Cypress Manufacturers' Association	134
General Fireproofing Company, The	84	Standard Foundry Co.	96
Gillis & Geoghegan	78	Stanley Works, The	65
Globe Ventilator Company	116	Stearns Lumber Co., The A. T.	80
Gorton & Lidgerwood Co.	112	Sturtevant Company, B. F.	108, 109
Goulds Manufacturing Co.	81	Superior Manufacturing Co.	96
Graver Corporation	83	Thomas Clock Company, Seth	80
Guastavino Co., R.	7	Toch Bros.	86
Habirshaw Electric Cable Co.	75	Touchstone Magazine	90
Hannam, George C.	4	Trenton Potteries Co., The	100
Heinz Roofing Tile Co., The	10	Truscon Laboratories, The	89
Hitchings & Co.	40	Truscon Steel Co.	118, 139
Hoffman Manufacturing Co., Andrew	39	Union Foundry Co.	96
Hollow Building Tile Ass'n, The	8	United Electric Company, The	74
Holophane Company, Inc.	61	United States Cast Iron Pipe & Foundry Co.	90
Hood Brick Co., B. Miffin	12	United States Mineral Wool Co.	90
Hoosier Manufacturing Company	33	United States Radiator Corporation	48
Hope & Sons, Henry	36	Utica Heater Company	105
Indiana Limestone Quarrymen's Association	18	Van Range Company, The John	116
International Casement Co., Inc.	36	Vonnegut Hardware Co.	66
International Nickel Co., The	124, 125	Wadsworth, Howland & Co., Inc.	126
Jenkins Bros.	110	Ward's Agency, Cynthia	116
Johns-Manville Co., H. W.	43	Weiskittel & Son Co., A.	96
Johnson Co., J. D.	96	Western Brick Company	14
Kaestner & Hecht Co.	Third Cover	Western Electric Co.	63
Kawneer Co., The	71	Wetter Manufacturing Co., H.	96
Keasbey & Mattison Company	92	Winkle Terra Cotta Co., The	4
		Wisconsin Lime & Cement Co.	20
		Yale & Towne Manufacturing Co., The	68
		Zouri Drawn Metals Co.	73



A Clear Saving of 10% to 20% In Beam Reinforcement

You can do as we have done in many actual cases: Take a beam identical in all concrete sizes and design it with two types of reinforcement. In the first beam use loose stirrups combined with bent and straight bars. In the other design use Kahn Trussed Bars combined with bent bars.

Figure the cost of steel in place in both cases. You will find a clear saving of 10% to 20% in favor of the beam reinforced with Kahn Trussed Bars. The reasons for this saving are at once apparent, as follows:

1. The entire cost of stirrups is eliminated, as in Kahn Trussed Bars the diagonals are formed from the excess steel at the ends of the main bar.
2. The saving of stirrups is a large item because of the small size of the bars and the correspondingly high tonnage cost for bending and placing.
3. The price of bent bars is considerably more than fabricated Kahn Bars, which is only \$3.00 per ton above base price.
4. The cost of placing steel in loose stirrup designs is much greater than where the complete unit frame of the Kahn Bar is used.

In any design of reinforced concrete beams and girders, Kahn Trussed Bars will save not only money but also labor. The bars are furnished in various sizes and many lengths of diagonals, and can be combined with any type of plain or deformed bar systems of reinforcement. There is a fixed price of only \$3.00 per ton for cost of fabricating, so the designer is assured of a definite price for the steel.

In addition, rigid connection of shear members in the Kahn

Trussed Bar gives an extra strength and safety to the design. The rigid connection makes the structure more positively proof against fire, shock and careless workmanship.

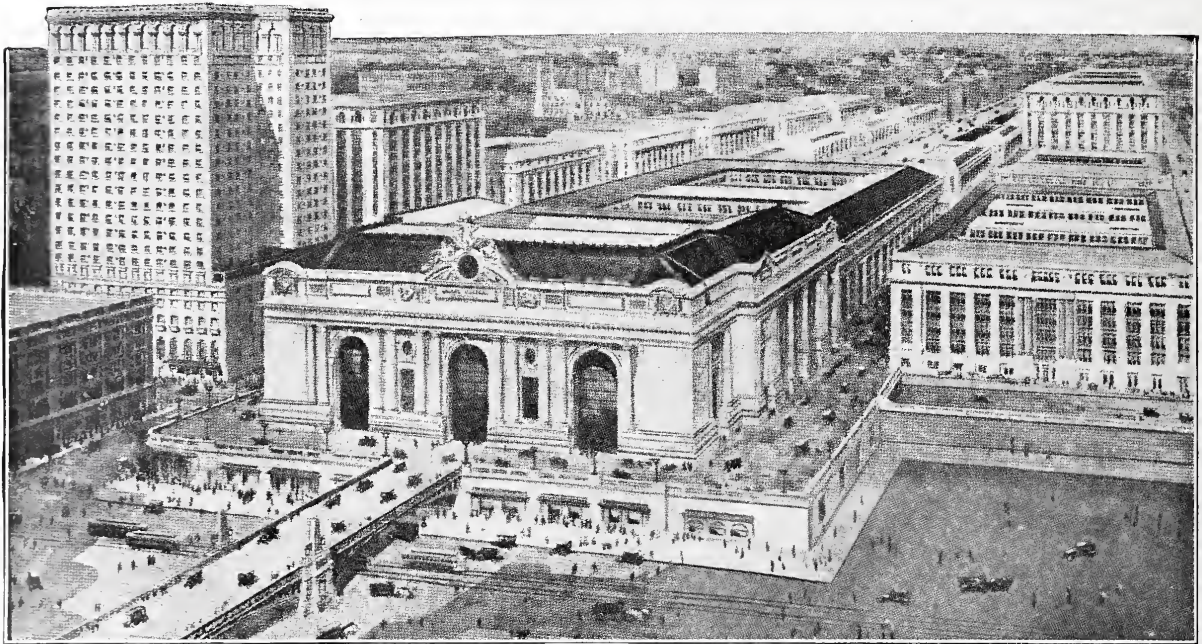
Most Important: Just now Kahn Trussed Bars can be shipped promptly, while small bars such as used for stirrups can only be obtained with great difficulty or after long delays. Order your Kahn Bars now. Conditions change rapidly and we soon may be compelled to advance shipping dates.



TRUSCON STEEL CO., Youngstown, Ohio

Warehouses and Sales Offices in Principal Cities

KAHN TRUSSED BARs



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WHALE-BONE-ITE TOILET SEATS

Equip These Two Stations

—Serving thousands daily with sanitary efficiency.

—These installations---the result of extreme time and academic tests.

—They are unqualifiedly guaranteed against


*Splitting,
Cracking or
Checking.*



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THE BRUNSWICK-BALKE-COLLENDER CO
1623 S. WABASH AVE. CHICAGO



The application of the electric fan principle (the one-to-one direct drive) to high speed electric elevators and our exclusive improvement known as the *KeH* magnetic cushion, insures a gain in efficiency of no less value than the gain in smooth, silent operation.

THE QUALITY
PRODUCT OF A
RESPONSIBLE
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KAESTNER & HECHT CO
ELECTRIC ELEVATOR BUILDERS
CHICAGO

GETTY RESEARCH INSTITUTE



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and as many of green or yellow
or brown or any other color.

Any one of them is yours when
you select for interior walls and
woodwork Dutch Boy White-Lead
and Dutch Boy Flattening Oil.

Thus it is easy for you to work
out in exact detail and harmony
any imagined color scheme.

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Without losing any of the well-
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that is smooth, silky, free from
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eyes.

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Walls painted with Dutch Boy
White-Lead and Dutch Boy Flat-
ting Oil are durable, because they
are impenetrable to dirt or water,
and can be washed as often as
necessary without injury.

NATIONAL LEAD COMPANY

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Cincinnati Cleveland St. Louis San Francisco

JOHN T. LEWIS & BROS. CO., Philadelphia
NATIONAL LEAD & OIL CO., Pittsburgh

Save the surface and you save all.
to save the surface, White-Lead it.



Dutch Boy White-Lead