

AUGUST

THE

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ARCHITECTURAL RECORD



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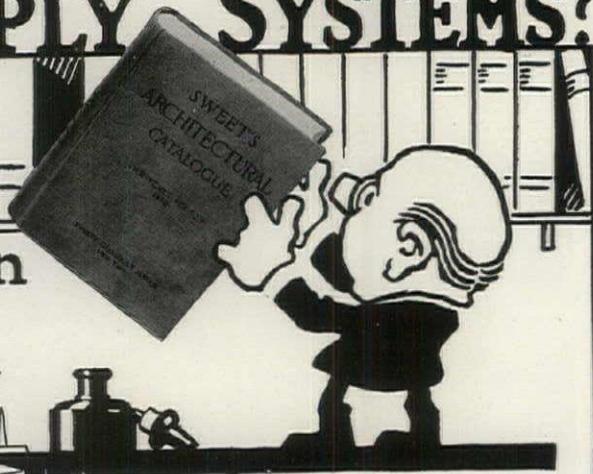
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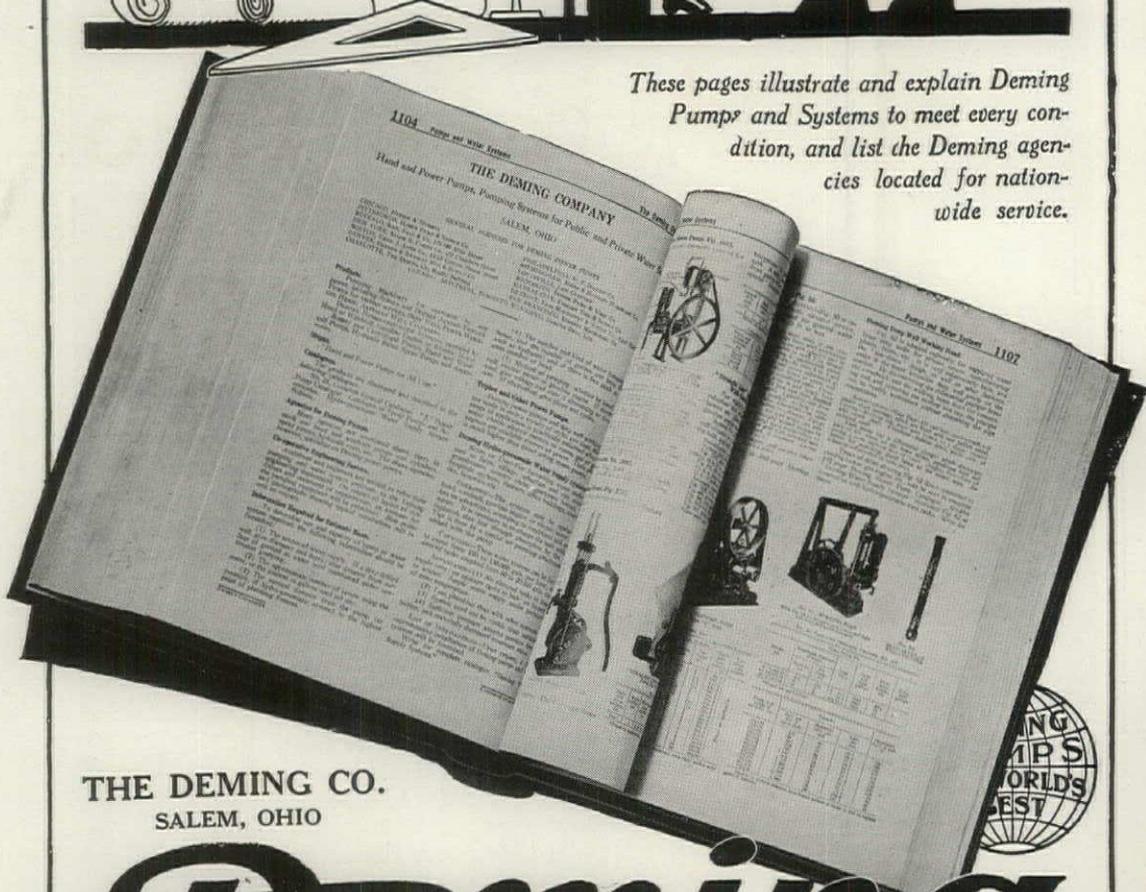
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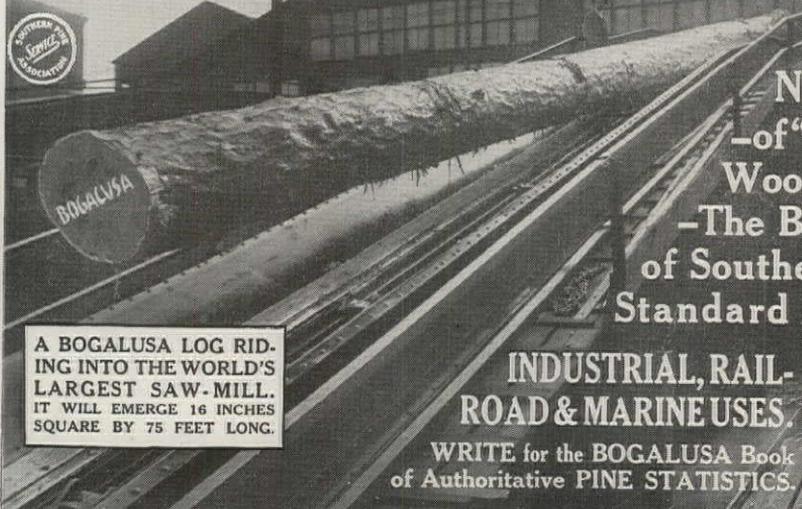
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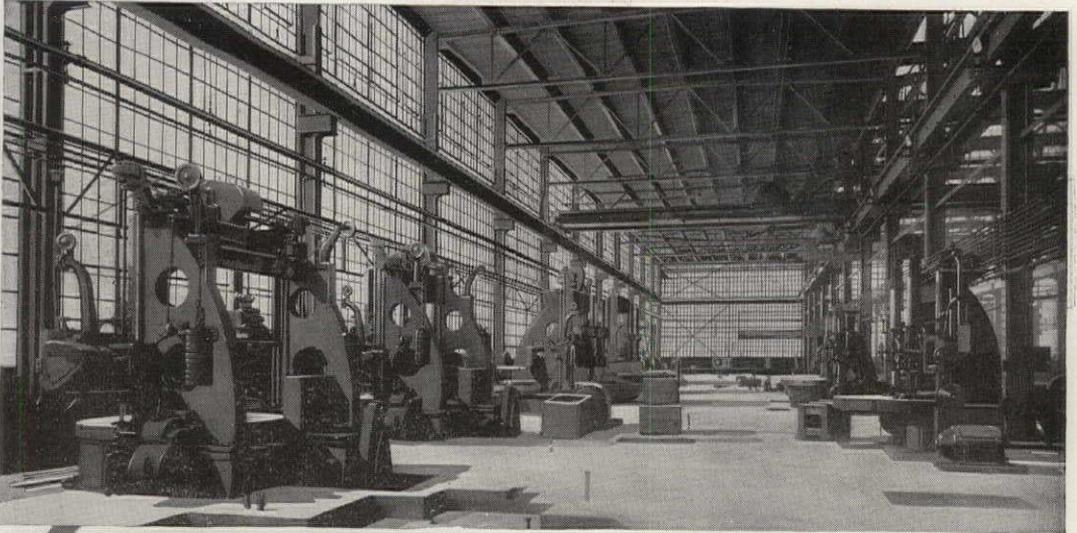
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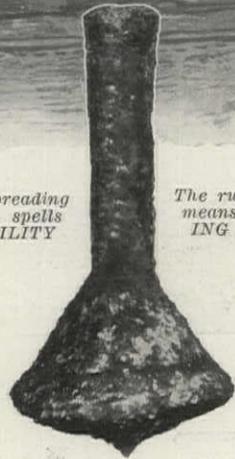
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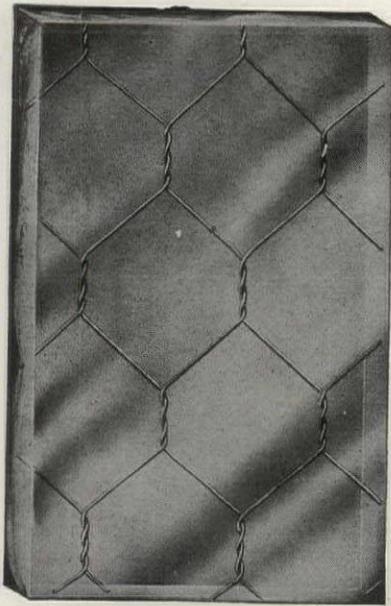
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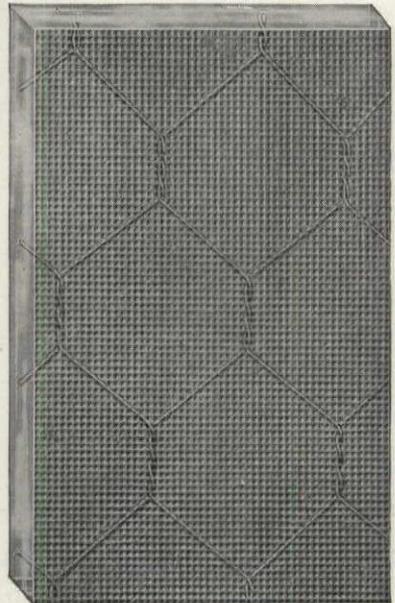


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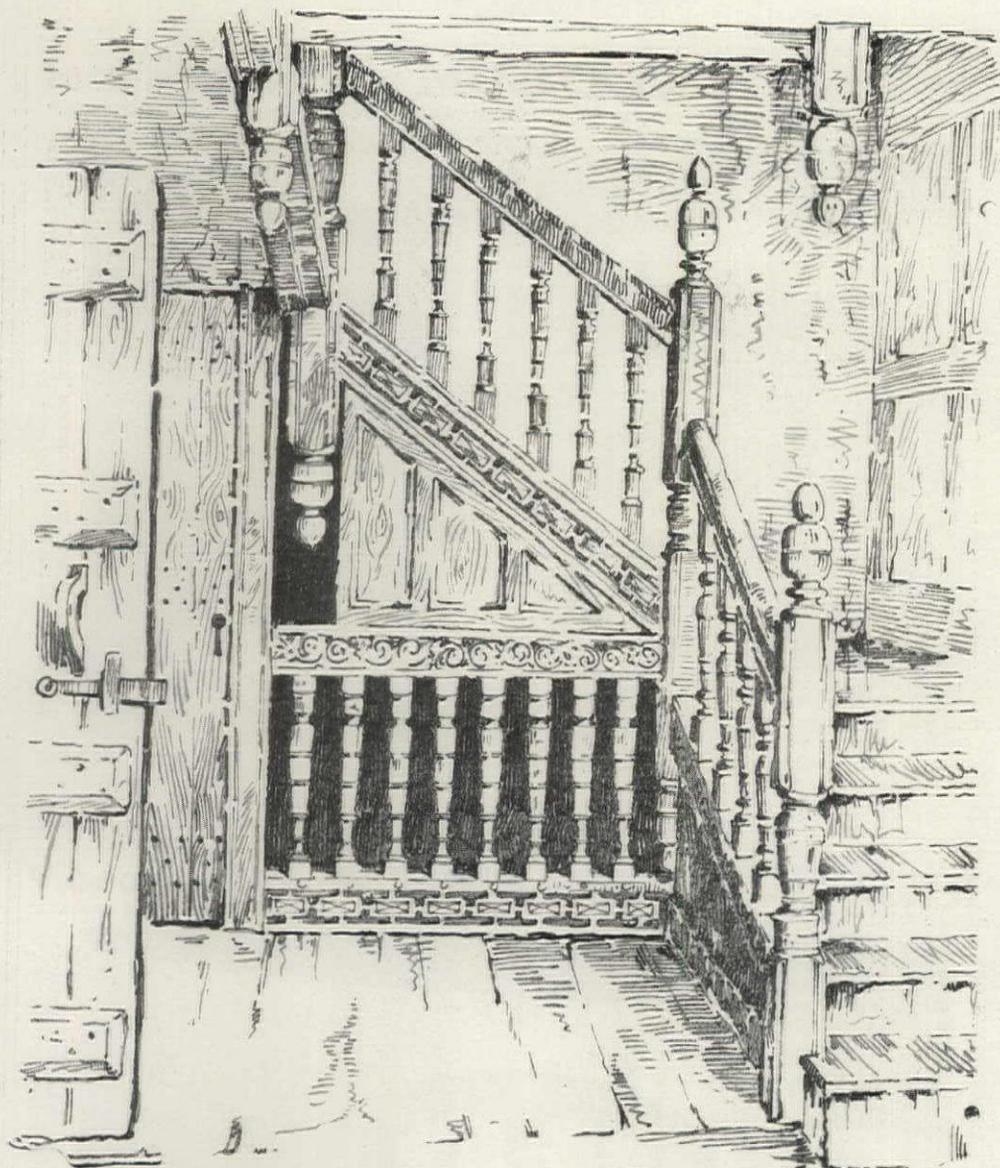
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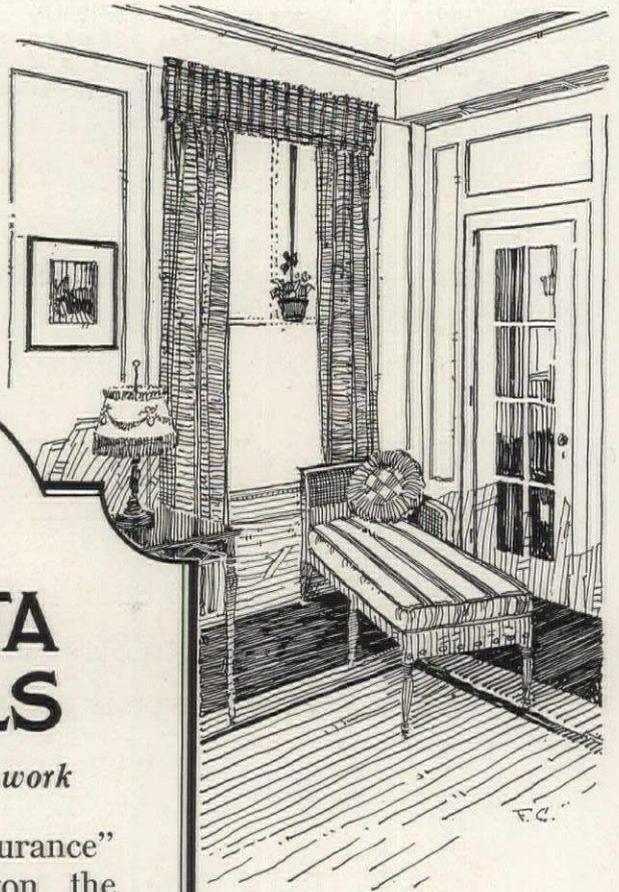
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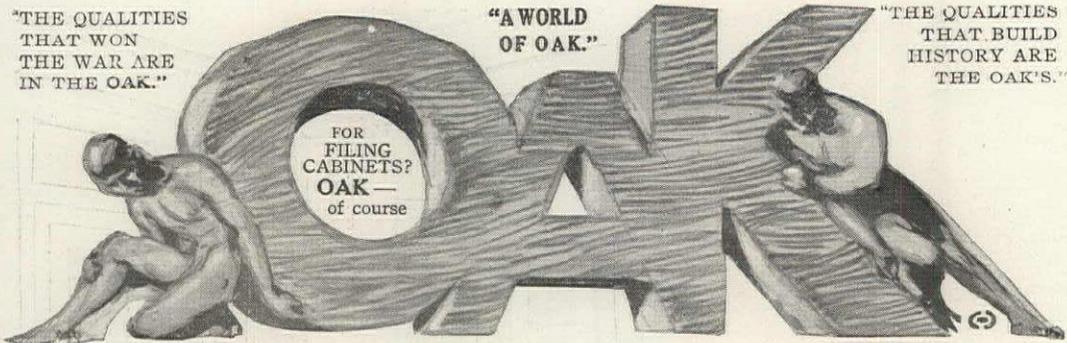
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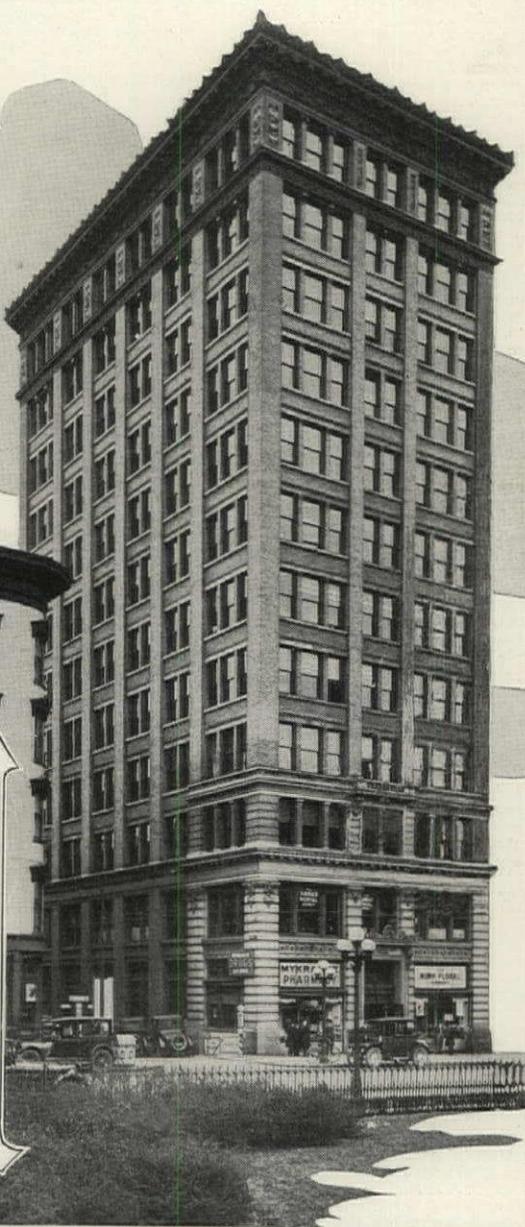
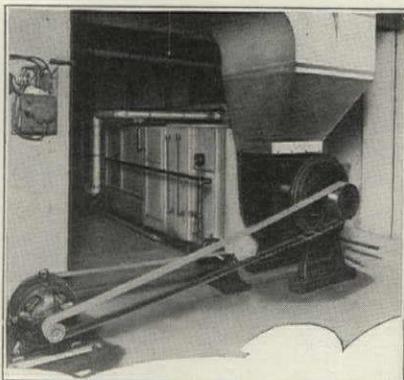
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ROTARY BALL-BEARING VENTILATOR

TO insure continuous ventilation without operating expense specify "Swartwout."



Illustration shows the glass-top or "skylight" ventilator. Heavy wired glass replaces the sloping back to allow the passage of direct light to the room below.



REALIZING that the painstaking architect is under continual pressure for time, and that our experience with the difficult subject of adequate ventilation in all its varied phases is unusually thorough, we are glad to place the expert service and long experience of our Engineering Department at your disposal on individual problems without obligation.

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9209 Detroit Ave.
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Branch office and agencies in principal cities from coast to coast

Patented



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The Open-Tank Process: Simple wooden tank (lined with sheet iron), equipped with steam coils and small derrick.

100% American

This trade-mark stands for everything which the words "100% American" imply, the world over.

It is, first of all, the most efficient wood preservative on the market.

It is strictly honest in quality.

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It is of American origin, a modern, distinctly American specification developed by Americans in American laboratories, and is second to none in the world.

It is the *universal wood preservative*, available everywhere in the United States, and eventually will be obtainable everywhere in the world.

Carbosota Creosote Oil is, of course, intended for non-pressure processes. It meets the new U. S. Shipping Board

Emergency Fleet Corporation Specification No. G-174-A-1, also U. S. Railroad Administration Specification No. R828A.

(Green wood cannot be effectively creosoted by non-pressure processes. It should be air-dry. In regions of moist, warm climate, wood of some species may start to decay before it can be air-dried. Exception should be made in such cases, and treatment modified accordingly.)

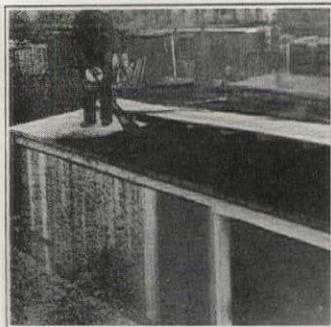
Specify "Carbosota" for results.

Technical service, specifications, etc., may be obtained gratis by addressing nearest office.

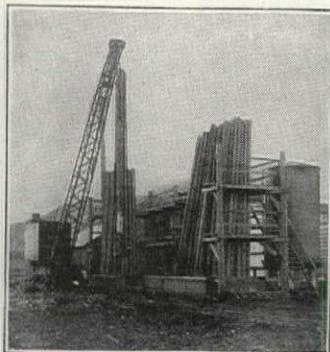
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Commercial Plant for Creosoting Poles by the Open-Tank System. Western Wood Preservers, Sandpoint, Idaho. (W. C. Assoc.)



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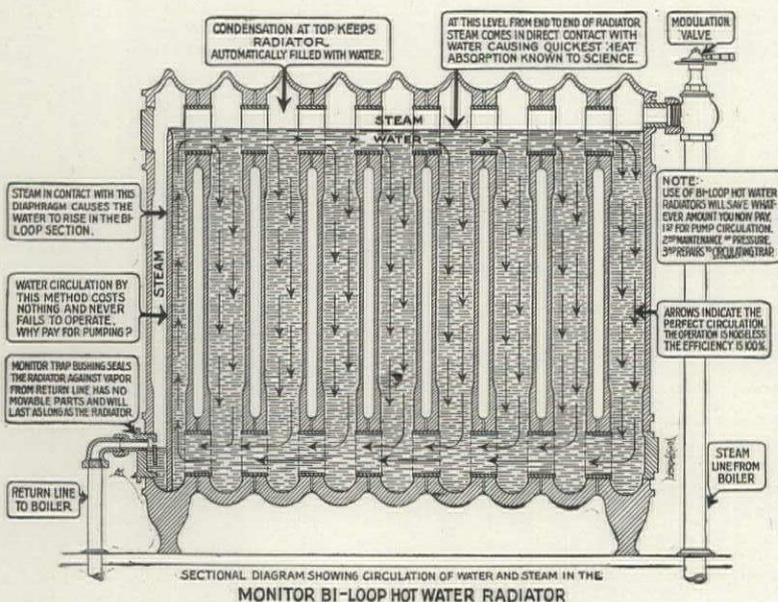
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(PATENTED)



This Radiator Has Revolutionized the Heating of Buildings of All Types and Heights

Monitor Bi-Loop Hot Water Radiators are used with the Monitor "U" Tube Boiler. Or they may be connected with any other good steam boiler to transform an inefficient steam heating system into a highest class hot water system.

This radiator, as shown by cut, is so constructed that when ready for operating it is 95 per cent. filled with water, thus leaving a space across the top and down one-half of the BI-LOOP section empty of water.

The steam coming in direct contact with water at the top of radiator causes quickest heat absorption known to science. The steam coming in contact with diaphragm or partition in BI-LOOP section causes water to rise, thereby starting a circulation which affects the entire radiator.

The water maintains itself at the level indicated without the slightest attention on the part of the operator. This effect is produced automatically by condensation of the steam.

In this system, the water does not return to the boiler to be reheated, but circulates within the radiator.

This method of heating the water is much more rapid and efficient than the old circulating method. In 20 minutes from the time steam is delivered to the BI-LOOP radiator it will be hot in every part.

The BI-LOOP Hot Water Heating System will give a greater range of temperature, thereby making it possible to save about 30 per cent. in the amount of radiation required.

The quantity of water to be heated in using the BI-LOOP System is only about one-half the quantity required in the ordinary hot water system. Therefore, if agreed that it would require less fuel to heat one barrel of water than two, you will arrive at one of the many reasons why the MONITOR BI-LOOP Radiators render better, quicker and more economical results than could be obtained by the old method of hot water heating. The BI-LOOP System combines all the advantages of steam, hot water, vapor or vacuum and eliminates their defects.

One of the greatest difficulties with steam or vapor heating systems, particularly in large buildings, has been the air removal problem.

With the BI-LOOP Hot Water Heating System, 95 per cent. of space in radiator is filled with water. The only air space is across the top and down one-half of the BI-LOOP section. Thus, we overcome this great difficulty without the use of a pump or mechanical device of any kind.

Among the other decided advantages over the old style hot water systems is the fact that every BI-LOOP radiator is a separate and distinct unit and can be operated independently of the others. For instance, by manipulating the modulation valve at the top of the radiator you govern the amount of steam you admit and therefore determine the temperature of water in radiator.

In this way a different temperature may be secured and maintained in different rooms, if desired.

GET THE MONITOR 1919 CATALOGUE

It will show you how to say a permanent "good-bye" to your troubles with heating systems.

MONITOR BI-LOOP RADIATOR CO.

IN BUSINESS SINCE 1890

LANCASTER, PA.

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It does not take them long to discover which has the best "bite," the most even surface and substantial "feel."

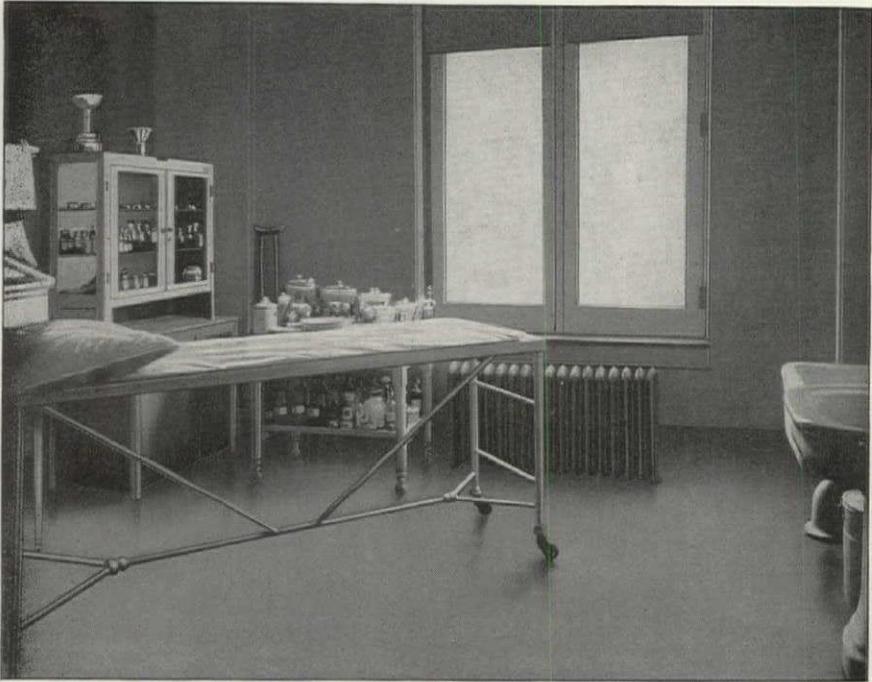
Surely, pupils should have what they want, especially when it is the best for them and most economical.

Number 7 of a series of 11 short talks.

Natural Slate Blackboard Company
Representing Thirty-five Quarries and Companies
Headquarters: Pen Argyl, Pennsylvania
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Outlast the Buildings - No Upkeep Expense



(A Blabon Linoleum Floor in the Medico-Chirurgical Hospital, Philadelphia)

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The first is sanitation; the second, quietness; the third, durability; the fourth, resiliency and comfort for the feet of those who must stand or walk for hours at a time. Linoleum is the only flooring in the world that combines *all of these qualities.*

In installing linoleum floors the two most important considerations are: first, to be sure that the quality of the linoleum is reliable; second, to be sure that it is properly laid.

By specifying BLABON Linoleum you can be certain of getting the very highest quality in every grade of linoleum. We have been leaders in the industry ever since its beginnings here in America. By following the specifications which we will gladly furnish upon your request, you can likewise be certain of having your linoleum floors *laid right.*

The George W Blabon Company

Established 68 years

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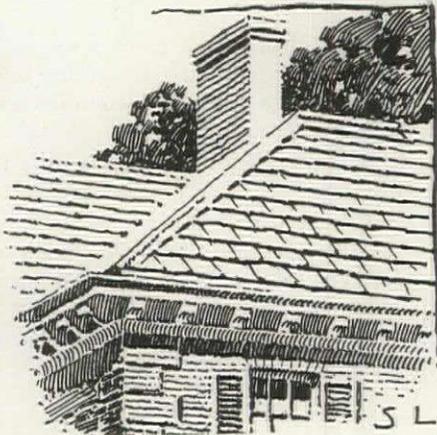
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Economy With the "Reverse English"

A common and faulty employment of "economy" by owners of homes and buildings of all kinds is its application to the wrong end of the transaction.

Those who are paying for the building sometimes seek to "economize" by doing away with Tiles and substituting other materials of less efficiency—disregarding the judgment of the architect, who knows full well that such economy is in reality a form of waste and loss that cannot possibly be met in any other way.

Tiled walls and floors, as the architect knows, represent true economy; and one of the functions of this association is to work with the architect in the dissemination of this truth.

The owner, seeking advice from the architect, is coming into a greater appreciation of Tiles, both for their decorative and practical values.

Color, texture, service, economy; all these are well met in the use of Tiles, and the steadily increasing building activity but adds to their use and popularity. Tiles represent not only a durable, satisfying material, but a medium of artistic expression without equal in the structural field. We are at the architect's service at all times.

The Associated Tile Manufacturers

BEAVER FALLS, PA.

A DIRECTORY FOR ARCHITECTURAL SPECIFICATIONS—Continued.

- Gorton & Lidgerwood Company.
Jenkins Brothers.
Moline Heat Company.
Newman Manufacturing Company.
- Varnish.**
Barrett Company, The.
Berry Brothers.
Boston Varnish Company.
Devoe & Reynolds Company.
Murphy Varnish Company.
Pitcairn Varnish Company.
Sherwin-Williams Company.
Smith & Company, Edward.
- Ventilators.**
American Blower Company.
Edwards Manufacturing Company.
Globe Ventilator Company.
Massachusetts Blower Company.
Moline Heat.
Merchant & Evans Company.
Ohio Blower Company.
Royal Ventilator Company.
Sturtevant Company, B. F.
- Ventilating Fans.**
See "Fans."
- Wall Board.**
Bishopric Manufacturing Company.
- Wall Covering.**
Standard Textile Products Company.
- Wall and Ceiling Finishes.**
See "Paints" and "Varnish."
- Wall Tile.**
Associated Tile Manufacturers' Association.
- Wardrobes.**
Knappe & Vogt Manufacturing Company.
- Water Heaters.**
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- Waterproof Materials.**
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Bird & Son, Incorporated.
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Great Southern Lumber Company.
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Oak Flooring Manufacturers' Association.
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For Industrial Houses— Slate Tubs, Sinks and Sink-Tops

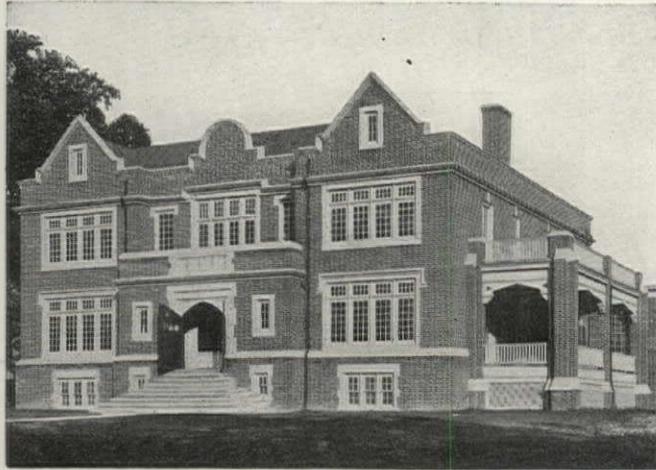
HOUSEWIVES regard them most highly, because so sanitary and easily cleaned. Impurities can be instantly washed off with plain water.

And no other material is so economical—Slate outlasts the buildings.

Specify Pyramid Brand Natural Slate. The Government is using it.

THE STRUCTURAL SLATE COMPANY

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PEN ARGYL, PENNSYLVANIA



Kno-Burn
 TRADE MARK
 METAL LATH

Building Homes for Millionaires

THE architects of such beautiful structures as the Cudahy home in Mackinac Island, the Harris residence at Enfield, Pa., the Storer mansion in Philadelphia and others, had their pick of the best materials the market afforded.

They Chose KNO-BURN Metal Lath

Their experience told them that, properly applied, this material was an ideal supporting vehicle for stuccoing and an equally satisfactory base for interior plastering work.

Time has proven the soundness of their judgment.

Past and present results alike are endorsements of the satisfaction of using KNO-BURN Metal Lath.

Our KNO-BURN book, "Fireproof Construction," sent free.

North Western Expanded Metal Co.

910 Old Colony Building

CHICAGO

*Why is it to the Architect's Advantage
under present conditions to specify
stock doors and millwork wherever possible*



*This mark on the top rail
of a door means a guaran-
teed door.*

THE sudden, tremendous revival of building has created a serious situation in the sash, door and millwork industry.

Factories are short-handed; business is coming in faster than it can be taken care of. The inevitable result will be delay in completing a lot of jobs — delay that will cause loss of rentals and deprive owners of the use of their buildings.

There is only one way that production can be speeded up.

Special work is at present interfering with maximum quantity production. One special job consumes enough time to complete about ten stock jobs.

You can see, therefore, how you can speed up building by specifying stock sizes and patterns wherever possible.

Furthermore, you effect a considerable saving for your client in the difference in cost between special and stock material.

Specifying stock designs does not mean monotony. Infinite variety is possible by combining various, harmonious stock members in cornice, mouldings, etc.

The "**Morgan Blue Book**," a copy of which will be sent you on request, will give you an idea of the completeness of our stock items.

And bear in mind, please, that with a wider use of stock designs and sizes we shall be able to make prompt shipments from factory and warehouse points.

*You can at the present time
perform no greater service
than helping to speed up
building.*

Morgan Sash & Door Company, Chicago
Dept. 98

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Morgan Company, Oshkosh, Wis.

Arts and Ethics Meet in the Apothegm "Those Who Can, Ought"

OBLIGATION IS MEASURED by opportunity and ability. Ability, the Architects throughout the United States, already possess. Opportunity is now offered them in the competition for a Small Face Brick House, announced in the August number of the Architectural Forum, to do a real service to the people of our country, much to their own and the people's advantage.

The Architect performs the double function of builder and artist. He at once serves the purpose of substantial and beautiful construction. His work involves both the mechanical and the fine arts.

And in furthering the current competition for a Small House, of which fully half a million are needed in our country today, he has the rare oppor-

tunity, in planning the Face Brick house, of combining both functions of his art, the practicality of enduring value and the attractiveness of simple beauty. He builds of sound and lasting materials (*firmitas*) in a way to meet the practical uses and comforts of the home (*utilitas*), and he expresses these material values in the loveliness (*venustas*) of outward artistic form.

The results of the competition now open may well mean:

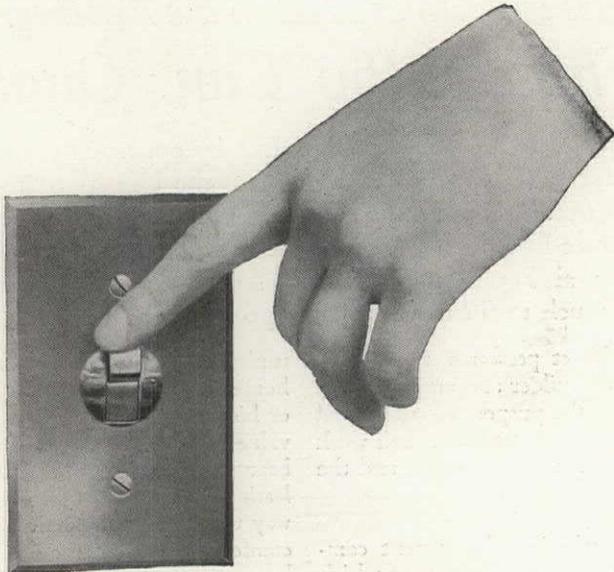
- *A stimulus to home owning and a consequent encouragement to a higher and more contented citizenship.*
- *A better type of architecture throughout the country in the smaller places, and a consequent general enhancement of artistic appreciation.*
- *A pervasive and beneficial influence upon the whole community where the better work is done.*
- *A growing tendency to appreciate and call for the services of the architect where hitherto artistic deadness has been satisfied with flimsy jerrybuilding and atrocious designs.*
- *A keener understanding of architectural values by those whose worldly success brings them to the great city architect with their more ambitious plans for building.*

In a word, it will be a broad and lasting education, in higher forms of art, that is sure to react with benefit upon those whose artistic ability made it possible.

Copies of the programme may be had either from the Architectural Forum, Boston, or from our Chicago office.

AMERICAN FACE BRICK ASSOCIATION
1120 Westminster Building : : : : Chicago, Illinois

A New G-E Switch



ARCHITECTS who give attention to the more important details of wiring plans will be interested in the new G-E tumbler switch.

This type embodies the very latest improvements in switch design, its convenience and attractive appearance recommending it for use in installations for fastidious clients.

The sturdy mechanism of this switch is operated by a light touch on a single button, up to turn on the current, down to turn it off. The flush type can be furnished with either black composition or metal covered button to match the finish of the escutcheon plate.

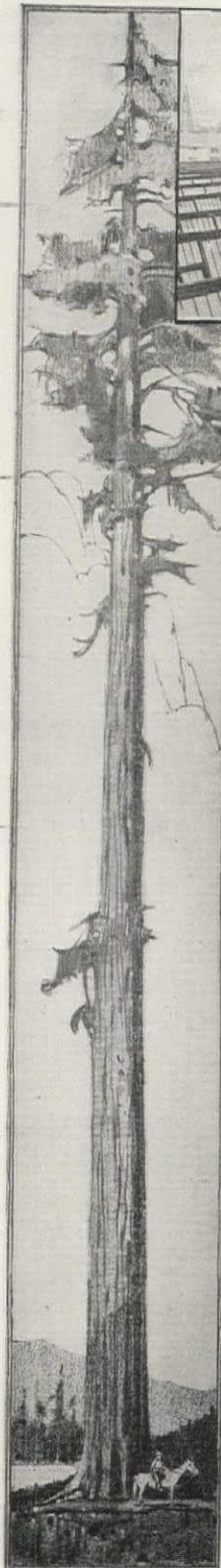


G-E Tumbler Switches are also made surface type in two sizes. A sample of either type will be furnished to architects upon request. Address Supply Department.

G-E RELIABLE WIRING DEVICES
can be furnished by any reputable electrical contractor

41-47

General  **Electric**
General Office **Company** Schenectady, N.Y.



Saw-tooth roof Whitman Weaving Mill, New Bedford. Rotted boards replaced with long-lived Redwood



Roof boards of Redwood prevent condensation of moisture, as well as resisting decay-producing fungi

Where proper insulation and resistance to decay count big

At the Whitman Weaving Mill, New Bedford, shown above, the roof boards, which had rotted badly in the moist mill atmosphere, have been recently replaced with California Redwood.

H. J. Hoxie, Engineer and Special Inspector of the Associated Mutual Fire Insurance Companies, Boston, writes regarding this work:

"I am well aware of the excellent rot-resisting qualities of California Redwood, also of its high insulating power. I believe there is an excellent field for Redwood for roofs, especially in paper mills, weave mills and other finishing mills."

The peculiar and uniform cellular structure of Redwood accounts for its insulating qualities, while a *natural* preservative prevents the formation or growth of decay-producing fungi in Redwood lumber. Hence its great value to works exposed to moisture, earth or chemicals.

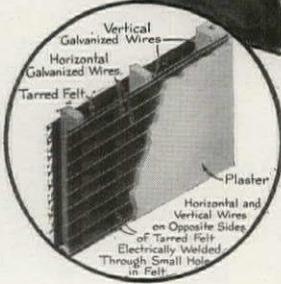
Investigate Redwood. Write for free booklets: "Redwood for the Engineer," "Redwood Roofs," "Redwood Homes," "Redwood Block Flooring," "Redwood Lattice Trusses" and others describing the many uses of Redwood.

Your lumber dealer should carry Redwood. If not, write us and your requirements will be supplied.

CALIFORNIA REDWOOD ASSOCIATION
720 Exposition Building, San Francisco, California

California Redwood

Resists fire and rot



Unique Among Lathing Materials

The advantages which Clinton Welded Sheathing offers in structural efficiency and economy are significantly attested by the extensively increasing use of this unique lathing material on interior plastering and stucco work.

Composed of Electrically Welded Wire Fabric with a sheet of tough water-proofed tarred felt securely locked between the wires, this product is not only a supporting base, but a positive reinforcement for plaster. It insures strength and permanency.

On large Government and other construction jobs, Clinton Welded Sheathing, itself a relatively low priced lath, has proved to be a product the use of which effects considerable economy in plaster, time, and labor, as shown on the following page.

CLINTON

CLINTON-WRIGHT WIRE CO. FACTORY—CLINTON MASS.



Effects A Threefold Economy

Plaster—The tarred felt backing eliminates waste and drippings—requires much less mortar for the scratch coat than is needed on any type of open mesh lath.

Time—The use of Clinton Welded Sheathing makes possible the erection of wood-frame and cement-plaster buildings, permanent in character, in the time usually required for the building of temporary wooden structures.

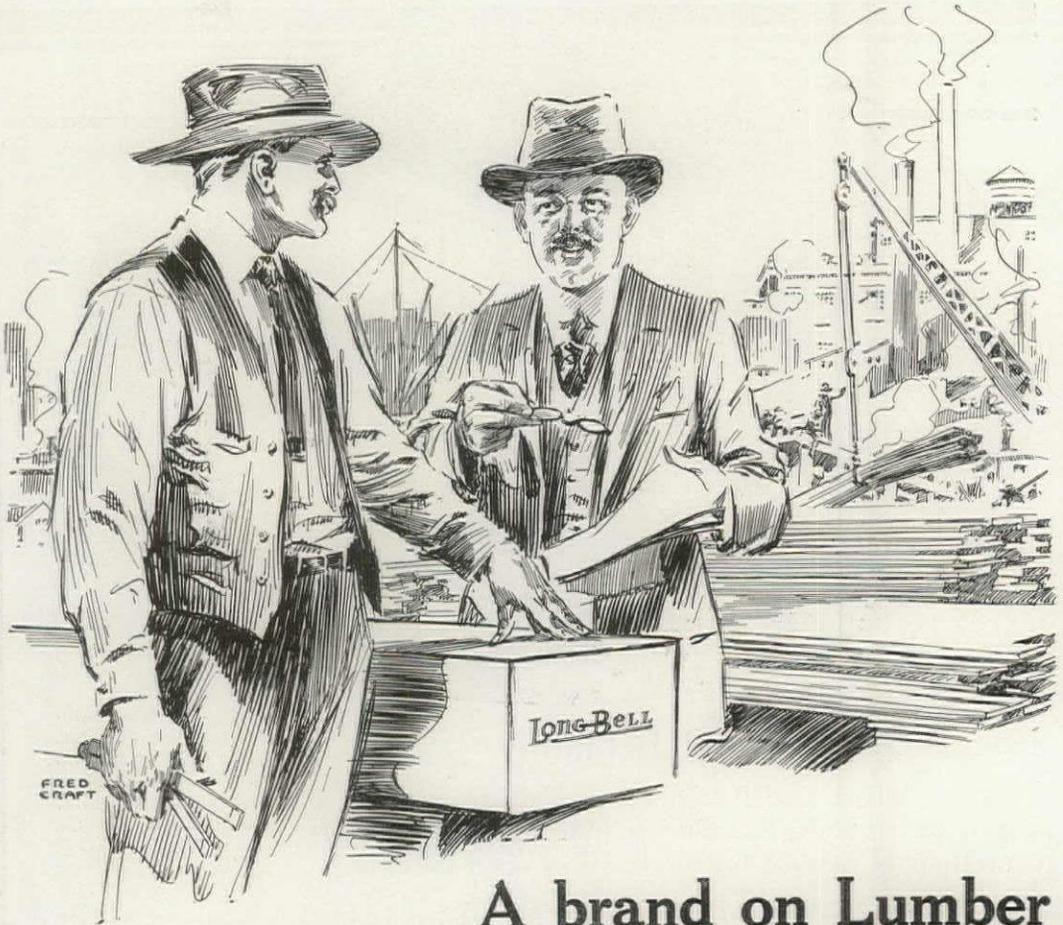
Labor—The ease with which plaster can be applied smoothly, evenly, firmly, against the tarred felt backing, effects a marked saving in labor as compared with the open mesh types of lath.

Clinton Welded Sheathing is also suitable for light reinforcement of concrete floors and roofs. Fully explanatory booklet on request.

Clinton Welded Sheathing stapled directly on studs. Homes built at Oakville, Conn., for the Oakville Company, by the Aberthaw Construction Co., Boston, Mass.

Welded Sheathing

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The largest manufacturer of Southern Pine in the United States is The Long-Bell Lumber Company. It gives particular attention to such grades as will meet all requirements for *permanence, strength, safety* and *economy* in heavier construction. This concern is 44 years old and it has built up an enviable system of milling and grading. That its product may be distinguished, this trade-marked brand will be found upon its timbers and lumber:

Manufacturer of Southern Pine Lumber, Oak, Oak Flooring, Gum; California White Pine, California White Pine Sash and Doors, Screen Doors, 3-ply Veneers, Box Shooks; Creosoted Lumber, Ties, Posts, Poles, Piling and Wood Blocks.

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Kansas City, Missouri

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IN drawing plans for large residences, do not overlook leaving a suitable space for a residential pipe organ.

Persons of means and refinement today, almost without exception, will include the installation of a pipe organ in their homes, especially if its desirability is brought to their attention.

This is especially true of the

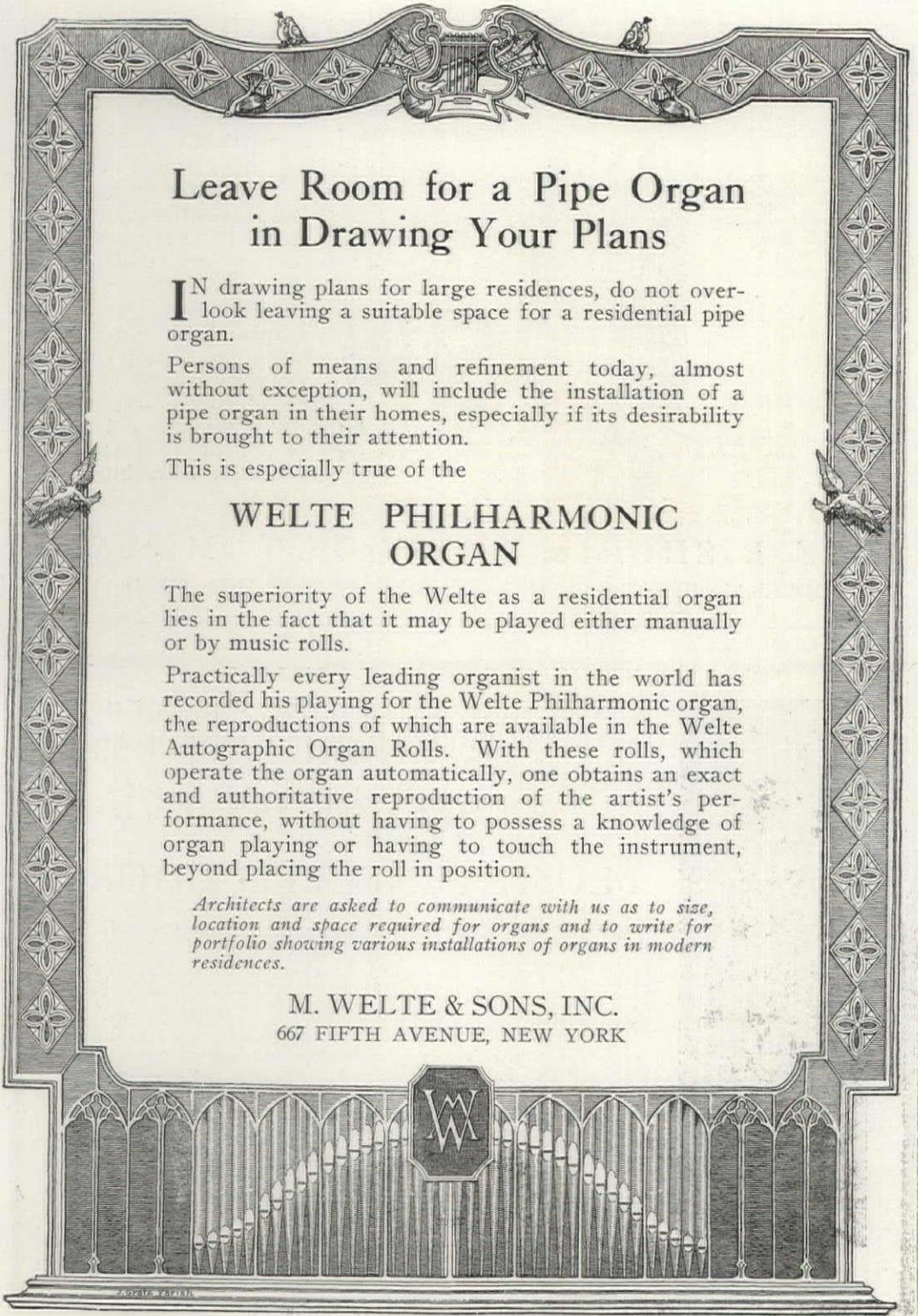
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The superiority of the Welte as a residential organ lies in the fact that it may be played either manually or by music rolls.

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Architects are asked to communicate with us as to size, location and space required for organs and to write for portfolio showing various installations of organs in modern residences.

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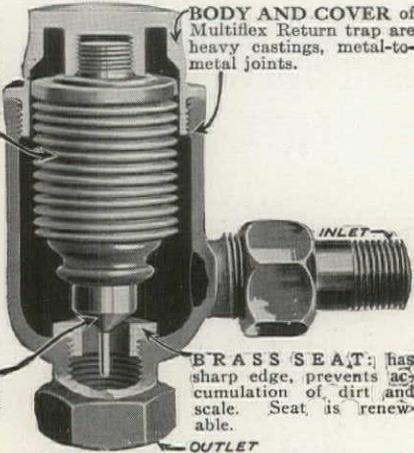


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THERMAL MEMBER: heavy special composition brass, the corrugations being formed by an ingenious spinning process with frequent heat treatments to eliminate internal strains.



BODY AND COVER of Multiflex Return trap are heavy castings, metal-to-metal joints.

CONICAL VALVE always insures positive seating. Made of the best steam brass.

BRASS SEAT: has sharp edge, prevents accumulation of dirt and scale. Seat is renewable.

Interior View B & B Multiflex Return Trap

THE B & B Multiflex Return Trap is radically different from others and a decided improvement in many respects. Condensation discharges rapidly, owing to the immediate response of valve to slightest change of temperature. This trap with its pleasing outlines is not objectionable to the most exquisite furnishings.

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- They possess dignity and character, and give the same sense of well being as any other superior article.
- Standing before the beautiful polished surface of this door, one cannot fail to be impressed with its richness.

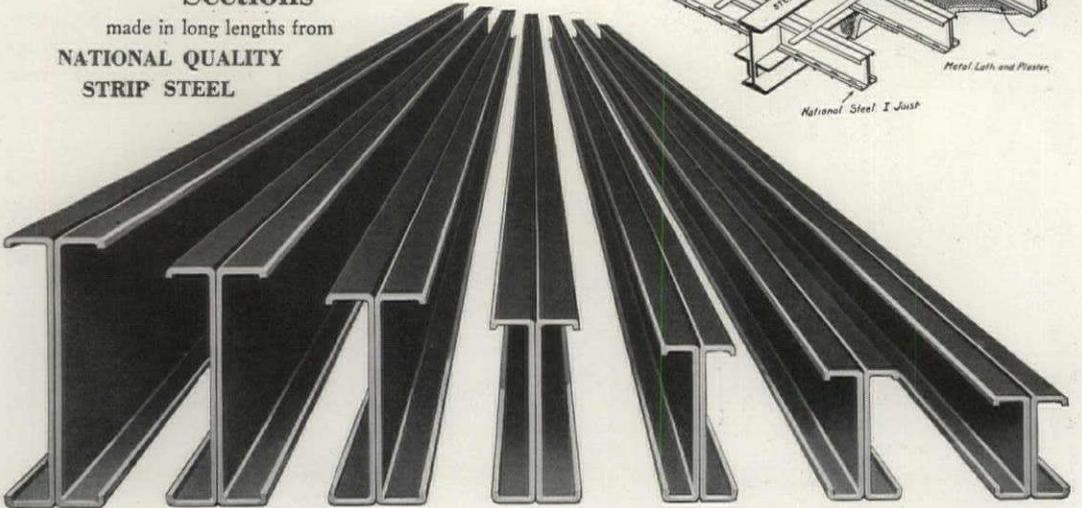
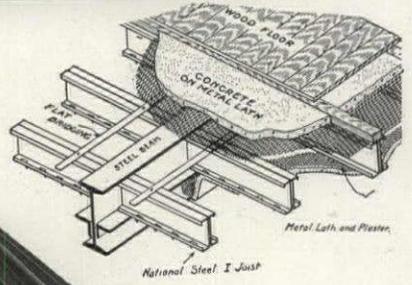
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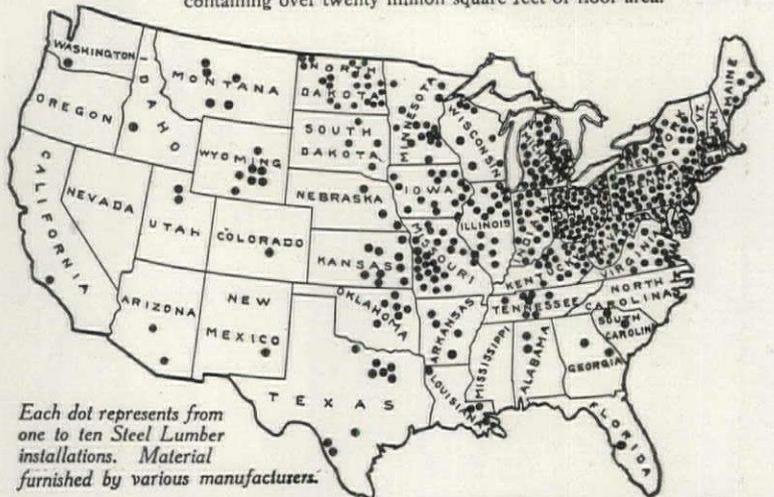


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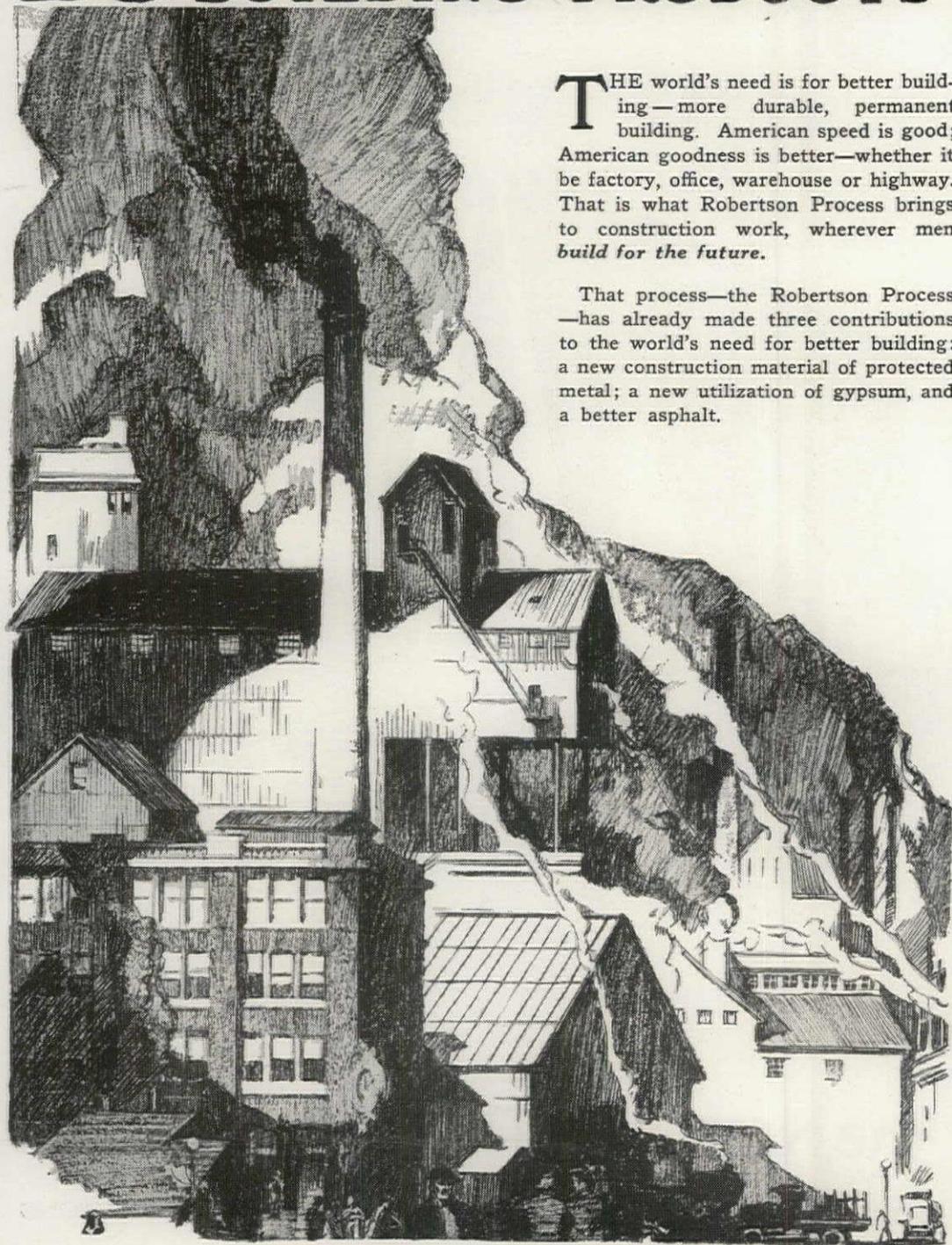
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That process—the Robertson Process—has already made three contributions to the world's need for better building: a new construction material of protected metal; a new utilization of gypsum, and a better asphalt.



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Robertson Process, applied to metal, is a method of protecting steel sheets, shapes and bars by means of a series of impervious coatings of asphalt, asbestos and waterproofing. It is a method of protecting metal from rust, corrosion and general deterioration caused by exposure to weather, smoke, gases and fumes.

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In Robertson Process Gypsum, one of the world's basic building materials has been given new and economical uses in building construction. By a method of scientific composition and reinforcement, gypsum has become a practical flooring and roofing material. In both poured and pre-cast form it combines the greatest possible strength with the lightest possible weight and effects savings in roof and floor costs as well as in the general structure of public, commercial and industrial buildings. Fire resistance, non-condensation, heat insulation—all inherent qualities of gypsum are fully utilized.

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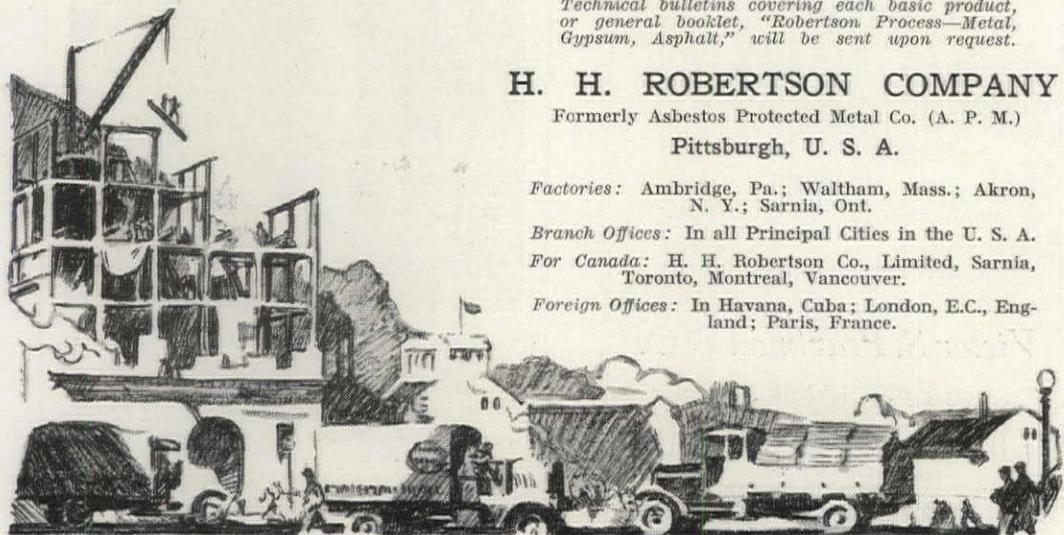
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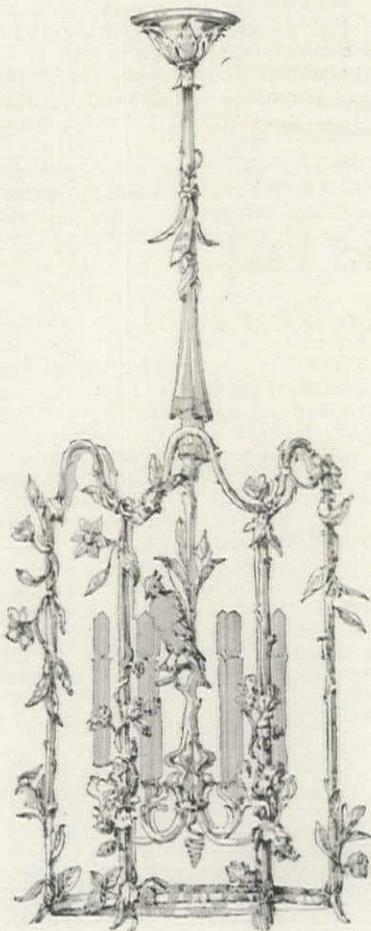
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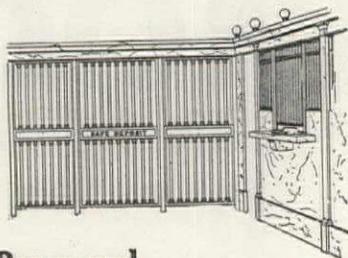


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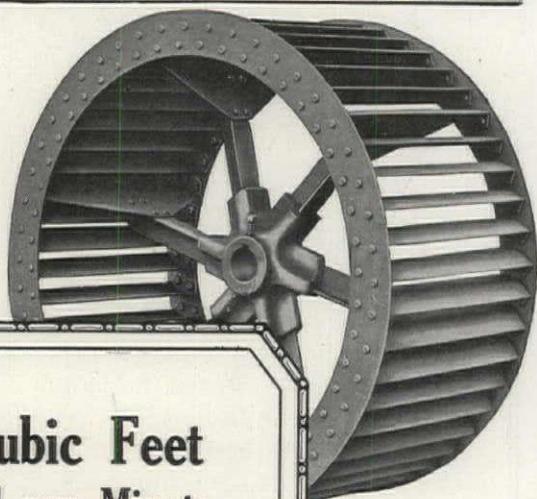
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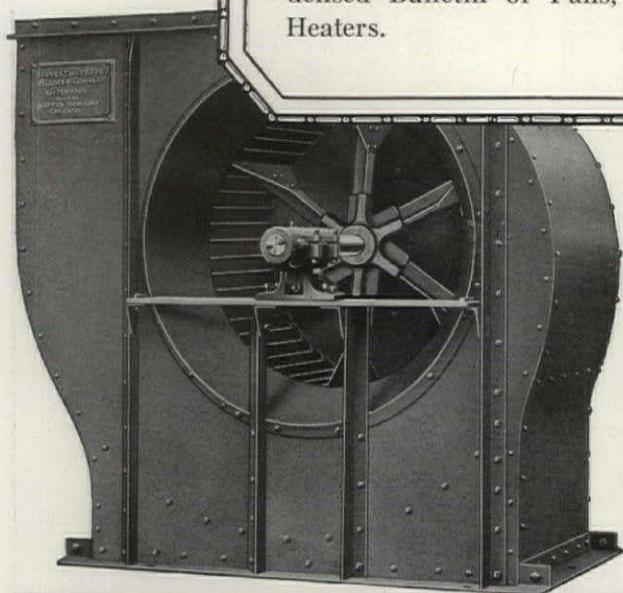


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This type of fan, with its saving in space and weight, has been the solution of many a ventilating problem.

Our Engineering Department will be glad to place at your service the statistics and data we have compiled. Write for Condensed Bulletin of Fans, Blowers and Heaters.

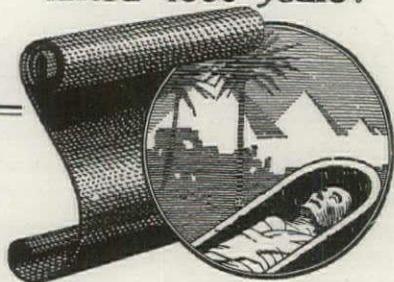


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It is easy to lay, neat and attractive, and will not warp. . . . Saves time on the job—always gives satisfaction. Specify Con-SER-TEX—reduce your estimates.

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THE necessity and reasonableness of getting full dollar for dollar value when building, requires Yale Builders' Locks and Hardware.

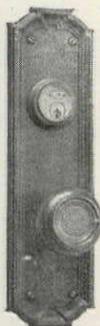
The finely conceived designs, the superior mechanical construction and the perfect service that Yale hardware gives impart a sense of satisfaction that goes beyond the question of original cost.

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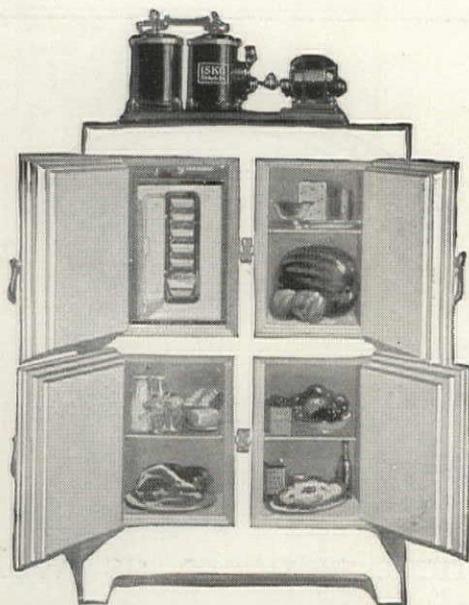
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This quiet little machine attached to your ice box supplants the damp, unhealthful vapors of melting ice with a keen, dry cold that chills food and drink, keeping them fresh and pure.

Isko has only two moving parts and they revolve in oil.

A thermostat regulates the cold. Once it is adjusted, Isko operates automatically. It starts itself.

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And the cold Isko makes is dry, dry, dry.

GermS cannot live in it. Vegetables stay crisp in it. Milk and cream keep sweet in it for days. For it is hygienic, scientific cold.

What ice you need for the table Isko supplies in convenient cubes.

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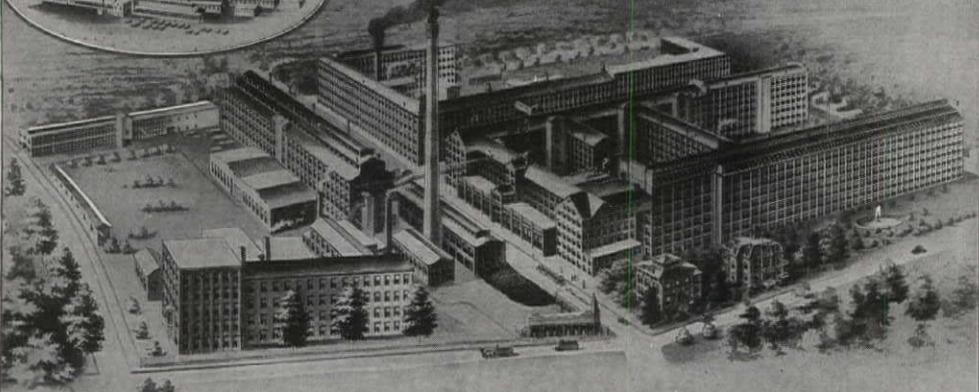
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THE ARCHITECTURAL RECORD



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STAIRWAY FROM ENTRANCE HALL—RESI-
DENCE OF OTTO H. KAHN, ESQ., NEW YORK.
J. ARMSTRONG STENHOUSE, ARCHITECT.

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VOLUME XLVI

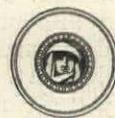


NUMBER II

AUGUST, 1919



THE RESIDENCE OF OTTO H. KAHN, E^{SQ} NEW YORK



J. ARMSTRONG STENHOUSE. ARCHITECT

By

LEON V. SOLON

AS we cultivate the faculty for discrimination in esthetic values, judgment leads us to esteem the sensuous in art and decoration as a quality of secondary merit to that of intellectual beauty; to the latter category purity in stylistic expression belongs. A rare perception of the ideals actuating the architect of the Renaissance stimulates the imagination of Mr. Stenhouse, without fettering it. His work is a virile reaction to sixteenth century stylistic influences, venerated and thoroughly comprehended.

Fluency of expression in any distinct species of esthetic selection can only proceed from ardent study, pursued to the extent of saturation; but mastery demands in addition definite personal qualifications—innate sympathy and in-

tuitive perception of the esthetic aspirations of the chosen period. In the course of specialized study strong predilections must necessarily mature towards certain phases of expression evoking the promptest enthusiasm; a preponderating influence over mental selection must inevitably be exerted by those sympathies during the formulation of original themes, with the result that a new combination of the elements of effect must occur, differing from the typical arrangement existing in the model.

The residence of Mr. Otto H. Kahn on Fifth Avenue, here reproduced, is a remarkable example of well-balanced readjustment in those esthetic elements that are found in architecture of the early sixteenth century in Italy. We

identify those elements in all their traditional purity in Mr. Stenhouse's work, but the method of their readjustment is so subtle, so intangible, that, though we are conscious everywhere of changes in the mutual relation of elements of effect, we are unable to detect tangible peculiarities in the final result. The architect's individuality impresses itself upon us throughout the entire scheme, undepreciated by mannerism or conventional habit of thought. As a wealth of architectural beauties reveal themselves in this excellent work, enjoyment accumulates unchecked, with the abandon that confidence in unerring skill begets. His studentship is of that intense order which so frequently produces the dried fruit of pedantry, where imagination is stilted, but the pedant at his best produces formula—the artist, feeling.

Vasari tells us how fortunate it was for Bramante that the great architect met Pope Julius II, remarking that Bramante was thereby furnished with opportunities to display the versatility of his talent and his mastery over the difficulties of his art. The biographer recognizes by those remarks the extent to which architecture is dependent on external forces for the direction of its course, its expansion and progress. The decision to build an edifice of the pretension of the Kahn house creates an opportunity for the exercise of architectural talent that occurs rarely in any period; the creation of such opportunities is vital to the attainment of a national type of architectural expression, provided always that the quality of patronage is such that the objective set is worthy.

In all past ages the erection of beautiful buildings has lain with the class possessing material weight or moral ascendancy in the State; certain broad social tendencies prevailing with that class influenced the approach to all decorative or architectural problems, impressing themselves unmistakably on the material outcome of esthetic impulse. A distinct phase of treatment, reflecting the relation of the building class to the edifice, and the relation of the edifice to the community, can be

identified with each evolution of national ideals; these influences have been transmitted by the great architects of each period, but were not originated by them.

Architecture differs from its sister arts of painting or sculpture in the varying intrinsic value of the idea, subject to whether it be graphically stated or actually carried out. The work of the painter and sculptor is not dependent on the attainment of its ultimate environment for full recognition, being self-sufficient in each phase of development. In those arts credit is accorded the work of the artist at any stage of elaboration, regardless of contributory relation, being apportioned according to the capacity with which an emotion proceeding from an observation is materialized; the value of the work being relative to the artist's skill in making a direct and concise statement of his chosen phase of observation. Arts that are basically imitative or emotional in expression need no supplementation to the artist's statement. But when beauty in art lies to a great extent in structural quality, graphic representation is inadequate to transmit excellencies, realizable only in the completed assembly of parts.

No great reputations are accorded in the history of architecture solely on the evidence of draughted projects, and no architects have attained greatness in that isolation and neglect which in many instances reacted advantageously for the development of genius in painting and sculpture; for this reason the profession has always been spared the doubtful compensation of posthumous honor for lifelong neglect. The creation of opportunity, therefore, by those possessing the power is the price of progress, and the exercise of judgment in the formulation of those opportunities is the condition determining the measure of quality.

If we consider architectural progress as dependent primarily on opportunity for practice, it is necessary to locate the motive force, as these sources of power which operated beneficially in former days have no counterpart in American



SOUTH FAÇADE—RESIDENCE OF OTTO H. KAHN, ESQ., NEW YORK.
J. Armstrong Stenhouse, Architect.

civilization; unified religious belief, intellectual revolution, or a government charging itself with the stimulation of national esthetic aspiration, are not to-day in evidence.

Future historians of American intellectual development will in all probability consider that the inception of a national style of architectural treatment dates from the period when the belief in the power of beauty had resulted in the evolution of a new objective for ambition and a vast field for service to the community. Foremost in the ranks of those who share this belief are the great collectors, who have expended fabulous treasure to acquire the best of all that expresses beauty through art. Their collections exert an effect on the quality of architectural effort in America.

In the Kahn residence, a rare and beautiful collection serves a direct architectural purpose in setting a standard

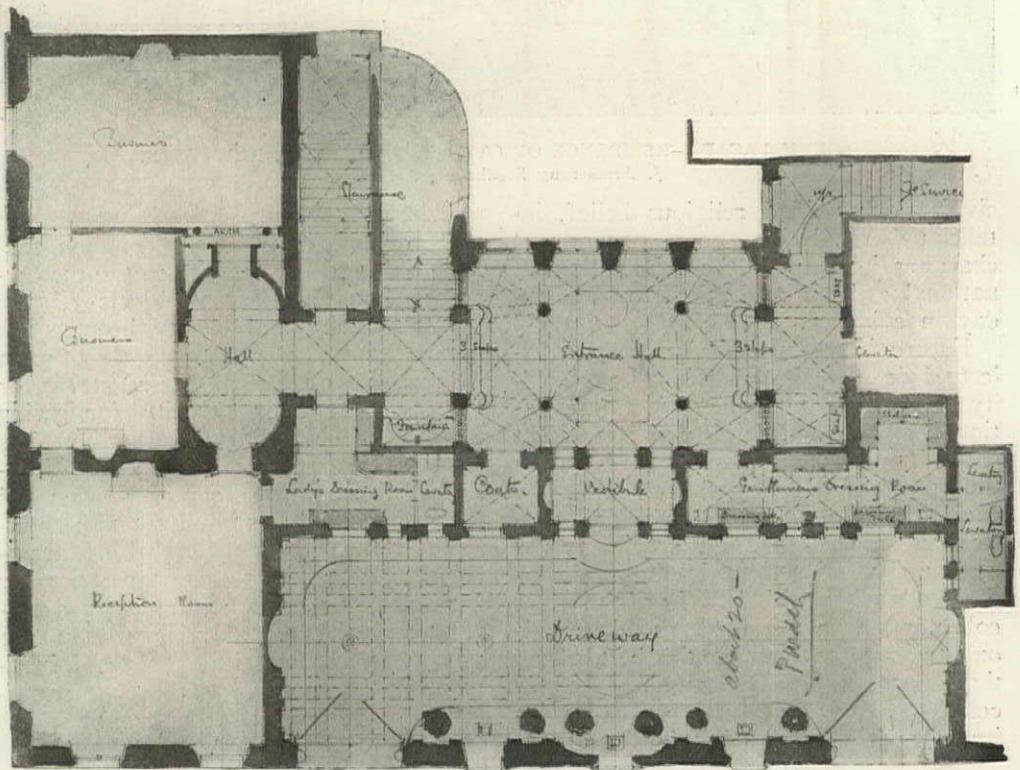
which exacts that grace in proportion and harmony in mass be common factors, linking the structure to the masterpieces housed. When objects of the greatest rarity and beauty become the appurtenances of a home, they must control the quality of their setting, or lose part of their capacity for giving pleasure. This difficult attuning has been successfully achieved by Mr. Stenhouse, through his comprehension of the responsibility imposed upon an architect by the decorative value of accessories; but the rarest tapestries or furniture, the most accomplished architect, and the most lavish patron are powerless, without the exercise of judgment on the latter's part when determining his requirements. An extreme contrast in ideals exists between the Kahn house and those that dictated the treatment of a corresponding undertaking by a well-known collector of the preceding

generation. The opportunity was of equal extent, but the forces employed were material instead of abstract, prodigality in workmanship and costliness of substance being regarded as an option on the possession of taste. With the Stenhouse treatment luxury acquires a bouquet of simplicity, and a standard is set, in advance of any other in this country, to serve as a beacon in a course beset with shoals.

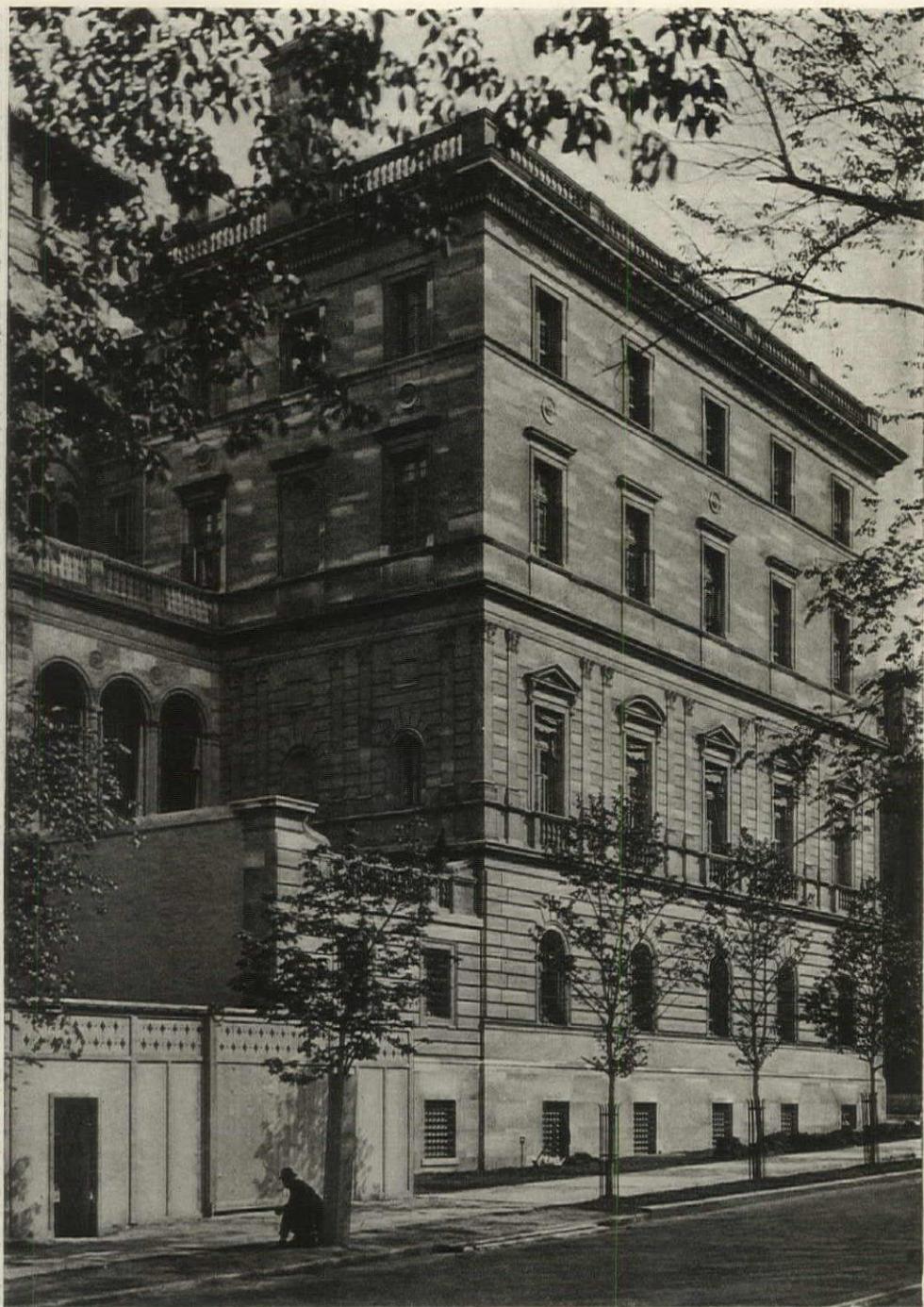
Mr. Stenhouse has derived his inspiration and guidance in this work entirely from the Italian of the sixteenth century. With him Italy is not a romantic recollection of student days, revived in hasty tours, or a subject for library reference when precise data are called for; it has been a land of adoption for many years, with places of pilgrimage scattered broadcast, visited with intense enthusiasm and comprehension. A retentive memory, supplemented with unusual artistic skill, facilitated the ac-

cumulation of a vast fund of information and knowledge, always accessible through a methodical habit of thought. He holds an artistic creation an inviolable object, to the extent that he would be incapable of resorting to the practice so prevalent with the partly informed, who use a master's motif as a crutch for rounding a difficult corner, taking full advantage of its perfect adaptability to current uses and of its immunity from copyright restriction.

As a problem is set, familiarity with sixteenth century methods enables him to review solutions to kindred problems, thereby placing himself in the avenue of approach along which the pioneers of the style would have proceeded to a similar objective. The results carry such conviction that the illusion might easily be fostered that the structure had been erected from plans and elevations of the period found in the archives of an ancient noble house, were it not that the



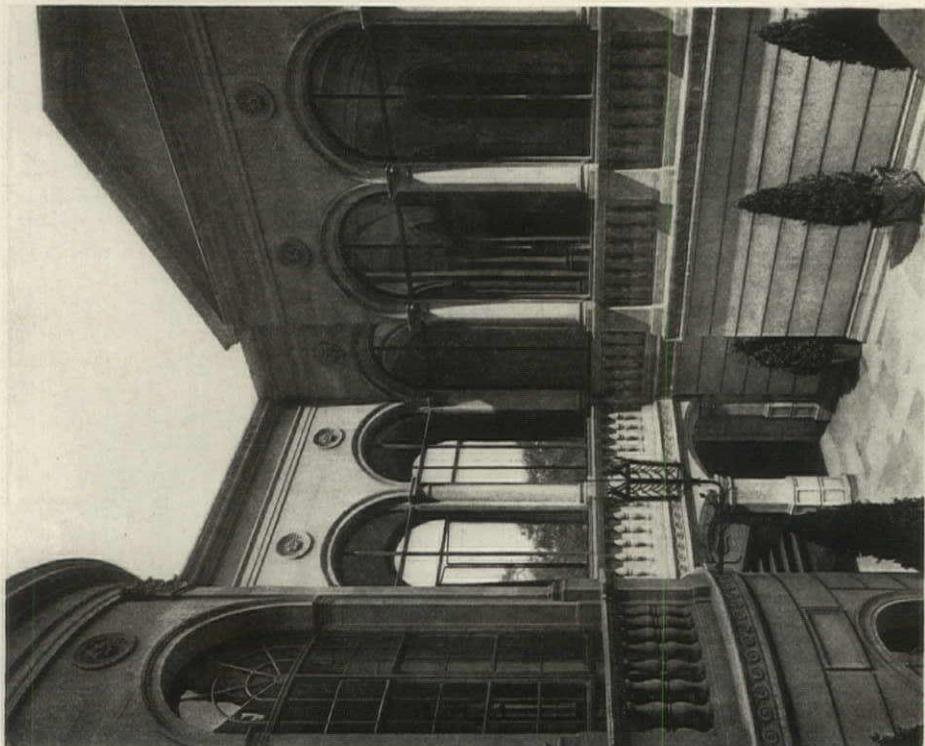
GROUND FLOOR PLAN—RESIDENCE OF OTTO H. KAHN, ESQ., NEW YORK.
J. Armstrong Stenhouse, Architect.



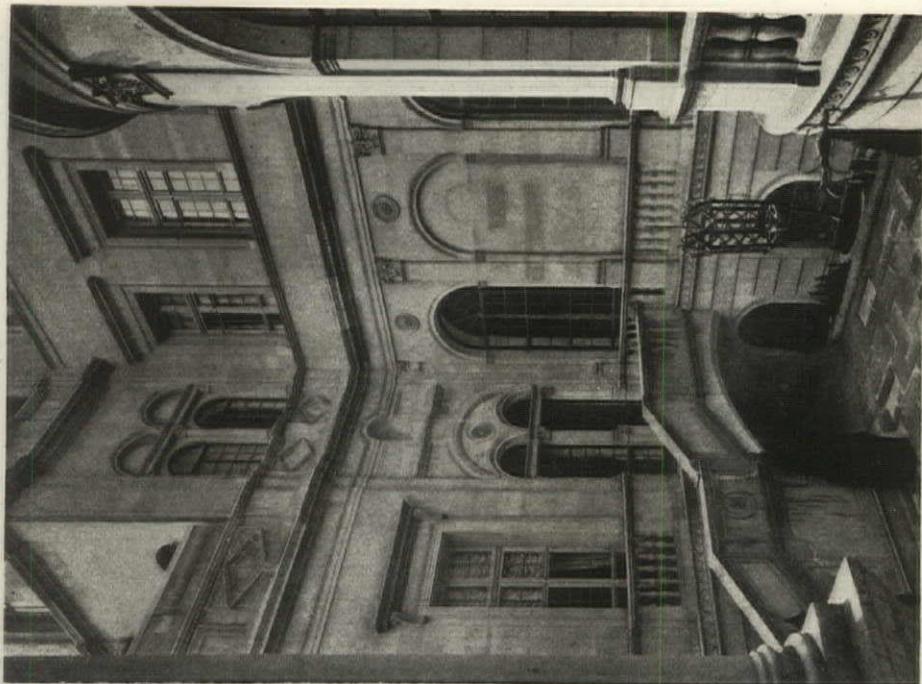
WEST FAÇADE—RESIDENCE OF OTTO H. KAHN, ESQ.,
NEW YORK. J. ARMSTRONG STENHOUSE, ARCHITECT.



MAIN CARRIAGE ENTRANCE—RESIDENCE
OF OTTO H. KAHN, ESQ., NEW YORK.
J. ARMSTRONG STENHOUSE, ARCHITECT.



INNER COURT FROM SOUTHEAST CORNER—RESIDENCE OF OTTO H.
KAHN, ESQ., NEW YORK.
J. Armstrong Stenhouse, Architect.

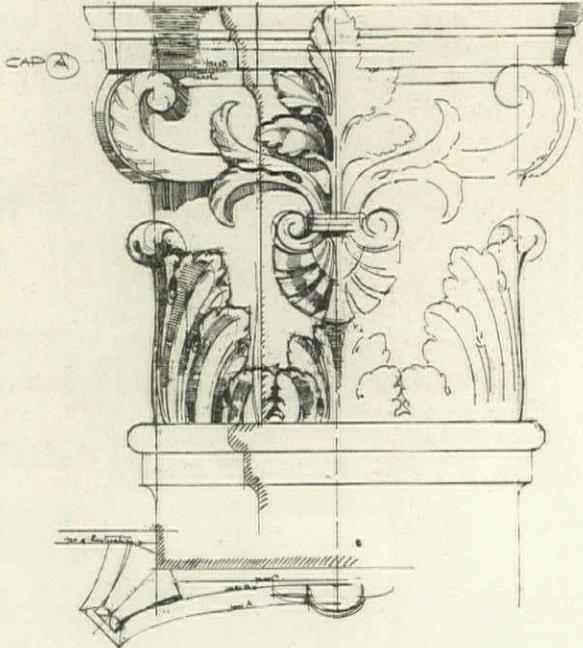
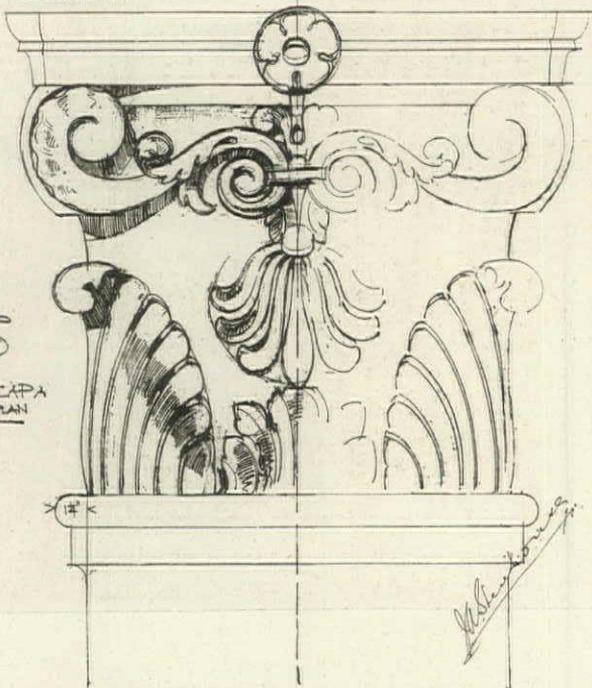


INNER COURT FROM NORTHWEST CORNER—RESIDENCE OF OTTO H.
KAHN ESQ., NEW YORK.
J. Armstrong Stenhouse, Architect.

OTTO H. KAHN RES.
CAP (3) IN PLASTER. 2nd FLOOR.
3rd. SHEET NO. 104-16.

SHEET NO. (15)
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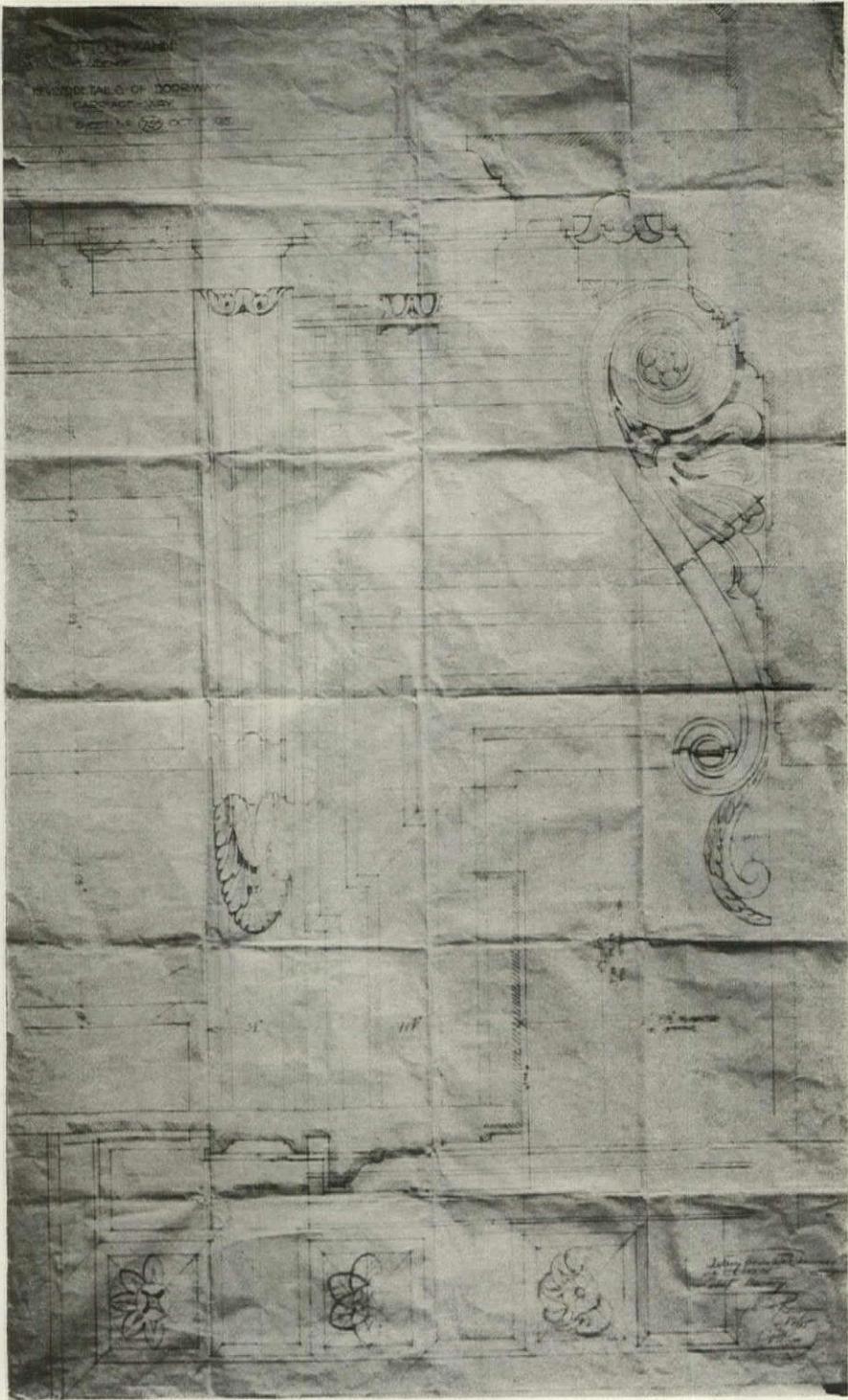
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CAP
PLAN



PILASTER CAPITALS—RESIDENCE OF
OTTO H. KAHN, ESQ., NEW YORK.
J. ARMSTRONG STENHOUSE, ARCHITECT.



TERRACE OVERLOOKING FIFTH AVENUE—
RESIDENCE OF OTTO H. KAHN, ESQ., NEW
YORK. J. ARMSTRONG STENHOUSE, ARCHITECT.



DETAILS OF DOORWAY IN CARRIAGEWAY—
RESIDENCE OF OTTO H. KAHN, ESQ., NEW
YORK. J. ARMSTRONG STENHOUSE, ARCHITECT.

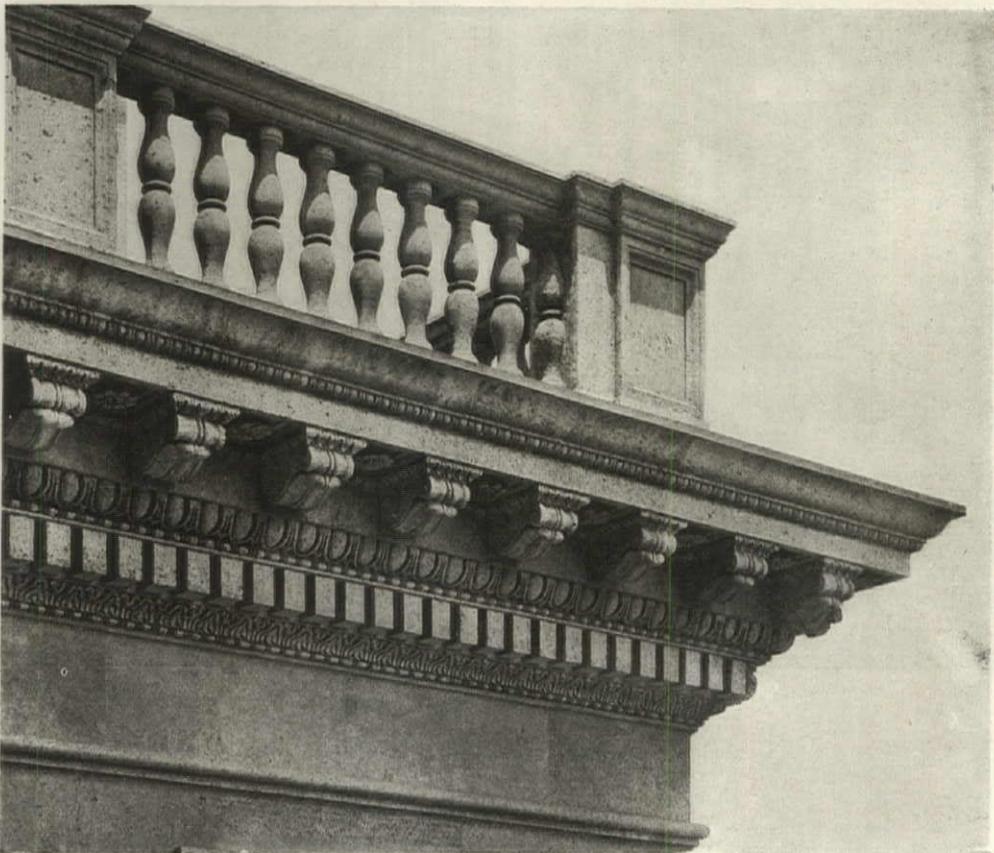
conveniences and luxuries of the New York home exist to a degree that is inconceivable in a *cinque cento* mind.

Our interest in this work does not spring from an elaborate exposition of archaeological lore; this naturally exists, but as a matter of course. We welcome a precious quality—the infusion in modern work of a spirit that arose from complex conditions no longer existing; throughout the work we find an instinctive and spontaneous adjustment of every integral part to those imperishable standards which convictions long lost had created. Columns, corbels, arches, vaulting, mouldings and niches, subordinate individual beauty to contributory function, with the apparent ease habitual to mastery.

In this building contingencies have arisen through the establishment of certain fixed points, causing deviations

from the characteristic symmetry of the period; these have been cherished as opportunities to the exclusion of obvious solutions, with the result that we enjoy delightful expositions of the manner in which the architect of the original period might have contrived his structure had the identical circumstance occurred.

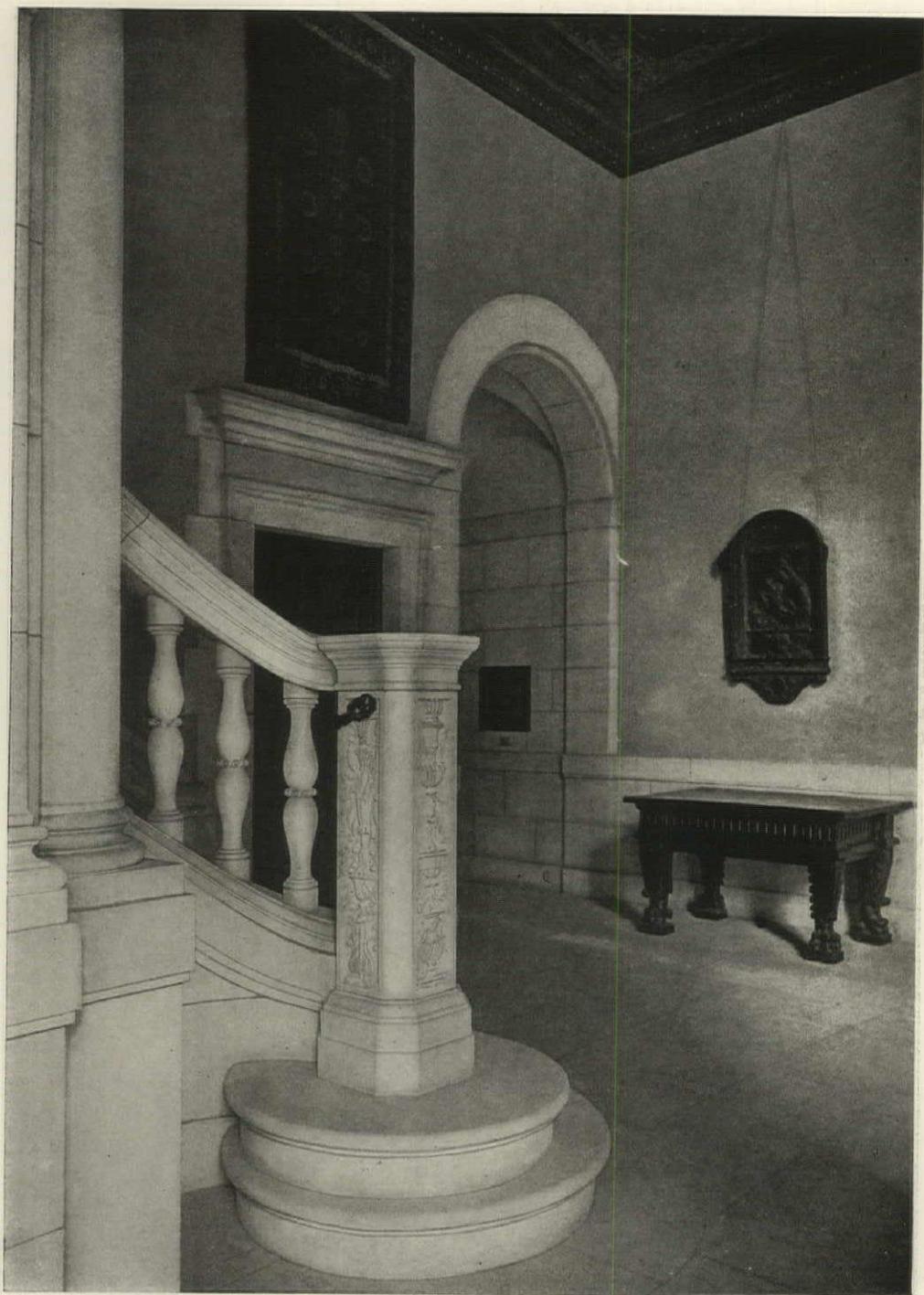
Mr. Stenhouse's method of procedure in work is extremely interesting, and raises a question of great practical significance. An unusual faculty enables him to visualize his problem throughout its development, with infinite precision, to such an extent that he acquires a clear mental image of every part, from every angle, in full detail, and in its varying relation to all that adjoins. In his imagination he builds with such thoroughness that he wanders at will, in spirit, from room to room, through hall and stairways, in numberless critical excursions.



CORNICE—RESIDENCE OF OTTO H. KAHN, ESQ., NEW YORK.
J. Armstrong Stenhouse, Architect.



STAIRWAY TO TOWER FROM SECOND FLOOR
LANDING—RESIDENCE OF OTTO H. KAHN, ESQ.,
NEW YORK. J. ARMSTRONG STENHOUSE, ARCHITECT.



STAIRCASE DETAIL—RESIDENCE OF
OTTO H. KAHN, ESQ., NEW YORK.
J. ARMSTRONG STENHOUSE, ARCHITECT.



DETAIL OF BALUSTRADE—RESIDENCE
OF OTTO H. KAHN, ESQ., NEW YORK.
J. ARMSTRONG STENHOUSE, ARCHITECT.

sions, in which structure, proportion and detail are overhauled, until beauty results from an exquisite gradation of values. In these imaginary perigrinations, his extraordinary faculty for visualization permits the evasion of no decorative opportunity; as perspectives conjured unfold themselves, they are chastened to the fastidious standards of studentship.

This faculty, brought to bear upon every problem, brings enlightenment to one of the chief subjects of the Renaissance architect's training—the study of perspective, a science almost eliminated from the modern curriculum. Wherever details are available concerning the early studies of the architects and artists of that era, we find the study of perspective figuring as a subject of major importance. Great value was obviously attached to the faculty of assembling in mental image the items contemplated, with all the modifications resulting from proximity or distance. The development of this faculty is no longer the subject of special training or concentration, and there are few architects today capable of visualizing an interior with a precision that anticipates the results of foreshortening in their elevations.

The study of perspective was a mental discipline instituted to compel the student to think in the three dimensions, and to stimulate an appreciation of the mutual relation of architectural items; a deficiency in this capacity is the predominant shortcoming of a large proportion of American architects today; a revival of the science of perspective should be matter for serious consideration by the heads of all architectural schools in this country.

Mr. Stenhouse has developed his faculty for tentative imaginary construction to the utmost serviceableness; one is conscious throughout this residence that his mind's eye has traversed the quadrant, weighing each perspective from every angle, so that no separately conceived thoughts can make collision as construction brings them together.

Great dignity and simplicity characterize the exterior of the Kahn residence. In general conception it conforms to the

principles that govern design in many of the Italian Renaissance palaces, insofar as the treatment of masonry is concerned and the relative decorative importance of superimposed tiers of windows. The pilasters decorating the second story are very beautiful, with all the refinement found in their prototypes. The balustre motif, introduced with such excellent effect throughout exterior and interior, contributes a note of great delicacy in its connection with window openings.

The spacing of the façade leaves nothing to be desired; subtle calculation in projection and proportion of moulding members are a source of permanent delight to the beholder. The cornice, to which the scale of our illustrations cannot do justice, is unique in feeling without sidestepping convention; the Roman treatment of sharply cut acanthus, which the Renaissance sculptors frequently chose for inspiration, is here modified with softened curves and gentler transition from light to shade, without any diminution in strength or character.

On the north side a terrace overlooks Fifth Avenue, approached by steps from the loggia. The landing forming the return of the steps to the loggia level is ingeniously supported by a beautiful bracket resting on a short massive pier beneath the loggia, thus permitting an additional glimpse of the court. This is a minor instance of the Stenhouse manner of evolving a charming incident, from an occasion predestined for an obvious solution. The north wall of the house, rising from the terrace, does not conform to the fenestration of the façade in the second story; additional value is contributed to the loggia arches by the comparatively unpierced areas of wall surface.

The focus of architectural interest of the exterior lies in the court. From every angle of inspection architectural grouping of great beauty occurs. It is approached from the house by descending steps designed with infinite simplicity and grace. The loggia rises on two sides of the court, from which delightfully foreshortened views of the tower and cornice are enjoyed. It is rare to

find a subject lending itself to such boundless variety in the combination of its structural features; at each step a new grouping of mass and line combines through the architect's masterly calculation and forethought.

Seldom such a quality of richness results from the ultimate elimination of all that might be regarded as elaboration; there is a feeling that detail serves to emphasize plain surface; it is of the simplest character, and carved with mastery. Variation of treatment in the wall spaces beneath the loggia is wrought with considerable success, adding much to the general picturesqueness of the setting. The tower owes part of its grace and charm to the clever treatment of its fenestration. The main entrance and covered carriageway are well in accord

with the general dignity of the design and present many items of interest.

On the roof a glimpse of Italy, in more intimate guise, surprises the visitor in the form of a small garden house, arched porch and fountain; while from the cornice-balustrade a gorgeous view of New York and Central Park extends.

A short magazine article is quite inadequate for such a subject, and a mass of architectural achievements of great interest and educational value, must necessarily go unrecorded. The interior is, if possible, more beautiful than the exterior; but a natural aversion on the part of the owners to see the interior of their home illustrated, makes this a closed subject. Mr. Stenhouse has achieved a work which ranks as the foremost of its kind in this country.



CHURCH OF ST. ANTHONY, PADUA.
Etching by Dewitt H. Fessenden.



SOME PRINCIPLES OF DESIGN AND CONSTRUCTION IN CHURCH BUILDING

BY CHARLES H. MOORE

IN the following remarks on principles of design and construction in church building, I shall have mainly in mind simple church edifices suited to the needs of rural communities, and to average congregations of large towns. But it is obvious that the same principles will apply to all churches, on whatever scale, or of whatever degree of elaboration.

The short history of church building in our country is naturally not conspicuous for record of achievements. In New England the Puritan settlers thought little of what may be called architectural amenities in their churches, both because conditions of life were too hard with them, and also because of their aversion to all that might savor of association with the religious tyranny from which they had escaped. They sought only to provide bare accommodation for public worship at the smallest expense. A barn-like framework of wood, clapboarded and shingled externally, and lathed and plastered within, gave all they required.

But as conditions of life ameliorated, and the growth of towns increased, the churches of urban communities were more substantially built, assumed a somewhat ornate character, and were finished with spires in what has come to be known as our Colonial style—a style derived from Wren's city churches of the mother country—examples of which, in varying degrees of conformity with the originals, are still the leading features of many New England towns and villages. In New York, where the Dutch element prevailed, and in the South, where the communities were not Puritan, the primitive churches had been more frequently built of stone, but had little more architectural character.

It might seem a pity that in a country so largely settled by the English, and where English ideas and customs became dominant, a style of church building like that of rural England could not have been established; for in no other country of the world does the rural parish church have so sweet an expression of homely religious sentiment, or mate so charmingly with the landscape. But it could not be, nor was it really desirable. For church building, like every other kind of building, is naturally and inevitably an outgrowth and expression of conditions, and conditions were very different in Colonial America from what they had been in the England which produced the old English parish church. The English parish churches of which I speak, are historic monuments, and owe their character and charm largely to the fact that few, if any, of them were built at one time. Many of them are the better part of a thousand years old, that is to say, they are Norman structures of the eleventh and twelfth centuries, and some are, at least in part, even of Saxon build. Although more or less altered and enlarged during the ages, many of them retain much of their primitive character, and where this character has been largely lost by alterations and additions, the changes are of all degrees of antiquity from the time of original construction; so that the architectural history of England is largely epitomized in the parish churches. Thus, for this reason, if for no other, the old English church could not furnish the model for Colonial America.

With the passing of Colonial times, and since America became great enough in population and wealth to build without parsimony, conditions have not been

favorable for the growth of any consistent style of church building. Our mixed communities include so many elements, representing so many different ideas, that no common aims and efforts, such as are essential to the development of a national style, have hitherto been possible. It should be obvious that in order to produce any respectable form of church building, certain fundamental principles of design and construction must be observed. Let us consider some of these principles.

In church building, as in house building, we naturally derive our ideas from European traditions. For almost all styles of church building of the past in Western Europe, the ancient so-called Christian basilica has furnished the model as to plan. This plan has, however, been endlessly varied in its proportions, has been amplified in manifold ways—as by transepts, by projecting chapels, by towers, and by porches. The ancient typical form was that of an oblong rectangle, with side aisles, a rudimentary transept at the extreme east end, and an apse. In its simplest form it is little more than an oblong rectangle with an apse. I think this general type is likely to persist in America as well as in Europe. Therefore in what follows I shall assume that the main body of the church will as a rule be rectangular on plan, though there is no reason why it should not have any other form that may be thought preferable.

In elevation the character of the building will naturally be determined by the systems of construction adopted, and the materials employed, as we shall presently see.

In living architecture, i. e., architecture governed by rational principles, in which borrowed things are adapted to the uses for which they are employed, there can be no mere imitation of any former styles. The styles of the past belong to the past, and no architecture proper to ourselves can arise so long as we affect to build in any Romanesque or Gothic or other foreign style. Only in so far as we can assimilate, and thus make our own what we find in those styles, can we rightly use them. If we assimilate

we shall more or less, though unconsciously, recreate what we borrow. It is in this way that true styles are developed. The old art of Europe is a rich inheritance, in entire independence of which we cannot, if we would, work to advantage. But the way to profit by the old art is to master its principles, and to be guided by these principles in so far as we find them suited to our needs. Any other sort of imitation is fatal to the development of a living art.

Suppose we have a village church to build, and that it is to be of brick or stone, with a timber roof. On plan it may be a simple rectangle, with proportions of length to breadth such as may be thought most convenient. In carrying out the scheme we have only to build the four walls, to roof over the enclosed space, to make a floor, and to add such interior fittings as may be required. There will be no need for any excavation of the ground, unless it be for a small cellar for the accommodation of the heating apparatus and the storage of fuel; for the floor may be made directly on the ground in the manner described in my former article on domestic building.*

The walls of a church need not be built hollow, but they should be well provided with damp-proof courses on the footings, and above the ground level. Construction will call for no members breaking the wall surfaces—for a trussed timber roof exerts no thrusts requiring abutments. In a brick or stone building, the windows and doors will naturally be arched, and the form of the arch may be either semi-circular or pointed, according to aesthetic preference, since in such a building there is no structural ground for the use of one form rather than the other. In a church, abundance of light is important, and the windows may be made as large as safety will allow. To obtain the maximum of light from a window, the glass should be set near the outer face of the wall, and the jambs should be splayed internally.

As for ornamental treatment of brickwork, there are many natural possibilities—

*Some Principles of Design and Construction in Domestic Building. *Architectural Record* for November, 1918.

ties—as the use of differently colored bricks and different modes of laying them—into the details of which we cannot go in a brief paper. It may be said, however, that although buttresses are out of place in a timber roofed building, there is no reason why the exterior wall surfaces should not be broken by pilaster strips carrying arches over the windows; and these features may have structural function, as well as ornamental value, in stiffening the walls—which with them may be built lighter than they otherwise should be. Among other ways of relieving the monotony of brick wall surfaces is that of the use of stone for string courses, jambs, and archivolt, on which, if further enrichment be desired, mouldings and other ornaments may be worked.

For window enclosures, metal frames and sashes ought to be used, and these may be filled with grissaille or colored glass.

As for the roof, it may either be left open internally, exposing the framework to view, or it may have a flat ceiling. It must be strongly trussed, and braced longitudinally. There is only one proper way to construct a truss, and that is with a straight tie beam frankly placed at the feet of the rafters, so that no thrust shall be exerted against the walls. Any ornamental treatment that does violence to this principle ought to be avoided. The only members needed in a truss, not exceeding the span of an ordinary village church, are: the rafters, the tie beam, a king post, and a strut on either side of the king post.* No departure from this principle can be justified on any grounds. Rational construction is the first condition of good architecture, as of good building. But this simple truss may be ornamented in various ways, as by chamfers and mouldings, or even by curving a little the inner sides of the principal rafters, or by ornamenting the members in any way that will not de-

stroy their functional character and expression.

The best timber for the roof is oak, but chestnut is also strong and durable. Under modern conditions the timber will generally be sawn, and if the roof be open, it will be planed. But these modern processes do not give the pleasant character that the old-time hewn timberwork has, and it is better, I think, to follow the old methods wherever practicable.

If there be a flat ceiling, it need not be made with an unbroken surface concealing the tie beams of the trusses. It may be formed by smaller beams reaching from the tie beam to tie beam, with the ceiling planks laid on these beams. The ceiling will thus consist of long coffered panels, marked off from one another by the tie beams, and will have an agreeable variety arising out of the construction. No artificial coffering from ornamental motives is justifiable from the point of view of rational design. In good architecture, construction itself becomes ornamental—which does not mean that there should be no ornament save that of construction, though it may be said emphatically that true ornament does not falsify construction, i. e., does not simulate construction foreign to the real structure.

Where pine, or other soft wood, is used for the roof, a Japan stain will give a pleasant effect, and preserve the wood; but oak and chestnut are better without stain or varnish.

The internal wall surfaces, whether of brick or stone, may well be left plain. If the walls be plastered internally, the plaster may be laid directly on the brick or stone; but ashlar walls will naturally be without plaster. A wainscot of wood, reaching up to the level of the window sills, will give a shield against cold and dampness from the walls.

If we build the walls with stone, their character will depend on the kind of stone employed. A village church may be built substantially, and with good effect, of small roughly broken stone of any good quality; but with such stone the buildings should have quoins, jambs,

*The old timber roofs of English churches are rarely trussed in a straightforward and effective way. A mistaken desire to avoid the tie beam, in its proper form and place, led the old English builders to resort to complicated and irrational modes of framing their roofs. I have discussed this matter at some length, in my *Medieval Church Architecture of England*. New York, The Mac-Millan Company, pp. 208-217.

and archivolts of large stones. If we build the walls of ashlar, then the masonry will naturally be of the same character throughout.

We have assumed that the main body of the building is to be in the form of a simple rectangular enclosure without aisles. But it may be desirable to have side aisles. In that case the aisles will naturally be lower than the nave, and the nave will then be divided into three stories—the ground story, the triforium, and the clerestory. The ground story will thus become an open arcade.

But suppose we wish to build more monumentally, and are prepared to meet the cost of the best that can be done. In this case the church may be vaulted with stone, either wholly or in part. If there be a chancel, this part alone may be vaulted. It may happen that a community can afford to vault the chancel, when it cannot afford vaulting over the main body of the church; and there is propriety in giving special dignity to the chancel. We will here assume, however, that the whole structure is to be vaulted.

But since vaulting has been little practiced in modern times, and practically not at all in America, it will be necessary to look for guidance to the old European examples of monumental church building, and feel our way to proficiency in the craft. As for the kind of vaulting to adopt, we shall naturally not revert to the ponderous ancient forms that were superseded, during the great building activity of the Middle Ages in Western Europe, by better forms. There has never been any vaulting of churches comparable to that of the French Gothic builders of the twelfth century. This is the best, because it gives the maximum of strength with the minimum of weight and thrust; and because it does so with consummate grace and beauty. The principles and methods of this vaulting are entirely simple, and there is no reason why it should not be freely practiced in this country, after some preparation on the part of architects and craftsmen.

But if the church is to be thus vaulted, its whole structural character must be changed. In place of unbroken walls it

will require isolated supports, in connection with which walls are not structurally necessary. The nave will have to be broken up lengthwise into a series of rectangular compartments, and each of them covered with a ribbed groin vault.

Since any groined vault, rectangular on plan, requires support only at the four corners of the rectangle, piers built up at these points, and fortified by buttresses, are, in a building without aisles, all that the structure requires to carry the vaulting. Thus walls are needed for enclosure only, and may be lightly built, or altogether omitted above a level that will give convenient enclosure—their place being taken by open lights.

The vault in each compartment consists of a skeleton of ribs, and of webs, or panels, triangular on plan, that are formed over the ribs. The main strength of the vault resides in the ribs, and the only ribs required in any vault, rectangular on plan, are: (1) transverse ribs—ribs spanning the nave crosswise; (2) groin, or diagonal, ribs—ribs spanning each compartment diagonally, and thus intersecting in the centre, and (3) longitudinal ribs—ribs spanning the sides of the compartment that are parallel with the long axis of the building. These ribs make a permanent centring on which the panels rest.

In logical composition such vaulting requires a support for each rib on each side of the nave, and the best form for this support—the best because the most effective in function, and the most assuring to the eye—is that of a shaft incorporated with the pier. This gives a group of three shafts on the face of each pier, and as the ribs of the vault will be of different magnitudes, according to their different functions—the transverse rib the larger, the groin rib smaller, and the longitudinal rib the smallest—the supporting shafts will naturally be correspondingly graduated in their magnitudes. And it is worth while to note how this gradation of proportions in conformity with structural conditions, gives an element of beauty to the composition. Ordered gradation of magnitudes, where it grows out of the exigencies of struc-

ture, is a primary cause of beauty in architecture, as in natural organic forms.

The pier, with its shafts, bears the weight of the vault, but a strong buttress is required to meet its thrusts. This buttress, in a building without aisles, such as we are now considering, will best take the form, in horizontal section, of an oblong rectangle with its long sides perpendicular to the long axis of the building—thus giving the maximum of resistance to the vault thrust and the minimum of width against the pier. It should be carried up so as to reach at least as high as the crown of the vault, in order to meet all thrust, the extreme height of which can hardly be determined with precision. The best form, in elevation, for such a buttress is that which gives an almost sheer vertical line to the outer face. It may be slightly enlarged at the base, and have one or two shallow offsets, and a gabled coping.

In building the vault, the ribs are first set up to form a strong skeleton. These ribs should be formed and adjusted so as to secure the utmost strength in the vault with the least amount of thrust. To this end they will need to be more or less pointed. The degree of acuteness of the pointing will be determined in each rib by the length of span and the height to which we wish it to reach. Thus the groin ribs, since they have the longest span, will naturally be the least pointed, and may sometimes be hardly pointed at all. It is desirable, in order to obtain an agreeable conformation of the vault, to have the crowns of the ribs all on nearly the same level. But vaults on these principles may differ greatly in these respects, according to their proportions on plan, and the height above the springing to which they are carried.

The strength of the whole system will depend greatly on effective adjustment of the several ribs in the vault to the pier and buttress, so that the thrusts may be gathered as completely as possible on them. The necessary concentration may be effected by stiling the longitudinal rib, that is, by prolonging its supporting shaft, so that its springing shall be at a considerably higher level than that of the other ribs. This will keep the vault

conoid narrowed against the pier, so that the buttress may cover it almost to the haunch.*

The ribs thus formed and adjusted, the panels of the vault may be formed on them, by courses of masonry reaching from rib to rib—each course being arched a little. The conformation of the surface thus developed in each panel will be pleasantly irregular, like that of a natural shell. It will be warped and twisted more or less, and in some parts considerably, as it is shaped to the ribs; and the mason, as he walks along, will have to cut some of the stones to a gore shape in order to form the hollowed surfaces that will naturally arise. Between the panels of adjoining vaults, so-called pockets will be formed, and these must be filled with rubble and cement up to a level that will cover the haunches, so as to consolidate this part against the pier and buttress.

If the chancel have an apse, semi-circular or polygonal on plan, the ribs of its vault will, of course, converge on a centre.

Over the vaulting there must be a timber roof, because if exposed to the weather it would disintegrate. This roof will be framed as before, but, as it will not be exposed to view internally, it will naturally be built of rough timbers; and the walls over the arches of the openings must be carried up high enough to allow the tie beams to pass over the crown of the vault.

The windows, in such construction, may be as large as we choose to make them, up to the entire width between the piers and the space beneath the arch of the vault and the enclosing wall below—when they will become veritable intercolumniations. For in this mode of building, the strength lies wholly in the piers, arches, and buttresses—walls being required only for enclosure, as already remarked, and for enclosure a low curtain wall is enough. If they be so large, they will need to be each divided into two or more lights by mullions, and to have their heads filled with some form of tracery, for which the early Gothic

*Cf. my *Development and Character of Gothic Architecture*, New York, MacMillan Co., pp. 130-144.

art of France affords excellent models. Whether the openings be large or small, it will be natural to have all their arches pointed, in harmony with the larger structural system, where this form is demanded by the exigencies of the vaulting.

If there be aisles in a church thus vaulted, giving three stories to the nave, as before remarked, then the piers will stand free on the ground story, and have vaulting shafts on the aisle sides; which, together with responds built against the buttresses will carry the aisle vaulting. In this case we must have flying buttresses, because buttresses placed as before would block the aisles. Therefore the great buttresses must now stand against the aisles, and over the aisle roof the intervals between them and the nave must be spanned by half arches springing from them, and abutting against piers. But into further details of such construction we cannot go in a brief paper.

The tower of such a church may well be crowned with a stone spire, which will naturally be octagonal on plan—its diagonal sides being carried on squinches in the tower angles. If a vertical drum be interposed between the tower and the spire, the transition from the one to the other will be less abrupt than if the spire be made to rise directly from the tower. The tower will require to be well buttressed on the angles, and if on the buttresses, pinnacles covering the angles be built against the drum, the composition will be both logical and pleasing to the eye. This is the form in which the best mediæval towers and spires are built, and I do not think it can be improved. The principle is nobly embodied in the south tower and spire of the Cathedral of Chartres, which has the merit of entire structural logic, and also of that architectural sobriety which characterizes the finest art.

As for structural details, as bases, capitals, and cornices; and for the profiling of vault ribs, archivolts, string courses, and mullions and tracery, we may best here, as in the larger structural system, base our practice on the works of the French craftsmen of the greatest

age of church building. Capitals and bases of these craftsmen were evolved out of older forms by rational adaptation to new conditions. The evolution started, indeed, before the days of Gothic art, in that wonderful Byzantine system of construction that is so nobly embodied in the great church of St. Sophia of Constantinople. The new conditions that were here first properly met were those of arched construction. The capitals and bases of the ancient orders had been designed to meet the requirements of a trabeate system, and no recreation of them to suit an arched system had been effected until the Byzantine Greeks produced those remarkable new forms that appear in St. Sophia. The capitals of the arcades of this church are perfectly formed for their function of preparing a relatively small round column to carry the bulky square load of an arch.* The French builders laid hold of this Byzantine capital, and developed it creatively with wonderful fertility of invention, answering to the varied new structural and aesthetic exigencies of their unique system.

On the principles of these perfected forms we shall do well to base our efforts to form capitals suitable for such building as I have here suggested. We shall need to study well the French models, in order to master their principles, and to work with intelligence and freedom on kindred lines. We must bear in mind that in architecture the satisfaction of the eye concerns the designers at every step as much as purely structural matters, and that the two are inseparable in good design. That aesthetic quality and structural function are one in architecture, is a fundamental principle that will suffer no violation. The bulk of the arch load being larger than that of the supporting shaft, the capital must expand from the necking upward; and if the arch section be square, the abacus must be square on plan to agree with it. The designer will perceive that the proportions of the parts of the capital will be largely governed by the relative mag-

*I have discussed these capitals in my *Development and Character of Gothic Architecture*, pp. 304-306.

nitudes of the arch impost and the supporting shaft.* Keeping hold of this principle, he will be able to shape his capital with propriety and beauty. There can be no hard and fast rules for such things, in any fine art, and in capitals the possible variety in proportions and details of form is practically without end. In the pure French Gothic art, one capital will never be found exactly like another.

As for the base, it would be hard to devise a better form than that which the French builders associated with the capital just described. Like the capital it is an evolution, through many changes, out of an ancient form; and consists of two tori and a scotia with two fillets, set upon a square plinth—the angles of the plinth being covered with a spur from the lower torus. The relative proportions of these parts may vary indefinitely, like those of the capital; and their profiling gives scope for endless subtleties of curvature.

Vault ribs and archivolt may be appropriately adorned with simple mouldings. If the ribs be square in section, the plain roll of the French builders, worked on each edge, can hardly be improved, and the profiling of the archivolt of openings will naturally follow that of the vault ribs. In all these details, the designer of artistic feeling and experience will appreciate the value of restraint, and will remember that a somewhat severe temperance of adornment marks all finest art.

But in addition to the general shaping of structural members, some purely ornamental carving will be required to relieve the baldness of mere structure, and give pleasure to the eye. And here again we shall find profit in the study of French Gothic art. For in no other style of building has carved ornament attained such beauty of form, and such perfect architectural quality. In order to profit by this example, we must here as before, lay hold of principles, and not merely imitate forms. The leading principles of the French ornamental carving of the twelfth century—the time of its

supreme excellence—are: (1) rhythmical arrangement of bosses of stone, (2) expression in them of the beauty of natural things, (3) moderation in quantity of ornament, and in flexures and convolutions of line and surface, (4) subjection of what is taken from nature to the natural conventions of stonework, and (5) harmony and breadth of total effect. The members that will chiefly call for ornamental carving are: Capitals, archivolt and jambs of doorways, and string courses, including cornices. Vault ribs are better left plain, though a carved boss at the intersection of the diagonals may well be included. External string courses will naturally be steeply weathered, and in the sheltered part under the weathering—which should be hollowed so as to cut off the drip—ornamental carving will be effective, either in the form of a running meander, or a series of foliated, or otherwise ornamented, bosses.

But the member that will chiefly call for ornamental carving is the capital, the form and position of which lend it with peculiar fitness to such enrichment. In designing this ornament the workman needs to be imbued with a sense of the vital beauty of organic nature—the source of all highest beauty in art—and with the principles of effective treatment of stone. Good architectural foliation is severely lithic in expression, and only the abstract lines and surfaces of natural plant forms lend themselves to this expression. Therefore no realistic elaboration of the finer details of nature can have place in effective architectural carving. The production of such carving must, under existing conditions, take time for development; for no body of men properly bred to the craft now exists. It therefore behooves the aspiring craftsman to study well what was done on these lines when ornamental carving on buildings was a living art. If we examine any fine twelfth century Gothic capital we shall see that the leafage is not like something merely affixed to it, but that it has the character of an integral part of the member—as it were, growing out of it. With its origin at the necking, where it has little

**Cf. my Gothic Architecture*, pp. 309-314.

relief, it expands with the form of the bell, and becomes more salient as it rises, until, under the angles of the abacus, it develops into great bosses that seem to fortify, while they enrich, these overhanging parts. And it is worthy of notice that whatever degree of profusion the stone leafage may have, it is never, in this French work, allowed to obscure the form of the capital as a whole. And I think it may be taken as a constant principle that good architectural carving, in whatever part of the building it occurs, never obscures or falsifies structural forms.

The modern designer of carved ornament, in following the principles of this best foliate sculpture of the past, has in plant life an unlimited range of materials from which to gather ornamental motives. He needs only a quick eye for beauty, disciplined by a critical habit, in obedience to which the accidents and deformities of nature are corrected by principles drawn from nature herself; and a ready capacity to translate the beauty of nature into architectural terms.

How far representations of human and animal life are likely to enter into the ornamental carvings of modern

churches, I do not know. Whether churches will ever again be clothed with sculptured imagery, as in the Middle Ages, is a question that only the future can answer. The conditions of life and thought that gave rise to the great mediaeval architectural imagery have passed away, and no revival of it is either thinkable or desirable. With what outward expression the religious thought of the future will be manifest in the Christian temple, we cannot foresee.

But the natural human craving for ornamental carving will no doubt demand satisfaction in the future, as in the past; and modern church building will have, sooner or later, to respond to the demand. In order to do so, however, we must have bodies of competent craftsmen, and such craftsmen cannot be mere mechanics. The workman in ornament must be himself the designer, or must at least have freedom enough to exercise his own artistic feeling in what he does with his hand. Good ornament cannot be a mechanical reproduction of a set model. Mechanical repetitions of set models can have no place in the living art of the new age that is dawning.





— The —
*Hampton Normal and
Agricultural Institute
Hampton, Va.*



*Ludlow & Peabody, Architects
By John Taylor Boyd, Jr*

THE Hampton Normal and Agricultural Institute, of Hampton, Virginia, has long been familiar to the popular mind as one of the chief centers of the education of the negro race. Since we are interested mainly in the architecture of the Institute, we may spare only the briefest reference to the unique character of this splendid school. It was in 1868 that Hampton was founded by a Civil War veteran, numbered among the most skillful leaders of the Union army, Gen. Samuel Chapman Armstrong. In his project to advance the education of the negro he obtained the aid of a few public-spirited men, who with him perceived the great need of aiding colored men to give direction to their development in their recently acquired freedom. One of these earlier helpers of Gen. Armstrong was Robert C. Ogden, whose broad vision included not alone Hampton, but gradually extended itself until it embraced plans of effective aid to education in the southern states as a whole, white as well as black.

The aim of the school has always been a direct practical one—to develop teachers for the negro race. It is vocational, though it gives training in vocations only with the idea that its pupils will pass their training on to others by teaching it. Especially do Hampton's sponsors encourage the agricultural side of the school, for they recognize that the majority of the colored race may be found on the farms, and they feel that the negroes are better off and happier there. A common sense program indeed, one capably carried out in an atmosphere of inspiring enthusiasm and bustling

activity, both on the part of white staff and negro pupils.

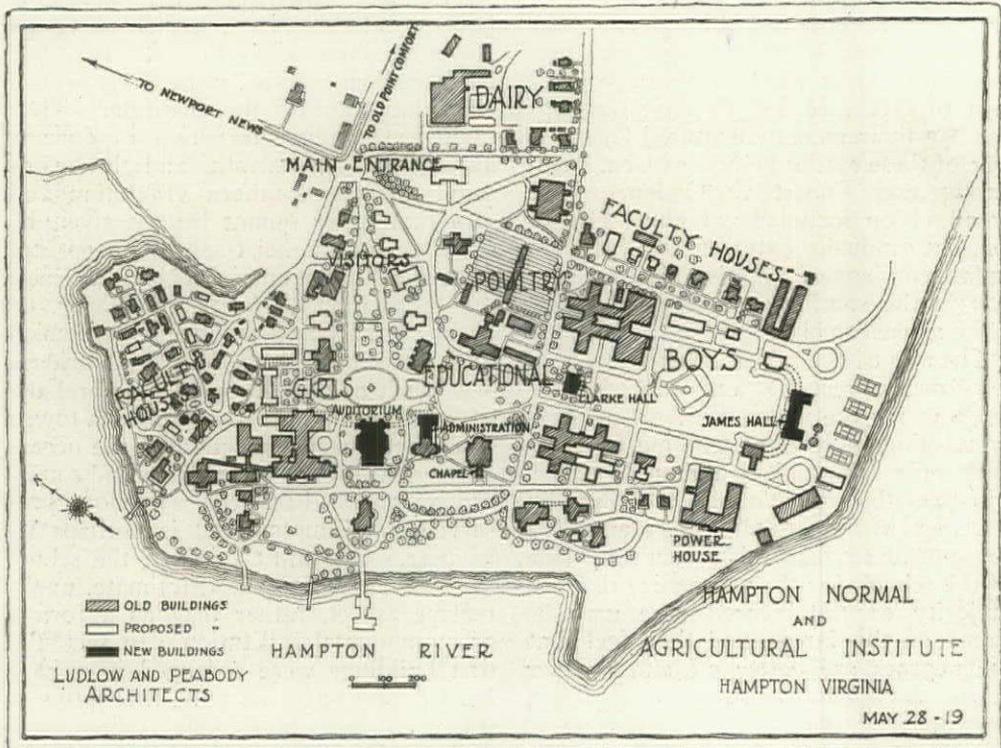
The character of the school is reflected in the architecture in a fitting way, even as regards the earlier buildings. Hampton Institute is indeed fortunate in its beautiful site. It is built on what was once luxuriant old Virginia farmland, a few miles from Old Point Comfort, low and level along the tidewater of the Hampton River, which bounds the property on the west. Boats, fishing smacks and other seacraft are frequent on the river, and lawns, gardens, occasional houses and many trees stretch along the opposite shore. On the site two fine old farmhouses exist, attractively woven into the plan of the institute. Thus Hampton, its grounds rich in foliage, has both the warmth and luxurious beauty of the southern vegetation and also that other quaint beauty given by the sea, of soft moist salt air, deep cool greens of trees and shrubs and vines, the fascination of boats, of fishing, of nearby canals and marshes, into which little black boys drop lines from bridges—a touch of the flavor of man and the trimness of his property in old sea towns—all the ancient attraction of the ocean. Much of this old charm of sea and southern farmland has been somehow preserved in Hampton and is perhaps its keynote. One must think of the school in this somewhat quaint, intimate, unobtrusive aspect, rather than as a formal or monumental institution. In fact, the first buildings were arranged in a haphazard way and it was only after a dozen of them were built, either of a dark tan brick or of a red pressed brick,

that Messrs. Ludlow & Peabody came upon the scene to bring some order into the group plan. And with good judgment they have not attempted to push symmetry too far. The semi-public buildings—auditorium, library, administration—are worked into a court or campus with a little court opening north for the dormitories of the girls; and another court grouped south of the teaching buildings is intended for the boys' dormitories. As a result, symmetry is more apparent in the plan than it will be really when the remaining buildings take their places in the scheme, and thus the informal intimacy of Hampton Institute will never be lost. It is hardly necessary to explain the arrangement of the general plan in further details. The planning of Ludlow & Peabody is the work of experienced architects who have had the good sense not to overdo. Their design has a more significant interest for the profession, to be shortly explained.

Does the architecture of Hampton aim to express the negro? This question may

well be asked and it is pertinent. It may be answered by saying that on the whole no extreme attempt is made to make the Institute expressive of the budding aspirations of the negro race. It is easy to see that the architects might have gone too far, might have been led astray into sentimentality or even into absurdities. In this matter we need not enter into the brambles of any discussion of the philosophy of races. After all, looking at Hampton in a matter-of-fact way, it is simply a school in the south, under southern skies, in a southern community, for the education of young negroes, founded, financed, controlled and taught by white people. When this fact is realized, any self-conscious attempt to create a negro or negroid architecture will appear absurd. In any case, such an attempt must be left to the negro himself.

If we, then, consider Hampton Institute architecturally as a southern school in which whites as well as blacks have a share, it should be apparent that its character is beautifully and harmonious-



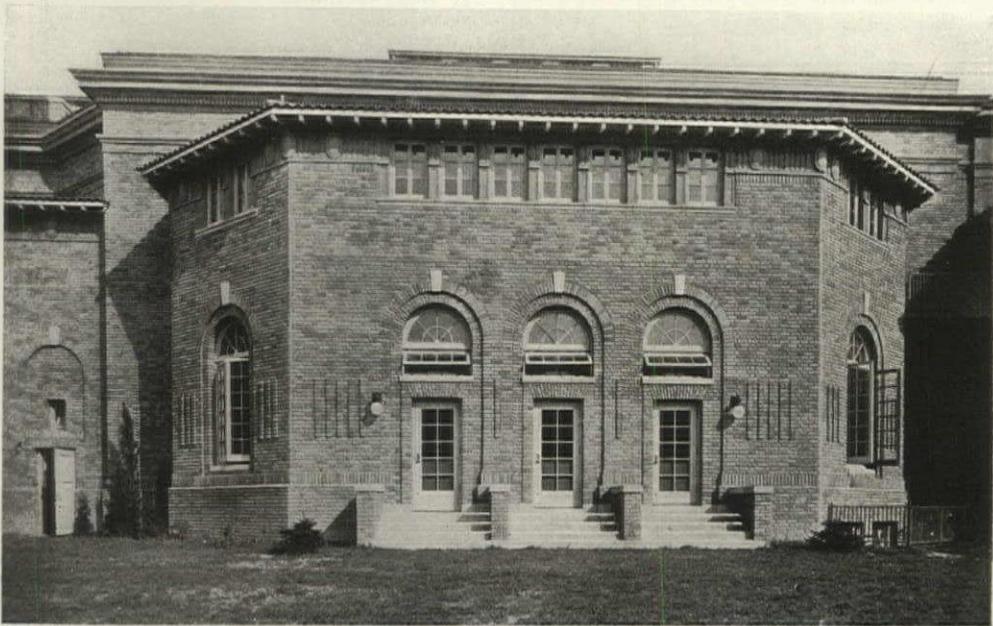


OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.
Ludlow & Peabody, Architects.

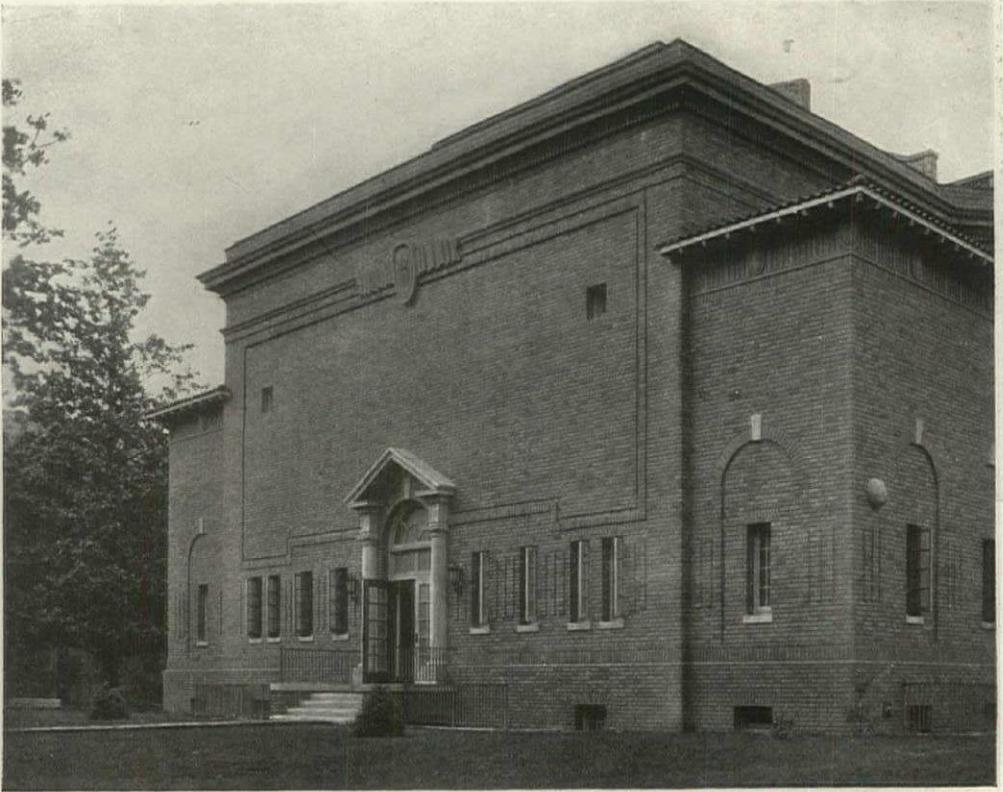
ly expressed in grounds and in buildings. Though none of the earlier buildings are remarkable, none of them are really bad, and they do not appear out of place in the lively Virginia landscape. It is fortunate also that the buildings designed by Ludlow & Peabody are by far the most important ones, in the most con-

spicuous locations, and that they impress their character on the whole far out of proportion to their number. It is these few new buildings, chiefly Ogden Hall, the auditorium, that are of interest to us.

When one sees Ogden Hall one will conclude that it has a significant striking

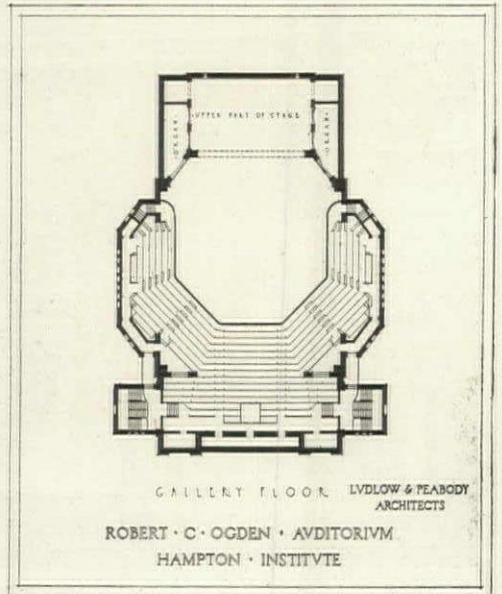
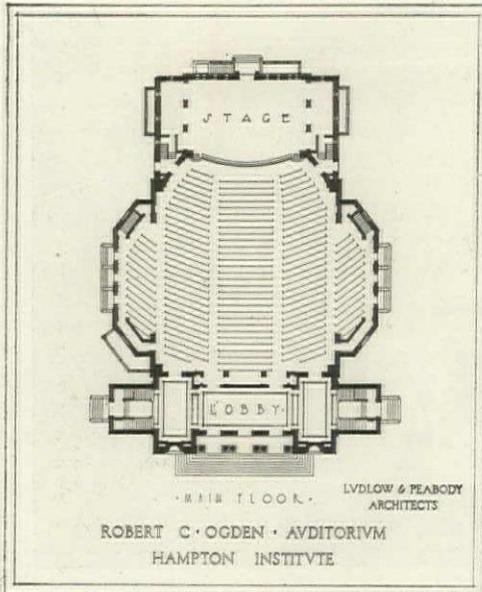


SIDE ELEVATION—OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE,
HAMPTON, VA.
Ludlow & Peabody, Architects.



REAR ELEVATION—OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.

Ludlow & Peabody, Architects.



FLOOR PLANS—OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.

Ludlow & Peabody, Architects.



FRONT—OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.
Ludlow & Peabody, Architects.

merit beyond most designs in American architecture. That is the merit of beautiful, rich color—strong harmonious colors in the building perfectly attuned to the brilliant coloring of the sky and to the vivid green of trees, greensward and hedges, which seem to vibrate in the southern sunlight and take from it its tinge of gold. As we look longer at the picture made by Ogden Hall in its setting one sees that its quality of color is found oftener in painting than in architecture. It is curious that, after all that has been talked and written on color, architects should fail on this essential point so continuously. Almost any capable practitioner can pick out an "interesting" brick, a pleasing stone, for his walls, or a soft colored slate or shingle or tile to make his roofs look well, judging each time whether the color and texture conforms more or less to certain universal standards. But what he rarely

does is to study those local colors as a whole, combining them into a strong rich key that takes its place integrally in the brilliant sunshine of the American landscape. In fact, so strong is the influence of certain sunlight, particularly towards the south, that it really determines the key of color of any landscape in which architecture is set. A combination of color harmonious in itself or in certain localities, may not be in key with the sunlight elsewhere. It is the sunlight and not the sample room that is the real test of color of materials in architecture.

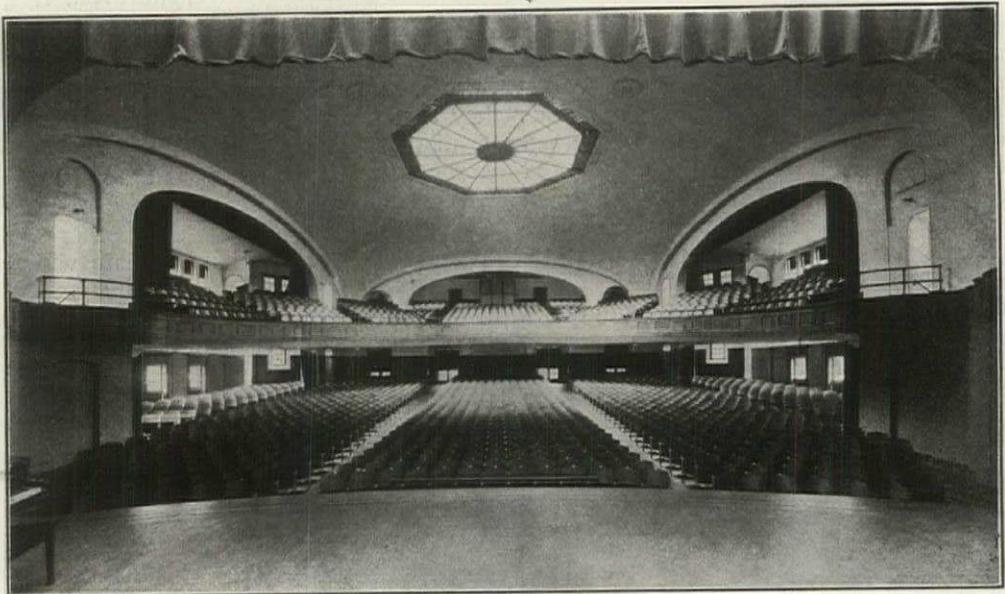
No one could find a better example of this truth than at Hampton Institute, standing in front of Ogden Hall. The roofs are tile of the color of Venetian Red, the walls of a warm tan yellow—bricks varying from light yellow to yellow sienna and chrome yellow and scarlet, laid in yellow raked mortar joints. The stone columns are a pinkish colored



AUDITORIUM, LOOKING TOWARDS STAGE—OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.
Ludlow & Peabody, Architects.

artificial stone, the entablature and bell courses of a terra cotta in color light burnt sienna. The only whitish colors are the very slight white touches of window frames, of gutters and the rafter ends of the tile roof, and of the rather

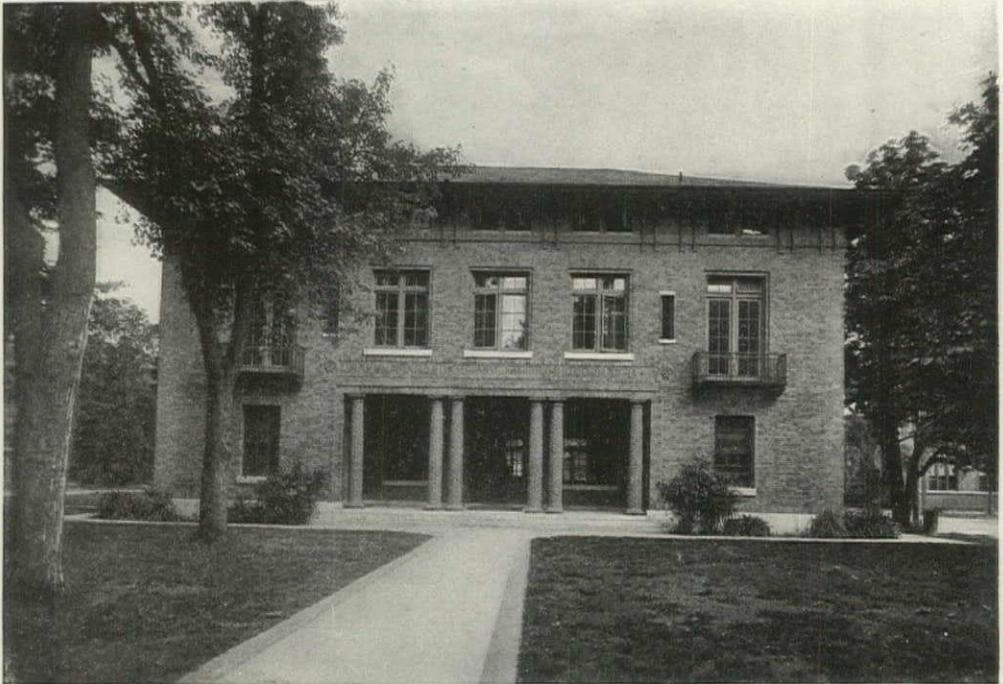
deep yellow gray base course and steps of the building. These touches, however, are eaten up, as it were, by the strong play of colors of the materials against which they are set, and it is to be noted that edges are so softened that



AUDITORIUM, FRONT STAGE—OGDEN HALL, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.
Ludlow & Peabody, Architects.



DETAIL—RECREATION BUILDING (CLARKE HALL),
HAMPTON NORMAL AND AGRICULTURAL INSTITUTE,
HAMPTON, VA. LUDLOW & PEABODY, ARCHITECTS.

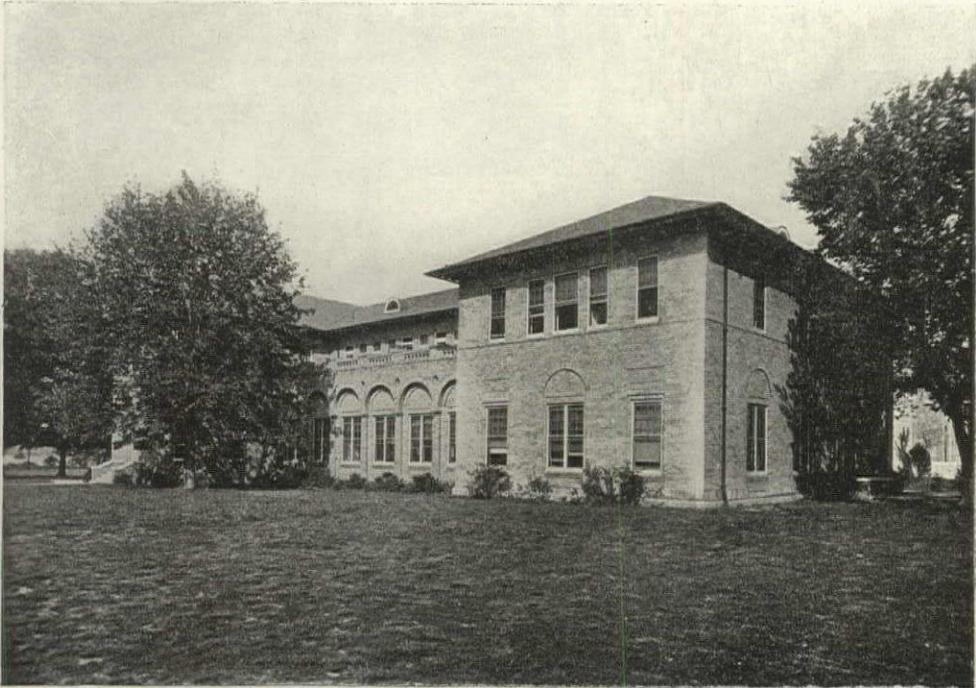


RECREATION BUILDING (CLARKE HALL), HAMPTON NORMAL AND AGRICULTURAL INSTITUTE, HAMPTON, VA.
Ludlow & Peabody, Architects.

they hardly are noticed at all. This last particular, excessive lines and edges, is one of the vices of our modern architecture, both exterior and interior. From this luminous, overwhelming impression of unity, let the visitor turn his eyes toward the library at the right. Here he will see a building of the usual, inevitable type—limestone portico and entablature and window sills, flat stone dome above, the walls of brick, dark red in character, with strong white joints—such as one sees throughout the United States. It is no better or worse than a thousand designs of capable architects. Yet one must agree that the effect is spotty, restless. Every line stands out, slight defects of proportion are revealed clearly. Its colors are more subdued than those of Ogden Hall, yet they do not blend and obviously they do not melt into the sunshine. In fact, this library building seems to be in a different landscape from Ogden Hall. Nevertheless, were Ogden Hall not at hand for purposes of comparison, many people might

find the library a fairly satisfactory building. How long will it be before American architects appreciate the painter's eye for color in buildings in landscape?

Aside from its color, the design of Ogden Hall is interesting. The front recalls the façade of the Pan-American building at Washington. It is not so strikingly monumental, for Hampton demands a more informal treatment. Its upper portions seem better handled than in the Pan-American building, the splendid classic character of which is somewhat marred by the use of too many elements and by the too frequent breaking of lines and bands of cornices, sloping roofs, flat roofs and balustrades and buttresses. Interesting, too, is the comparison in the two buildings of the relation between side and front elevations. In the Pan-American the window motive at the end pavilions of the front is carried around the side elevation and repeated there without variation or the addition of other ele-



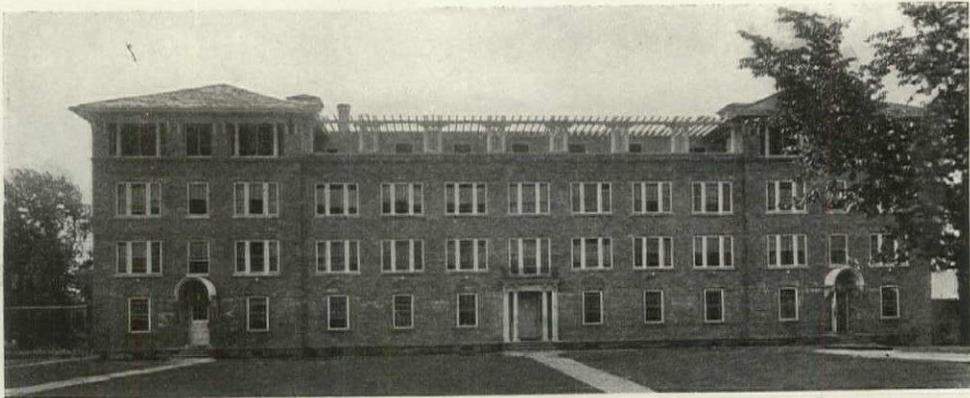
ADMINISTRATION BUILDING, HAMPTON NORMAL AND AGRICULTURAL INSTITUTE,
HAMPTON, VA.

Ludlow & Peabody, Architects.

ments—naturally a most perfectly classic arrangement. On the other hand, the designer of Ogden Hall has done a more informal thing by creating a charming side elevation, somewhat different and rather more informal than the front elevation; sacrificing necessarily the unity of design in the perspective at the corner. One cannot say, however, that the architects have not acted wisely at Hampton, both because the place is informal and because the side elevation of the auditorium is most important in itself. Details to criticize are the tiles of the roof, which one could have wished less thin and metal-looking in form, and less monotonous in color; the rafter ends and gutter of the same roofs which seem a little thin in detail; and the terra cotta which might have had more variety of color, too. This terra cotta work is interesting in the whimsical pattern of very much conventionalized sugar-cane spikes and watermelon, a quaint touch symbolical of the character of the school.

The interior of the auditorium will

offer much of technical interest to the visiting architect. The artistic and structural difficulties of such a building have been successfully solved. The low sweeping proportions of the hall itself, the stage opening, and the large balconies are well above the average achievement. The capacity of the stage is 300, of the floor 1400 and of the galleries 800. An interesting detail is the great curtains hung under the balconies and above them, part way back from the front row, so that, when drawn across they greatly reduce the apparent capacity of the auditorium. They are to be used when the occasion is not important, and only a small audience is expected to be present, in order that this small audience shall not appear to be swallowed up in a great empty hall. Both for singing and speaking, the acoustics are perfect, nor are they the result of chance, for Mr. Hugh Tallant was consulted in this feature of the design and every effort was made to attain success. The color scheme of the interior is not yet carried



BOYS' DORMITORY (JAMES HALL), HAMPTON NORMAL AND AGRICULTURAL INSTITUTE,
HAMPTON, VA.

Ludlow & Peabody, Architects.

out, so nothing may be said on this important point.

Ogden Hall is clearly the most important work of Messrs. Ludlow & Peabody at Hampton Institute, so far as regards its general interest to the architectural profession. They are, however, the designers of other work there. One may see numerous little alterations to old buildings, skillfully done, of those innumerable details for which architects are always called upon in a large group of buildings. Of complete buildings, James Hall, finished four years ago, is a large dormitory for boys, at the southern end of the group. It is simply done, on the roof is a great sleeping porch, especially desirable on account of the susceptibility of the negro to tuberculosis. One may complain that the window enframements are too noticeable, white against the tan brick, but this fault may easily be remedied at the next repainting. Clarke Hall, a club or Y. M. C. A. building, is an excellent design. Exterior wood and iron are here painted a dark green, and the roof is of dark slate to match roofs of neighboring buildings. Good colors, yet not so strikingly inspiring as Ogden Hall, which shows an improvement over these earlier works. In the administration building the architects have very cleverly incorporated an old building in the new.

In these Hampton Institute buildings, Messrs. Ludlow & Peabody have pointed

a way for architects in the south to follow. In Ogden Hall they have taken a flight, successfully, into a region of color that few of their contemporaries dared explore. They have incidentally improved on their earlier work in the first buildings in the Teachers' College at Nashville, Tenn. As one travels through the south, one is always surprised at the lack of interpretation in present day work there, and not only in respect to color. There is an absence of the principles of planning that are evident in warm sunny climates, where people live outdoors in cooler months of the year and then seek the shade when warmer weather appears. Where are the courts, the arcades one expects to see? Indeed, notwithstanding the traditions of porches and porticos in old southern architecture, there are many houses in Connecticut which have more open porches, sleeping rooms, sunlit lounging rooms, glassed-in alcoves and terraces, than I saw in Memphis, Tennessee, which is far south indeed. In many towns one looks in vain for modern buildings that express something of the warmth, the sensuous charm, the picturesqueness of the south.

Everywhere there is Yankee architecture, often third rate Yankee, even more out of place in the south than in the north. The new buildings at Hampton point a way out of this unfortunate situation.

English Architectural Decoration

Text and Measured Drawings
by Albert E. Bullock

Part IX.—b

CHIMNEYPICES of simple design were executed in the chief periods from Charles I to the early Victorian era, of which one of the most notable is that illustrated here from the library at Ashburnham House, Westminster, where a note of dignity is given by the size of the moldings and general scale of the fireplace. There is a smaller one of similar character in the wig room, having the hood supported on brackets. In the William and Mary period the angle chimneypieces with stepped shelving above from Hampton Court Palace are an interesting feature, of which one example has already been given. Two others from George II's private chamber and the adjoining room exhibit some simplicity in design, although based upon the principle of the more elaborate type from William III's room.

With marble chimneypieces of the mid-eighteenth century the moldings are somewhat heavier and the ornament more florid, of which an example is given in that illustrated from Christchurch Manor, Ipswich. Figures and flowers carved in full relief were a feature of the William Kent and Leoni period, when Rysbrack the sculptor was flourishing. His style was maintained after his employment by James Gibbs.

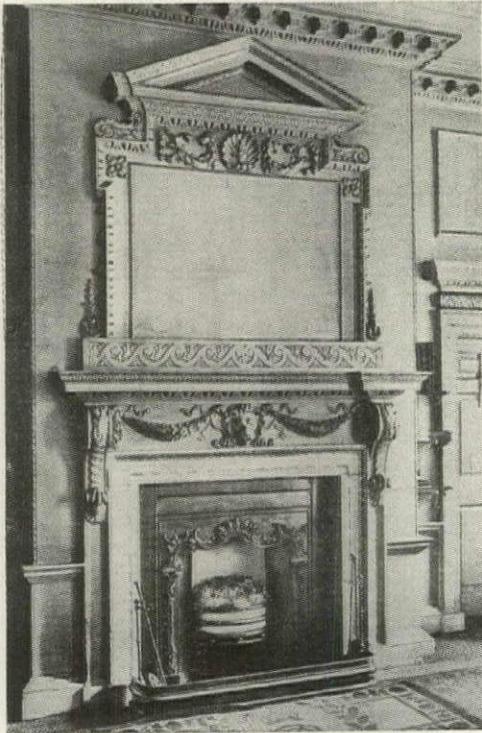
A room from No. 27 Hatton Garden, Holborn, now in the Victoria and Albert Museum, is of this latter period, the detail of which is of bold character. I hope to give fuller particulars of this fine room when treating of doors, overdoors, etc.

Marble chimneypieces offered less opportunity for carving and were often inlaid or had a certain proportion of carving usually confined to the friezes and consoles or side brackets, any additional ornament required being given in plaster above the overmantel with an enriched cornice, also in plaster, to the room, as

at Christchurch Manor, Ipswich, or the back room at Abchurch Lane, the demolished house from which I recently illustrated a ceiling of the Chippendale period. Of this latter period there exists an interesting example of carved mantel at the "Dodo" House, Chichester, known as North Pallant House, where there is also a good type of light eighteenth century staircase, which will be dealt with in its order.

Plaques with classic subjects took the place of overmantels in some of the Adam examples, or were substituted by circular, oval or oblong mirrors. These mirrors had an optical effect upon the proportions of the room and were sometimes, as in the case of the circular Adam type, of convex form. The loftiness of the rooms of the William and Mary period did not obtain in the smaller Adam period examples, except in the larger mansions, as Sion House, Isleworth, and in instances where vaulted ceilings were a feature, as the library at Belton. Thus a circular or oval plaque or mirror over a mantel would have the effect of reducing the apparent height of a room, whereas one of oblong shape of narrow width would have the appearance of heightening an otherwise low room by reason of its tendency to verticality. It is important to note this in dealing with the design of decorations where they are applied to existing rooms. The area being defined, it remains to treat it in a suitable manner, according to the requirements of the owner. A room can be entirely altered as regards the existing proportions by simple means, such as reducing its height by a false ceiling; or, if low, by making it appear higher by the verticality of the paneling; and, in the case of a mean chimney breast, by widening the same and centralizing the mantel; or, if too long a room, giving a reduction by putting an anteroom by means of a

partition, or forming an alcove supported on columns. Where folding doors are a difficulty between two rooms of different width they can be centralized by making the folding doors central to the larger room, having one door to open into the adjoining room, the second leaf on that side being converted with the paneling into a jib door. These are a few of the expedients resorted to where difficulties present themselves unwelcomely to the designer. In the case of billiard



CHIMNEYPIECE IN A HOUSE IN WHITEHALL GARDENS, LONDON. ABOUT 1727.

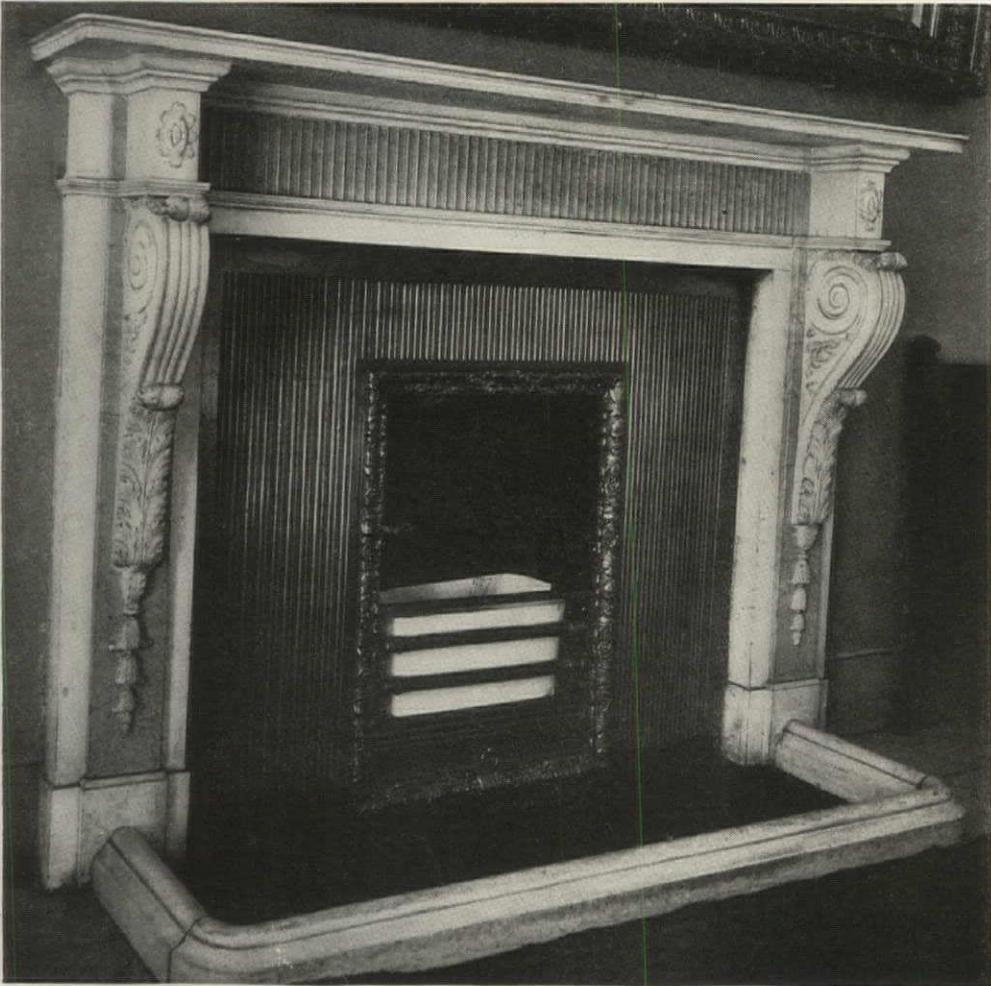
rooms that are hardly large enough for a full-sized table in width, it may be possible to change the fireplace to the end or the angle of the room, always avoiding large-section dado rails, as these become awkward at the angles of the chimney-breasts owing to their increased projection at the mitre.

Where it is desired to increase the size of a room involving the addition of one on the half-landing, it may be necessary to alter the staircase; but the mere level-

ing of the floor sometimes suffices with the removal of the side door and frame, and forming a bressummer or arch over the portion of wall of the larger room where removed for access.

The Pink Drawing Room at Clayton House, Bucks, contains a carved mantel with a large amount of ornament over, leaving a space for a picture or mirror. The room is lofty and the style of the ornament is what is known as the Chinese-Chippendale, or the type which was developed in England following the era of Louis XV in France and the publication of Sir William Chambers' Chinese designs. The mirrors of this time were very elaborate examples of carving, in which conventional birds were embodied in the design with ornament more in representation of grottos than anything formerly adopted. In this connection I hasten to expose a fallacy which is given by some writers on furniture, that the ornament in the form of a "C" indicates the work of Chippendale. An examination of late Wren work will reveal a similar motif, especially at Hampton Court Palace, but the style was fully developed by the mid-eighteenth century and was practiced in sculpture by H. Cheere and others. It is an interesting study to trace the origin of detail. The Greek honeysuckle can be found in a crude form in early Abyssinian ornament; the Georgian husk went through many vicissitudes before it took the form now familiar to students of decoration; and many of the *paterae* can be traced back to medieval days, when they formed the diaper of church walling or were carved on oak beams.

After drawing some hundreds of enriched moldings in many different periods, I have reason to endorse Solomon's maxim that there is "nothing new under the sun" in the detail of decoration, each apparent invention having its particular heredity and antecedents. It is therefore necessary to treat anecdotes of the description referred to with due reserve. Indeed, I doubt if half the work attributed to Chippendale was of his responsibility, and the same may be said with regard to work attributed to Grinling Gibbons or Inigo Jones. It is merely



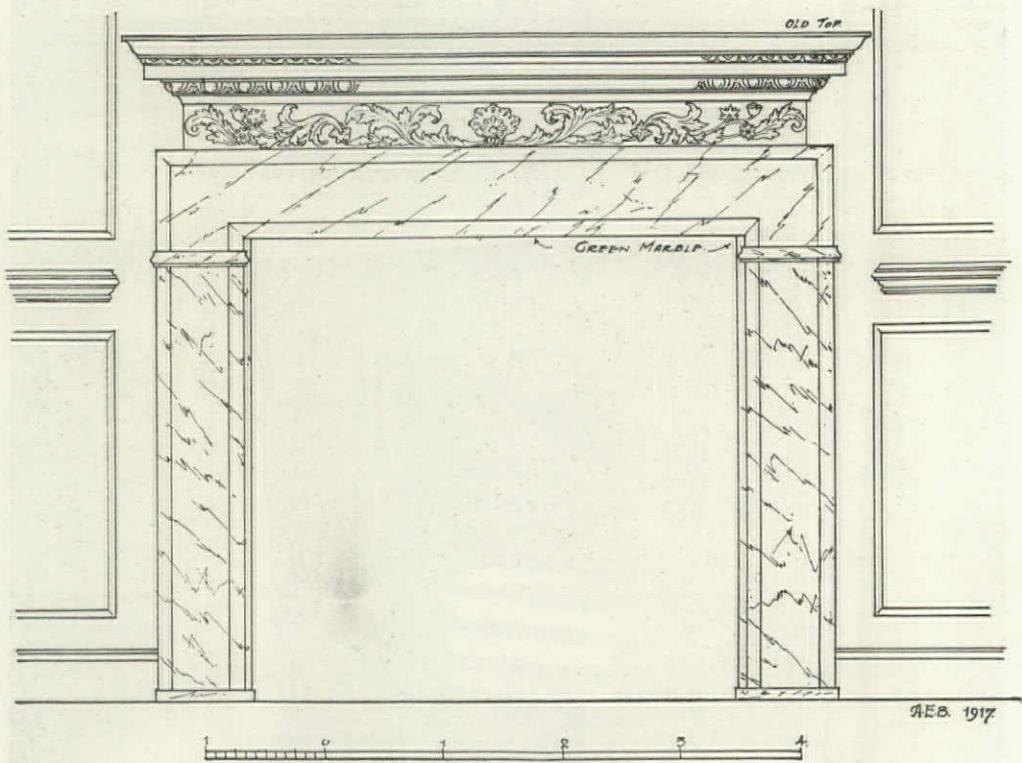
CHIMNEYPIECE IN HALL, ROYAL COLLEGE OF SURGEONS, FROM OLD WAR OFFICE.
PROBABLY BY WILLIAM KENT.

for want of a better allocation that work which exhibits ornament similar to that carved on authentic Chippendale furniture has been attributed to him by certain writers, and by others as being of the era when he flourished.

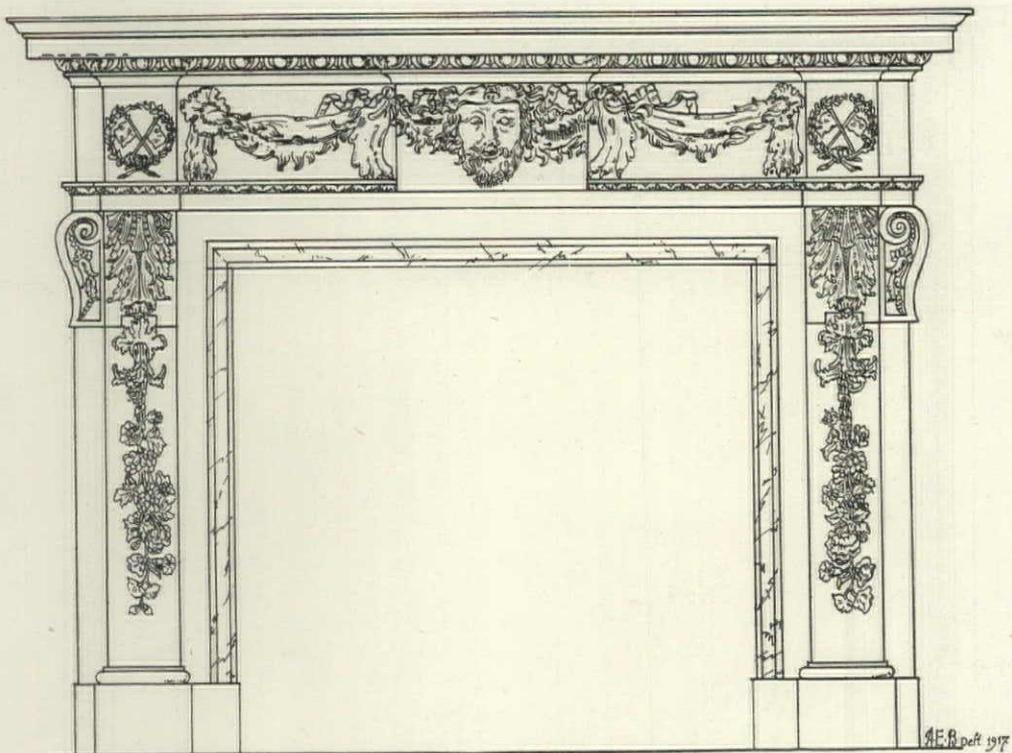
The cornice and frieze from an old example is occasionally to be found adapted to a new marble architrave, which has probably occurred in the case of the mantel illustrated here from the Sparrow House, Ipswich. This ancient house, with its half-timbered work and bay windows having ornamental external plaster work, is a favorite object with writers dealing with Elizabethan domes-

tic architecture. It is in fact the show place of Ipswich, but has suffered internally from the attentions of an overzealous owner, who has from time to time added certain old work and modern plaster work from various periods, which must puzzle the uninitiated not a little. There are ceilings of quasi Chippendalecum-Louis XV construction, and a staircase having balusters dating from early Adam days. The chimneypiece, above referred to, is in a room with concave ceiling ornamented with large Tudor roses in plaster at intervals.

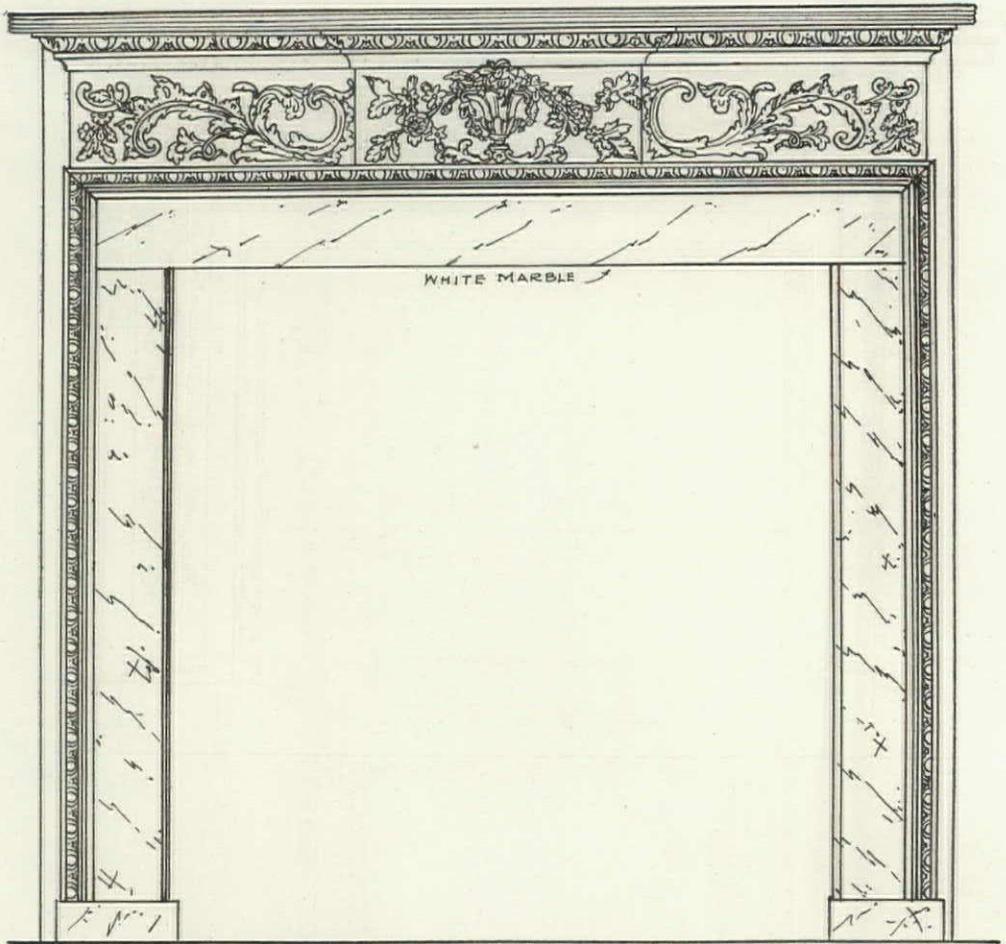
Wren's House, Chichester, is all of one period, with fine wrought iron entrance



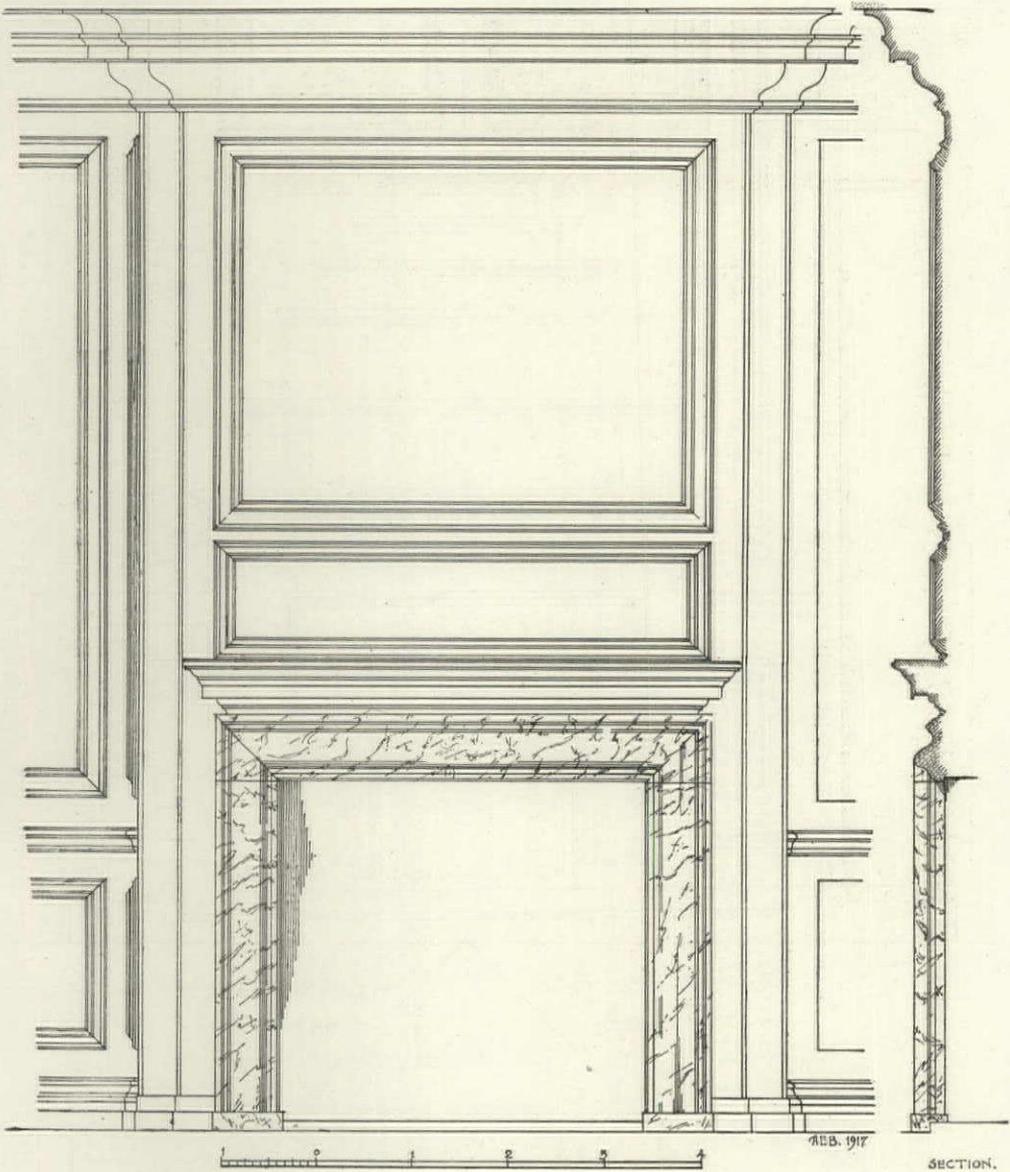
MANTEL FROM THE "SPAR-
ROW HOUSE," IPSWICH.



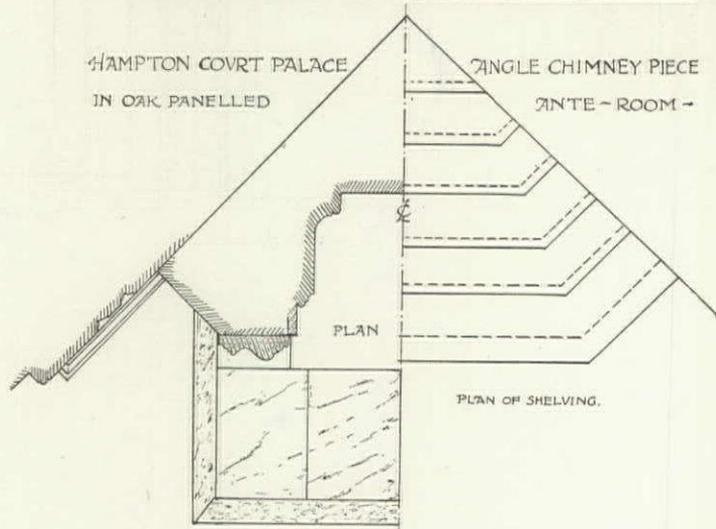
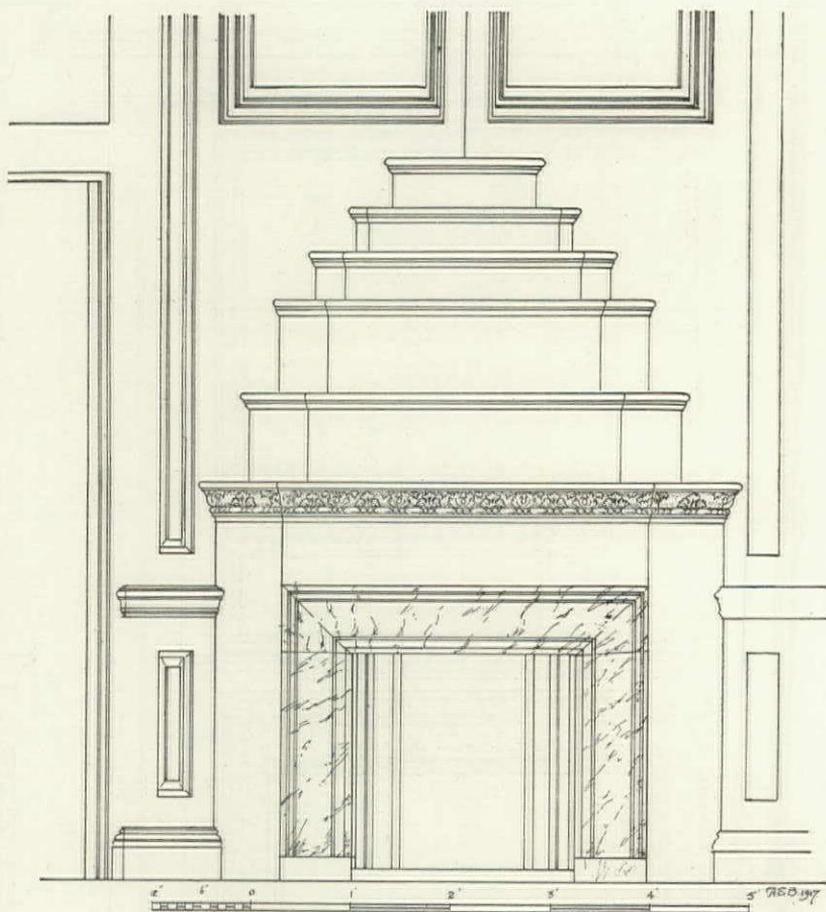
MANTEL FROM THE QUEEN'S
HOUSE, GREENWICH.



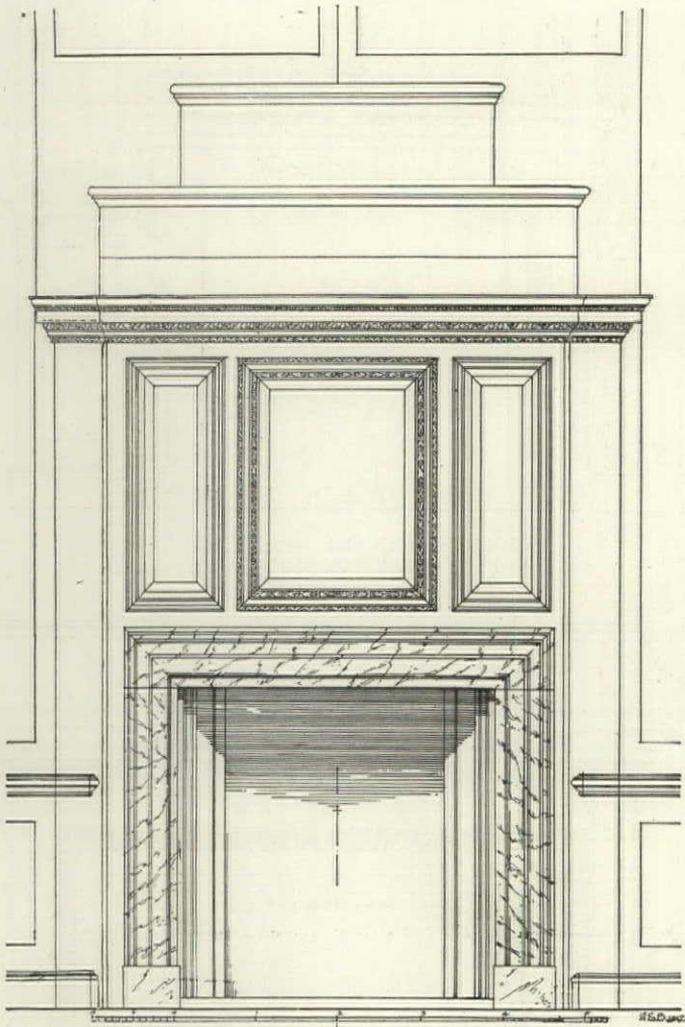
MANTEL FROM NORTH PAL-
LANT HOUSE, CHICHESTER.



CHIMNEYPiece FROM "WREN'S HOUSE," CHICHESTER.

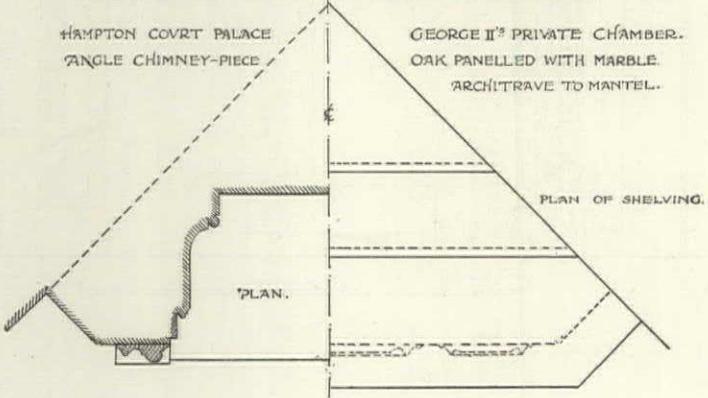


ANGLE CHIMNEYPiece IN ANTE-ROOM AT HAMPTON COURT PALACE.

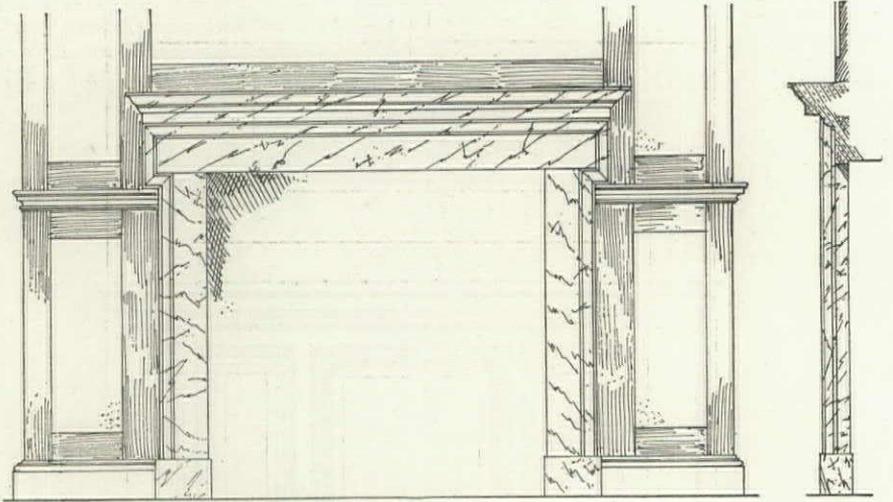


HAMPTON COURT PALACE
ANGLE CHIMNEY-PIECE

GEORGE II'S PRIVATE CHAMBER.
OAK PANELLED WITH MARBLE.
ARCHITRAVE TO MANTEL.

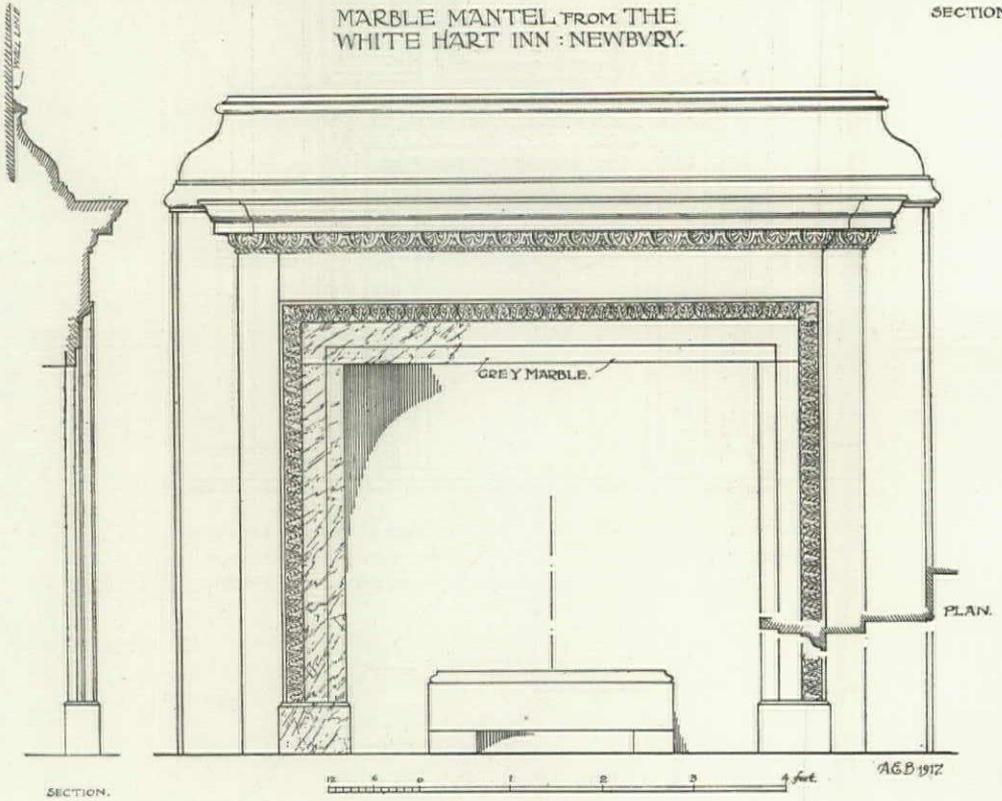


ANGLE CHIMNEYPIECE IN GEORGE II'S PRIVATE CHAMBER, HAMPTON COURT PALACE.



MARBLE MANTEL FROM THE
WHITE HART INN : NEWBURY.

SECTION.



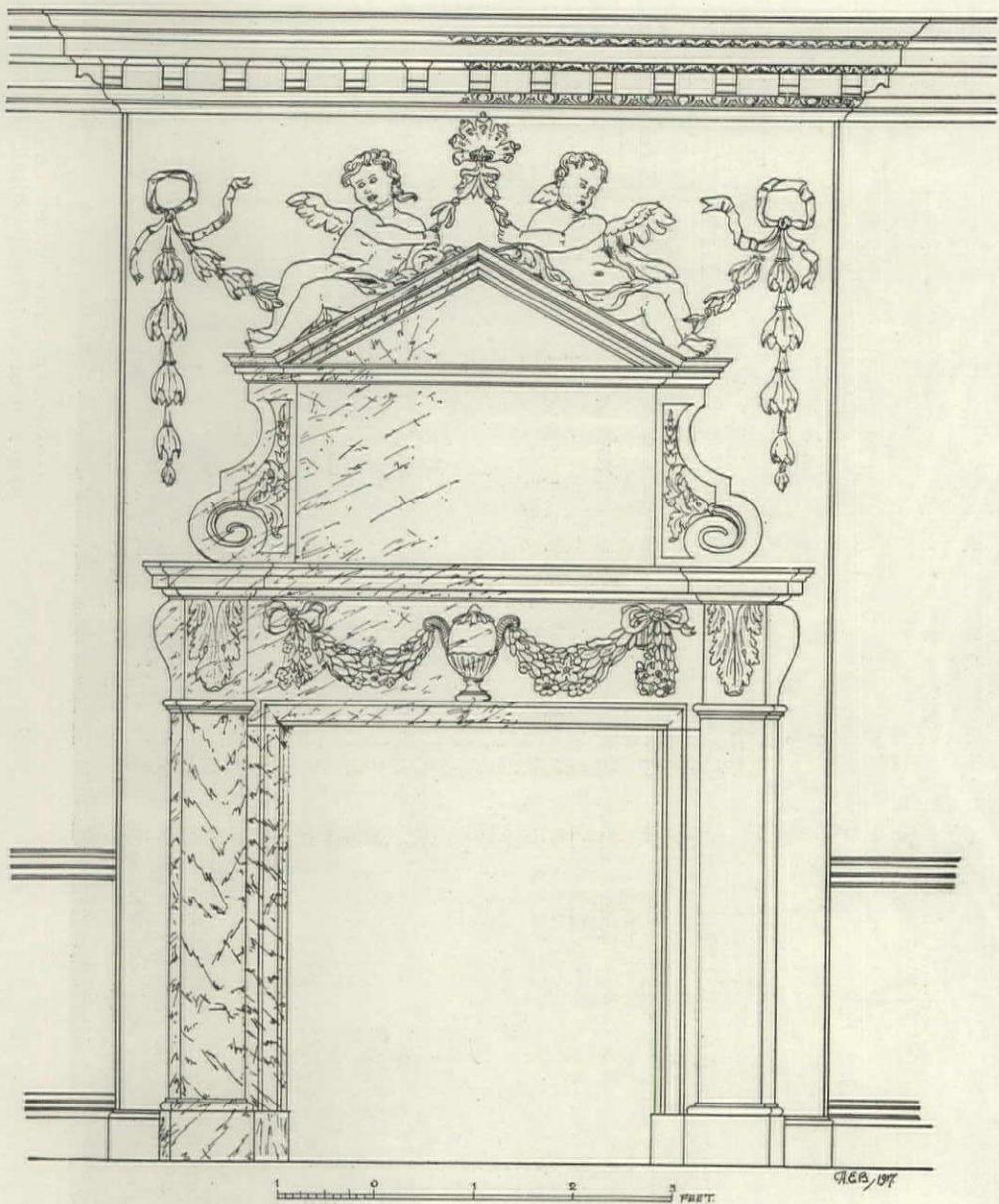
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PLAN.

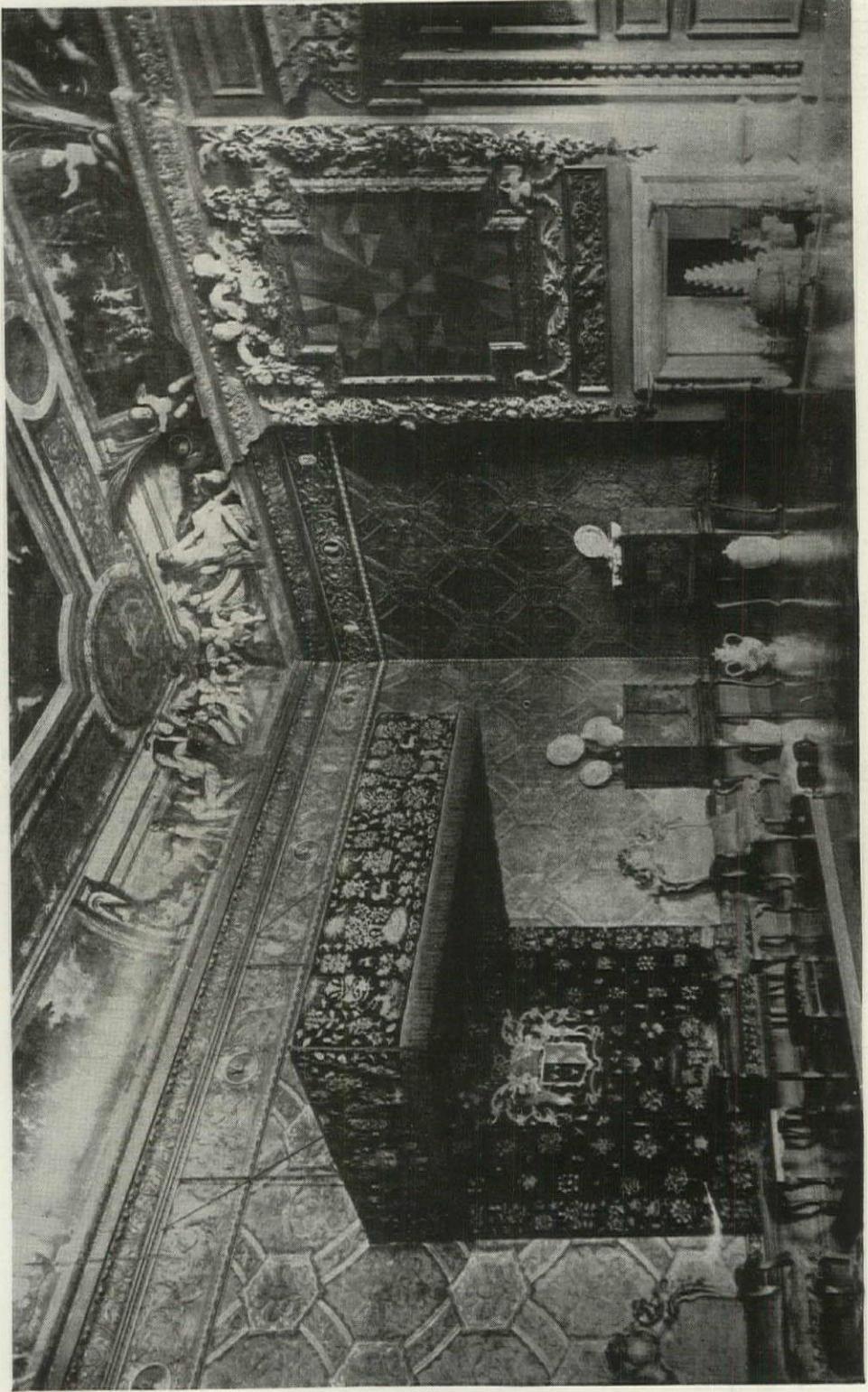
4 feet

A&B 1912

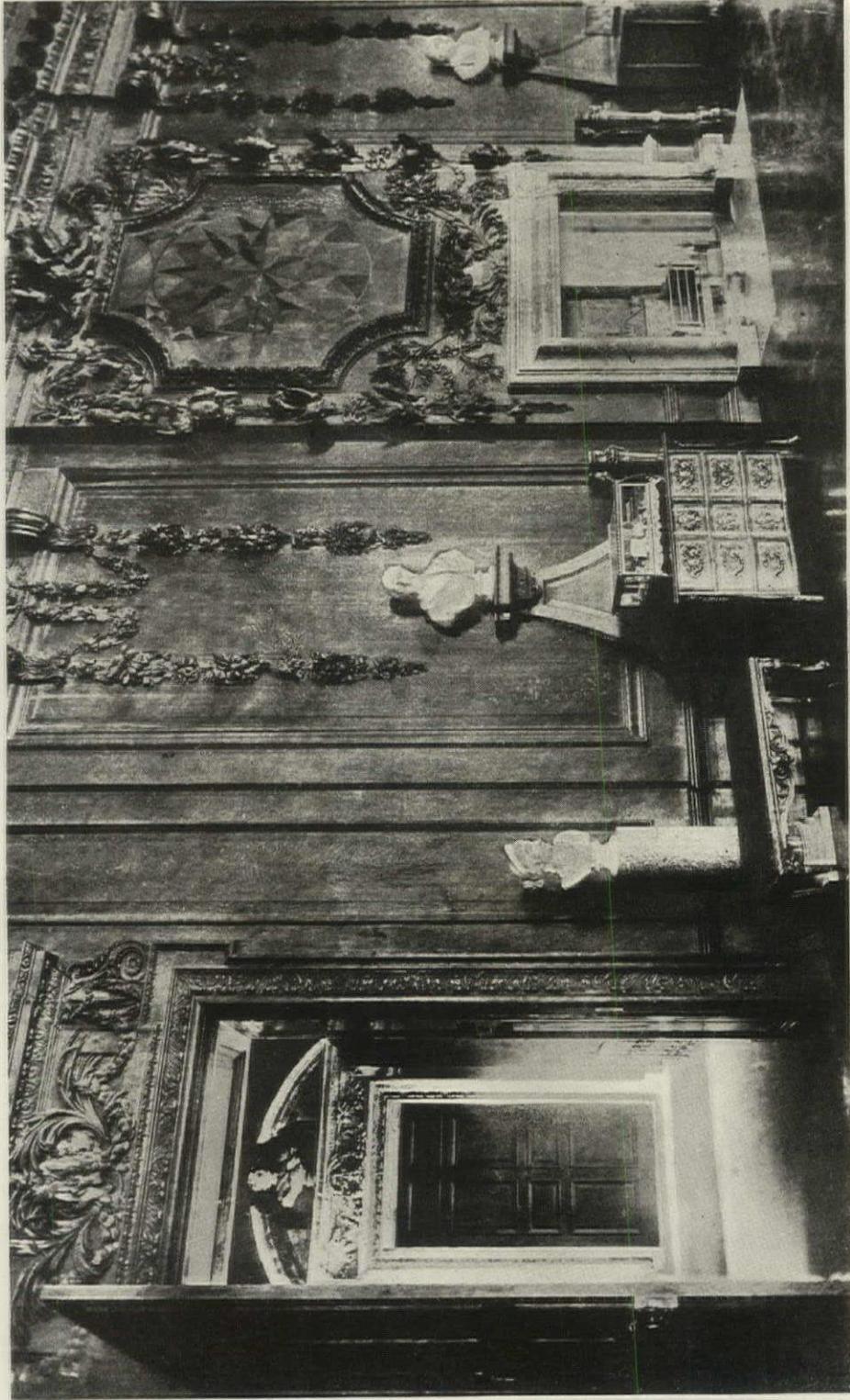
CHIMNEYPIECE FROM SALOON AT
ASHBURNHAM HOUSE, WESTMINSTER.



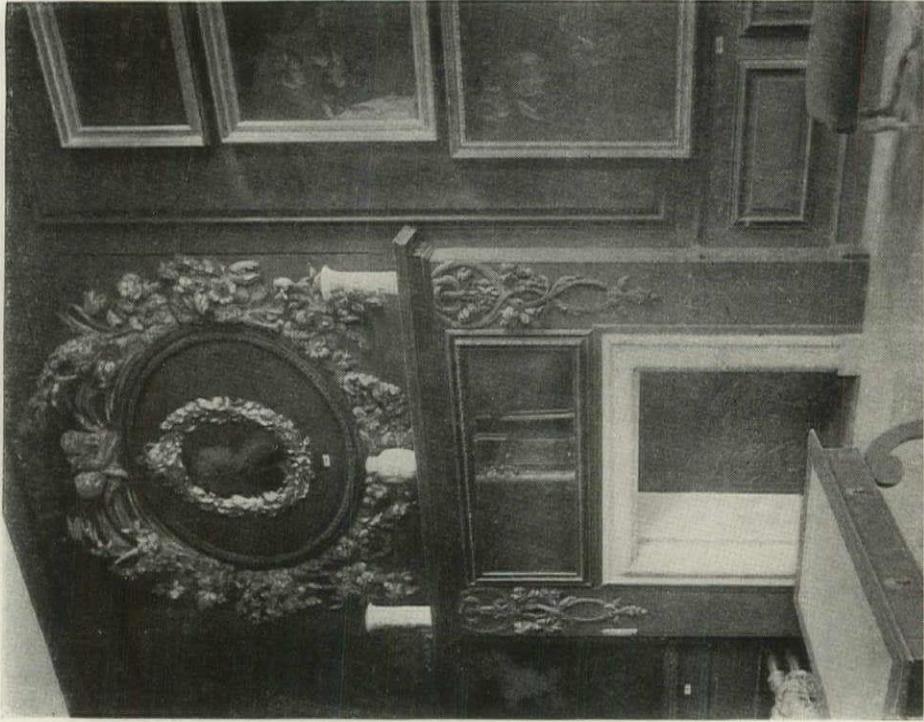
MARBLE CHIMNEYPIECE AT
CHRISTCHURCH MANOR, IPSWICH.



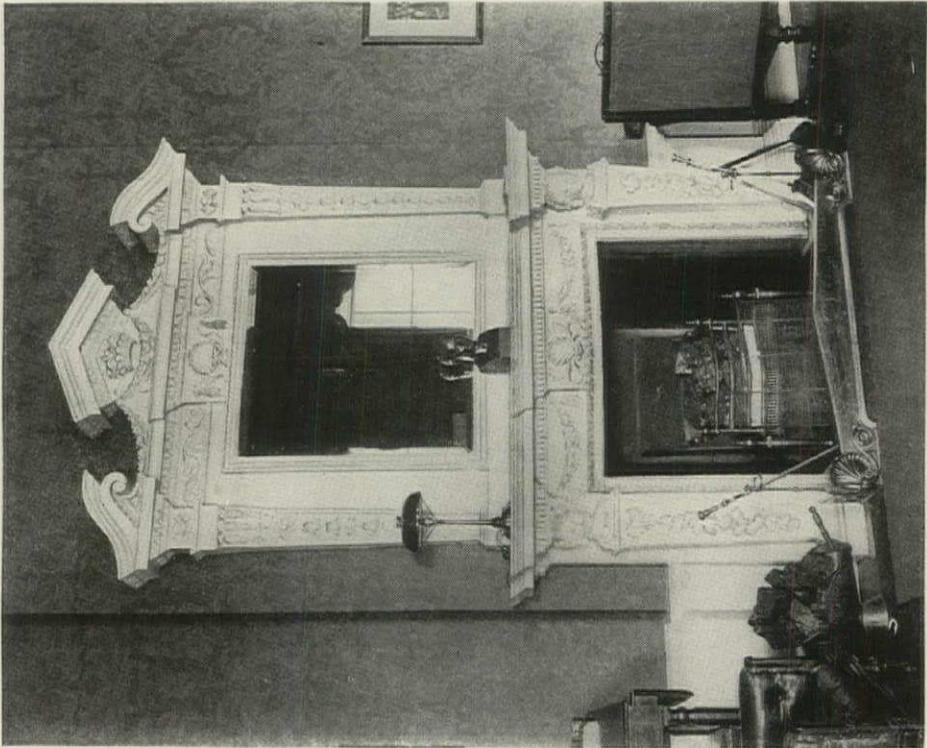
CHATSWORTH, PRESENCE CHAMBER — RESIDENCE OF DUKE OF DEVONSHIRE, DERBYSHIRE.



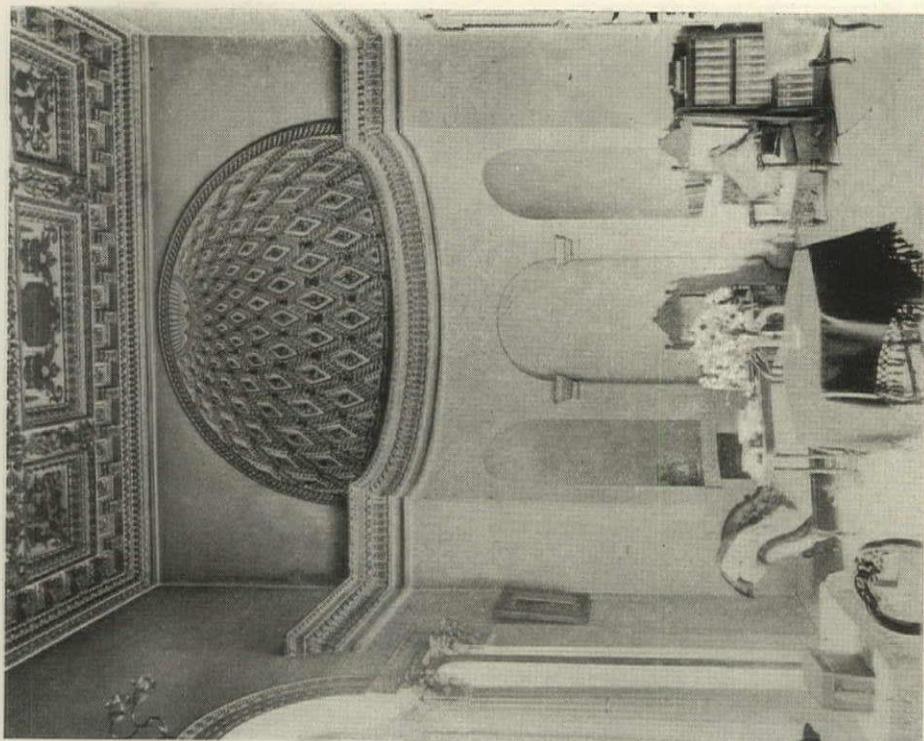
FIRST STATE ROOM, CHATSWORTH—RESIDENCE OF DUKE OF DEVONSHIRE, SHOWING CHIMNEYPIECE WITH INLAID ORNAMENTAL PANEL.



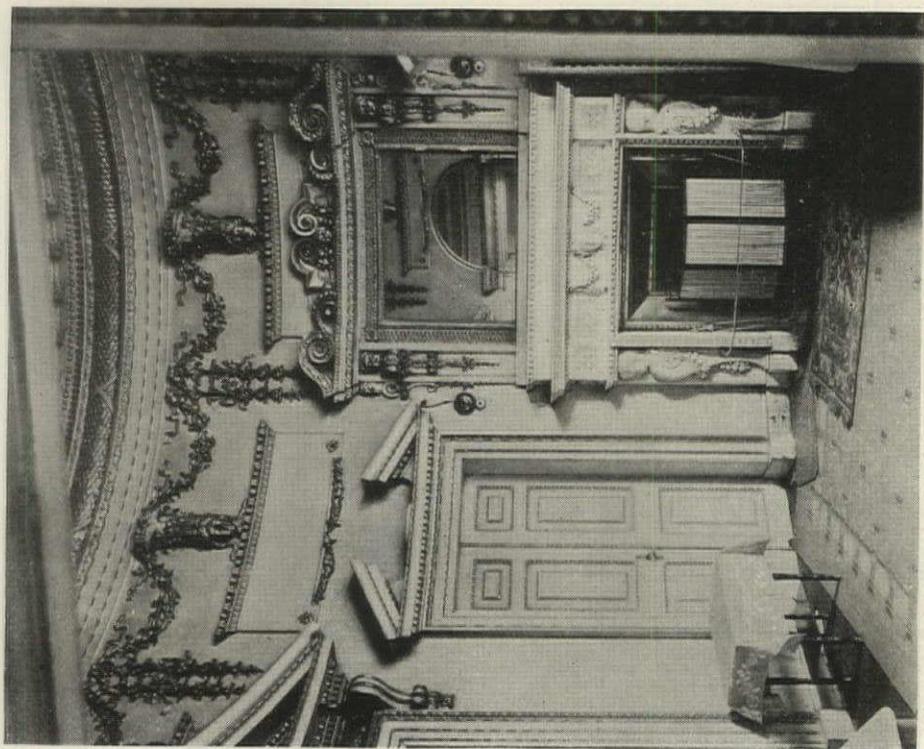
CARVED CHIMNEYPIECE, BY GRINLING GIBBONS, IN HAMPTON COURT PALACE.



CHIMNEYPIECE—PRESIDENT OF BOARD OF TRADE ROOM, PEMBROKE HOUSE, WHITEHALL. BY WILLIAM KENT, 1740.



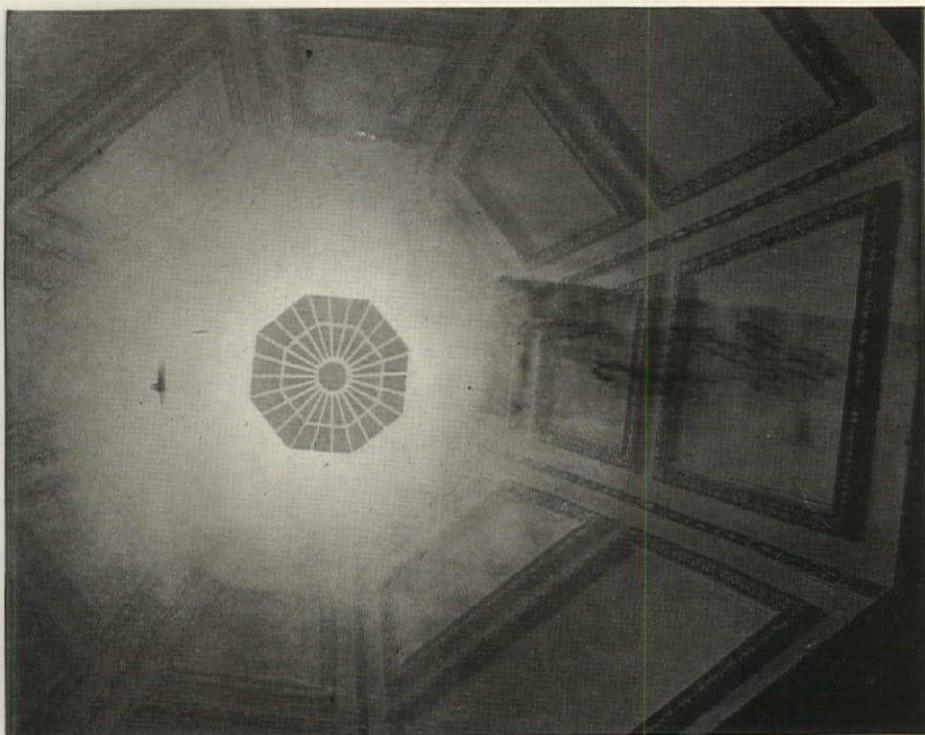
CEILING IN EARL OF BURLINGTON'S RESIDENCE, CHISWICK. BY WILLIAM KENT, 1729.



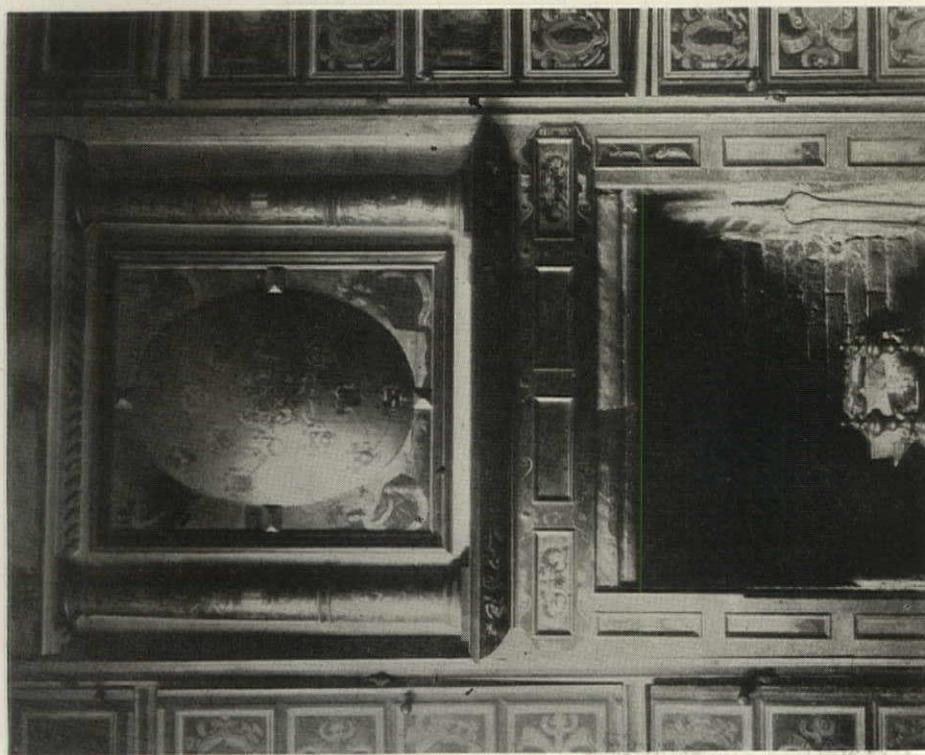
FIREPLACE AND MANTELPiece IN EARL OF BURLINGTON'S RESIDENCE, CHISWICK. BY WILLIAM KENT, 1729.



ORIGINAL PLASTER MODEL BY ALFRED STEVENS
FOR A MARBLE MANTELPIECE ERECTED IN
DORCHESTER HOUSE, PARK LANE, LONDON.



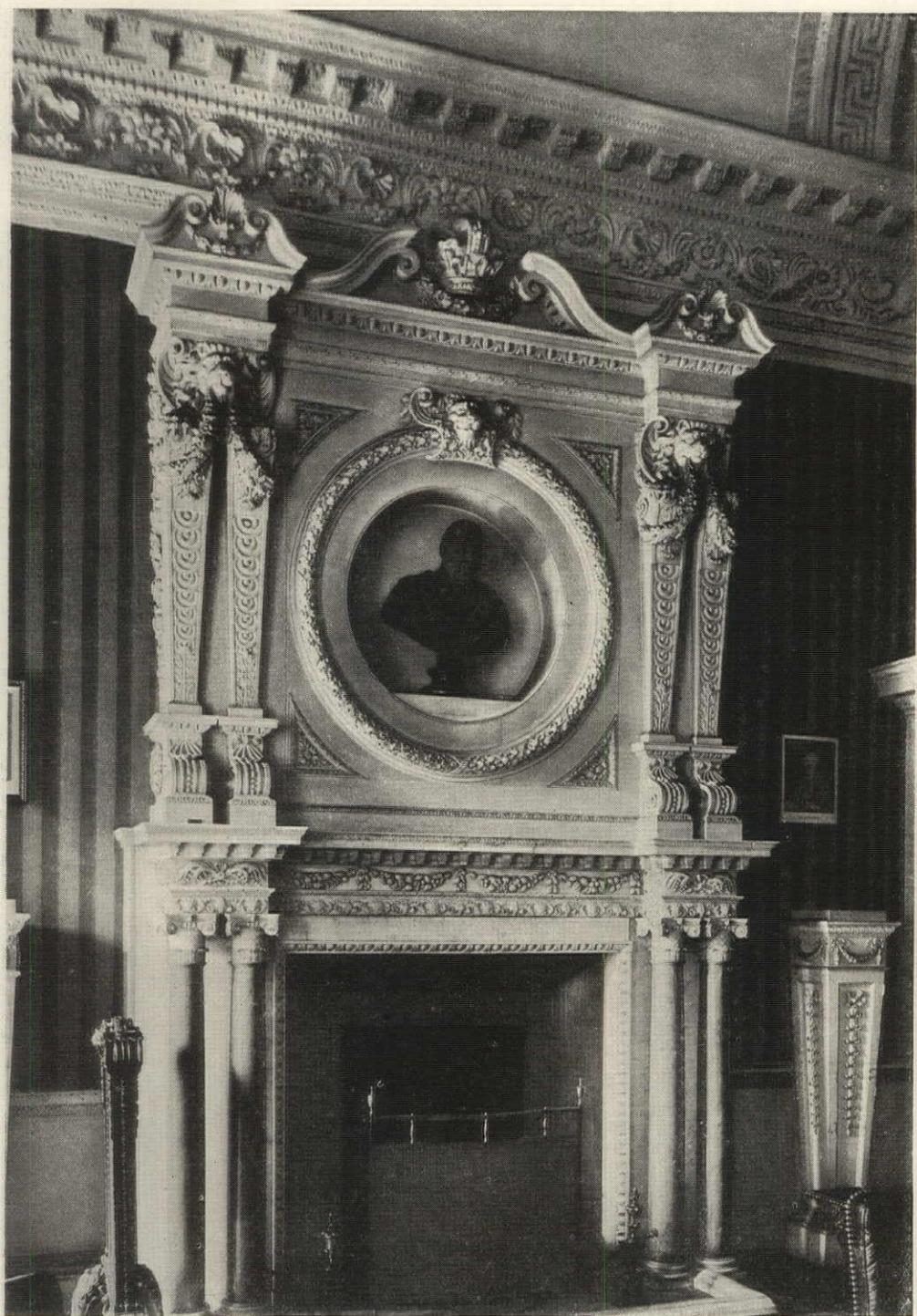
CEILING IN QUEEN'S PRIVATE CHAPEL, HAMPTON COURT PALACE.



JACOBEOAN CHIMNEYPIECE, KIDDERMINSTER LIBRARY, ATTACHED TO LANGLEY CHURCH, BUCKS.



CHIMNEYPIECE, BRYMPTON D'EVERCY, RESIDENCE
OF THE LATE SIR PONSONBY FANE, SOMERSET.



LIBRARY FIREPLACE—TRAVELERS' CLUB, PALL
MALL, LONDON. BY SIR CLARKE BARRY.

gates having bold bolection molded paneling within and thin doors with rim locks, etc. The chimneypiece given from one of the upper floors has a very bold eight-inch marble architrave to the surround for the interior.

Regarding interiors, grates, etc., it should be observed that up to the end of the seventeenth century the open fire chiefly obtained, with cast iron backs of varied design, which accounts for many instances where a want of harmony exists between the mantel and interior of today. Hob grates, dog grates and other fittings followed in quick succession in the eighteenth century, and the fine steel grates of Adam design are among the most interesting examples of the smith's art. One of the oldest existing companies supplying these features is the Colebrookdale Company, and later the Carron Iron Company.

The mantel from the Queen's House, Greenwich, is a fine instance of mid-eighteenth century design, for which Ripley was probably responsible, as he was much employed here in an architectural capacity during the first half of the century. The design exhibits taste and skill in execution and is one of the best features of this classic edifice, which emanated from the mind of Inigo Jones.

The principle here adopted anticipated work developed during the time when Sir William Chambers built Carrington

House, now demolished. One of the chimneypieces from this building is now housed in the woodwork section of the Victoria and Albert Museum, being carved in pinewood of a rather more classic design and consequently with less freedom than the example from Greenwich.

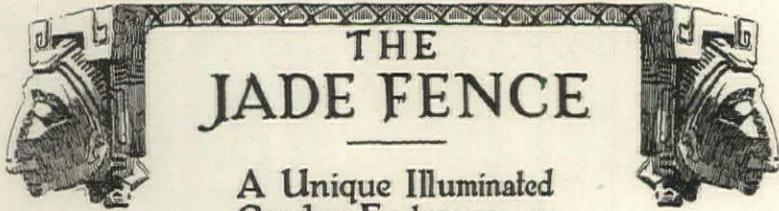
In order to leave room for the necessarily increased number of illustrations this article demands, the description must be somewhat curtailed. I shall hope to give certain examples of mirrors, overmantels, etc., in the next issue.

[The earlier papers in Mr. Bullock's series appeared as follows: Part I, February, 1917; Part II, March, 1917; Part III, April, 1917; Part IV, February, 1918; Part V, April, 1918; Part VI, May, 1918; Part VII, June, 1918; Part VIII, July, 1918; Part IX-a, September, 1918.

As, owing to transatlantic mail conditions, proofs of these earlier papers were not submitted to Mr. Bullock, a number of typographical errors escaped unchallenged, which he now enables us to correct.

On page 125, line 14, February, 1917, read Holkham Hall instead of Holkam Hall; on page 211, line 43, March, 1917, read Bolsover instead of Balsover; on page 229, line 6, same issue, read John Crunden instead of John Crundler; on page 325, line 29, April, 1917, read Sir R. Rowand Anderson instead of Sir Rowland Anderson; on page 332, line 52, same issue, read Dyvoet of Mechlin instead of Byvoet of Mechlin; on page 335, line 22, same issue, read Marsden instead of Marsten; on page 174, line 16, February, 1918, read carved instead of curved; on page 337, lines 9 and 17, April, 1918, read John Webb instead of Philip Webb; on page 428, May, 1918, the ceiling of the Banqueting House, Whitehall, attributed to Streater, is by Rubens, although Streater may have repaired it for Sir Christopher Wren; on page 544, June, 1918, read Ceiling in Lady Holt's Drawing Room instead of Lady Hoyt's; on page 546, line 22, same issue, read Brothers Adam instead of Brothers Adams; on page 41, July, 1918, read Westminster instead of Westminister.—Editor.]





THE JADE FENCE

A Unique Illuminated
Garden Feature as an
Accessory to the Pan
American Buildings
at Washington, D. C.

By
Grace Norton Rosé

White marble, gleaming in the evening light, set close with dark shrubs and trees, a pale straight pool reflecting the coming of night, and level bits of lawn and sunken gardens holding in their shadowy depths queer aboriginal forms and strange blue gods—this, edged about by the white rail of a marvellous fence that in the dimness shows faintly the tracery of its pierced reptilian design, will make the grounds of the Pan American buildings in Washington, D. C., uniquely beautiful at the close of day.

Wonderful as they are then, when form is more than color, it is only as the stars come out and the shadows deepen that they may be shown in all their radiance and weird unreal beauty. The wand that transforms them is the push of an electric button.

Of a sudden the night is swept aside, and color and light glow at you from this darkening space. Color, but such color!—the color of the precious jade: dim, milky, translucent, varying, shot with the unearthly light that floods up from the phosphorescent bottom of the water caves of the Yucatan. The spirit of the Zenotes is in its mystery and its charm. Along all the strange fence it creeps, touching the variants of blue, fused now with emerald green, and now with creamy amethyst. It is the art of the snake worshippers, executed in the choicest stone of the Mayas, a fence whose panels are seemingly literally of jade; the chalky green that is more nearly blue, the cloudy blue that is not quite green, in which both colors merge and in whose depths lies the light of an amethyst, the milki-

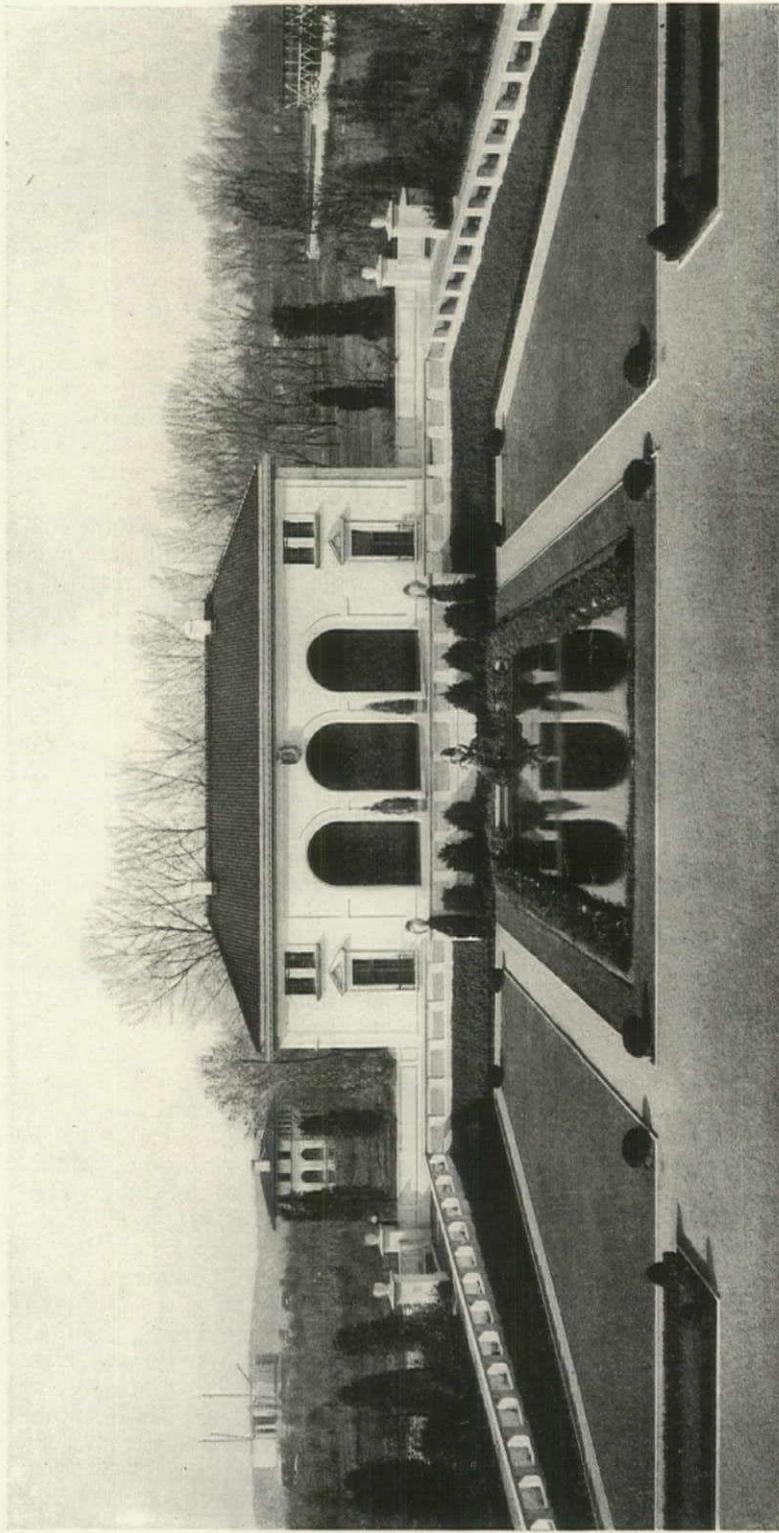
ness of sea water beaten to foam, the satiny gleam of a robin's egg shell, and the clear, cool green of the under side of a curving wave.

In the dark surface of the still pool a wonderful purple reflection is thrown by the light under the arches of the Pavilion annex. It is apparent that green light flowing over blue tiles, shadowed by the archways, helps create this lovely effect. The eye will follow the strange and beautiful fence and rest on the terminals and bits of groined sculpture. Whence comes their radiance? Green light again, concealed and indirect, glinting down over undulating tracery, falling over the eery faces of graven gods and gleaming through their eyes, like emeralds set in jade. It is the subtle lighting that accents so wondrously this exotic fairyland, this outdoor museum of aboriginal American art.

The garden in winter has been carefully considered. Against a background of gleaming snow and purple shadows, the blue panels set in milky marble cannot fail to be both charming and unusual.

It was in the Zenotes, the water caves of the Yucatan; swimming in those strange pools, lighted only by that unearthly effulgence glimmering up through the clear water from the phosphorescent bottom, fifteen feet below, and the flickering gleam of a candle set high on a rocky ledge, that there came to Albert Kelsey, F. A. I. A., his inspiration for the embellishment and enrichment of the Pan American garden.

When, to his deep regret, his association with Professor Cret came to an end



VIEW OF THE PAN-AMERICAN ANNEX AND GARDEN
ALBERT KELSEY & PAUL P. CRET
ASSOCIATE ARCHITECTS



HON. ELIHU ROOT
CHAIRMAN GOVERNING BOARD
1911 - 1916

"From a groove under the marble rail, concealed green lights will cast a soft, eery radiance down through the blue tracery"



Model of one of the fifty-four panels of the
JADE FENCE
The Pan-American Garden, Washington, D.C.



JOSEPH BASS, *Sculptor*

ALBERT KELSEY, *Architect* J.H. DULLES ALLEN, *Potter*



TWO MOTIFS *for the* JADE FENCE
PAN-AMERICAN GARDEN, WASHINGTON, D.C.

■ *Albert Kelsey, Architect* ■

"Lights concealed beneath the head-dress will throw a green glow down around the face of the figure. As in the intervening panels of the marble fence, this composition will be executed in jade-colored hand made terra cotta."



DESIGN *for* ONE OF A PAIR *of* TERMINAL FEATURES
for the JADE FENCE

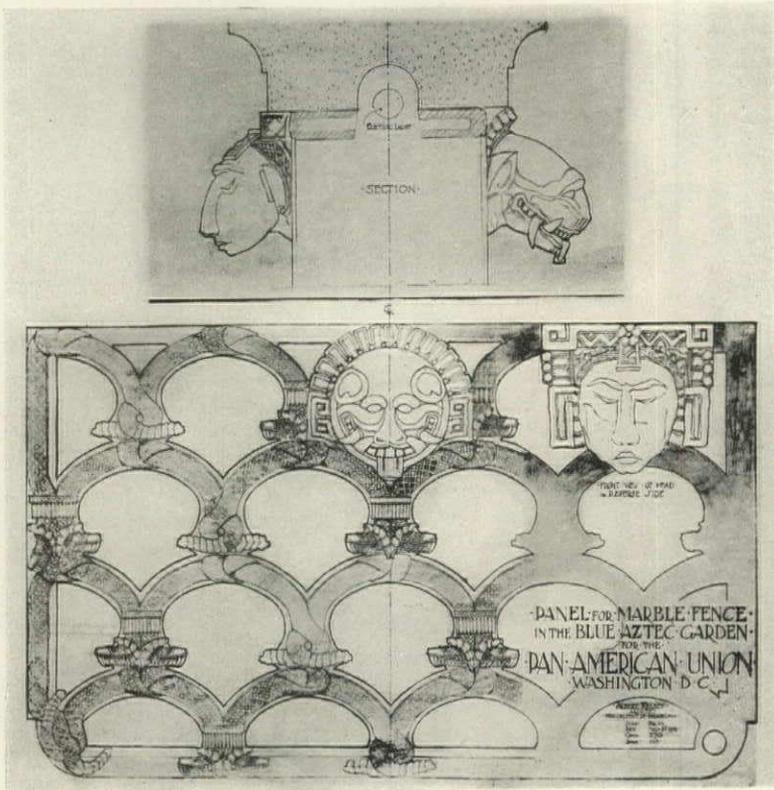
Albert Kelsey, Architect

six or seven years ago, he was appointed permanent architect for the Pan American buildings and grounds to carry on a consistent scheme in architecture, planting, furnishing and redecorating. Five years ago after submitting a design for the Jade Fence and securing its approval from the Director General, he made the trip to Yucatan in quest of ideas and local color, and returned full of enthusiasm for the architecture and sculpture of the Mayas.

"The first finished samples of these modern adaptations were made in turquoise blue with an antique finish, but later specimens have the blue slightly fused with emerald and amethyst, and

are high-lighted with just a suggestion of reddish gold, making them quite unique as objects of ceramic art. Both Mr. Bass, the sculptor, and Mr. Allen, the potter, have entered into the spirit of this unusual undertaking with the utmost enthusiasm," says Mr. Kelsey in speaking of the jade-colored, hand-made, terra cotta, in which his compositions are executed.

The five acres surrounding the buildings are intended to form an international oasis in the National Capitol. Already, all official receptions tendered the envoys sent over by the Allies were given either in the Pan American building or in its lovely garden.



The JADE FENCE

DRAWINGS SHOWING STUDIES FOR FIRST TWO HEADS, THE CONSTRUCTION AND METHOD OF ILLUMINATION

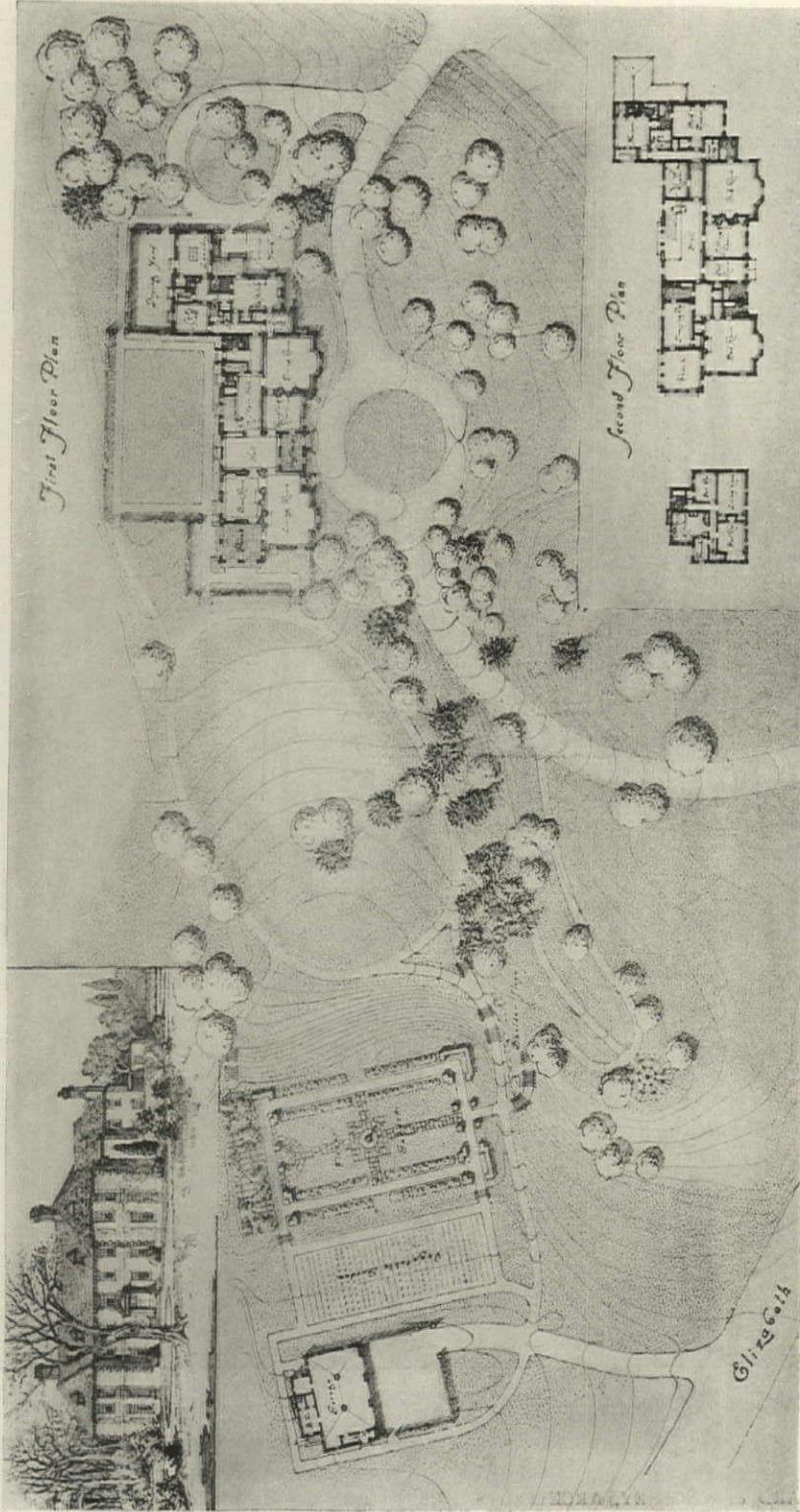
PORTFOLIO
OF
CURRENT
ARCHITECTURE



RESIDENCE AT HARTFORD, CONN. GOODWIN, BULLARD & WOOLSEY, ARCHITECTS.



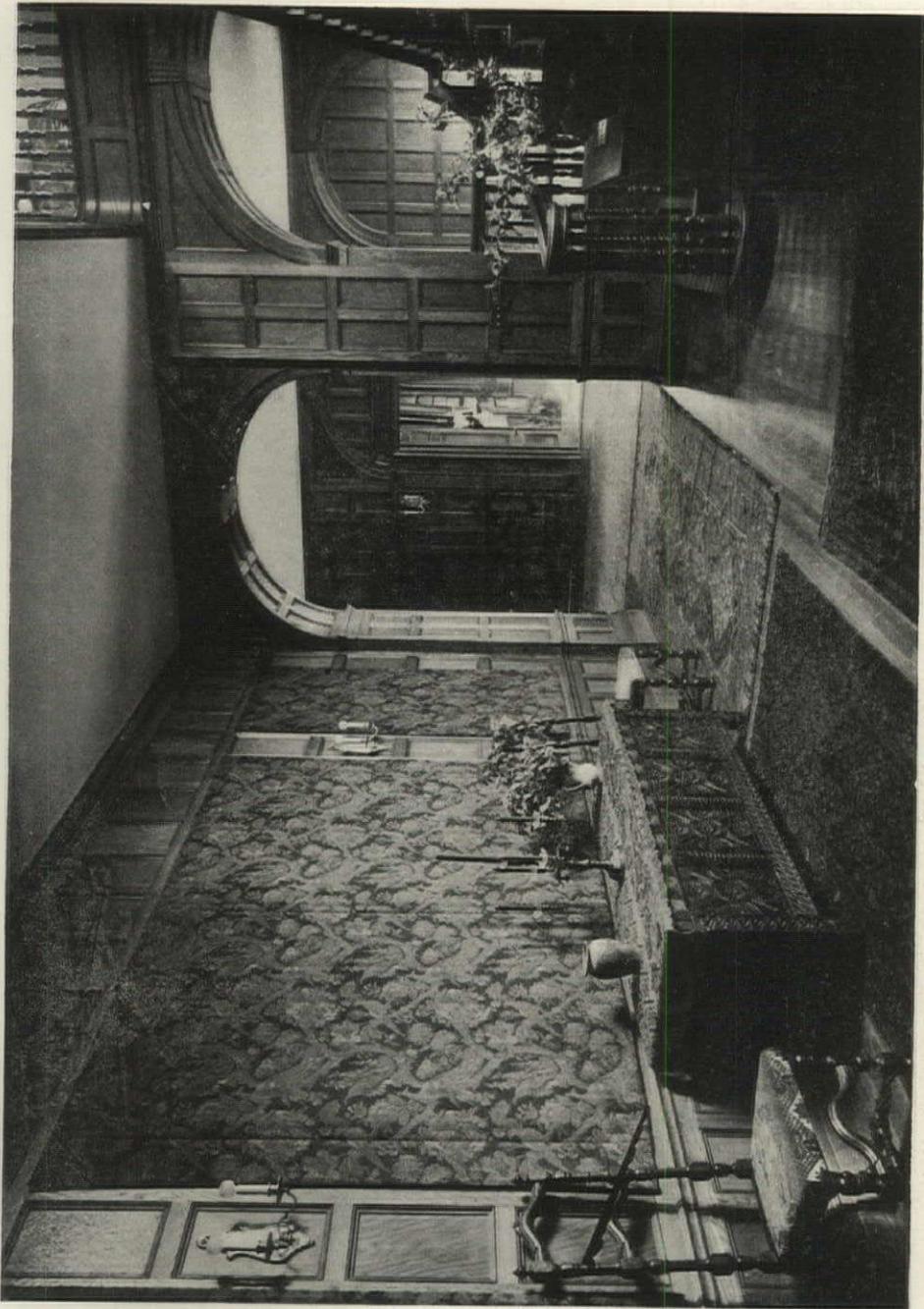
RESIDENCE AT HARTFORD, CONN. GOOD-
WIN, BULLARD & WOOLSEY, ARCHITECTS.



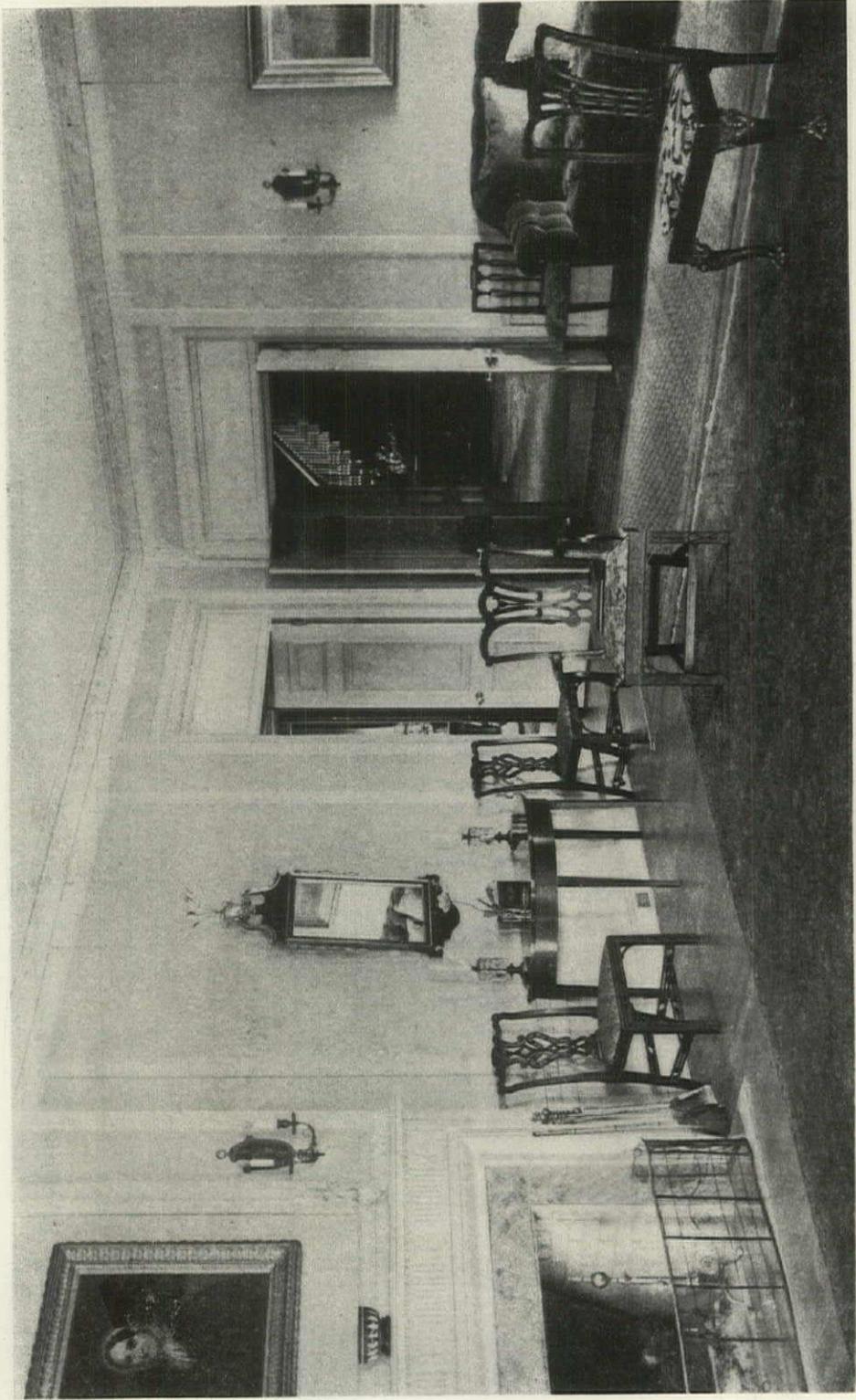
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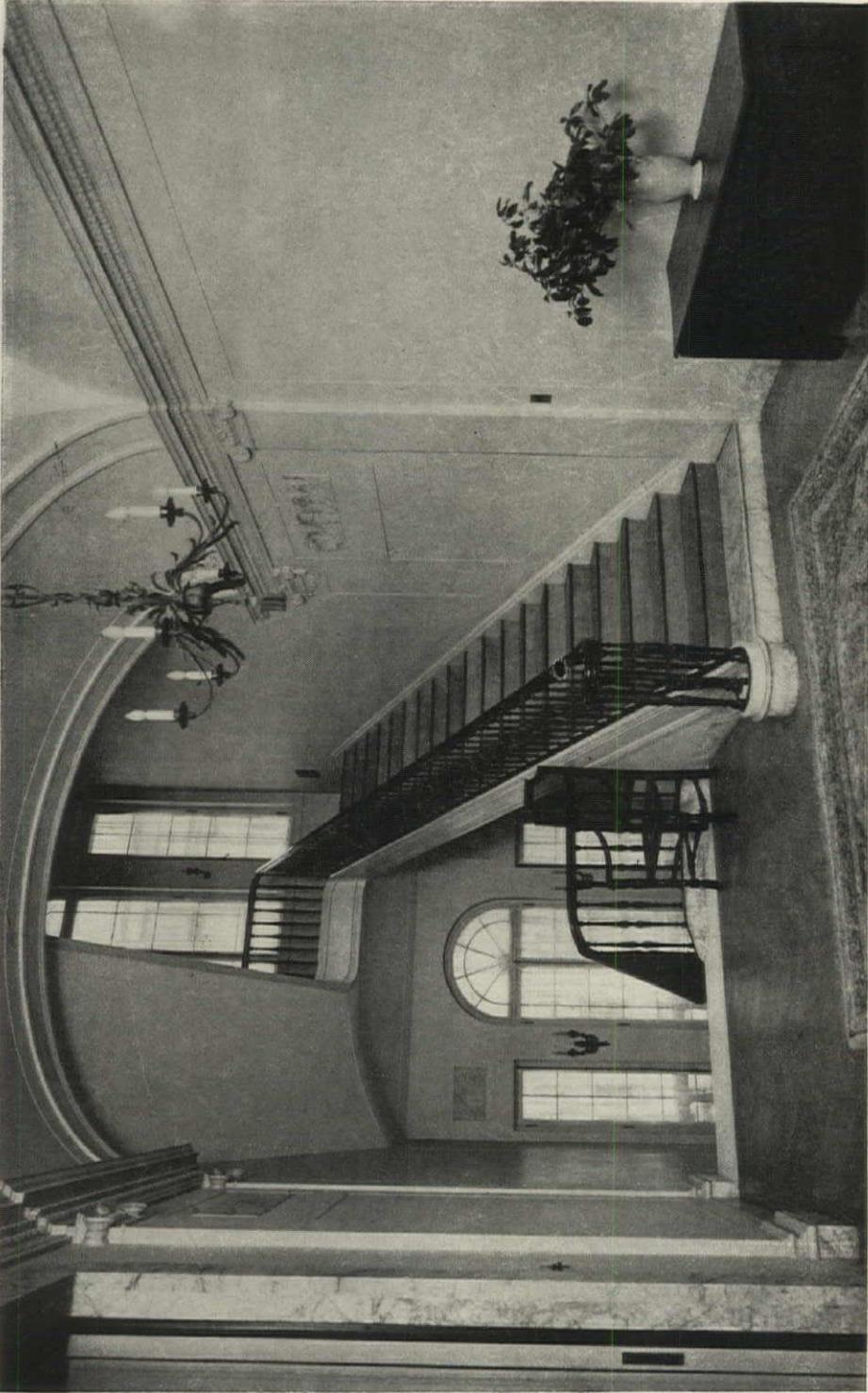
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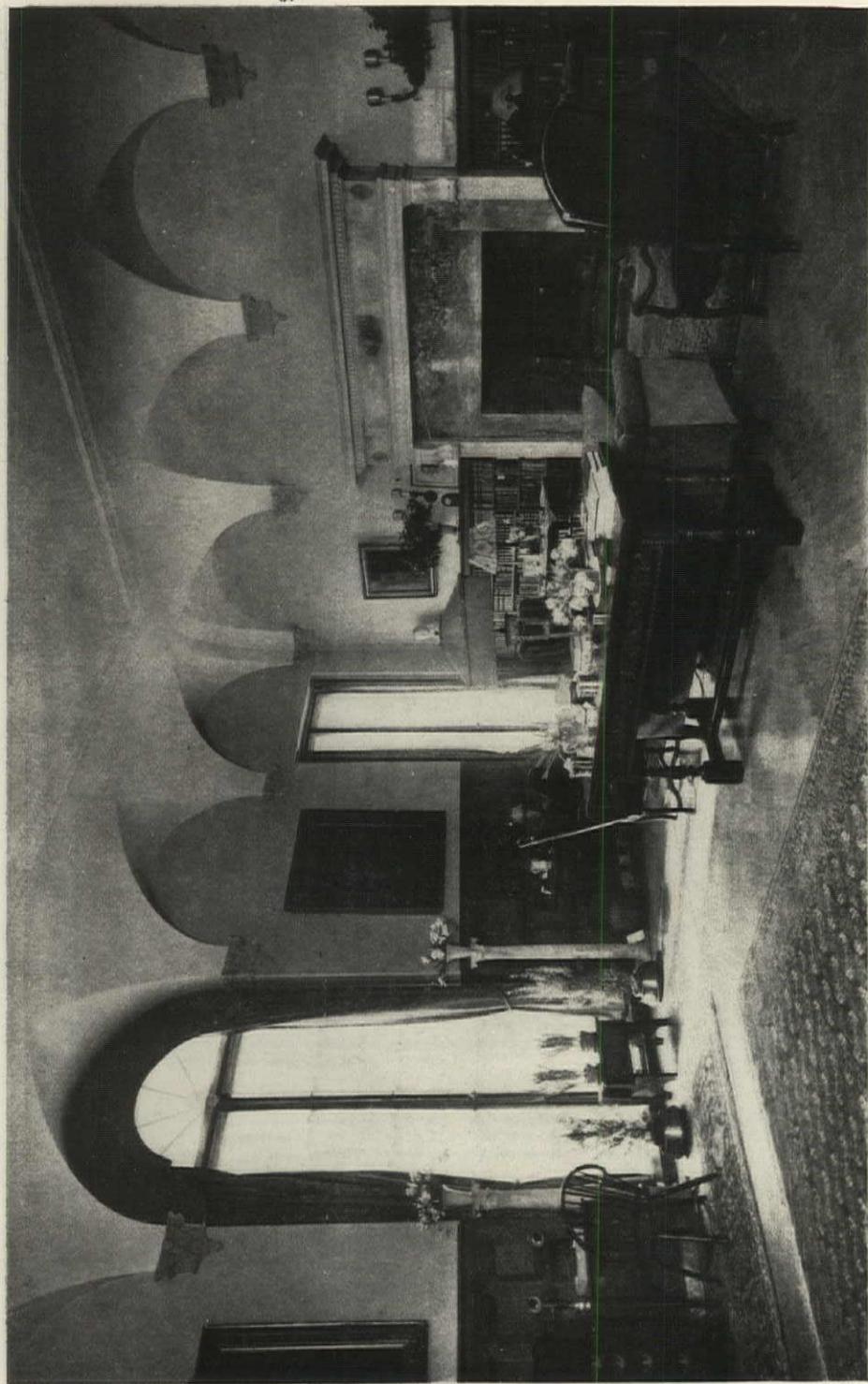
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APARTMENT OF ALFRED C. BOS-
SOM, ARCHITECT, NEW YORK.

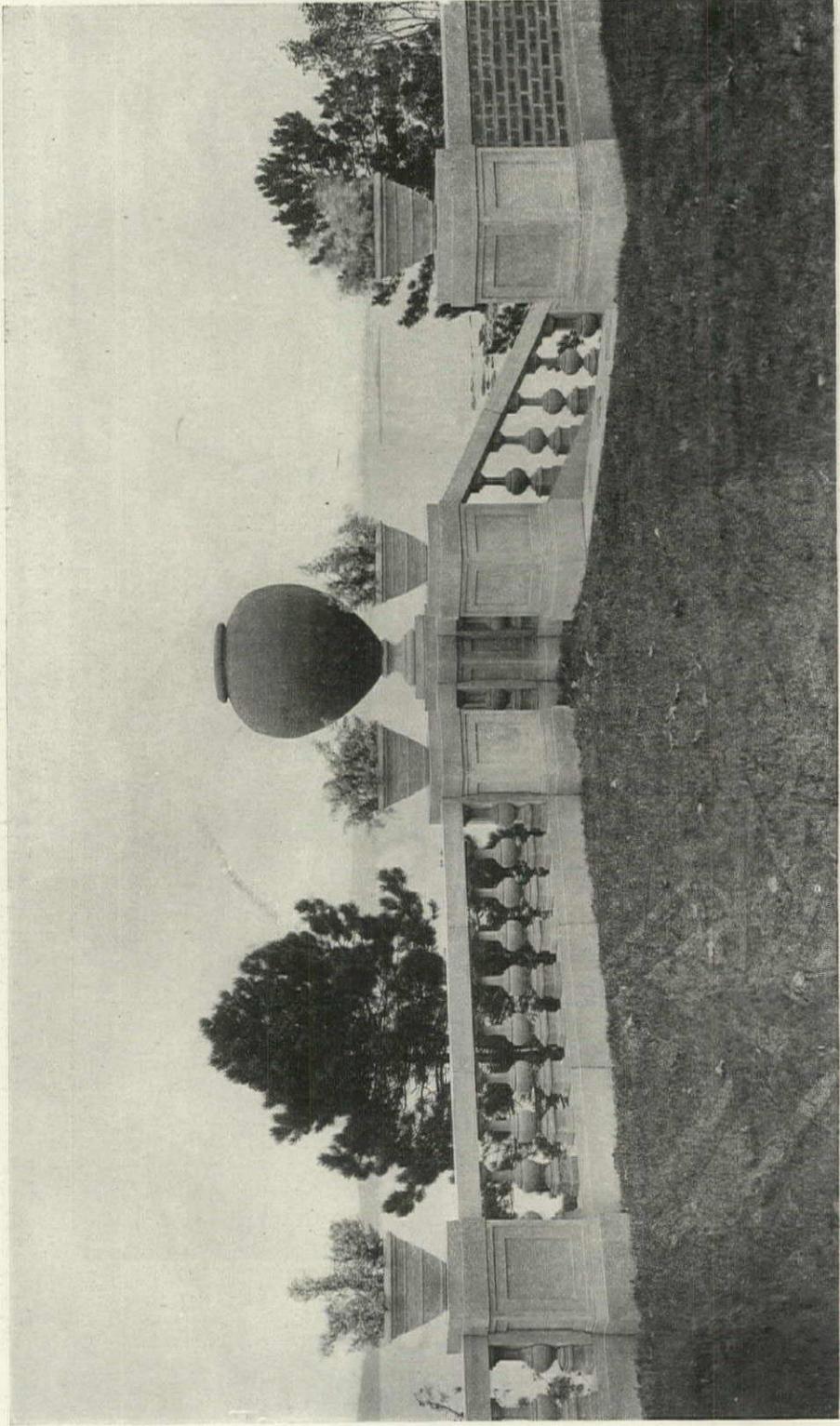
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SEA WALL AND BALUSTRADE—ESTATE OF LIEU-
TENANT ARTHUR H. MARKS, MARBLEHEAD,
MASS. ANDREWS, RANTOUL & JONES, ARCHITECTS.



SEA WALL AND BALUSTRADE—ESTATE OF LIEUTENANT ARTHUR H. MARKS, MARBLEHEAD, MASS. ANDREWS, RANTOUL & JONES, ARCHITECTS.

WORKINGMEN'S HOUSES IN ITALY



By Alfredo Melani

PART I

THE industrial housing problem has for many years been under consideration in Italy, where, indeed, it is a serious one, involving the necessity of almost entirely replacing or reconstructing the older tenements that prevail in our cities, especially the big industrial centres, and above all the city of Milan. However, I do not wish to imply that Italy was the first country to consider the problem; because France, whose oldest popular (i. e. workingmen's) houses were first erected at Moulhouse in 1835, long preceded us; and England too, under the leadership of Lord Shaftesbury, became interested in the housing problem as far back as 1841.

The movement for better housing started in Italy in 1903 with the Luzzati Law; and although much has been accomplished since then, much remains to be done, for our cities, big and small alike, are still clamoring for a solution of the problem of properly housing the less fortunate classes.

The war, in addition to having imposed so many other hardships on our population, has greatly intensified the housing problem, because of the congestion of population, coupled with decline of building, in many rural districts as well as in certain industrial centres.

The Government's aid is necessary, because private enterprise cannot bear the burden that pertains to the education, the health and the welfare of tenants. Private enterprise cannot promote a deep interest in the study of the technical side of the problem, by offering

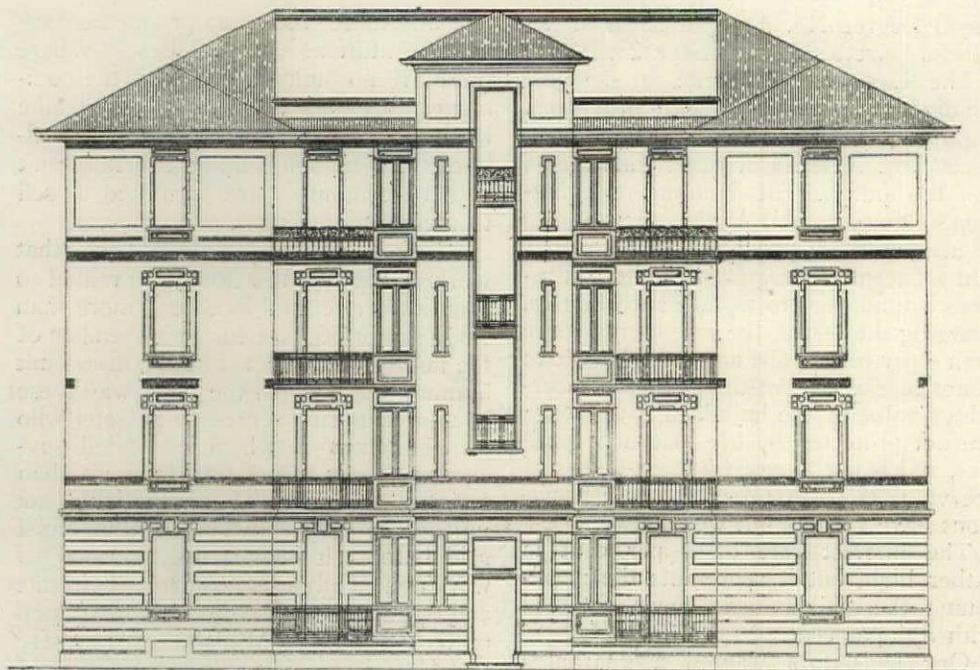
prizes and developing ideas that tend to facilitate its solution, so well as the Government can. The workingman's home must be a means of educating the people in proper living. It must be a school, and it will be such if the technical, social and economic phases of the problem are attacked as a combined unit; and those who can best help towards combining these phases are the Government and the local authorities.

Such was the intention of our Government when, years ago, it undertook to wipe out the slums of Naples by voting 100 million lire, mostly for the construction of workingmen's homes, although the results did not come up to expectations.

In the same way, later, the Government intervened when Venice attacked the housing problem with a view to purifying some of its slums. The interest of the government then was due to the fact that Venice, the Queen of the Adriatic, should preserve its local color.

I do not mention at length the reconstruction in the central part of the city of Florence, because it was not intended as a workingmen's housing measure. The district of Florence that lies between St. Maria del Fiore and the Strozzi Palace was occupied by squalid houses which sheltered a class of criminals. These houses were demolished and replaced by pretentious buildings, including homes for people of wealth. Later, however, Florence took up the problem of providing workingmen's homes.

Rome also became interested in the



A HOUSE IN THE VIA SOLARI SECTION, MILAN.

movement, and in 1911 the Committee for the Commemoration of Italian Independence opened a contest on the subject of "The Modern Home," offering prizes for the best suggestions for homes for employes of small income and common laborers.*

Milan, crowded with factories and industrial establishments in a manner that no other city in Italy surpasses, not even Genoa with its great maritime trade, is conspicuous as a leader of the movement for better workingmen's houses. Milan, which piles up private and public enterprises beyond all expectations, solves and renews the housing problem. The "Moral Capital," as Milan is often called, shelters institutions and societies that are the most prominent in Italy. The "Umanitaria" was founded there, and the "Ente Autonoma" or Self-Governing Institution, whose social and

building activities are of the utmost importance, has its seat there. Milan is also the headquarters of the Italian Touring Club with its 170,000 members, whose activities embrace some of an architectural nature; and it is the home of the Co-operative Union, a society acclaimed all over Italy, which has constructed near the metropolis a small garden city reserved for people of small means. Besides, Milan has incorporated in its Building Department, which regulates the building activities of the city, a Bureau for Popular (i. e. workingmen's) Homes, and has assigned a special commission to look after the development of this public service.

Turin also has interested itself in the problem, as is evidenced particularly by the dwellings erected by the "Opera di San Paolo."

A National Law, comprising all previous regulations, was compiled (Feb. 27, 1908, No. 89) and approved by a Royal Decree (No. 89), published in the Official Gazette No. 80, April 4, 1908. To this law was added a complicated Regulation, executive in nature (approved by

*I must not forget to mention the law unanimously approved a few years ago by both Houses of our Parliament on the "Provisions for Rome." It aimed to eliminate the subtenancy evil and the excessive speculation in building plots wherever there was urgent need for modern houses. It also undertook to provide a means to check the rapidly increasing rentals by substituting a system of installment payments.

Royal Degree No. 528, published in the Official Gazette No. 222, Sept. 23, 1908).

The Law of 1908 deals first with building funds, that is, with provisions regarding loans to co-operative and benevolent societies or other institutions for the purpose of building workingmen's houses. All banks for savings or otherwise, all provident loan societies and all legally recognized credit institutions are allowed to finance such houses, charging interest at the rate of not more than 4 per cent. The amount of the loan is not to exceed two-thirds of the ascertained value of the buildings if the loans are not protected by life insurance policies, and is not to exceed seven-tenths of the value if so protected. These provisions have worked out well.

The interest rate of 4 per cent is rather high, but it represents the maximum; the "Umanitaria" was satisfied with $3\frac{1}{2}$ per cent.

Our legislators wanted a guarantee binding on tenants and buyers, and they therefore authorized all Public administrations to hold back, from the salary of any of their employes who bought or rented homes built by societies or institutions, the amount of the rent or of the installment due if the societies or institutions so requested.

The Law also makes the following fiscal concessions: it reduces to one-fourth the registration taxes on every document pertaining to the charters of building societies; it reduces likewise the mortgage and registration taxes incident to the selling and renting of the houses, and it exempts the buildings from all governmental, provincial and municipal taxes for a period of ten years. These concessions naturally cease if the houses are used for a purpose different from that which the law stipulates.

Workingmen's houses, in rural districts as well as in cities, are considered by the law, and it therefore authorizes loans to be contracted for the building of rural dwellings and it also exempts them from taxes and makes many other concessions in their favor. It divides the rural houses into two classes: those erected by the communes or municipali-

ties, and those erected by private benevolent institutions or societies. Where there are no building societies, the communes are authorized to build the houses. The building societies are allowed to issue bonds up to a certain limit and the communes are permitted to sell to them building plots at cost price.

Other essential provisions are that workingmen's homes cannot be rented to families whose total income is more than 1,500 lire or 300 lire for each member of the family—this refers to the houses built by municipalities. In the same way these houses cannot be rented to persons who own buildings on which are levied government taxes amounting to more than twenty lire a year. The regulation is not uniform, a very complicated affair, as I said before; it defines the character of workingmen's houses, controls their sale and transfer, provides for a Central Committee within the Ministry of Industry and Commerce, determines the limits of the Government's supervision, and explains many other things.

The regulation also fixes the maximum amount of rent to be charged for each room as follows:

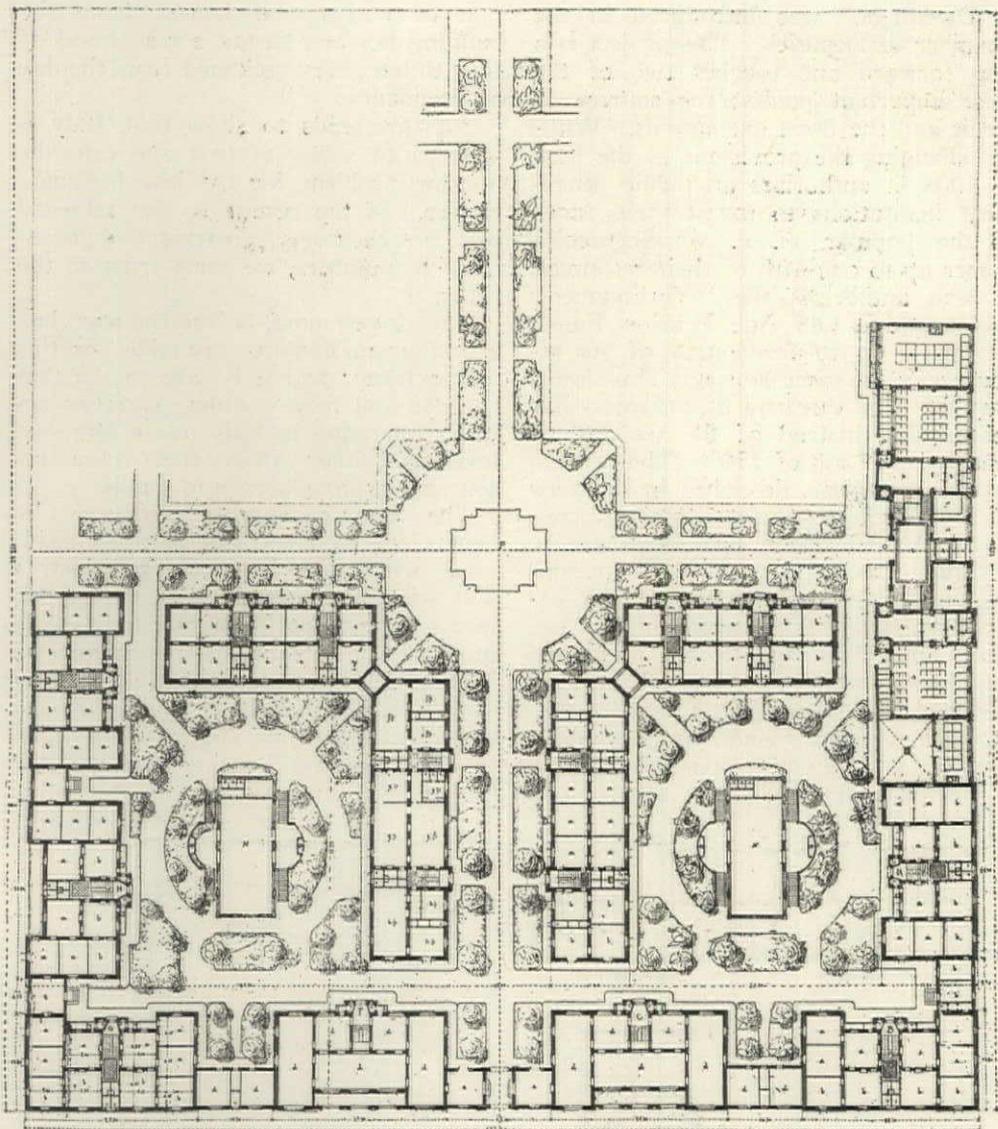
96 lire in communes with a population less than 50,000.

120 lire in communes with a population between 50,000 and 100,000.

163 lire in communes with a population of more than 100,000.

This does not apply to houses detached or otherwise which may have a small flower or truck garden and which are for one family only. The maximum rent for such houses is one-fifth more than the rates set forth above.

Taken altogether the law is very fair. Of course, there is room for improvement; and I do not claim that the law of 1908 is perfect, but with us it is a good starting point. In the days to come improvement will naturally be made. In fact, at a convention held in Milan in 1910, a Cabinet Minister announced important new provisions. And in June of the same year a bill entitled "Provisions for Workingmen's Houses, to facilitate their Construction and the Transfer of other Properties and Buildings in-



PLAN OF HOUSING DEVELOPMENT IN VIA SOLARI, MILAN, BY THE UMANITARIA SOCIETY. The letter a indicates a three-room apartment; b, a two-room apartment; c, a one-room apartment; d, stores; e, porter's lodge; f, g, h, rooms for day nursery, kindergarten and lecture room.

to Dwellings," was introduced in the Chamber of Deputies. This project is a step forward and touches two of the most important points: the sources of credit and the fiscal exemptions. Without changing the provisions of the Law of 1908, it authorizes all public benevolent institutions to invest their funds in the popular (i. e. workingmen's) homes up to one-fifth of their resources. It also authorizes the "Workingmen's Sickness and Old Age Pension Fund" to invest up to one-fourth of its resources in the same houses. This means that the fund can lend up to twenty-five million lire instead of the six authorized by the Law of 1908. The interest on the mortgages described in the Law of 1908 is exempt from all income taxes.

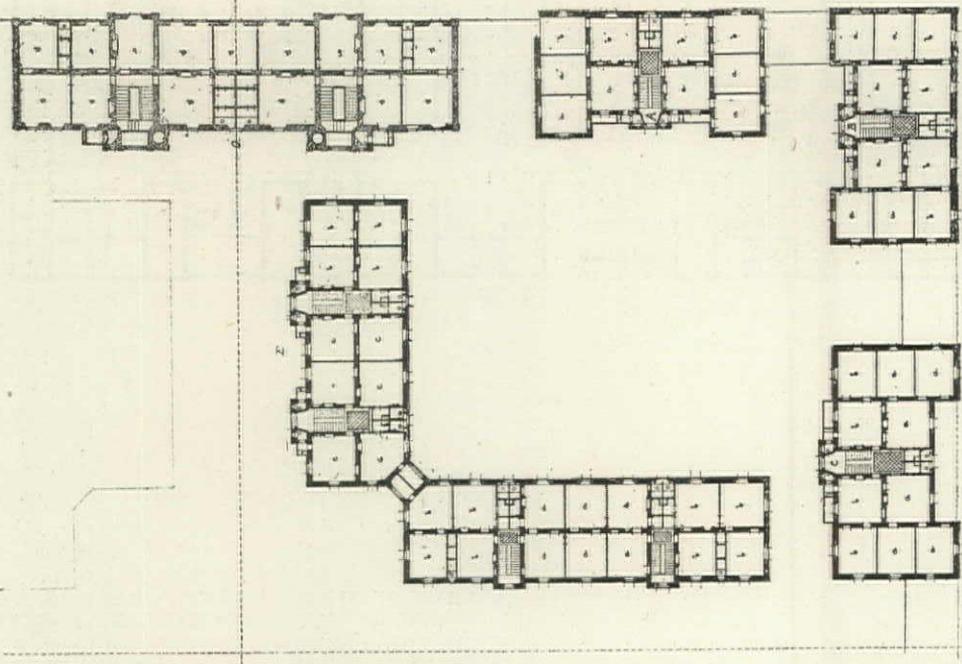
All the foregoing provisions are to facilitate credit. The fiscal exemptions are as follows: the period of tax exemption on houses is increased to fifteen years and, in addition to the provisions stipulated in the older law, all revenue and registration taxes on all deeds relating to houses are reduced to one-fourth. Another notable concession is the exemp-

tion of non-popular houses from the building tax and surtax for a period of four to ten years, reckoned from the day of occupancy.

All this tends to show that Italy is anxious to solve, as best she can, the housing problem for the less fortunate classes. If the results so far achieved have not been very remarkable, especially as to numbers, we must trust to the future.

The Government, before the war, had fifty-four million lire available for this new activity; and it is safe to say that the 245 and more building societies actually operating in Italy had a like sum invested, either from their own resources or from borrowed funds.

The law encourages initiative by benevolent societies; but before considering what they have accomplished, I will briefly mention some of the experiments undertaken by private individuals in Italy. Therefore, as a matter of history, I will relate that of Mrs. Carlotta Celesia, of Milan. She, a woman of noble sentiments, became interested in the industrial housing problem and



SECOND FLOOR PLAN OF GROUP OF WORKINGMEN'S HOUSES IN VIA SOLARI, MILAN.

tried to find a solution; but the result was discouraging.

It is difficult to determine whether this failure, which was much discussed in Italy, was due to technical causes, such as bad arrangement of rooms, defective operation, improper supervision, particularly bad tenants, or other reasons. Something must surely have been wrong, because later housing enterprises, particularly those of the "Umanitaria," have been notably successful. As regards the treatment of property by tenants, the "Umanitaria" reports that ninety out of one hundred tenants take good care of their homes and not a few surround them with such loving care as to merit the praise of visitors (see "L'Umanitaria," 1907, page 12).

The "Umanitaria" is a benevolent society, the most important in Italy. In 1892 G. M. Lauria bequeathed his entire fortune of ten million lire (increased to thirteen million by interest accumulations) "to aid all unfortunates to rehabilitate themselves." Among the many miseries that we have to contend with in this world the "Umanitaria" chooses to mitigate those which, independent of natural causes, affect men who, if aided, have the capacity to overcome them.

The founder believed that the way to save unfortunates from the depressing effect of long days of idleness through lack of work and the humiliation of begging for alms was to find occupations for them so that they could become self-supporting and at the same time help them in upholding their self-respect and dignity.*

The society provides work for the unemployed through its Home for the Unemployed, and maintains Trade Schools. Furthermore, it aims to assist every workingman to obtain an attractive, well-built home. For this reason the "Umanitaria" became interested in the housing problem and attacked it from every angle, from the construction

of the walls to the furnishings of each apartment; and it has done so well that whoever wants to study the housing problem in Italy must turn to the society founded by B. M. Lauria, although, strictly speaking, it is not a building society like the "Ente Autonomo," of Milan, the leading institution of its kind in Italy, with eighteen million lire set aside for the provision of workingmen's houses. This institution, indeed, has taken over the building activities of the "Umanitaria" which preceded it.

The housing problem, therefore, must be considered from three different points of view; technical (architectural and constructional), economic and social; and the "Umanitaria" can give us points on each of these three different aspects.

The "Umanitaria" has been able, notwithstanding the high cost of dwellings when decently constructed, to rent each room at from five to ten lire below the average rental and still realize from them the income it expected. The society, in erecting buildings, did not relinquish the idea of receiving a fair return of its investment.

Taken altogether, the experiments conducted by the "Umanitaria" have given good results; although we must admit that there are some deficiencies yet to be overcome, particularly, the need of an educational propaganda respecting hygiene and thrift on the part of both individuals and communities.

The "Umanitaria" erected its first Workingmen's Quarter in Via Solari, Milan. The inauguration took place ten years ago, and it was made the occasion of a festival. The society through the press expressed the wish that its new tenants (they were about 1,000 people) lead a more happy existence in the spacious, clean and attractive homes. With the wishes went the promise of further developments and the erection of new quarters if an interest of 3½ per cent. could be realized on the investment.

The society decided on an investment of two million lire, a sum that was much less than the needs called for. A

*G. M. Lauria wanted the "Umanitaria" endowed with his estate and with the contributions of its members who, with their modest dues of one lire a year, help in its great work. The members appoint two-thirds of the council; the remaining third is chosen by the Municipal Council. The members also elect an Assembly of Delegates, which looks after the affairs of the society.

larger amount would have been granted were it not for the fact that the various activities of the "Umanitaria" had absorbed the General Fund of the institution. However, the two million was considered sufficient to provide dwellings for 700 families. This was an encouraging start, inasmuch as it was possible to erect schools and other institutions for general education of the workingman with funds obtained outside of the original investment. These extra funds rendered possible the erection of groups of houses with baths, kindergartens and recreation rooms.

The architect, Giovanni Broglio, designed the houses and assumed the direction of the work, associated with Luigi Mazzocchi, engineer, and Luigi Arienti, building foreman.

The "Quarter" is subdivided into squares crossed by walks, and the dwellings on the inside front a spacious court, in the centre of which a pavilion was erected.

The lodgings, of one, two and three rooms, number 240 (half of the total); and each room averages twenty-two square meters, and contains seventy cubic meters of air. The buildings are not planned the same throughout—some have one stairway, others have more than one; all are four stories high (the ground floor 3.80 meters, the other floors 3.60 meters) and the stairways extend from the cellars to the roofs. Each stairway is used by sixteen tenants—four for every floor. The roof is partly gable and partly flat. The gable contains the garrets, which together with the cellars are rented to the tenants; the flat roof is used by the tenants in common, to dry clothes, beat carpets, etc. Each lodging, even those with but one room, have a lavatory, a garbage chute, sinks, running water, gas and balcony, and most of them have a terrace. The stairways and the courtyards are lighted exclusively by electricity. A central heating system was devised and installed; it provides heat for only one room in each apartment, the one most commonly used. Stoves were excluded, because they are apt to be used for cooking and are a source of dirt.

Trees and grassy lawns are abundantly provided; and the exterior of the buildings, although modest, is pleasing. The architectural style is purposely simple. However, the architect showed a modern trend, for, by giving due proportions to the hollow and full spaces, by sobering the mouldings, by contrasting the smooth and rough surfaces, by slightly projecting the roof, and by setting off the walls with colored tiles, he obtained a well-balanced whole.

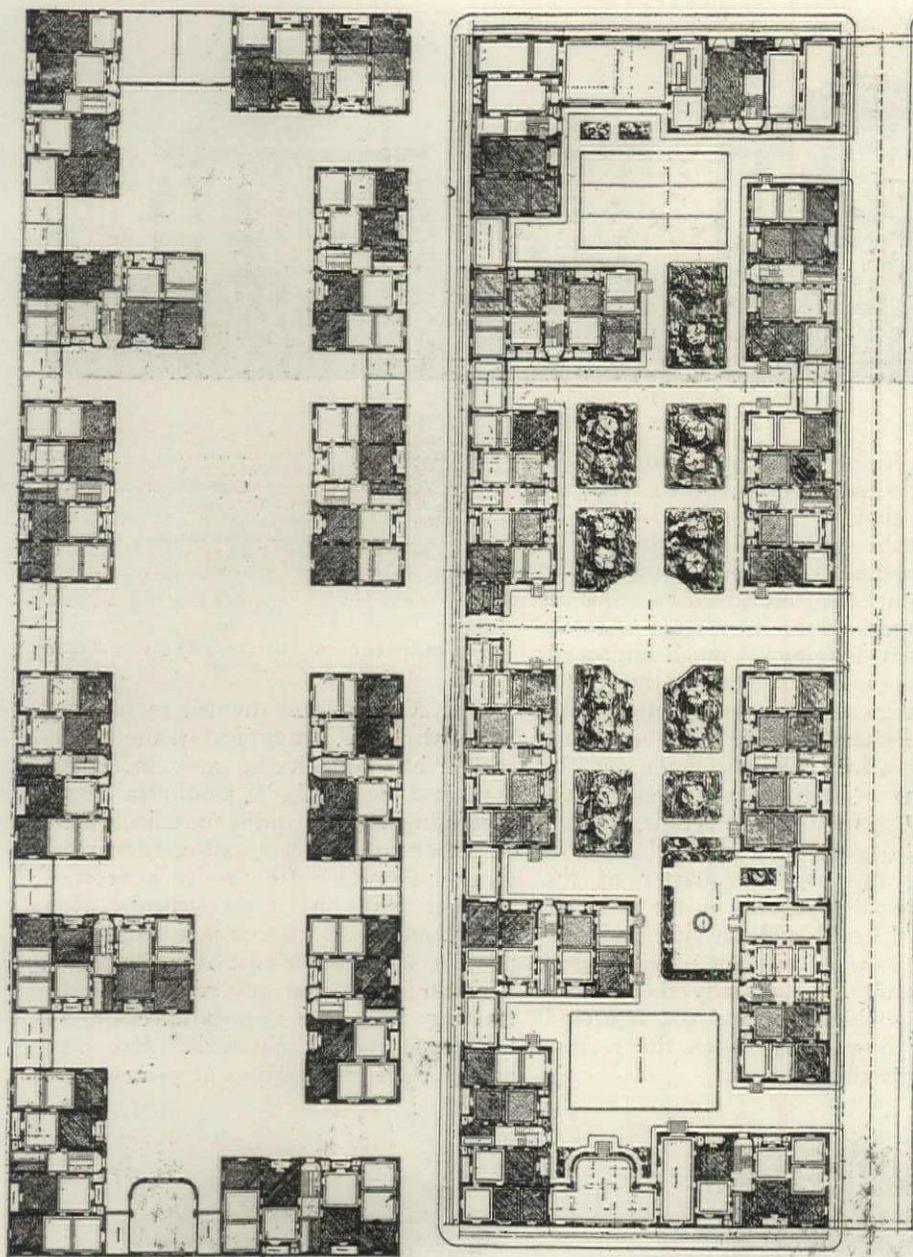
In the quarter of the "Umanitaria" a place was set for a community house, "The House of the People." It contained laundry rooms and workrooms for the women; had special rooms for the use of mothers, to help them in bringing up their children in a proper way, and was provided with baths, showers and hot water. A kitchen was also installed to provide cooked food for bachelors and for families whose women folk were compelled to go out to work in shops. This was a radical innovation in our country.

The spiritual side of the housing problem was not neglected. Library rooms and lecture halls were provided, and also a Children's House, in which modern methods of education are employed for children of the Via Solari Section, three to six years old.

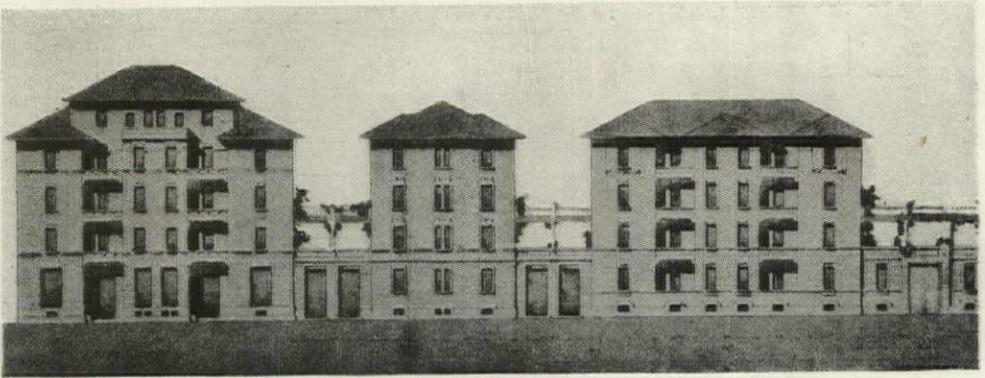
The "Umanitaria," satisfied with the results obtained with this first experiment, followed it with a second. As first planned, the new quarter was to be erected near the first one, on ground already acquired; but on second thought it was decided to move away from Via Solari in order to benefit another part of the city.

In this way the Popular Homes Quarter of the Rottolo was erected. The same architect, Giovanni Broglio, was again chosen, and he had the assistance of Maurizio Yung, engineer, and of Giovanni Vescia, builder. The architect, profiting by the experience gained in building the Via Solari Section, made some modifications and improvements, and came much nearer to a realization of the ideal workingman's house.

The new section consists of twelve main buildings: eight of them are three



GROUND FLOOR AND SECOND FLOOR PLAN
OF ROTTOLE HOUSING DEVELOPMENT,
MILAN, BY THE UMANITARIA SOCIETY.



HOUSES IN THE ROTTOLE SECTION, MILAN.

stories high, the others have four stories, besides the ground floor, which is slightly raised above the street level.

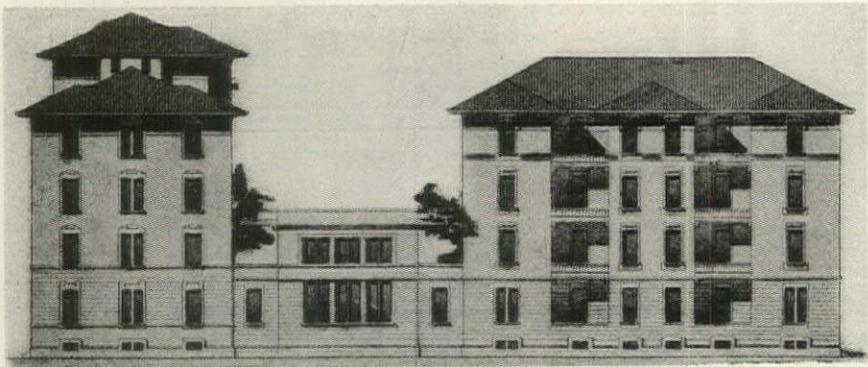
The main buildings are joined by smaller buildings and by terraces that reach up to the second story. With this arrangement the circulation of air in the different lodgings is much improved, and the open spaces between the different buildings afford a much better vista.

The illustrations here reproduced and the observations already made on the Via Solari Section make it unnecessary for me to go further into details. Rather, in order to give an idea of the people occupying this second Quarter of the Rottolo, located at one of the extreme ends of Milan, I will classify them according to the occupation of each head of the family. Naturally the tenants are always changing, and the figures I give are those taken when the section was inaugurated.

Metalworkers and Electricians.....	43
Printers and Lithographers.....	36
Clerks, Messengers, Letter Carriers.....	32
Masons, Cementworkers, Varnishers.....	17
Carpenters, Tailors, Shoemakers.....	19
Employees of Industrial Establishments.....	18
Drivers, Street Cleaners, Porters.....	17
Teachers, Midwives, Miscellaneous.....	12
	204*

*Two Quarters of the "Umanitaria" give a total of 430 families, or about 2,000 persons.

The 204 families, divided in the way set forth above, are typical of the classes which the "Umanitaria" aims to benefit. As I said before, the "Umanitaria" is not a building society, and it must look after its other numerous social-economic activities; therefore it exacts an interest of 3½ per cent. on its investment. Notwithstanding this, by economizing in all possible ways on the cost of construction, without leaving out any comfort or detracting from the appearance of the buildings, the "Umanitaria" has been able to rent the lodgings at prices much



HOUSES IN THE ROTTOLE SECTION, MILAN.

more reasonable than those prevailing in Milan.

The rent of a full size room of twenty-two square meters was about 120 lire; that of a half-size room, 60 lire; a small kitchen cost from forty to forty-five lire, according to size. The rent for the big terraces was also fixed in proportion to the area.

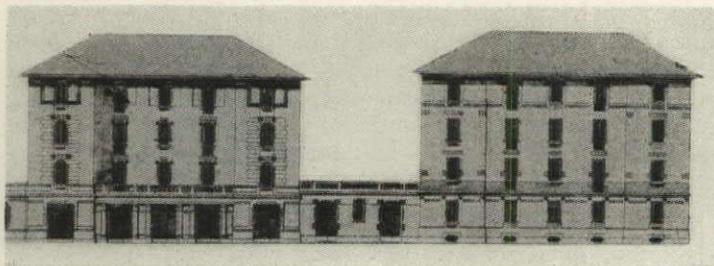
Altogether, the rent of the different lodgings varies from 120 lire a year to 165, 240, 300, 350 and up to 435 lire. These last are apartments of three full size rooms with a separate kitchen and a large terrace. Since the war started the rents have been advanced somewhat. In normal times the tenants are very prompt in paying. An employe on the premises collects the rents, watches over the tenants, takes care of the apartments, and acts as a general guardian and peace-maker.

The expenses of keeping an employe on the premises is more than made up by facilitating the collection of rentals and conserving the property.

In the management of the houses, the first section of the "Umanitaria" is as-

sisted by an advisory committee, consisting of five tenants appointed every year by the heads of families and of representatives of interested institutions which ask for the privilege, the privilege being subject to approval by the "Umanitaria." All these representatives form a vigilant group that is useful and efficient. The committee must also help the tenants in all their relations with benevolent institutions, and it must be instrumental in the promotion of thrift and education.

As the "Umanitaria" wanted to leave nothing undone, it opened a prize contest for suggestions as to furnishing the apartments. The winning designs are inspired by a simple, modern style, as if to indicate that a solution of our housing problem cannot be looked for unless we depart from the old traditions that are still firmly rooted in our country. And what I here state reflects my own views as an upholder of modernism in a country still weighed down with tradition and as an educator in the Higher School of Applied Art, which aims to revive the artistic industries of Italy.



HOUSES IN THE ROTTOLE SECTION, MILAN.

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WAR BOOKS OF THE CATHEDRALS

By BARR FERREE

Part VII

OF the multitude of books relating to Reims and its cathedral that have appeared since the beginning of the war, which was almost literally the first day of a bombardment that lasted more than four years, Bishop Landrieux's recently published *La Cathédrale de Reims, Un Crime Allemand*, alone attains first rank as an authoritative survey of the dreadful catastrophe. First planned, and partly written in 1915, its publication was wisely postponed to after the end of the war, that the tragic story of the cathedral might be presented in complete form. No one is better qualified for the writing of such a book. Mgr. Landrieux was curé of the cathedral of Reims from 1912 to 1916, becoming bishop of Dijon in the latter year. His great church had long been the object of loving study to him, and until his removal to Dijon he personally witnessed all the early bombardment, and he is, therefore an eye-witness of the most impeccable kind. Keeping closely in touch with Reims after his transfer to Dijon, he was easily able to follow the later phases of the bombardment.

His book has, therefore, a quite unrivalled interest and value. He knew his church as few people knew it; he knew his city of Reims and the people in it;

while residing there he knew, personally, the exact damage done by every shell; he knew the conditions that attended the bombardment; he was thoroughly competent in every way to prepare an authoritative book on all its aspects. His is no historical survey of construction or aesthetic critique; these aspects of Reims have been thoroughly treated by a multitude of writers. His theme is his own; the ruin and tragedy of his cathedral, a topic that, so recently as five years ago, no living man expected to witness or describe.

He begins with the arrival of the Germans on September 4, 1914, on which day the first shell fell on the cathedral, and which practically put an end to the patriotic services that had daily been held in the church from the opening of the war. The opening of the tragedy is vividly described, and the whole hideous tale is narrated in the following pages with painful details of the injuries wrought. The details of the story are best followed in Mgr. Landrieux's own pages; but it may be stated that he notes 159 shells as falling directly on the cathedral from September 4, 1914, to March 21, 1918. Of these, 63 shells fell in 1914; 32 in 1915, 7 in 1916, 51 in 1917,

not including an uncounted number that fell on the terrible day of April 24; 6 in 1918 up to March 21. 42 of these shells fell before the great fire of September 19, 1914, and 117 after it. Records are wanting as to the fall of shells between March 21 and June 25, 1918; but after that date 128 additional shells were noted, a hideous total of 287 recorded shells. Reims itself was bombarded for 1,051 days. Small wonder there is little left or that the city is utterly ruined.

It is not too much to say that no intelligent person placed any dependence on the German claims for the necessity of bombarding the cathedral. But this need no longer be a matter of faith or of belief; Bishop Landrieux devotes a lengthy chapter to an examination of the German claims, and thoroughly establishes their falsity. Few non-Germans needed to be convinced on this point, but it is well to have so complete a refutation as Mgr. Landrieux gives.

The German claims are well known and rest on two particular points: that the towers were used as posts of military observers and that a battery of guns was concealed behind the cathedral. Mgr. Landrieux, then a resident of Reims, would certainly have known of the concealed battery, and his indignant denial that such a thing existed may be, and will be, accepted without further controversy. As to the use of the towers he brings out the hitherto little known fact that owing to the injuries of the bombardment it was utterly impossible to climb to their summits, and particularly to the top of the south tower, which the Germans claim to have been especially used. His photograph of the injured stairs is conclusive evidence. He examines the whole subject with great detail, and, as was to be expected, leaves the Germans without the smallest foundation for their claims.

Perhaps more absurd is the German claim that the cathedral was burned because of the lack of firemen and fire-extinguishing apparatus in Reims or near the cathedral. The conclusion is obvious; the cathedral was burned, not because the Germans set it afire, but because the authorities did not put it out! Bishop

Landrieux dismisses this preposterous statement with the contempt it deserves. As for the fire, the Bishop brings out with some force the statement that the cathedral was burned from both ends, from the north tower, which had been surrounded with scaffolding, and from the chevet, showing very clearly that the catastrophe, if not directly caused by an incendiary bomb, was certainly greatly increased by it.

As for the German claim that wounded Germans in the cathedral were shot down by French soldiers in trying to escape from the burning building, Bishop Landrieux was a more than interested spectator. Reaching a doorway he found it thronged with wounded Germans seeking refuge elsewhere; immediately before them was a group of soldiers ready to shoot them down if they came out. Mgr. Landrieux protested against such barbarity, but the sergeant in charge claimed that they were his orders. Whether this was actually so or not is not stated, but Mgr. Landrieux at once exclaimed that if they were going to do this they could begin with shooting him! The matter was finally adjusted by an agreement on the part of the Germans that they would make no effort to escape, and the prisoners were quietly conducted to the Hotel de Ville.

The book is completed with a portfolio of 96 plates, comprising 148 photographs of the cathedral in various stages of the bombardment. The collection has been admirably made and is quite complete. It is a valuable record of an atrocious crime. Special interest will be taken in the plan of Reims, showing the cathedral and the immediately adjacent land on which is marked the place where every shell fell in the bombardment from September 4, 1914, to March 21, 1918. It was drawn by M. Max Sainsaulieu, the architect of the cathedral, from data collected by Mgr. Landrieux.

Soissons, like Reims, has been bombarded throughout the war, and its cathedral more seriously injured, yet few details of this catastrophe have been made known. The martyrdom of Soissons has

been extremely painful and thoroughly complete; but being a much smaller city than Reims its trials have attracted less attention, and the ruin of its cathedral, as a lesser church, has seemed less noteworthy than that of the great metropolitan church at Reims. But the history of Soissons in the war is no longer a sealed book, for its bishop, Mgr. P. L. Péchenard, has just published an exhaustive account of his episcopal city in the war, *La Grande Guerre, Le Martyre de Soissons*.

It is a book of absorbing interest, vividly written, and gives, for the first time, a complete survey of events at Soissons during the war. Although Soissons was not subject to the almost daily bombardment that was the fate of Reims, it was bombarded, and very seriously, at stated times. At least five major bombardments are cited by Mgr. Péchenard. The first lasted for 27 days, from September 12 to September 29, 1914; the second began on November 1, 1914; the third on November 21, 1914; the fourth bombardment was in June and July, 1915; the fifth in March, 1917. These were the "high lights" of the bombardment, but there were many lesser catastrophies.

The history of the bombardment of Soissons is not unlike that of Reims. The Germans entered both cities early in the war. Soissons surrendered September 1, 1914, and the Germans withdrew 12 days later, on September 12. In leaving Reims they seized forts beyond the city from which they could easily bombard it, and from which they could not be dislodged. In leaving Soissons they occupied quarries where they were similarly strongly entrenched, and which were fatally available for bombardment purposes. On March 19, 1917, it was officially announced that Soissons was disengaged. The Germans, after leaving Reims in 1914 never returned; Soissons was not so fortunate; for they came in again on May 28, 1918, and its ultimate freedom is a part of the noble history of the Allied victory.

The bombardment of Soissons began with so much severity that the evacuation of the city was ordered at an early

date. The Bishop himself was compelled to leave on January 15, 1915, and found refuge in Château-Thierry, then regarded as a perfectly safe place. He was only able to get back on April 25, 1917. May 27, 1918, being away from Soissons in an episcopal visitation, he was unable to return, and was compelled to travel in a cattle car, filled with soldiers and wounded, finally finding refuge in Le Mans.

It has, therefore, been impossible for Mgr. Péchenard to give the story of Soissons even chiefly from personal observation. But his sources of information were trustworthy and extensive, and his book really loses nothing in value because he did not himself personally witness everything he describes.

The injuries to the cathedral began with the bombardment, and were continued throughout the whole period. It seemed particularly the object of the enemy shells on many occasions; on November 4, 1914; December 7-9, 1914, on the latter day 24 bombs fell on the cathedral in the morning alone. Again on January 15, 1915, February 2, 1915, February 5, 1915, and February 12, 1915, the cathedral was shelled. On February 28, 1915, it was directly struck by shells in a bombardment of 200 shells that fell on the city. Again on March 2, 9, 13, 21 further shells fell. A bombardment of June 17, 1915, appeared particularly directed against the cathedral. The tower and other parts were injured June 29, 1915. Other bombardments followed on June 29 and July 14, 1915. By the first of January, 1916, most of the nave was open to the sky. New injuries to the cathedral July 3-4, 1916. Again November 17, 1916, and December 18, 20, 23, 1916. By the end of the year the injuries had extended from the tower to the chevet, much structural damage done, and much of the rare old glass utterly destroyed. The Bishop sums up the damages in closing his book: the cathedral outrageously mutilated; the tower, the roof, the buttresses, the walls, the windows, the vaults, the furnishings, all seriously injured; nothing had been spared.

No one is so competent as Mgr. Péchard to tell how these things were done and when. His book is one of the most interesting of the war books, and ranks high in the cathedral literature of the war.

FURNITURE STYLES

By CHARLES OVER CORNELIUS.

THE reasons which led to the inception of the work and the accomplishment at which he aims in its writing are stated by Mr. Dyer in the foreword to his *Handbook of Furniture Styles*.* The book is meant primarily for the use of persons interested in housefurnishing who desire a reasonable correctness in their selection of useful furniture from the mass of period and pseudo-period designs which is at present flooding the market, and is another instrument in the campaign for the education of public taste which is engaging the efforts of writers and publishers today.

Such a book is necessarily a brief resume, a boiling down of pertinent information contained in larger and less popular volumes, and rendered in its condensed form more accessible to a public whose need for it is great, but whose interest does not permit of an independent study of the authorities.

The author meets his critics more than half way in two paragraphs which may be quoted:

"Such a condensation of a big subject must inevitably result in sins of omission, if not of commission. I am fully aware of the defects inherent in this sort of treatment; I know just what the critics and reviewers will say, and I am moved to forestall their criticism by certain admissions and disclaimers, and to inform the purchaser of this volume exactly what he is getting for his money."

"In the first place, there is nothing new in this book. It does not pretend to be the result of original research.

There is not a fact or conclusion in it that is not to be found in any one of a dozen larger and handsomer volumes. I do not think I have added one jot to the sum of human knowledge on this subject. I have merely sorted out that knowledge and now present it in a new dress—or undress."

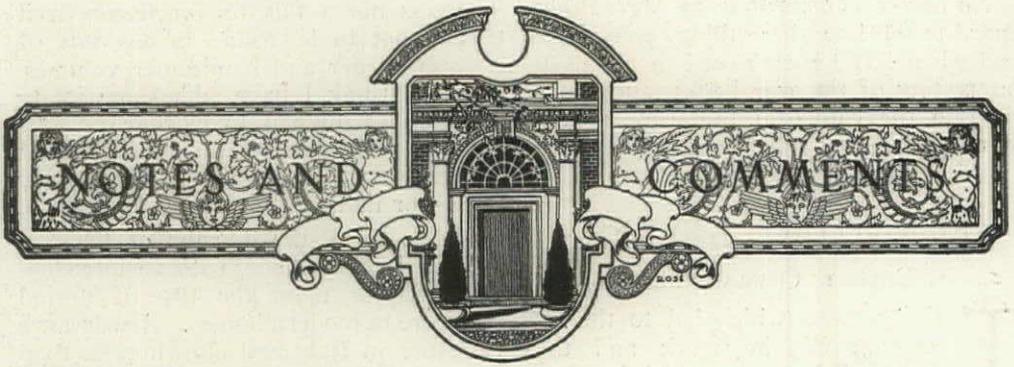
In the main, the division of the material is happily made, with an introductory chapter upon the use of period furniture in modern homes. Renaissance furniture in Italy and elsewhere is then taken up, with emphasis upon the architectural origins of its designs, the uses which dictated the forms it should take and its importance as a starting point for all the furniture design which came after. The remainder of the book follows the development of the furniture styles in France, England and America, as it ran its course through the seventeenth and eighteenth centuries to the breakdown of taste in the nineteenth.

In treating the different periods the characteristics in the design of the various styles in relation to their social or artistic origins, the constantly changing materials which entered into their manufacture, the articles of furniture most used and the names of the makers or designers of first rank, whose influence was particularly marked upon the work of their time, have all been kept in mind. The illustrations, mostly of examples in the Metropolitan Museum of Art, and thus accessible for examination, are excellently chosen and arranged, with the purpose of emphasizing special points of the text by comparison of detail or form.

The tabulated details of the period styles at the end of the book, a still further distillation of the material, are convenient for reference, while the excellent bibliography contains most of the important works which are readily to be consulted by students and collectors.

To architects, the book will be useful for hasty reference, and particularly in an indirect way, as it comes into the hands of clients who cannot but find much interest in its content matter presented in the lucid manner which is characteristic of all of Mr. Dyer's writing.

**Handbook of Furniture Styles*. By Walter A. Dyer, New York, The Century Company. Price, \$1.50.



**The "Esthetics
of Engineering"
Applied to New
Bridges in
Pittsburgh.**

I think you will be glad to learn of the extremely significant action taken by the Allegheny County Commissioners with reference to the erection of three new bridges across the Allegheny River at Pittsburgh. An extraordinary opportunity—one probably not paralleled in the history of any American city—was presented to the Commissioners by the action of the Secretary of War requiring the erection of six new bridges in one locality practically at one time.

The Art Commission of Pittsburgh has been interested in obtaining designs of merit for this project and the County Commissioners, Addison C. Gumbert, Frank J. Harris and Gilbert F. Meyer, have loyally co-operated and supported the movement inaugurated about one year ago when Ralph Adams Cram, the eminent American architect, visited Pittsburgh for the purpose of delivering an address on the subject. The first practical result of the movement is announced by the County Commissioners—two able and eminent architects residing in Pittsburgh, A. B. Harlow, the designer of the Carnegie Institute, and Benno Janssen, a man of exceptional ability, have been selected, together with a New York firm, to provide plans for three of these bridges.

In pursuing this course the Commissioners have adopted a policy which is a distinct recognition of the importance of art in connection with works of utility. I doubt not that the other three bridges will be designed upon a high standard of artistic merit. The influence of these works will doubtless ultimately extend throughout the country.

JOHN W. BEATTY.

**A Community
House in
Kansas.**

Experiments in democracy are in order. War clears men's heads and they are open to suggestions for their own improvement. When such suggestions are linked with the welfare of the fighting man they are given careful attention. Kansas, more particularly the city of Manhattan, had to solve the problem of taking care of the many thousands of soldiers frequenting the town on furlough from the adjacent cantonments, Fort Riley and Camp Funston. At the same time Manhattan possessed a sufficient number of long headed men to realize that the remedy for this emergency was not necessarily very different from the remedy for a condition affecting all cities at the present time—namely, the problem of making the city more livable chiefly by the introduction of legitimate means for obtaining clean and wholesome entertainment. Therefore the city fathers of Manhattan decided to let good sense control speed in such degree that instead of erecting a wooden hut to care for these many men in khaki and then scrap the hut after the armistice was signed they built a fireproof brick structure which would outlive the war and serve their own community.

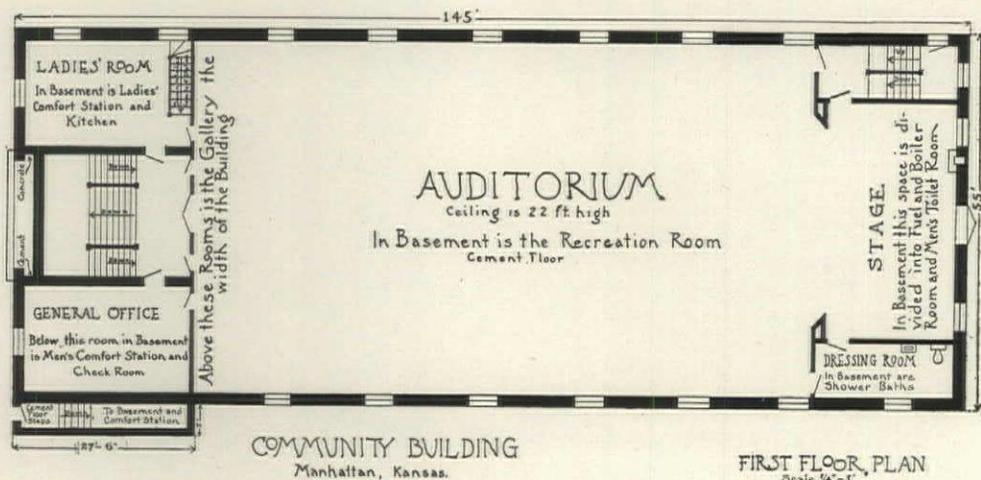
The building which met these ends is in fact a large hall, with necessary accessories, the idea of a gathering place being logically uppermost in the project. The hall is equipped as a suitable space for dancing or other frivolous entertainment, but has in the brief history of the building already served such varied purposes as those of a baby show, a public reception and a pig-club convention all within three days' time. In general the interior becomes a sort of public parlor, furnished with multitudinous chairs, tables, lamps, curtains



COMMUNITY BUILDING, MANHATTAN, KANSAS.
H. B. Winter, Architect.

and other items that lend color. The small space in the building not required for the main hall is used for office and storage space, kitchens and the requisite assignment of space for circulation and for retiring rooms.

During the war this building was under the control of the War Camp Community Service, which maintained there no less than ten different divisions of its own work. In addition other relief organizations found quarters there: the Civilian



Relief Bureau of the Red Cross, and the War Department Commission on Training Camp Activities. The building thus served in an intensive way the immediate needs of the men in training for whom it became a club. At the same time the nature of the materials and method of construction provided the city of Manhattan with a permanent edifice to serve its own citizens after the soldiers had been dispersed. What is more, the building will always retain the atmosphere of having been prompted by national service.

The Community House was projected on a co-operative basis. The city of Manhattan numbers but 7,500 souls, but it saw fit to get up a bond issue which brought between fifteen and twenty thousand dollars.

The Rotary Clubs of the Twelfth District added \$13,500 for the building and \$2,500 more for the furnishings.

We have here an enviable example. Other communities may no longer have the opportunity of founding such institutions under the service ideal; yet they have the same opportunity of erecting a building to serve as a public centre of good will and good fellowship. Manhattan has indicated the method and has done manfully despite its small population, making itself a centre of attraction for surrounding counties. Finally this city at least has already erected a structure which may be used as a war memorial and in which its mementos of the struggle may be preserved.

RICHARD F. BACH.



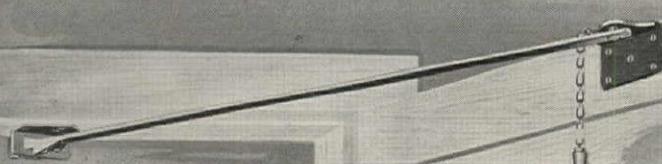
AUDITORIUM—COMMUNITY BUILDING, MANHATTAN, KANSAS.

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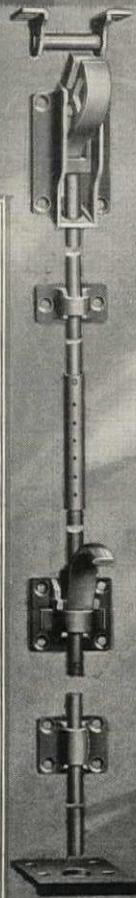
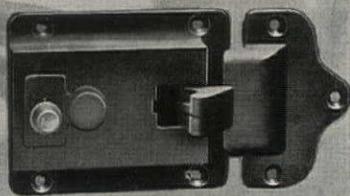
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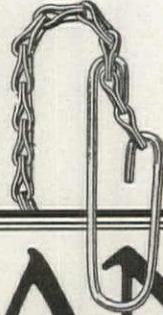
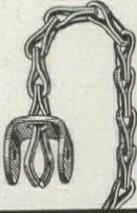
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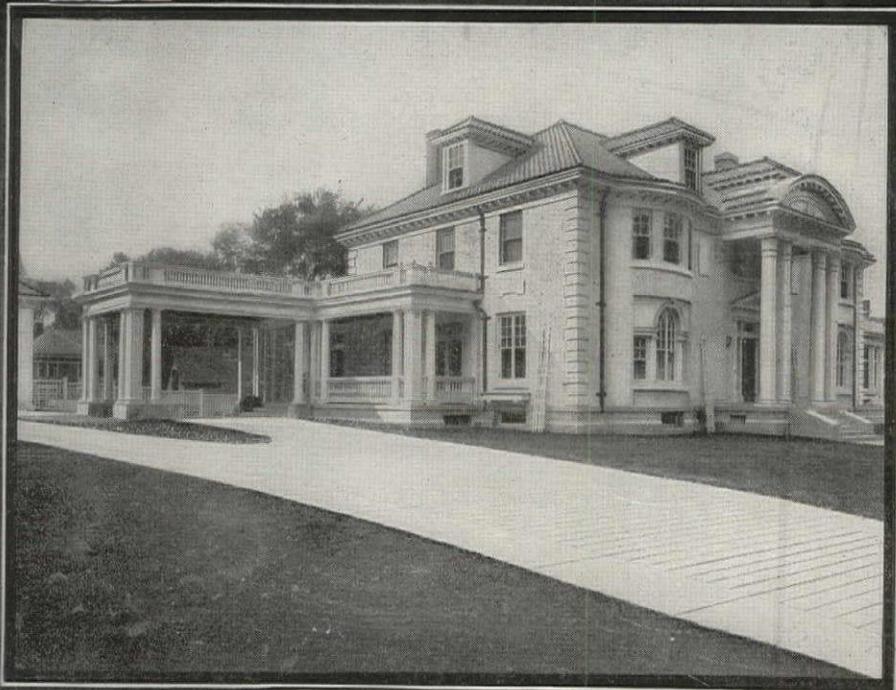
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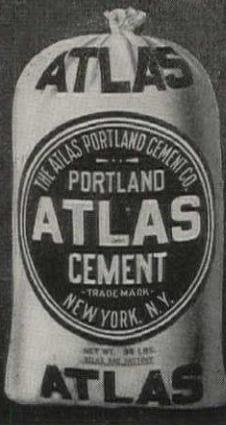
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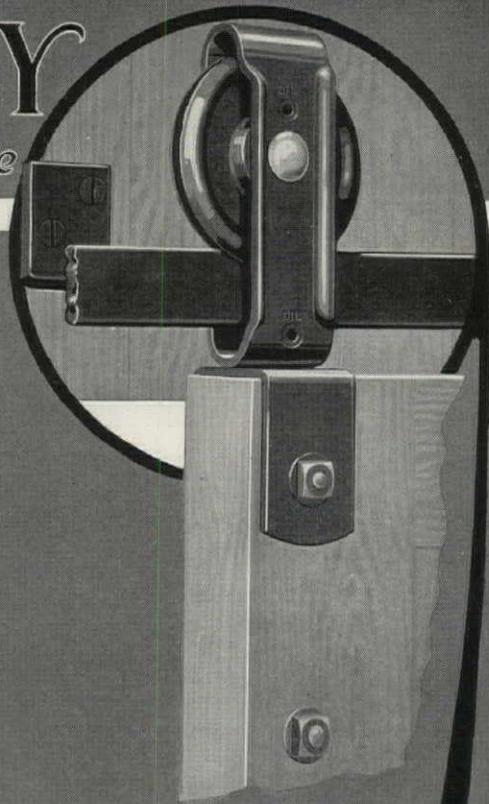
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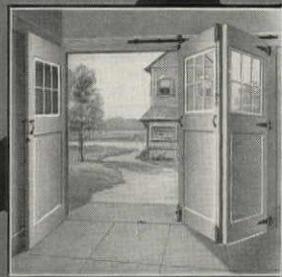
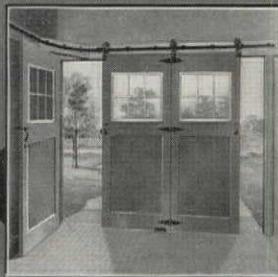
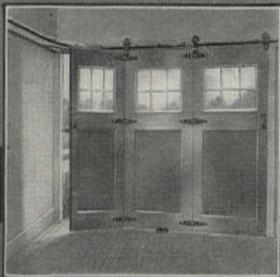
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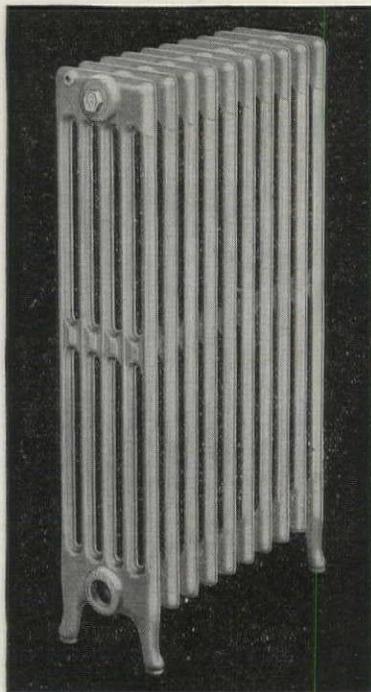
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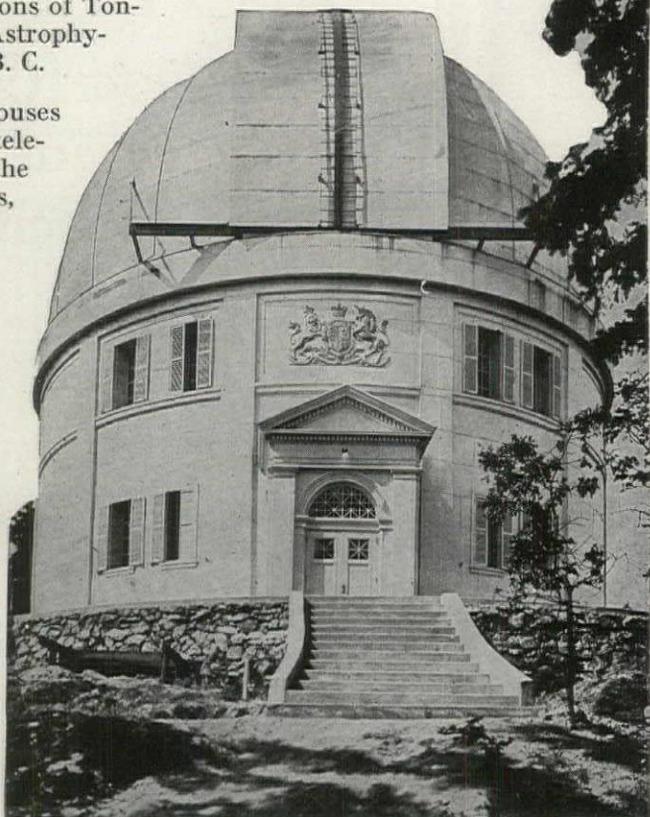
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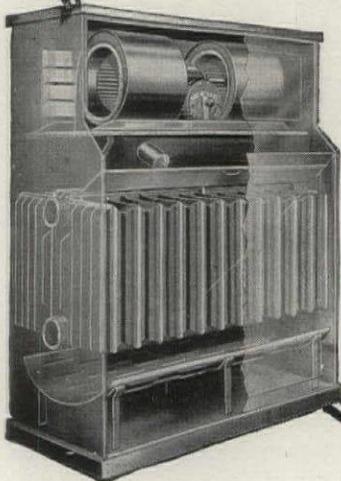
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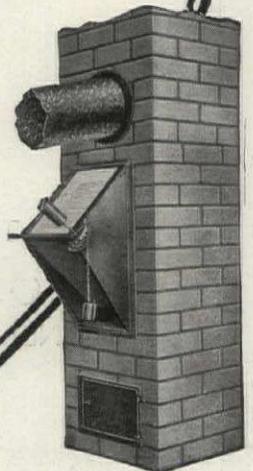
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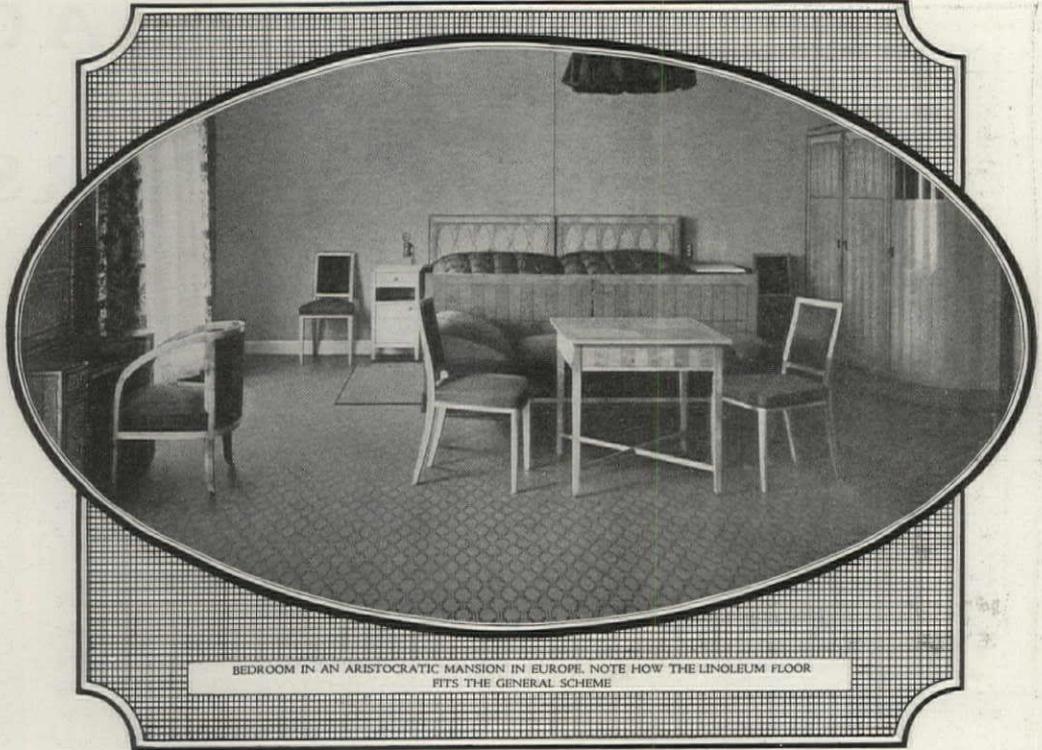


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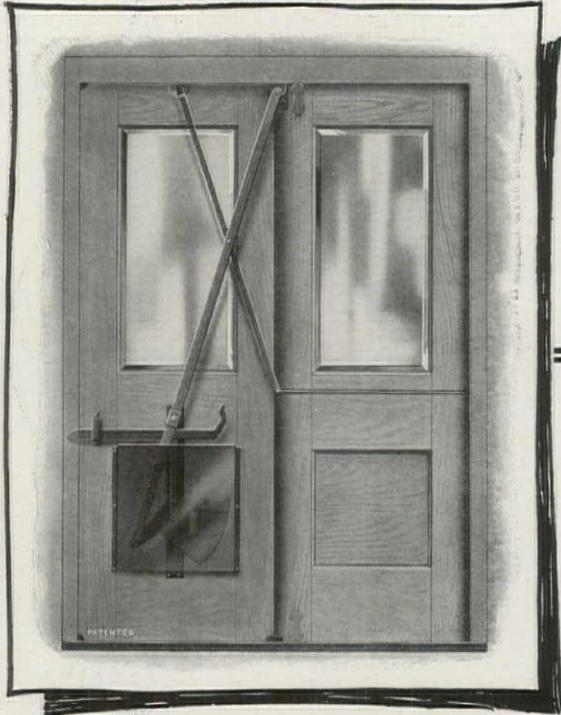
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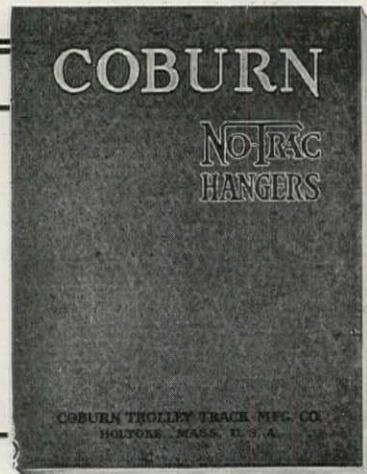
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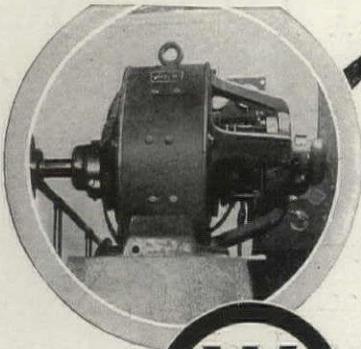
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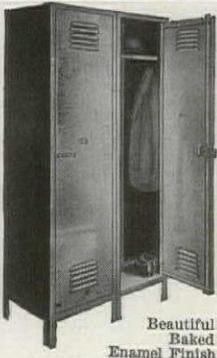
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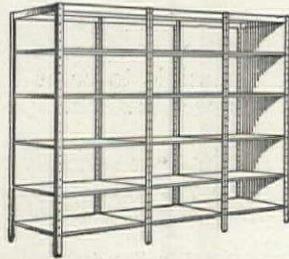
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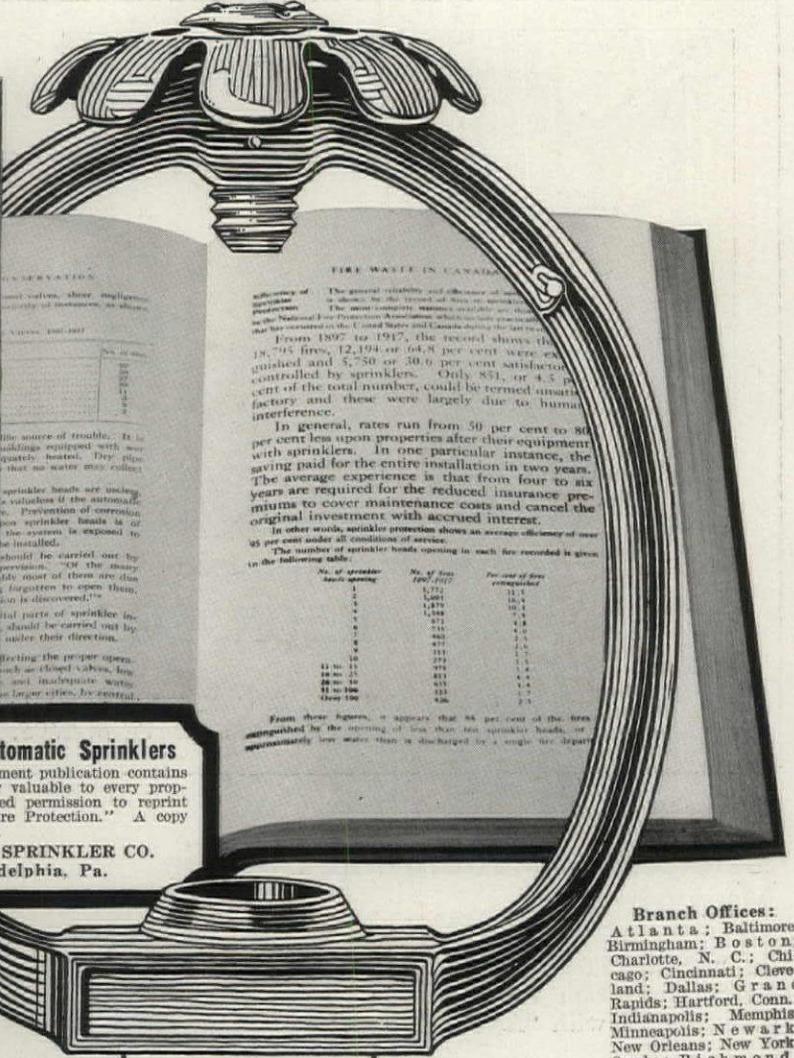
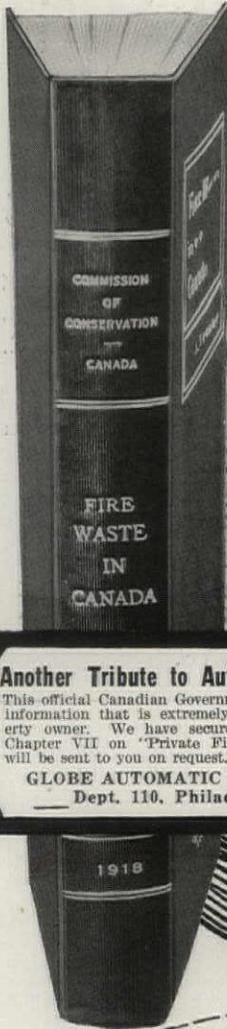
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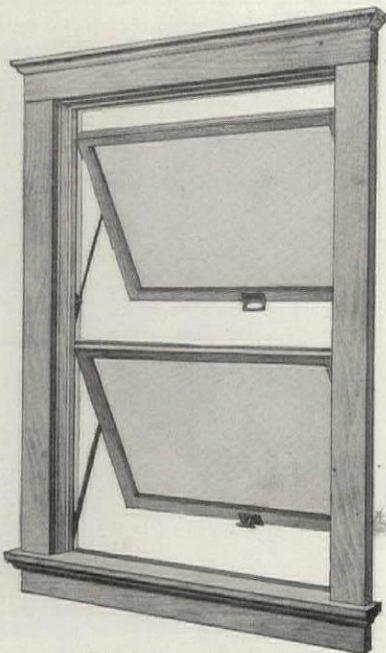
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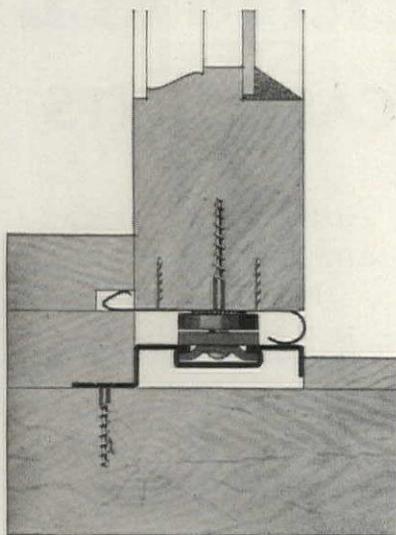


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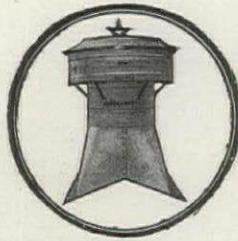
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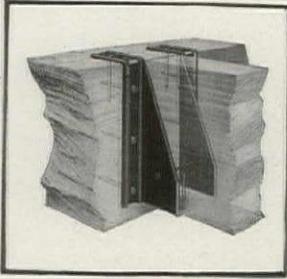
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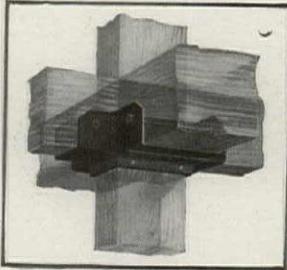
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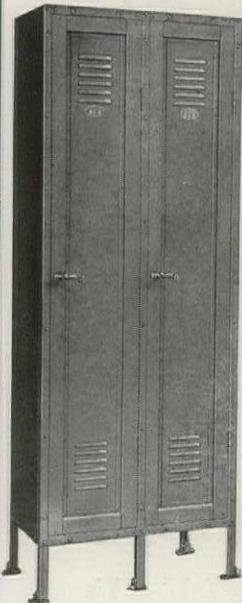
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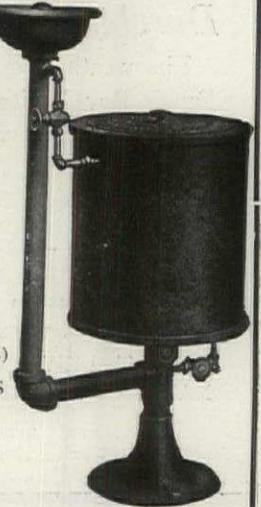
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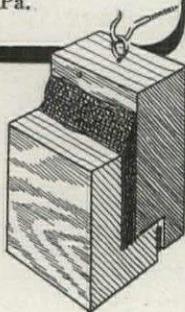
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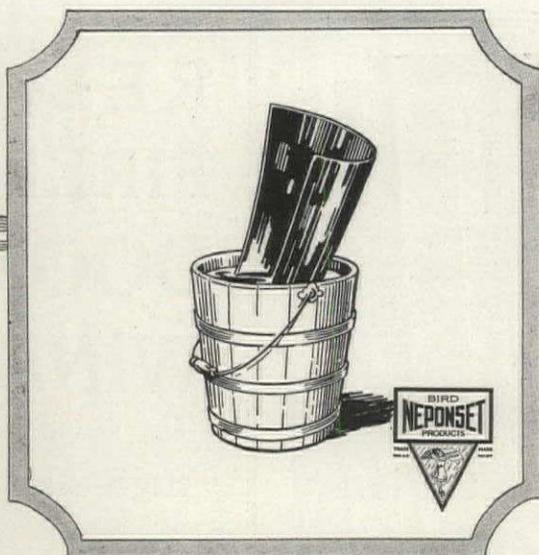
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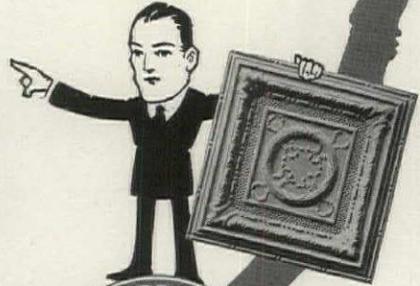
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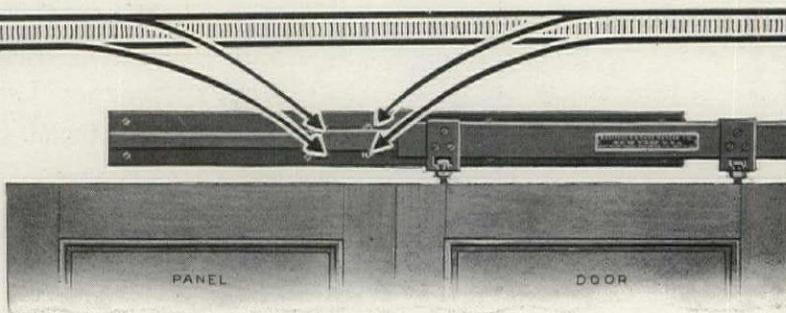
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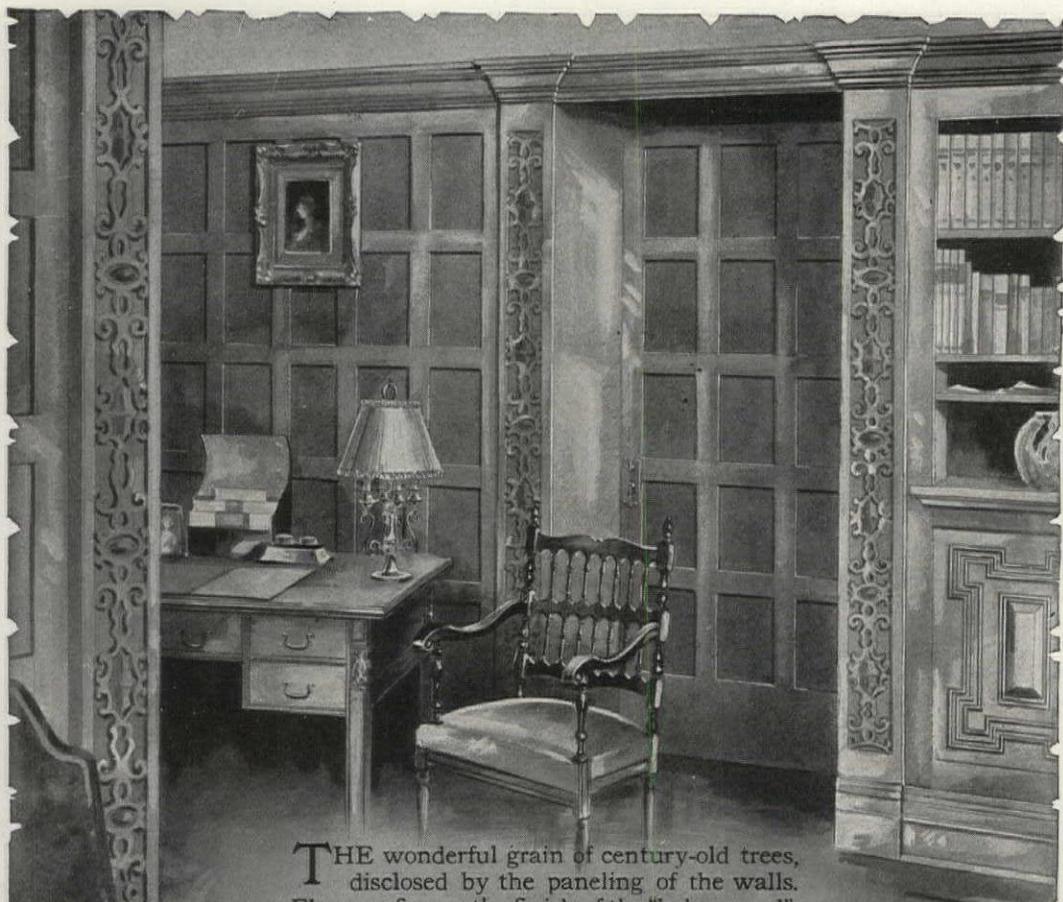


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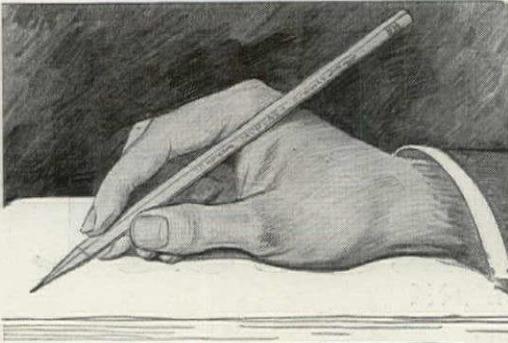
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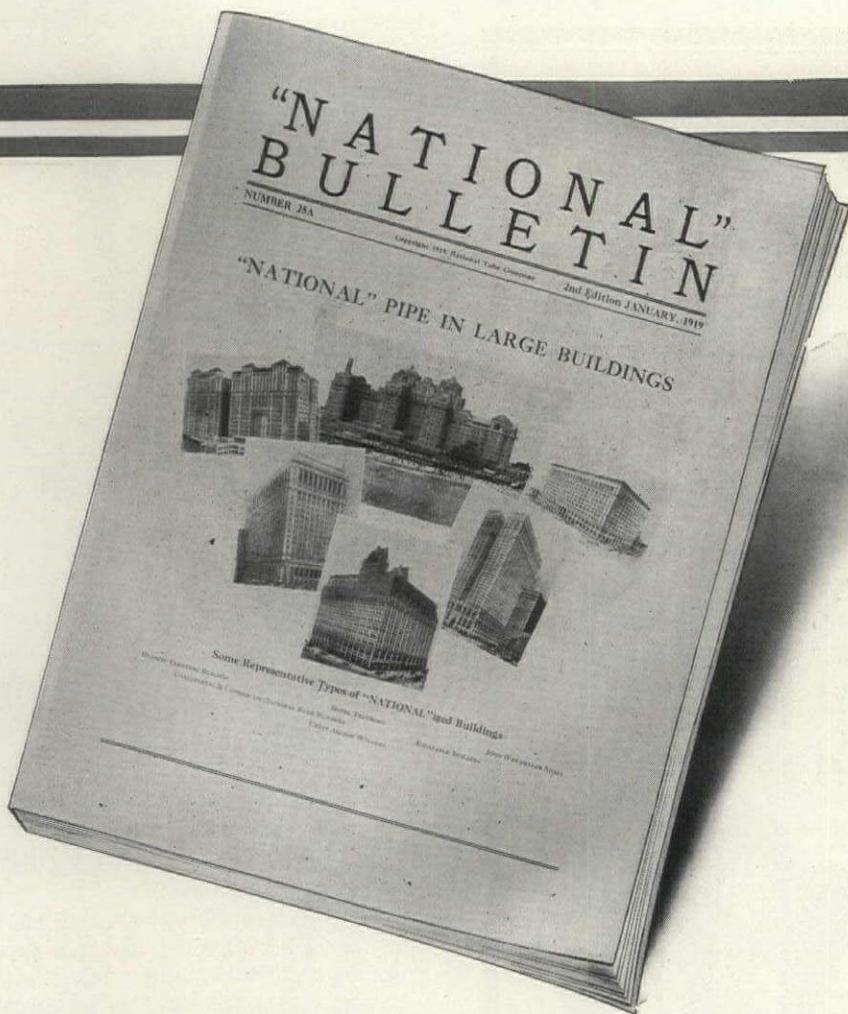
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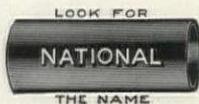
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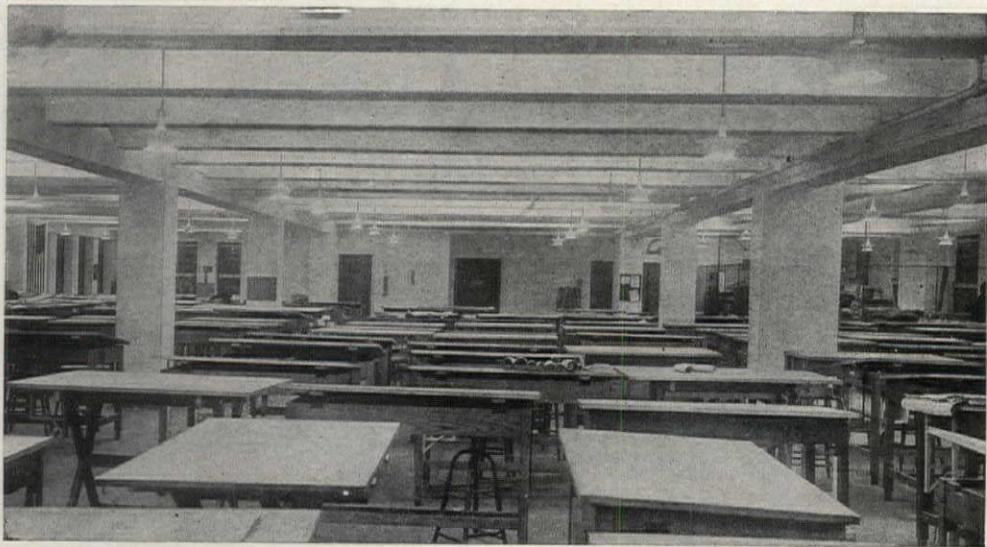
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(638)

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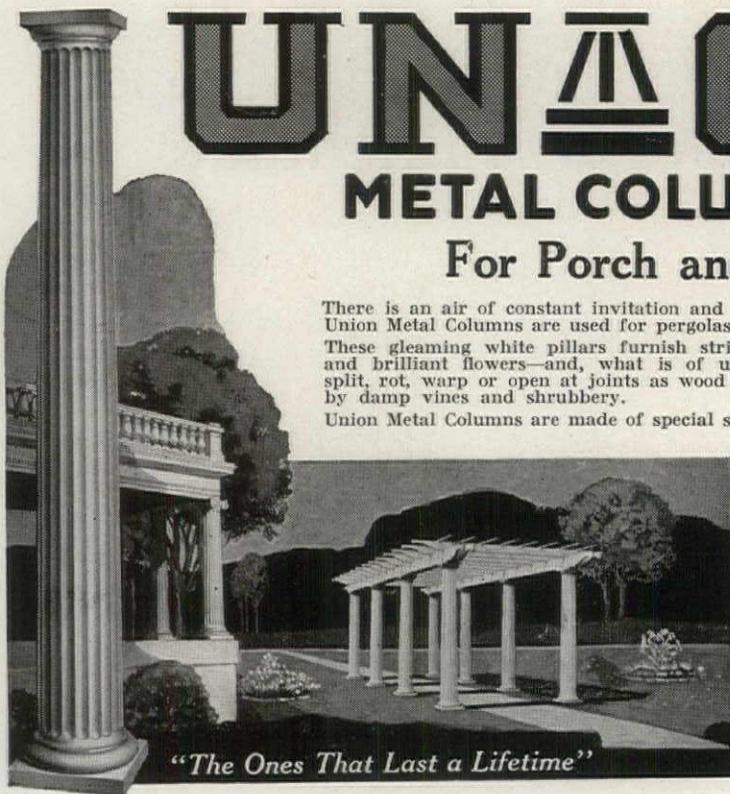
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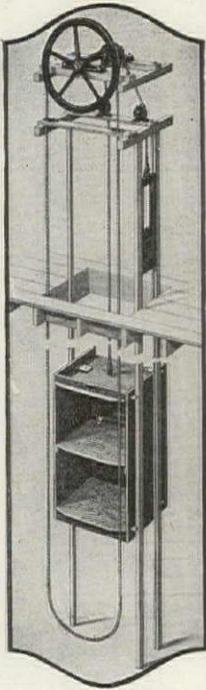
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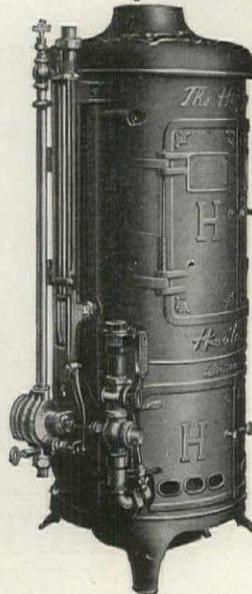
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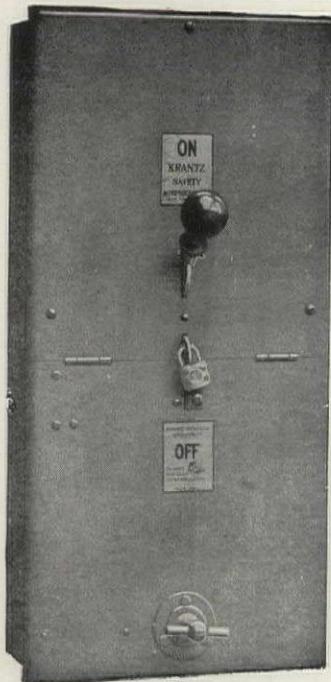
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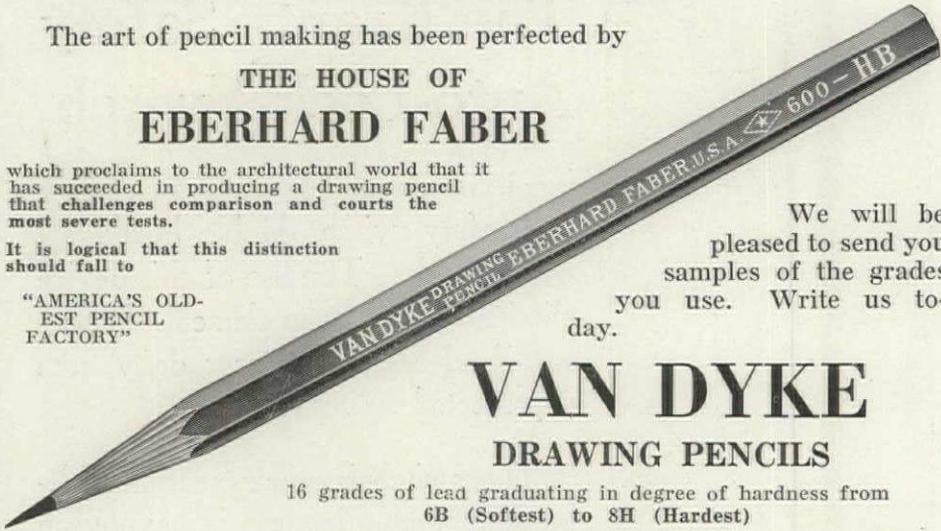
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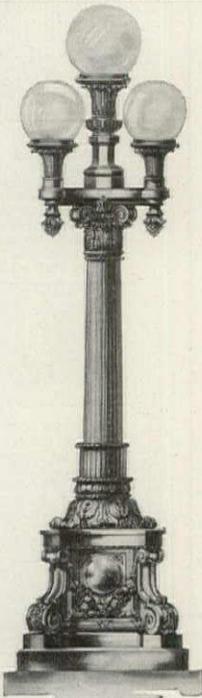
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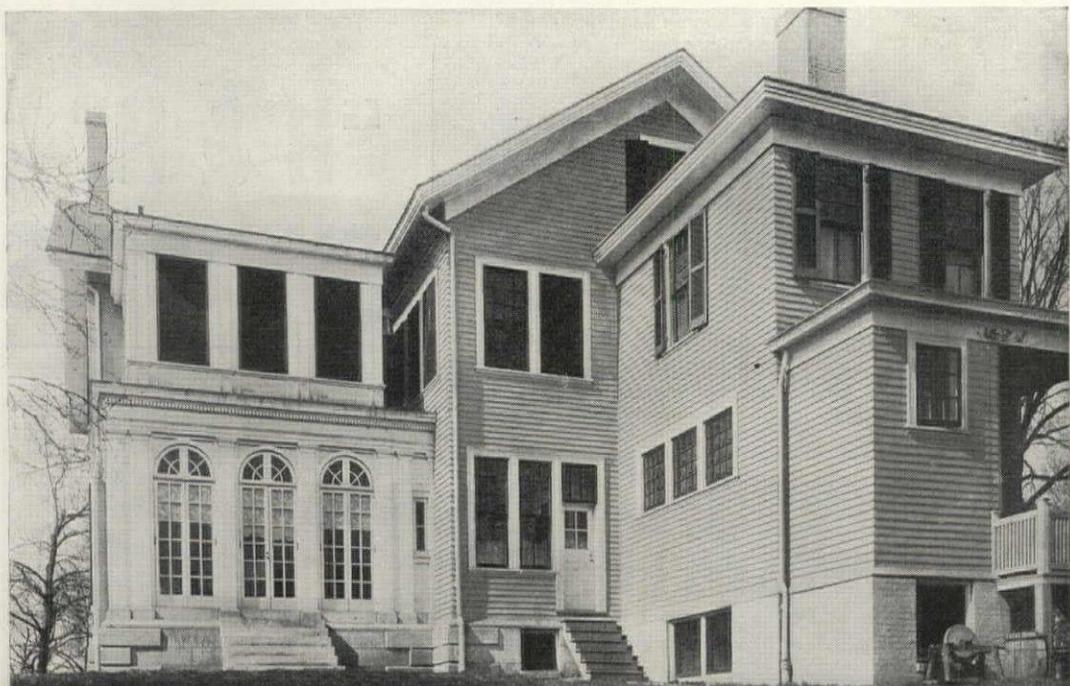
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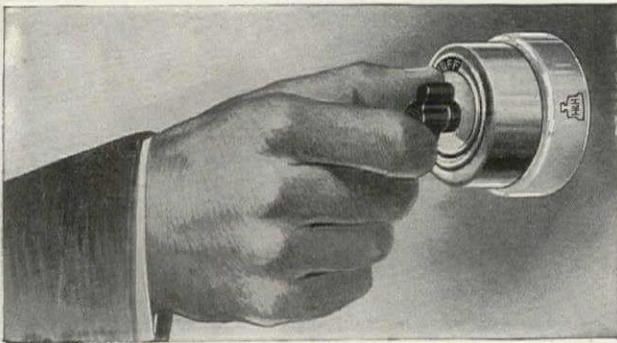
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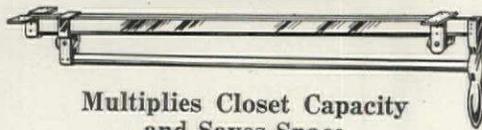
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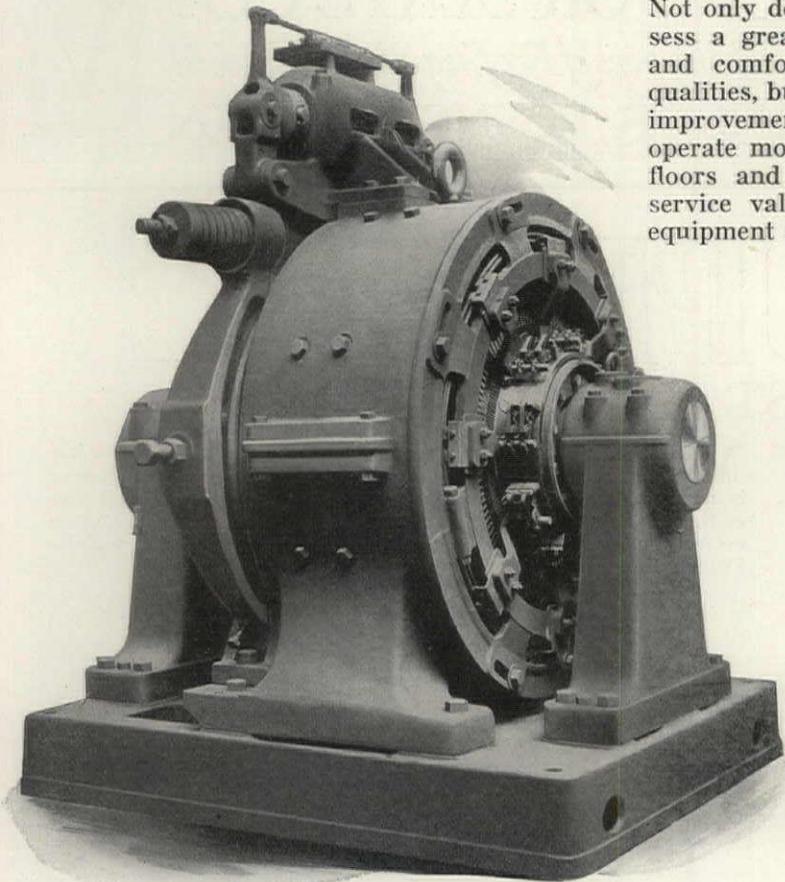
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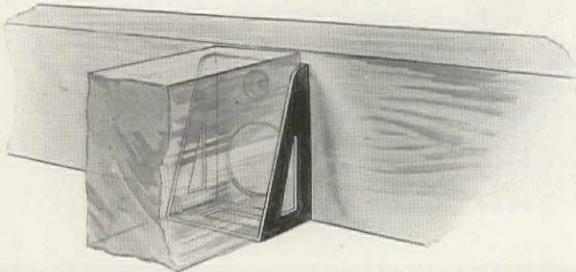
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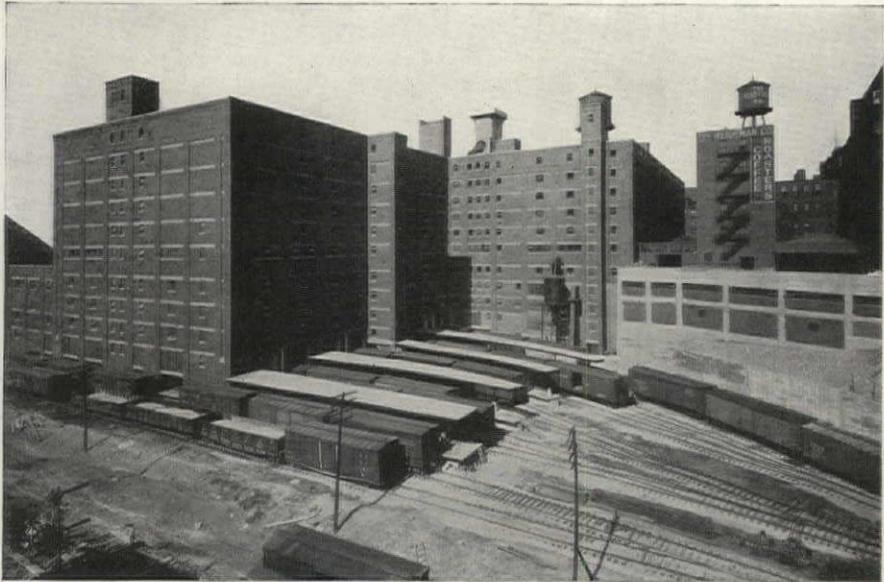
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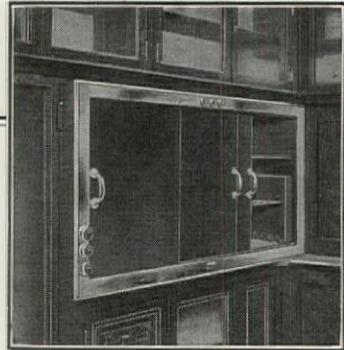
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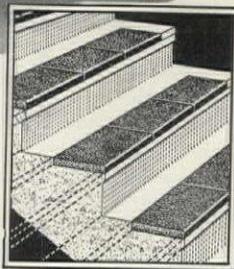
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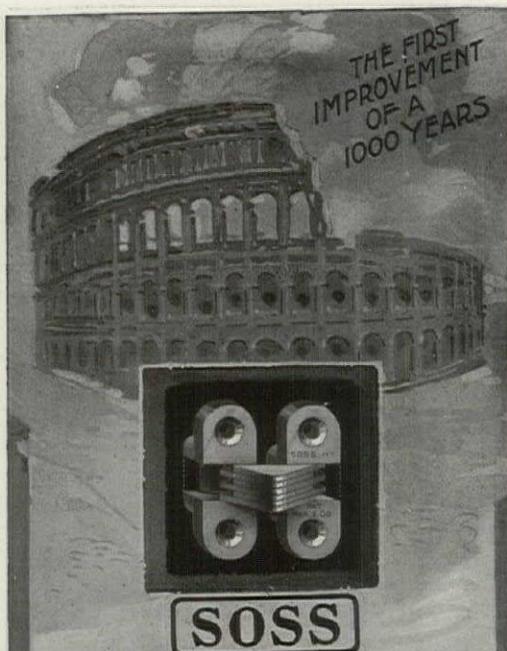
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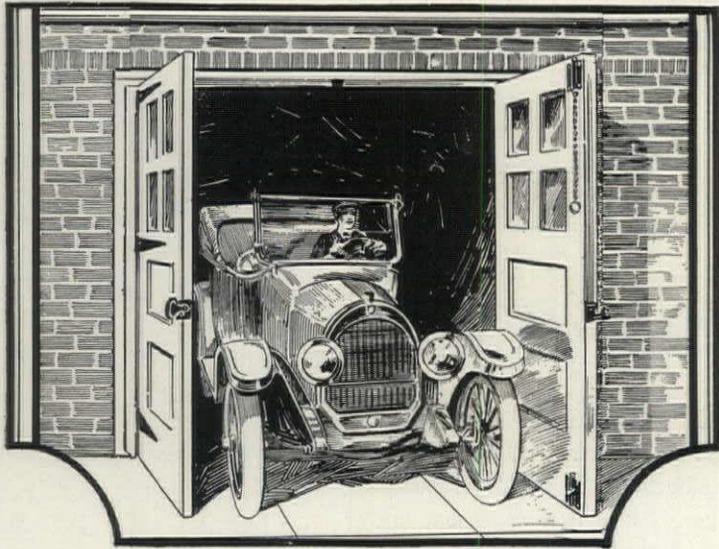
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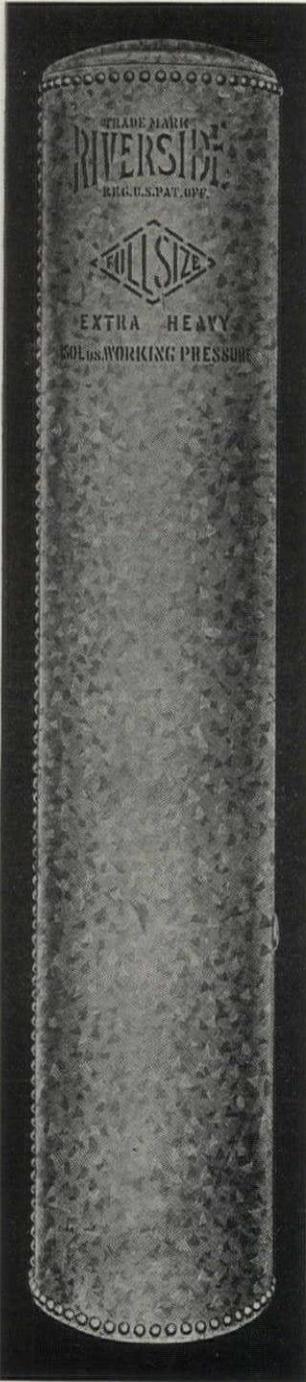
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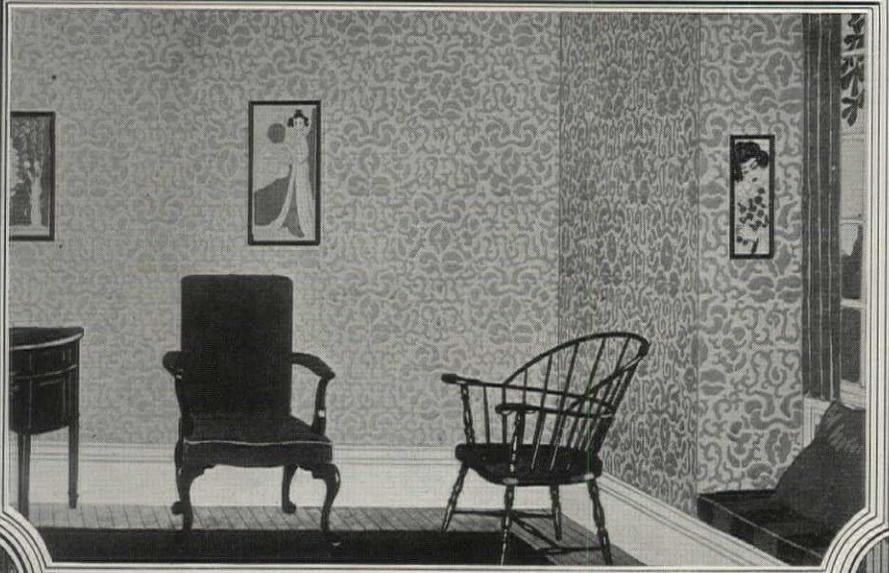
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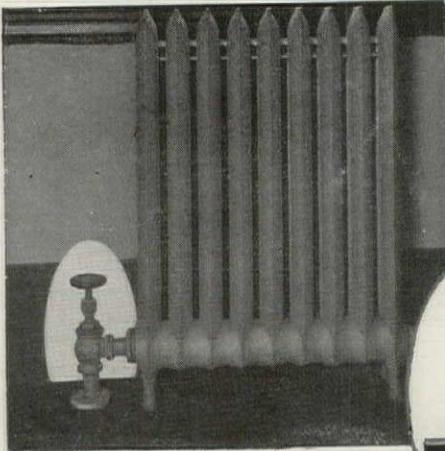
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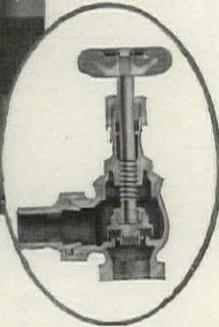
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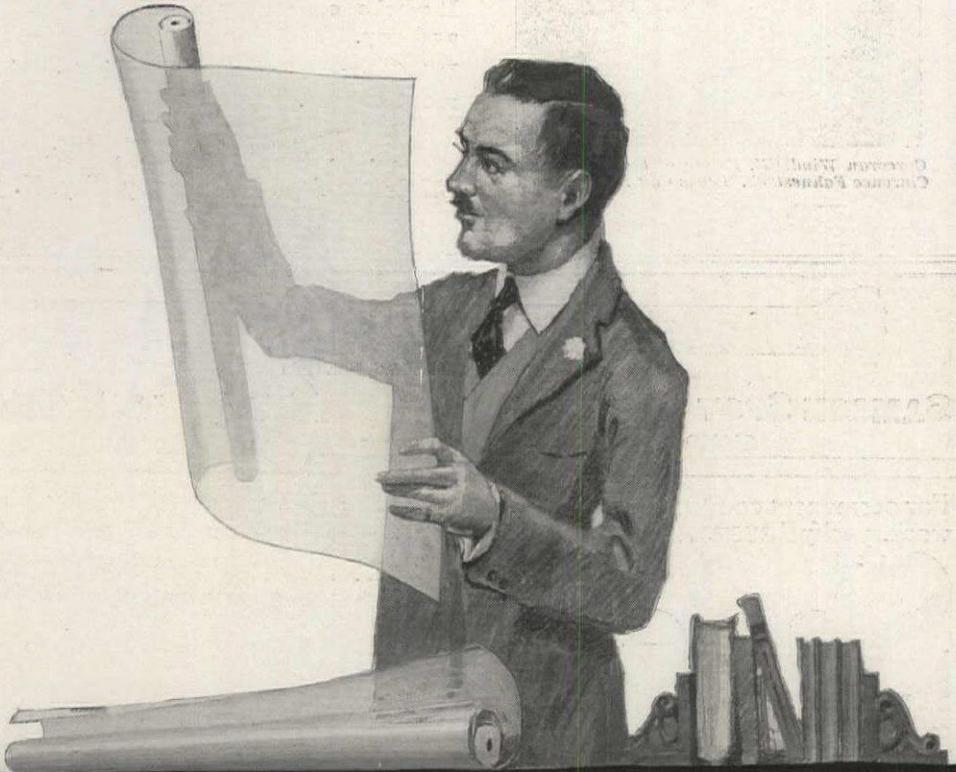
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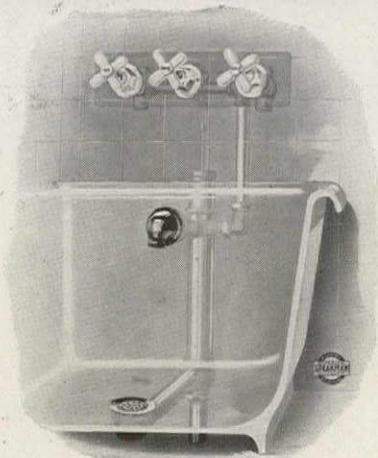
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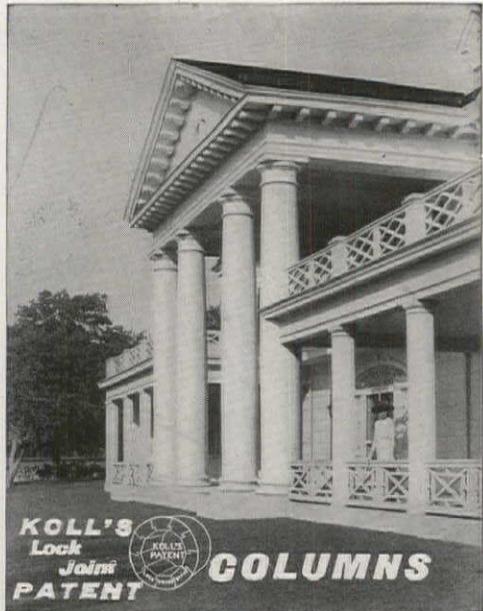
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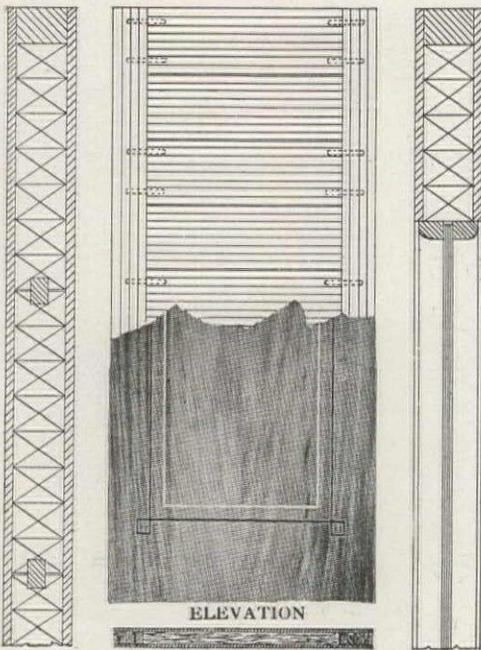


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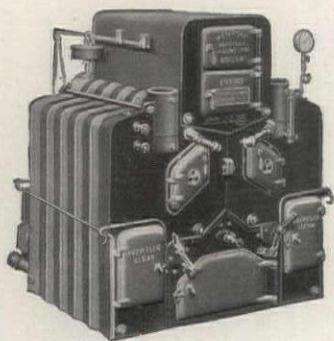
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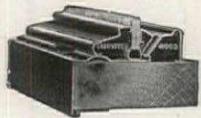
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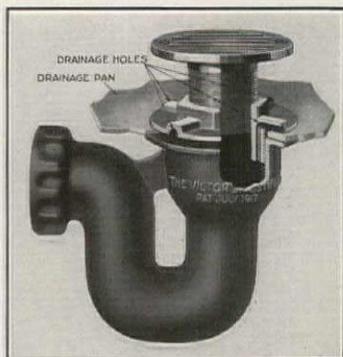
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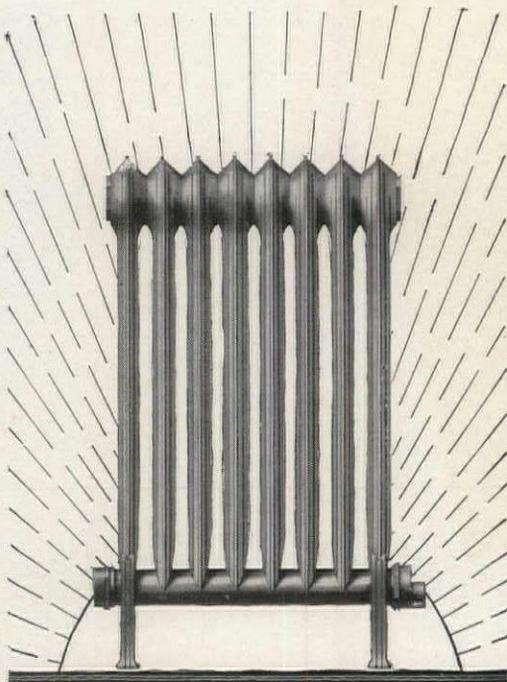
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With Linotile at his command, the architect can fashion designs that reflect the true character of the room—designs of elegance and distinction, designs to harmonize with any style of furnishings or order of architecture, designs that are pleasing from the professional standpoint as well as from that of the layman.

It is the experience of many architects who have used it that Linotile possesses more qualities that appeal to discriminating tastes than any other kind of floor. For the wide range of artistic possibilities, afforded by the eleven rich colors and the variety of shapes and sizes in which Linotile is made, is only *one* of its impressive characteristics: It is also highly durable, sanitary, easy to keep clean, noiseless, and comfortable to stand and walk on.

So far as floors for the better class of buildings are concerned, Linotile meets all practical demands.



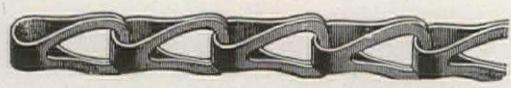
Linotile floor in the kitchen of Mr. Charles H. Duncker's residence, St. Louis, Mo. The pattern is composed of 6-inch light blue squares and 3/8-inch white interlining strips.



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"The Floor That's Built to Fit the Room"

May we send you a copy of the handsomely illustrated book, "Linotile Floors," and a sample of the product itself?



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SASH CHAIN

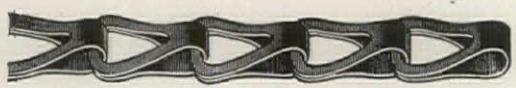
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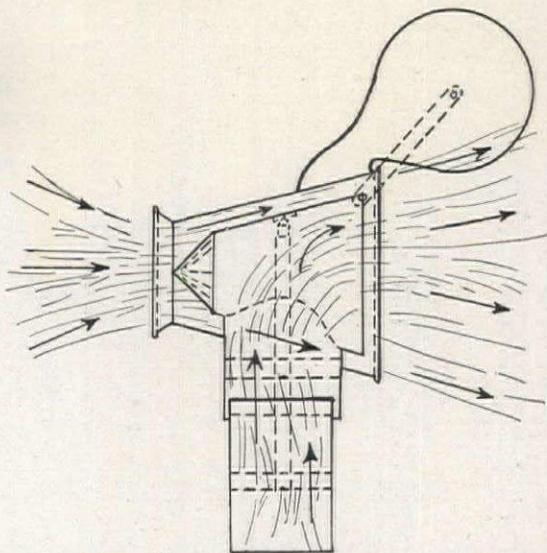
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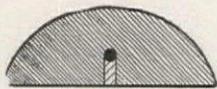
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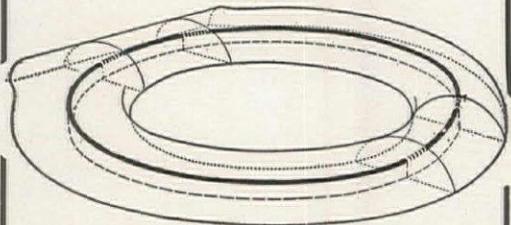
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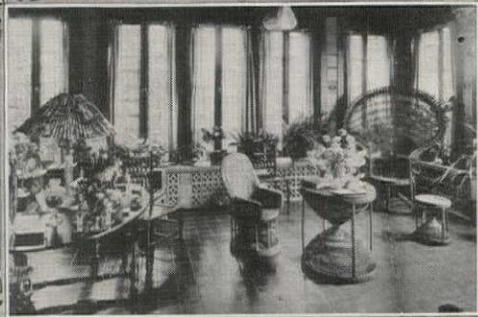
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D R A I N A G E



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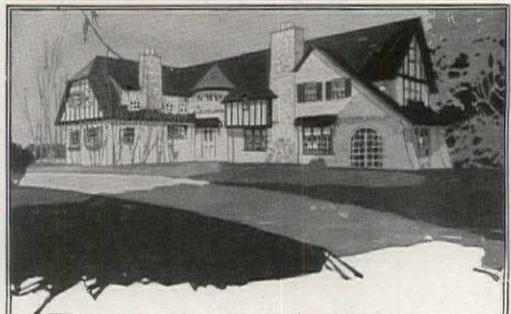
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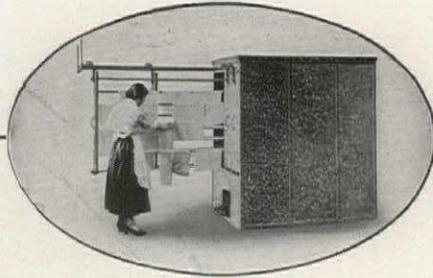
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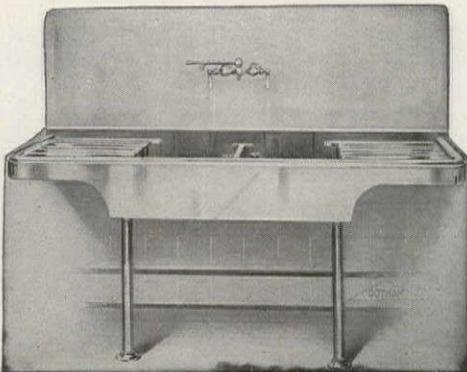
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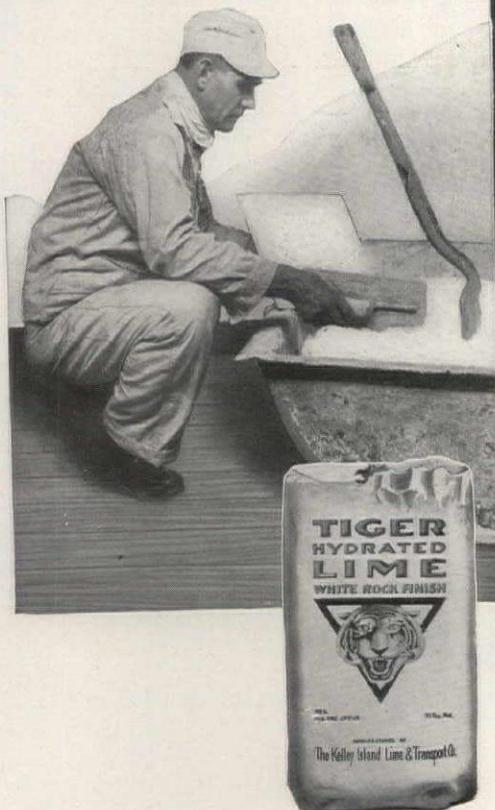
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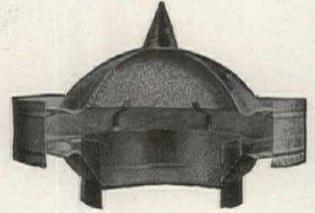
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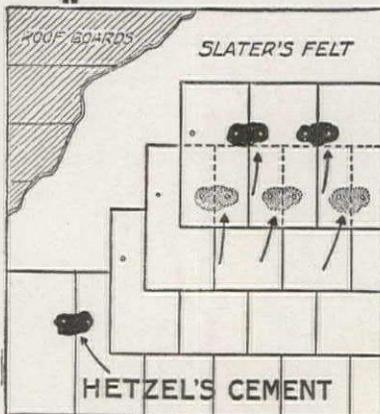
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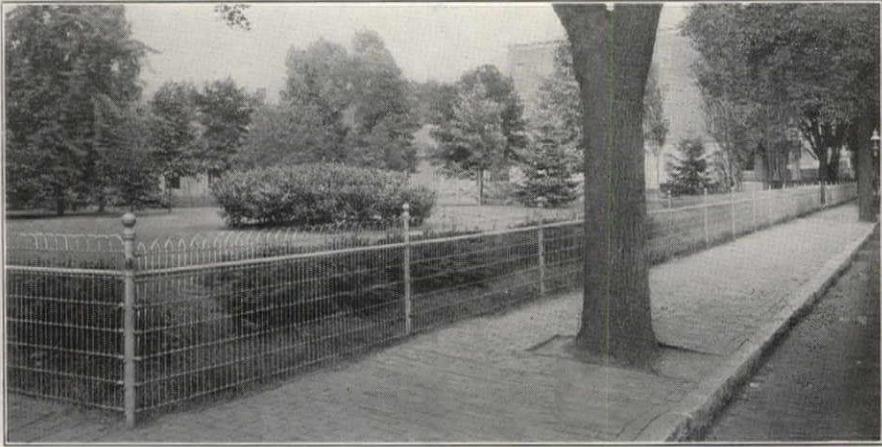
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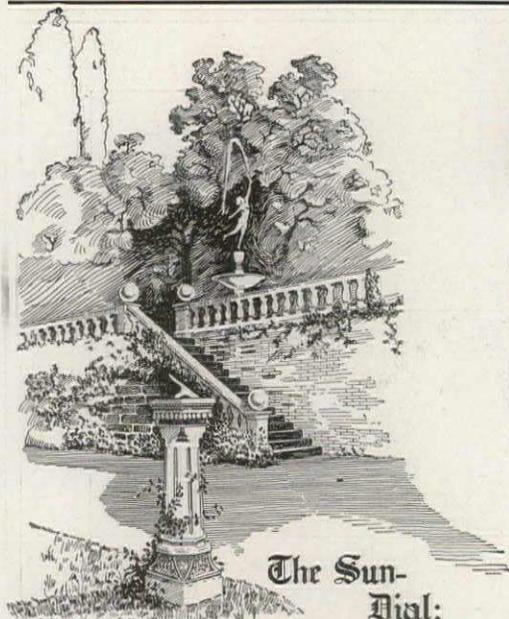
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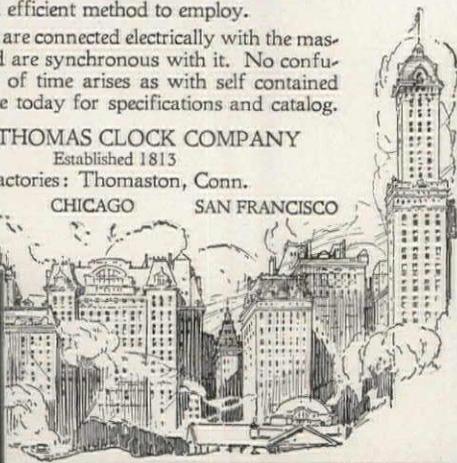
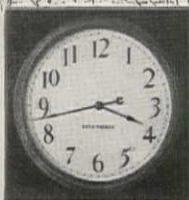
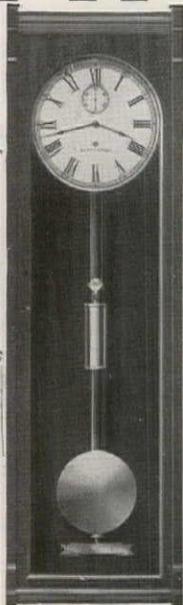
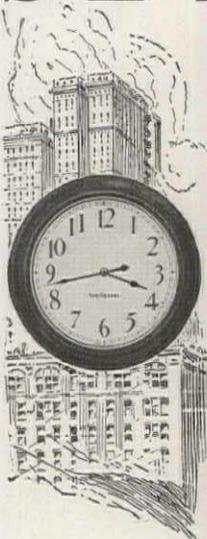
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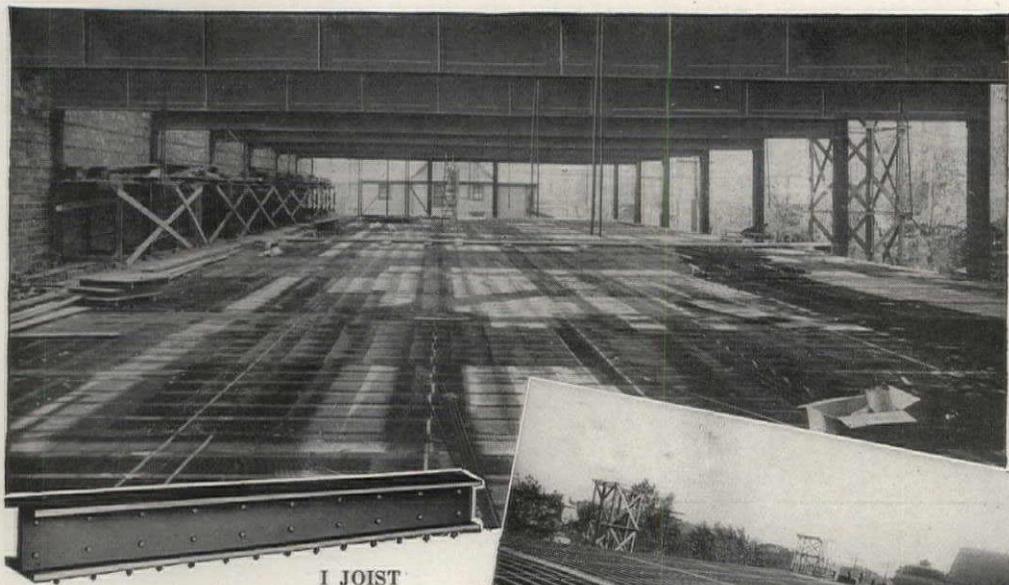
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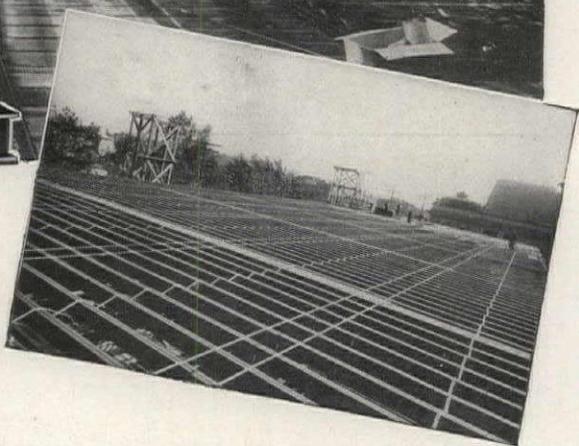
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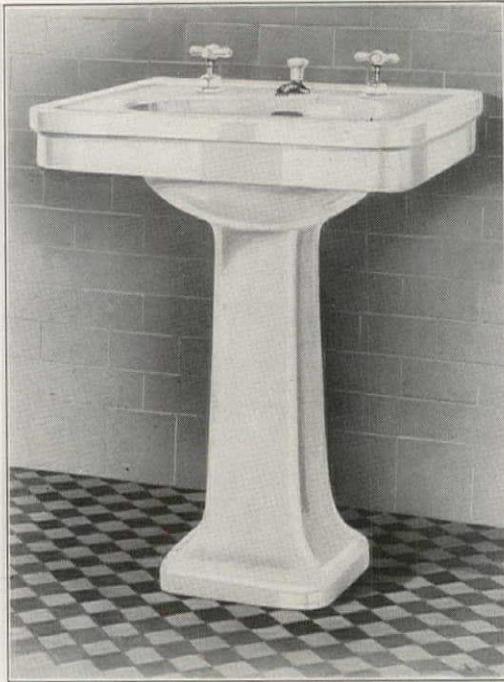
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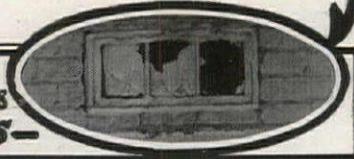
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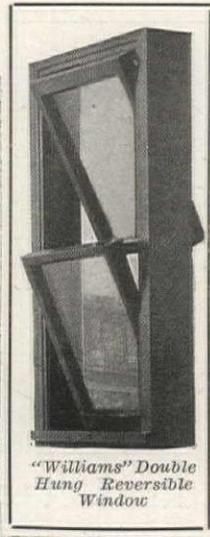
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Cleveland, Ohio



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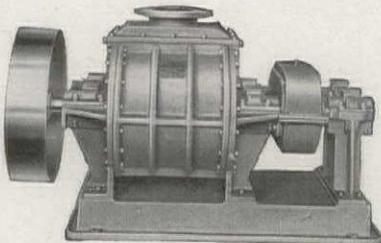
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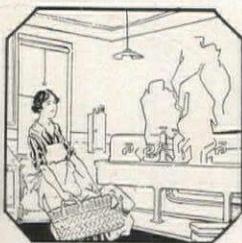
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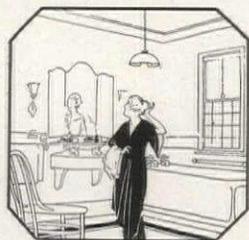
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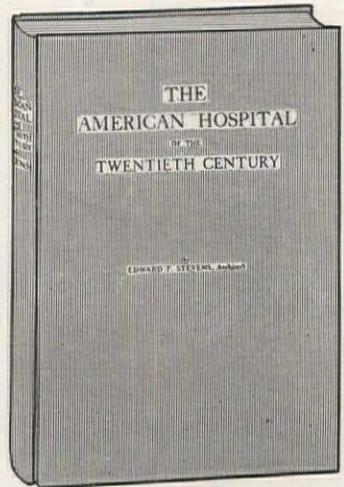
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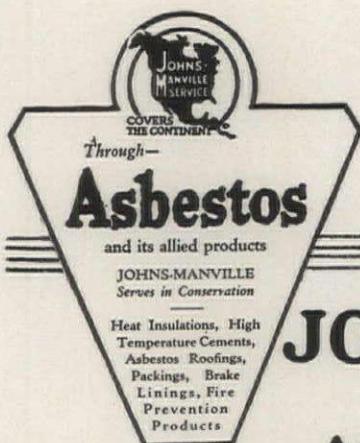
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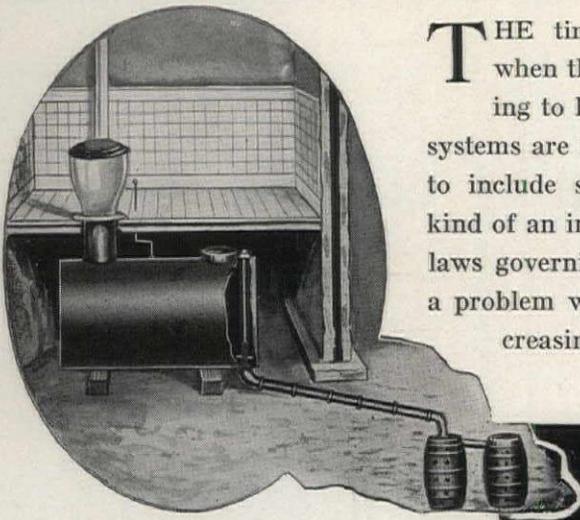
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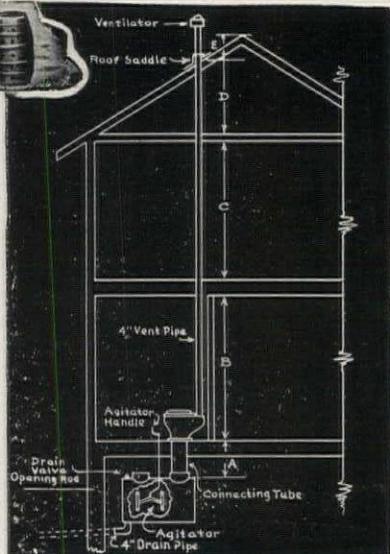
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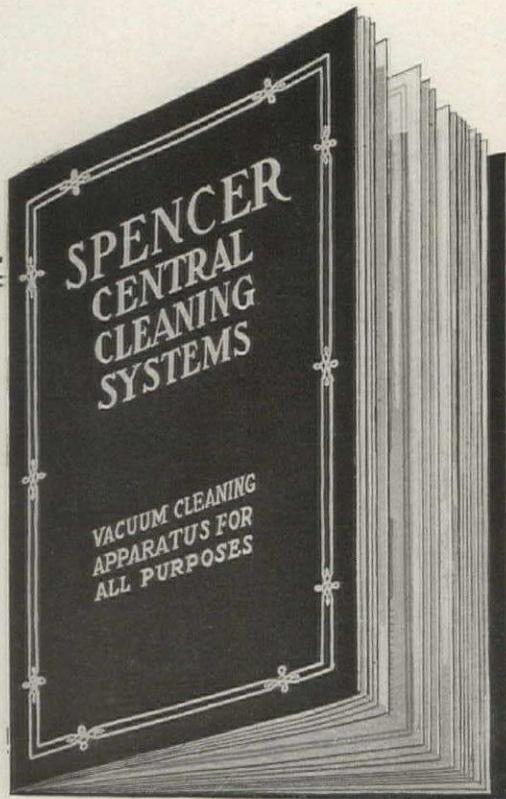


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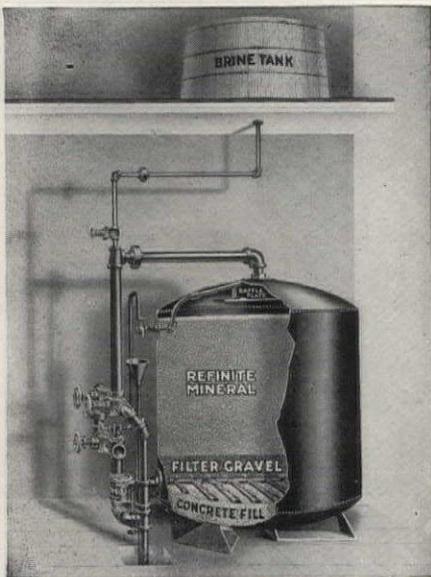
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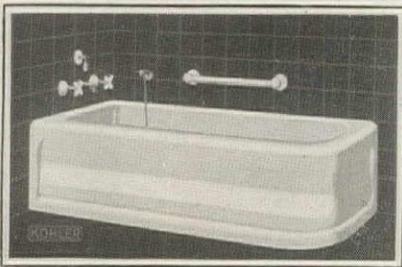




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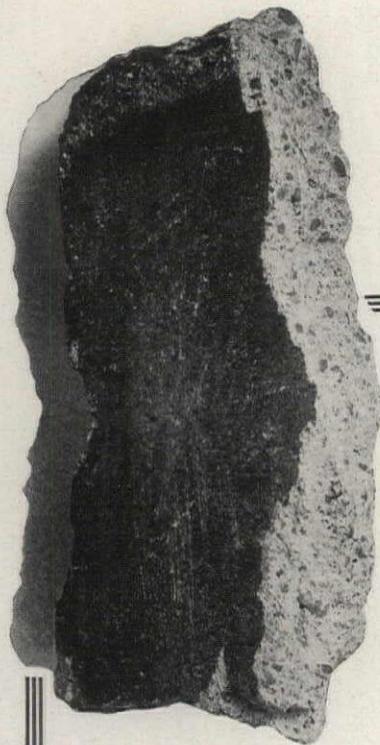


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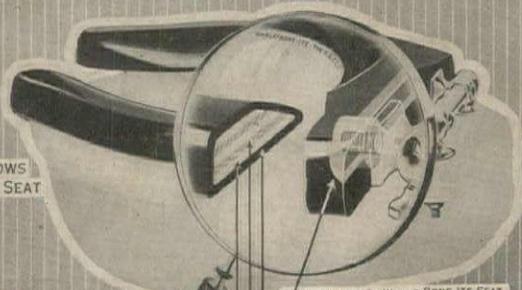
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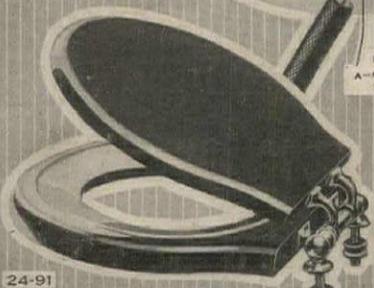
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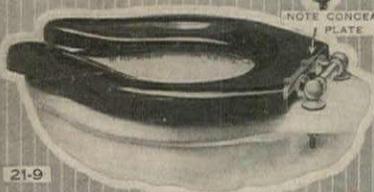
○—NOTE HEAVY COVERING.

■—BURNS LENGTHWISE.

A—NOTE THE COUNTER LAYER OF LAMINATION
 THIS RUNS ACROSS SEAT

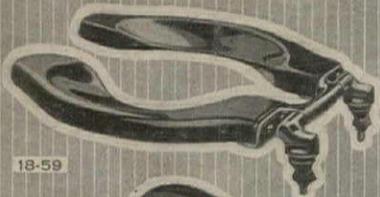


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