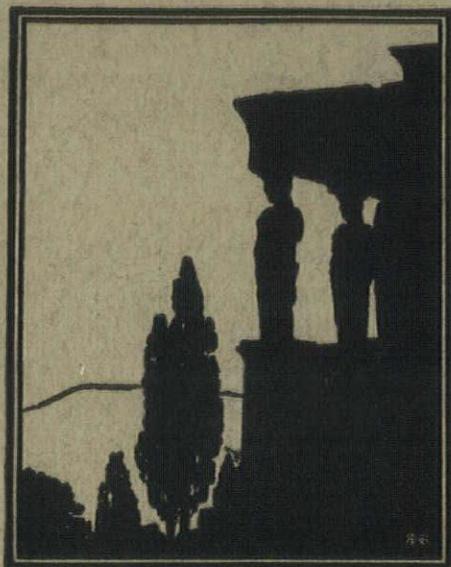


Good Gate

ARCHITECTURE

April 1932



Prefabrication and the Small House

BY WILLIAM H HAM

The Problem of Ornament

BY CLAUDE BRAGDON

Palace of the Soviets

Pictorial Review of the League Exhibition

Portfolio: Leaded Glass Medallions

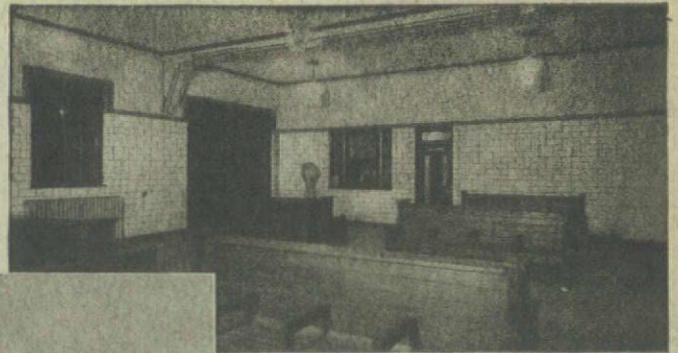
ONE DOLLAR PER COPY

CHARLES SCRIBNER'S SONS

FIFTH AVENUE AT 48TH ST., NEW YORK

23 BEDFORD SQ., LONDON

AR-KE-TEX Tile is Also Practical



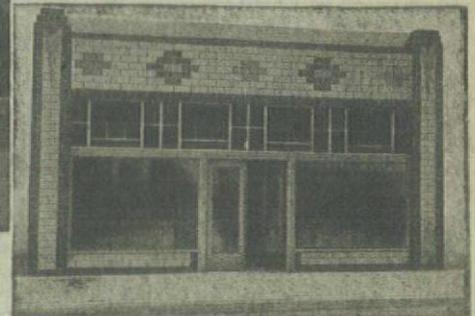
AR-KE-TEX Tile laid in Random Ashlar VI coursing was used to modernize and beautify the old passenger station of the Texas & Pacific Railroad at Sweetwater, Texas. The architect was Fred G. Shaw, T. & P. headquarters, Dallas.



AR-KE-TEX Tile was used for both interior and exterior walls in the sales and service building of the Roney Cramer Co. in Detroit. J.P. Melley,

architect. Pilasters and coping are of Black Tile. Cream Buff Stippled texture was used in the main wall sections.

The picture below, shows AR-KE-TEX Tile in Cream Buff Stippled and Green Matt textures in the front of the building of the Redeker Electric & Service Co., Corpus Christi, Texas.



for Store Fronts or Remodeling

THE imperishable beauty and strength which has caused leading architects to specify and use AR-KE-TEX Tile repeatedly in many very large projects, likewise makes it entirely practical for smaller operations or for remodeling.

The three buildings illustrated above are typical of the application of AR-KE-TEX Tile on smaller commercial buildings where a permanently sanitary wall finish, combined with structural strength, is desired.

AR-KE-TEX Tile combines all the requisites of a permanent, beautiful and practical wall material.

Whether used for interior or exterior construction, for partition or bearing walls, AR-KE-TEX Tile builds a permanently sanitary wall which will not craze, spall or discolor under the most severe conditions.

The beauty and unusual adaptability of AR-KE-TEX Tile lifts it above the ordinary wall material in quality. Its cost in the finished wall, however, is frequently less than that of materials which possess neither its beauty nor its permanence.

AR-KE-TEX Tile is manufactured and distributed by an organization ready to give prompt and helpful service on projects of any size.

See Catalog of
AR-KE-TEX Tile
in Sweet's.

THE AR-KE-TEX
CORPORATION



Factories and General Office
BRAZIL, INDIANA

National Distributors for Clay Products Co., Inc. of Indiana

THE STANDARD OF TEXTURED TILE

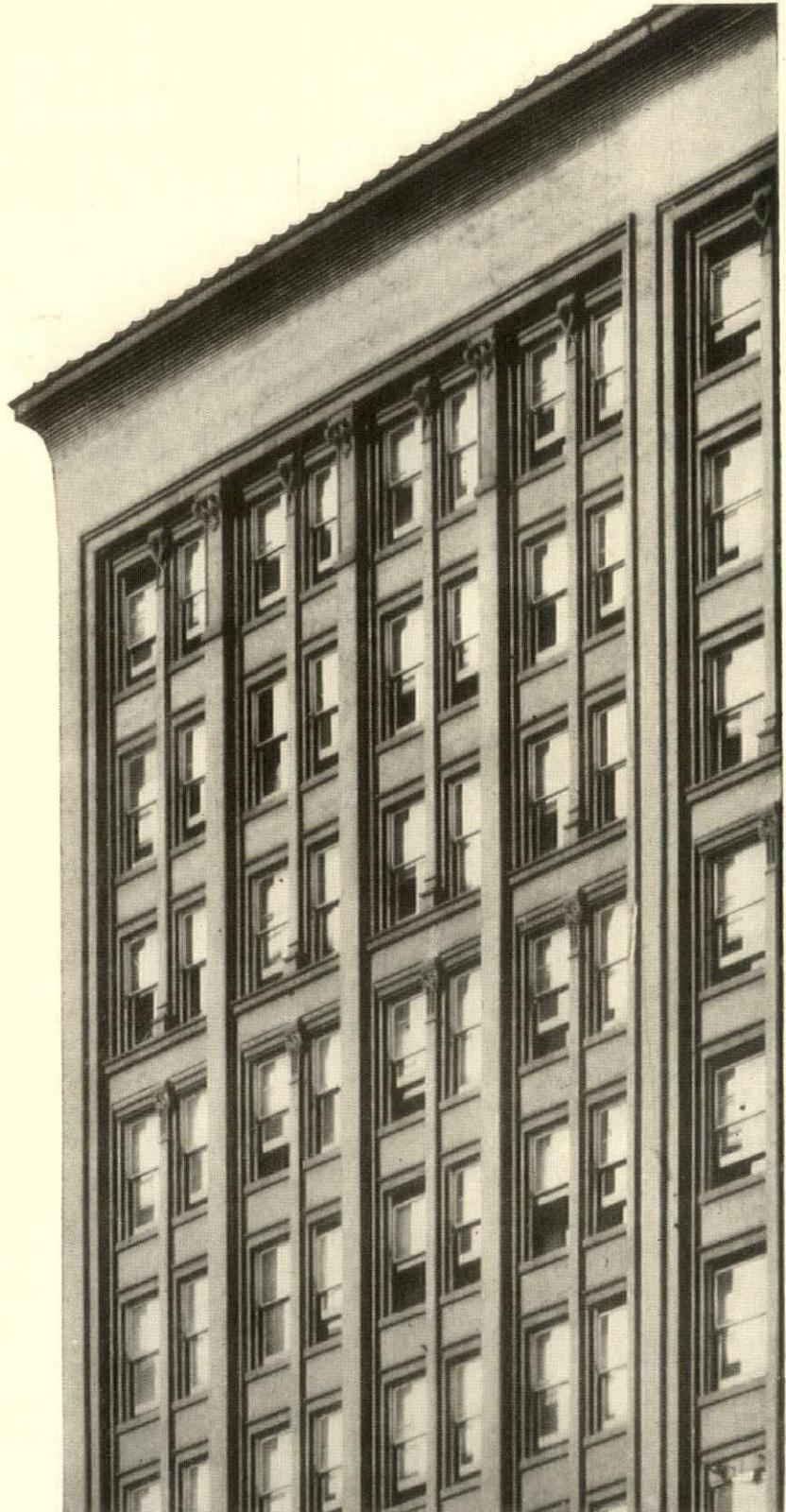
Elevators in the Rockefeller Building of Cleveland, Ohio, to be *modernized* —by Westinghouse

The installation of modern elevator equipment, together with complete new elevator enclosures of marble on the main floor and hollow metal on all the floors above, will enable the Rockefeller Building, constructed in nineteen hundred and four, to maintain its place and reputation for outstanding service.

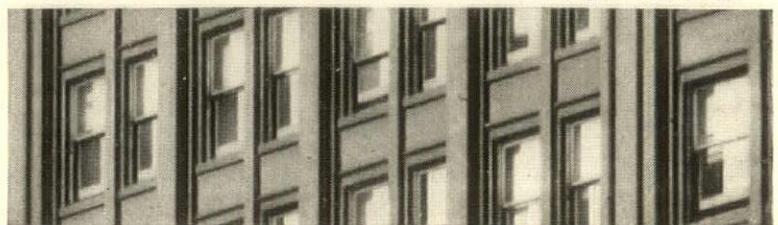
Westinghouse *offers complete co-operation in rehabilitation plans for elevators in older buildings—everywhere.*

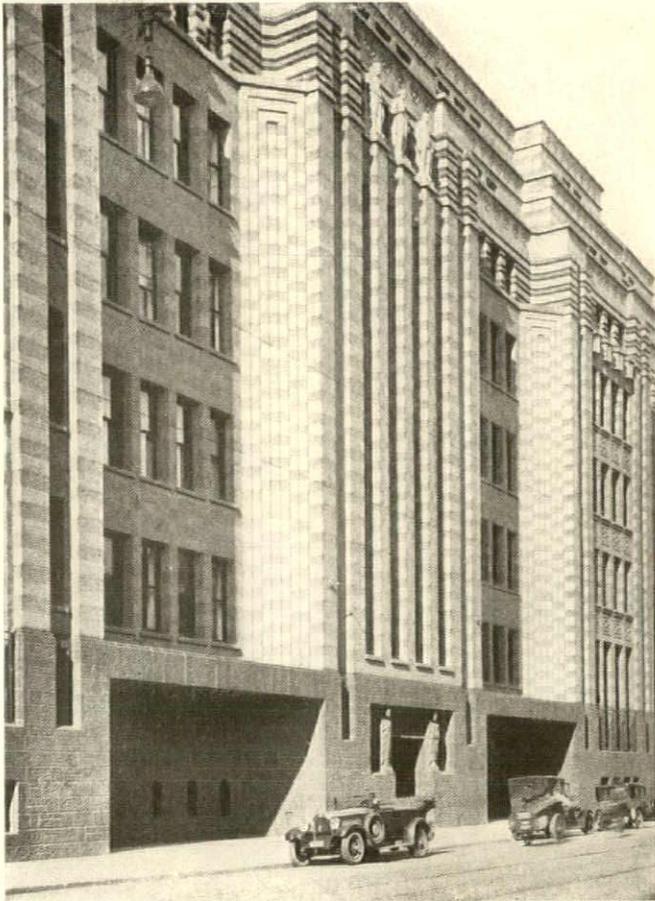


Rockefeller Building
Cleveland, Ohio



Westinghouse Electric Elevator Company





MODERN DUTCH BUILDINGS

BY F. R. YERBURY

A typical illustration reduced in size: Office premises of the Netherlands Trading Company, Amsterdam. The late K. P. C. de Bazel, architect.

The Modern Movement started in Holland by Berlage at the beginning of the century and developed with such success by the late de Klerk, has produced a school of architects who, working on consistent lines, have created a really national Modern Architecture. This volume will give full evidence of this. Although much of this work, which has been carried out in Holland, has been in connection with the great housing blocks, themselves deeply fascinating, there has been great activity in all kinds of buildings for schools—particularly interesting are those at Hilversum by Dudok—churches, libraries, office buildings, institutions, shops, etc.

100 plates of illustrations, including plans and many photographs taken by Mr. Yerbury for this volume.

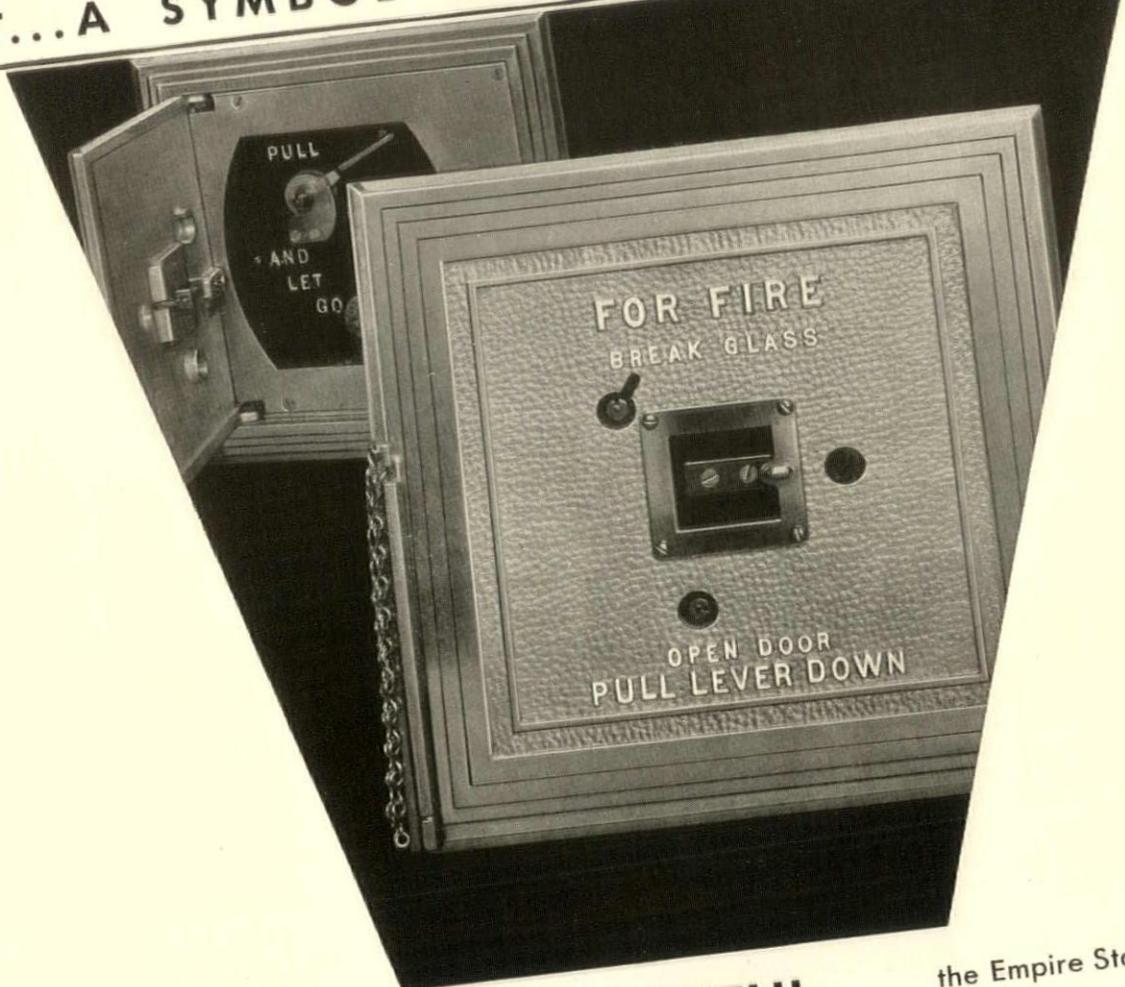
8½ by 11 inches.
Bound in linen boards.
Price, \$10.

Here and there are fine examples of commercial and industrial buildings in concrete, but in the main brick is the medium—brick used in such a way as to be the admiration of the whole architectural world.

CHARLES SCRIBNER'S SONS, NEW YORK

ARCHITECTURE, published by CHARLES SCRIBNER'S SONS, 507 Fifth Avenue, New York, N. Y. April, 1932. Volume LXV, No. 4. Published monthly on the 28th of the month preceding date of issue. Entered as second-class matter, March 30, 1900, at the Post-Office at New York, N. Y., under the Act of March 2, 1879. Yearly subscription rate to members of the architectural and allied professions, \$5; to all others, \$10.

A. D. T. ... A SYMBOL OF SECURITY SINCE 1873



▲ A.D.T. has a special department for cooperating with the architectural profession on matters pertaining to building protection. Not only can we bring reams of information to your drafting and specification men but we can manufacture apparatus to conform in design to the general scheme.

▲ We were privileged to manufacture special fire alarm boxes (illustrated) for

A USEFUL SERVICE FOR ARCHITECTS

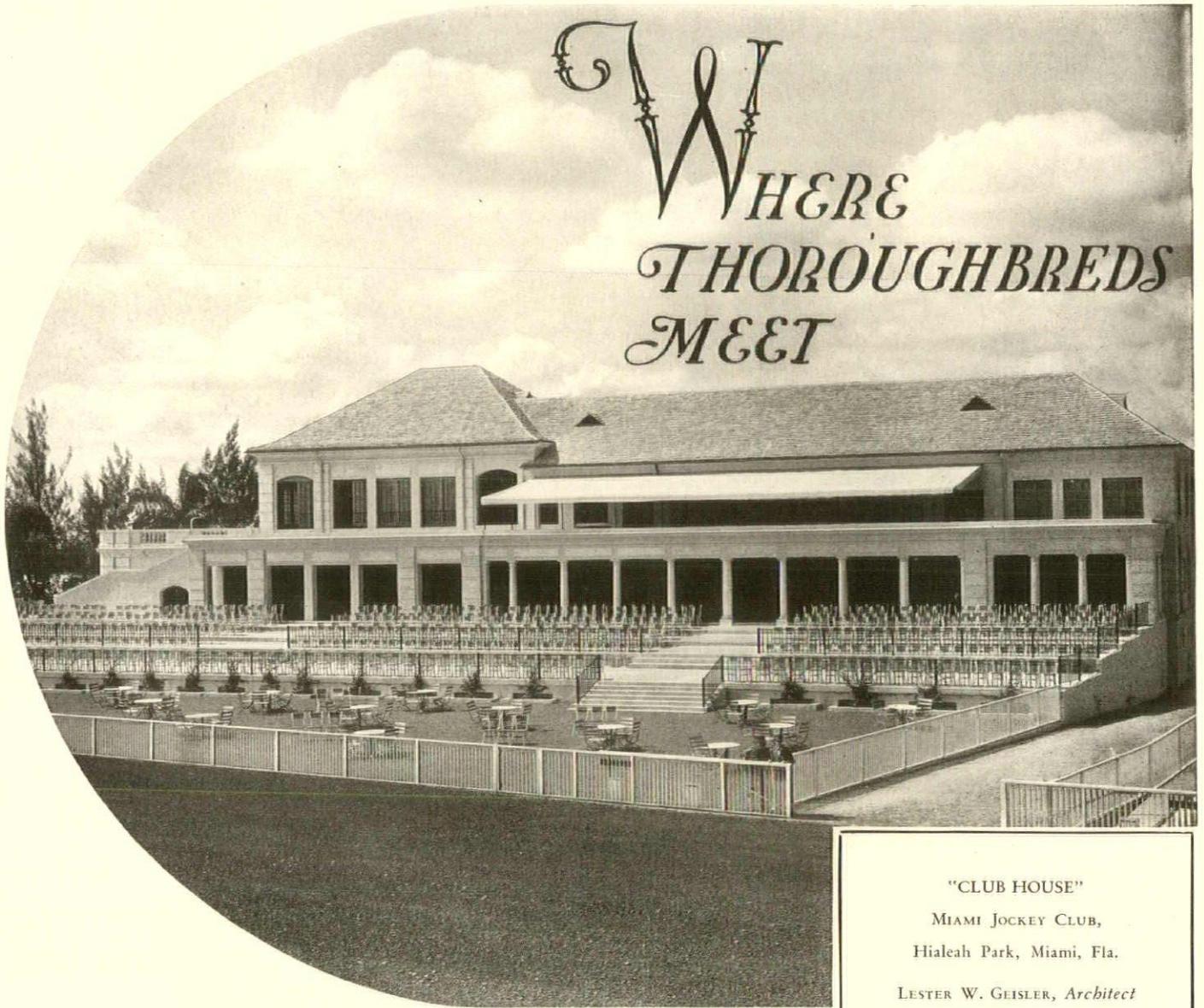
the Empire State Building, which had been designed by the architects, Shreve, Lamb and Harmon.

▲ Feel free to consult with us during the development of plans and specifications covering fire, sprinkler and watchman supervisory and alarm systems. No obligation, of course.

▲ Our catalog is in Sweet's and special bulletins are obtainable on request.

CONTROLLED COMPANIES OF
AMERICAN DISTRICT TELEGRAPH COMPANY
 155 SIXTH AVENUE · NEW YORK N.Y.





"CLUB HOUSE"

MIAMI JOCKEY CLUB,
Hialeah Park, Miami, Fla.
LESTER W. GEISLER, *Architect*
Palm Beach, Fla.

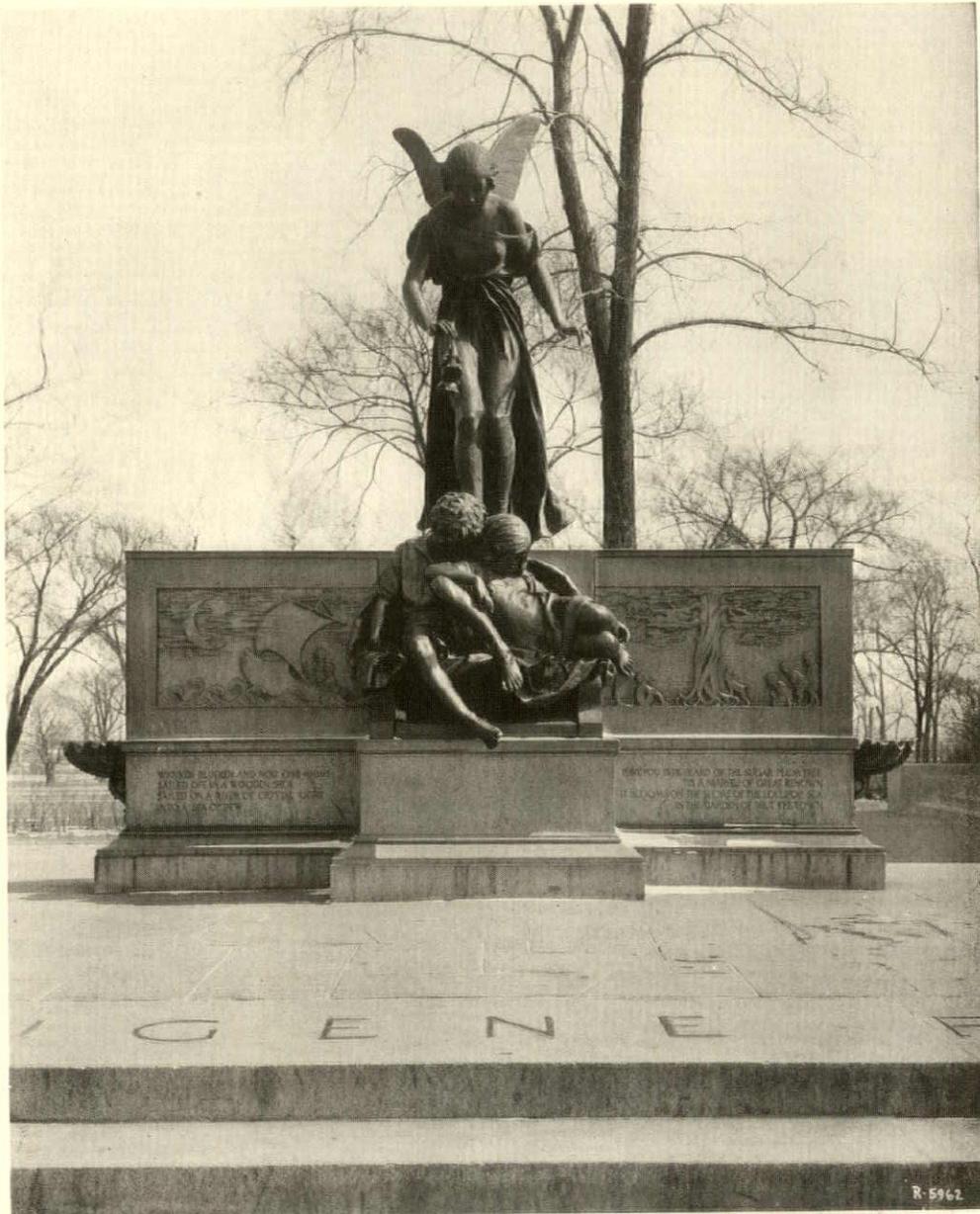
Florida . . . balmy sunshine, whispering breezes — thoroughbred horses — *tense moments* . . . and a truly European environment — to which the Hood "Normandy" Clay Shingle Tile Roofs add the distinguishing touch of Old World charm. "Normandy" Tiles, so mellow in tone and Mediterranean in character, are equally suitable to severe northern climates.

B. MIFFLIN HOOD CO.
DAISY, TENNESSEE

INQUIRIES ARE INVITED. ADDRESS DEPARTMENT "A," IF YOU PLEASE.



Closeup inset pictures the authentic European method of laying clay shingle tile in cement.



Memorial to Eugene Field at Lincoln Park, Chicago. Delano & Aldrich, Architects

THIS exquisite memorial speaks for itself. The pedestal is erected of Mohegan Granite. It is an outstanding example of what can be done in carving in Granite, insuring the perpetuation of the artist's lovely creation. Note Blinken and Nod's Wooden Shoe Boat and Sugar Plum Tree.

GRENCI & ELLIS

INCORPORATED

Mohegan Quarries
PEEKSKILL, N. Y.

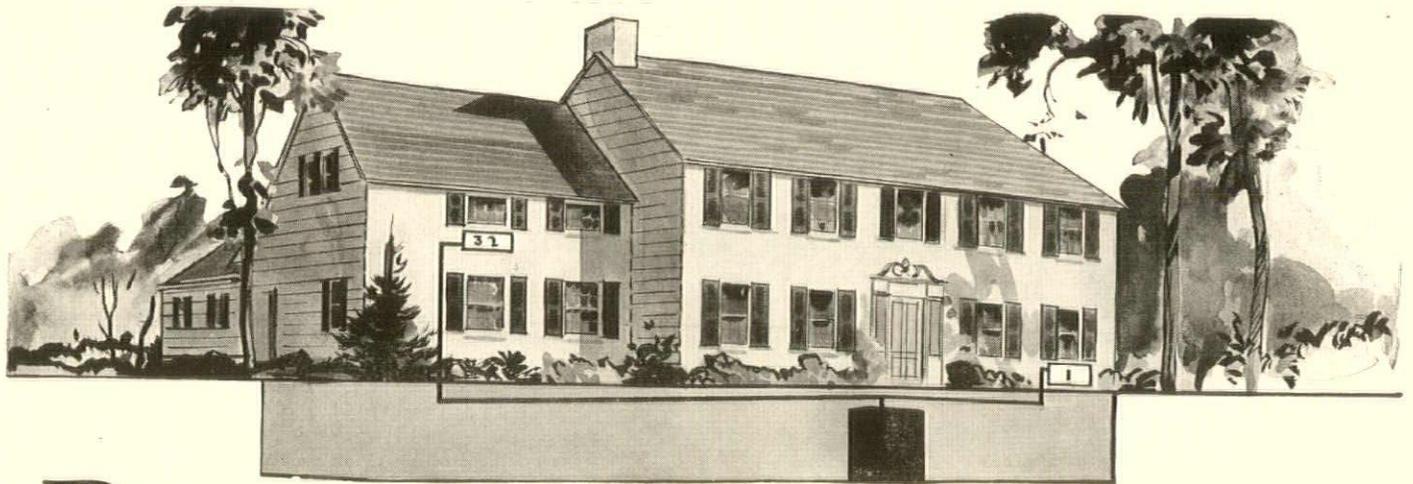
Cutting Sheds
PEEKSKILL

Mt. Waldo Quarries
FRANKFORT, MAINE

501 FIFTH AVENUE

TEL. MURRAY
HILL 2-0922

NEW YORK CITY



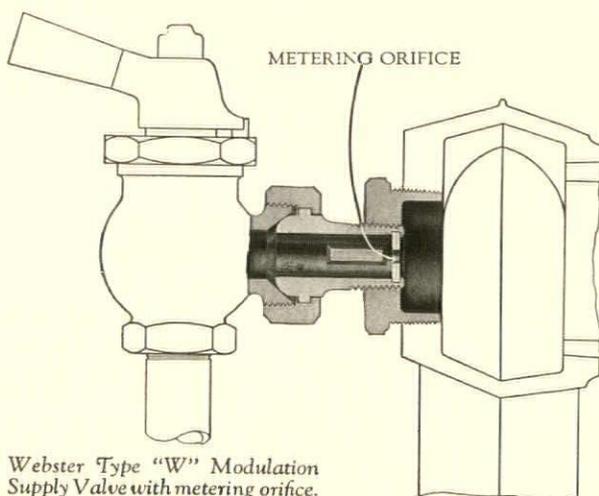
Radiator No. 1 and Radiator No. 32

each receive steam at the same time . . .

with the IMPROVED Type "R" System

No matter what its distance from the boiler, every radiator in the IMPROVED Webster Type "R" System gets a "square deal"—each receiving steam at the same time and in substantially the same proportion as all the others.

This remarkable improvement in steam heating is accomplished in this manner: Radiator No. 1, nearest the boiler, is equipped with a very small orifice. When steam reaches it the amount that



Webster Type "W" Modulation Supply Valve with metering orifice.

can enter is correspondingly restricted. As a result the steam soon flows on through the piping to the next radiator where the restriction of the orifice is slightly less, because the pressure of the steam as it reaches this further point is lower. So it goes, radiator by radiator, to the furthest point—the "pressure drop" to each radiator being equalized or balanced by installation of properly sized metering orifices.

The improvement in heating service effected by this new Webster development will be evident to all architects and heating contractors as well as owners who know the limitations of the older type systems—systems now rendered obsolete by this new standard . . . Quick heating-up, more even room temperatures, better control with the newer fuels, the newer types of light-weight radiation and the new regulating devices. Better performance too, with the older fuels and cast iron radiation. This new improvement can be incorporated in existing installations also, and at small cost.

To Get This Improvement

All that is necessary to assure your clients of the marked advances in heating comfort and economy afforded by the Improved Webster Type "R" System is to incorporate three short paragraphs in your present standard Webster specification. Bulletin containing these paragraphs will be sent upon request, together with complete information. The coupon below is for your convenience.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada

-since 1888
Webster
Systems of
Steam Heating

WARREN WEBSTER & COMPANY, Camden, New Jersey:

Please send me your Bulletin describing the IMPROVED Type "R" System including suggested specification paragraphs.

Name Address City

THE BULLETIN - BOARD

THE BICENTENNIAL CONFERENCE ON THE NATIONAL CAPITAL

ELEVEN national organizations will meet in Washington during the last week in April to inaugurate a movement aimed, with the aid of Congress, "to exert the full force of intelligent professional opinion" in carrying out the building of Washington in accordance with the L'Enfant plan. Horace W. Peaslee, vice-president of the A. I. A., has been named chairman of the committee, and Gardner S. Rogers, a director of the City Planning Institute, is secretary. The organizations are: the American City Planning Institute, the American Civic Association, the American Federation of Arts, the American Institute of Architects, the American Society of Civil Engineers, City Planning Division; the American Society of Landscape Architects, the Association of the Alumni of the American Academy in Rome, the Garden Club of America, the American Society of Mural Painters, the National Conference on City Planning, the National Sculpture Society.

It is hoped that out of the conference will develop in each organization a committee on the National Capital similar to the nationwide committee of the American Institute of Architects; and that their work may be co-ordinated by a central committee of the group chairmen, so that the full force of intelligent professional opinion may be exerted as occasion arises.

The Sixty-fifth Convention of the American Institute of Architects is to be held in Washington, April 27, 28, and 29.

SMALL-HOUSE COMPE- TITION

THIRTY-SEVEN prizes were awarded in the competition for designs for small houses suitable for mass production. The competition was arranged by the Architects' Emergency Committee, Architectural League of New York, for the benefit of unemployed architectural draftsmen in the metropolitan area. In addition to cash prizes, the winners of the first four places in the competition will receive employment.

Money to finance the prizes was raised through admission fees to an exhibition of architecture by Joseph Urban.

There were one hundred and

ninety-two entries in the contest, and because of the number, the jury awarded thirteen more prizes than were announced originally. The jurors were Ely Jacques Kahn, chairman; Harvey Wiley Corbett, Ralph T. Walker, Raymond M. Hood and Joseph Urban.

The first four prize winners are S. Clements Horsley, New York, first prize, \$100; Erik Kaeyer, Yonkers, second prize, \$75; John Donald Tuttle, New York, third prize, \$50; and Anthony A. Lione, Sunnyside, L. I., fourth prize, \$40.

Thirty-three additional prizes of \$25 each were awarded.

NEW YORK'S NEW BUILDING CODE

SINCE 1928, committees of The Merchants' Association have been engaged in the revision of New York's outworn building code. What seemed at that time to be a need of revision, turned out, upon further investigation, to be a need for a complete new code. Such a code has been drafted and presented to the Mayor, in whose hands it now awaits adoption.

An early conclusion of the committee, under the chairmanship of John Lowry, was that it was highly desirable to avoid progressive obsolescence in the future by making the new code so flexible in form that it could be kept abreast of progress in the art of building construction. This it is proposed to do by a more extensive application of a method already used in limited fashion in the old code. This method is to have those provisions which are general, basic, or so thoroughly established in practice as to be extremely unlikely to change, enacted as ordinance provisions, and those which are technical, detailed applications of such basic principles, or likely to change as a result of research and invention, enacted as rules provisions. Either type of provision is subject to amendment by the Mayor and Board of Aldermen at any time, but the rules are also subject to change by the Board of Standards and Appeals or whatever body takes over the standard-making function of that board. For years plumbing and elevators have been installed under rules adopted in this manner, so that only the extent of its application is new. To the designer, contractor, or other user of the code it is immaterial whether a given section is an ordinance or a

rule, because it has the full force of law in either case.

It was also concluded to follow the uniform plan of arrangement for building codes suggested by the Department of Commerce and to use the decimal classification system of numbering the sections, not only because of its great flexibility and the indication which it gives as to the relationship of any section to the whole, in sharp contrast to the meaningless numerical sequence in the present code, but also because it is admirably suited to bring together the ordinance and rules sections in logical order.

With Mr. Lowry there were associated, at the outset, six men representing architects, engineers, contractors, who acted as chairmen of sub-committees, and who later expanded their own committees as seemed wise. These men are: Robert D. Kohn, R. H. Shreve, Henry C. Turner, Francis Y. Joannes, Theodore I. Coe, and Clyde R. Place.

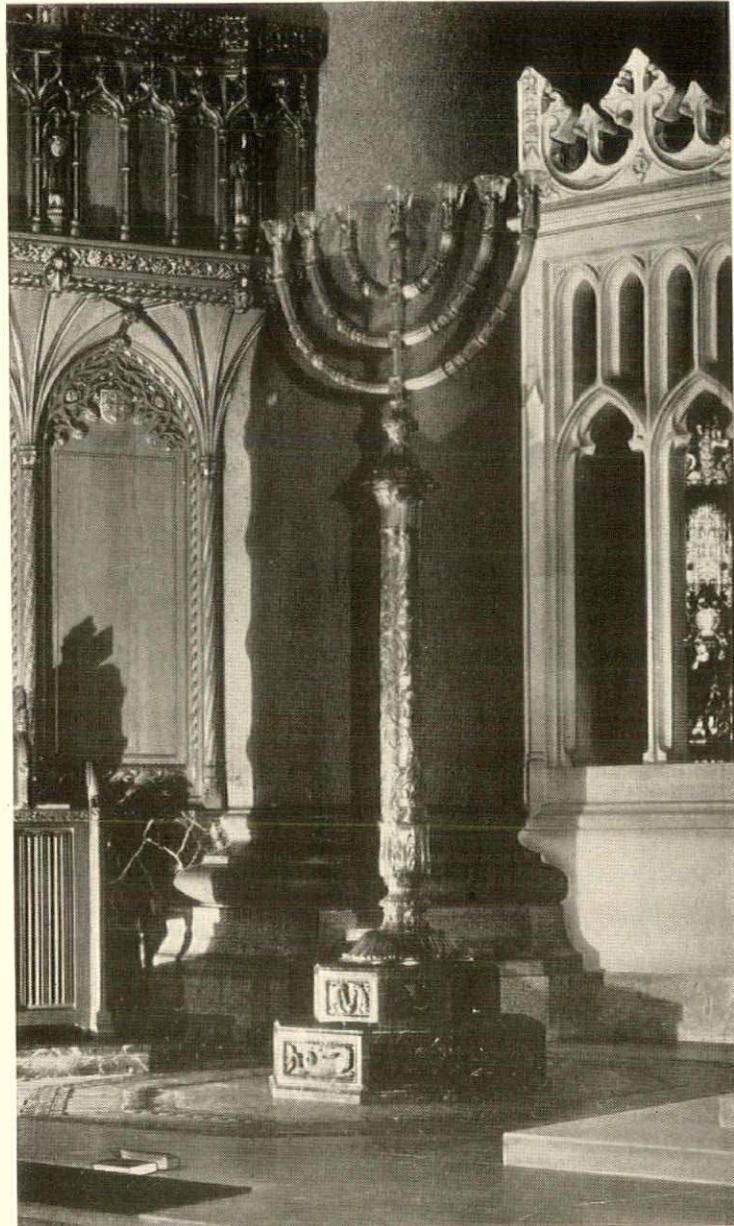
EMPIRE STATE WINS ANOTHER PRIZE

THE Fifth Avenue Association has awarded its 1931 Gold Medal and diploma to the Empire State Building. The owners of the building represented by former Governor Alfred E. Smith received the medal, and the certificate was presented to the architects, Shreve, Lamb & Harmon.

SPRINGFIELD SMALL-HOUSE HONORS

THE Springfield (Mass.) Republican has been sponsoring a competition annually with the aim of calling attention to the outstanding architectural examples among houses in that community. This year the awards were as follows: First Prize, \$200, for houses costing not more than \$10,000, to Dr. and Mrs. Stanley R. Dixon for "Pondsbank," P. M. Larson, architect. Second Prize, \$100, to Mr. and Mrs. Seymour P. Robinson for their house designed by O. E. Hermes, architect. In the classification costing over \$10,000 and not more than \$18,000, first prize of \$200 to Mr. and Mrs. George Heckman for their house designed by B. Hammett Seabury Company; second prize of \$100 to Mr. and Mrs. John L. Blake for their house designed by the same company.

(Continued on page 9)



Bronze, Gold Plated,
Height 9' 0", Spread
4' 2"

CRAM & FERGUSON,
Architects

CANDELABRUM
Made for the Cathedral of St. John the Divine

THE GORHAM COMPANY

ECCLESIASTICAL STUDIOS

6 WEST 48TH STREET

NEW YORK

Designers and Manufacturers of Fine Ecclesiastical Wares
Marble Altars, Fonts, Lecterns, Communion Tables, Stained Glass Windows, Chancel Furniture,
Individual Communion Ware in Gold, Sterling and Electro Plate

We would appreciate the opportunity to design and estimate without obligation on your part.

Mid-Western Representatives

SPAULDING-GORHAM, INC.

MICHIGAN BOULEVARD

CHICAGO, ILLINOIS

THE BULLETIN - BOARD *Continued*

A certificate of honor for a house of notable excellence without limit of cost was awarded to Mr. and Mrs. Dixon.

The committee engaged Henry R. Shepley, of Coolidge, Shepley, Bulfinch & Abbott, as professional advisor, and adopted his recommendations in the awards.

THE MODERN ARCHITECTURE TOUR

TALBOT FAULKNER HAMLIN, architect and lecturer on the history of architecture at Columbia University, will conduct a group abroad this summer with the particular purpose of studying modern architecture in Europe. The party will sail June 25, from New York, on the *S. S. St. Louis*, returning on the *S. S. Deutschland*, August 19. Further information may be had from Mr. Hamlin, 19 West 44th Street, New York City.

OIL-BURNER SHOW IN BOSTON

HERETOFORE the annual Oil-Burner Show, held by the American Oil Burner Association, has been open only to members of the association. Under a new plan the membership requirement for accessory or association exhibition is waived, although the privilege of exhibiting oil burners will be confined to members as heretofore. Headquarters have been established in the Hotel Statler for members of the association, who will hold the annual convention during the week of the show, April 11 to 16. The general public will be invited to view the exhibits without charge for admission.

A NEW LEAD-PIPE STANDARD

THE Lead Industries Association has approved a new standard of lead-pipe sizes which is being adopted by the principal manufacturers as an aid to consumers. In addition to eliminating numerous variations in pipe sizes, an outstanding feature of the new standard is that all sizes of lead pipe in the A, AA, and AAA classifications (or "Strong," "Extra Strong," and "Double Extra Strong") will safely withstand constant cold-water pressures of 50, 75 and 100 pounds per square inch, respectively. Heretofore the safe working pressure of these classes of lead pipe has de-

creased as the diameter of the pipe has increased. The principal changes occur in diameters of 1 inch to 2 inches. Alterations made in sizes below 1 inch are of minor importance and small in number but have been made to introduce a uniformity which does not now exist among the lead-pipe sizes of various manufacturers.

UNIVERSITY OF MICHIGAN

THE College of Architecture of the University of Michigan will again conduct summer classes this year. These will continue from Monday, June 27, to Friday, August 19, instruction being given in architectural design and in outdoor drawing and painting.

The advanced architectural design will be taught by Mr. Roger Bailey, Paris Prize 1922, who, in association with Mr. Eric Gugler, won the first prize in the nation-wide competition for the Chicago War Memorial. Professor Wells I. Bennett will teach the other courses in design, Professor Jean Paul Slusser conducting the class in outdoor sketching, most of which is done in water-color.

By recent action of the Board of Regents of the University of Michigan, the College of Architecture has been made a separate school of the university, with Professor Emil Lorch as director.

PRINCETON PRIZES IN ARCHITECTURE, 1932-1933

TWO competitive prizes of \$800 each, in the School of Architecture, Princeton University, are announced for the year 1932-33. The purpose of these prizes is to permit men of unusual ability, who desire to complete their professional training, to profit by the opportunities offered by the School of Architecture, the Department of Art and Archæology, and the Graduate School, of Princeton University.

The prizes will be awarded as the result of a Competition in Design to be held from 9:00 A. M., May 20, 1932, to 9:00 A. M., May 30, 1932. The right is reserved to withhold either or both awards in case no candidates are considered to have reached the required standard. The

winners will devote the following school year to the study of advanced architectural design, and such other subjects as they may elect. They are exempt from tuition fees.

Candidates for these prizes shall be unmarried male citizens, not less than twenty-one nor more than thirty years of age on September 1, 1932, who have been employed as draftsmen in architects' offices for not less than three years, or who have otherwise demonstrated their ability in architectural design.

Applications to enter the competition for the prizes must be filed on or before April 20, 1932.

For application blanks and regulations governing the competition and award, address the Director, The School of Architecture, Princeton University, Princeton, N. J.

COMPETITION FOR PLYWOOD INTERIOR

DOUGLAS FIR PLYWOOD manufacturers announce a competition for practical and attractive uses for any of the following interiors: attic bedroom; basement recreation; kitchen and breakfast nook; camp cottage to include sleeping, cooking, and living facilities. The prizes offered total \$1,500. Full details may be obtained by writing Douglas Fir Plywood Manufacturers, Skinner Building, Seattle, Wash. The competition closes June 15.

PERSONAL

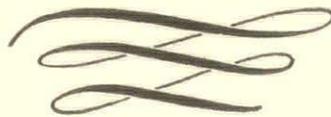
The offices of Vincent Palmer architect and civil engineer, have been moved to the Coyne Building, 116 North Larchmont Boulevard, Los Angeles, Calif.

James R. Tyles, architect, announces the removal of his offices to 147 Parkdale Terrace, Rochester, N. Y.

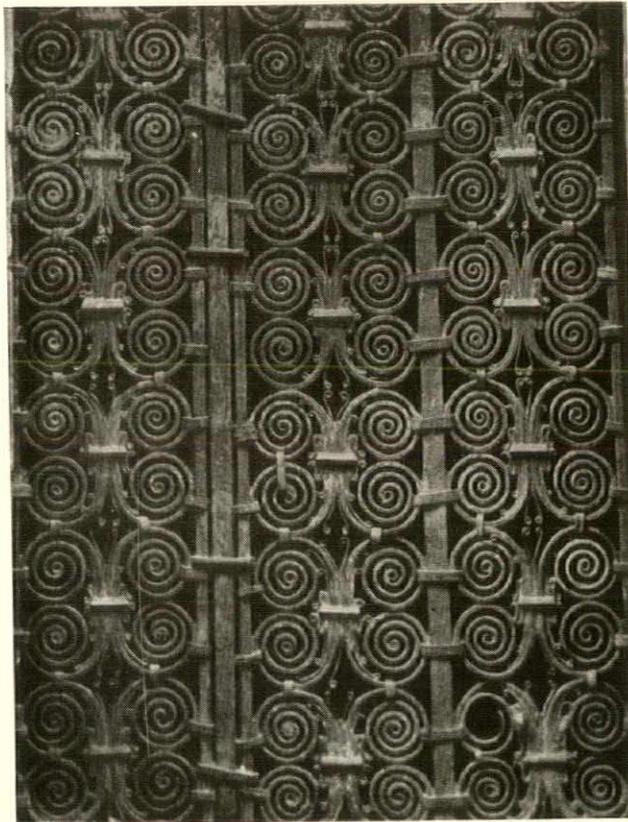
The firm of Denison B. Hull & Stanley W. Hahn, associated architects, will be dissolved on April 1, 1932. Mr. Hull will continue the practice of architecture at their present address, 77 West Washington Street, Chicago, and Mr. Hahn will practice at 6 North Michigan Avenue, Chicago.

Chesley Bonestell, former associate of Willis Polk, has returned to San Francisco, and is residing at 2743 Dwight Way, Berkeley.

R. C. Reamer, architect, has moved to 1201 Fourth Avenue, Seattle, Wash.



Spain gives us this example of
WROUGHT IRON
THE KIND THAT
 HIGHLAND MAKES
over 600 years old



This photograph, from "Wrought Iron in Architecture" by G. K. Geerlings, appears through the courtesy of the publishers, Charles Scribner's Sons

*Portion of Window Grille, West Facade,
 S. Maria del Mercado, Leon*

This is a most illuminating instance of Wrought Iron endurance—not only because of its 600 years of existence but because the diminutive scrolls set between the larger ones are still in excellent condition. Some are bent but few are missing. What a demonstration of economy to men who are now making metal replacements after only a few years of corrosion have made this expense necessary!



Long centuries before modern metallurgists had told us of the iniquities of Corrosion (Progressive Corrosion Fatigue), simple, observant men knew that Wrought Iron endured as other metals did not. Which, after all, is sufficient knowledge to enable today's metal purchaser to effect important and continuous savings for his company.

Why blink the fundamental fact that Wrought Iron resists successfully rain, salt air, smoke and fumes? Why remain indifferent to the fact that you're losing heavily by neglecting to investigate Wrought Iron? Why in these times of stringent economy pay your share of the annual rust tax of around \$500,000,000?

Wrought Iron cannot be used everywhere. But it has its place—in which no other metal, dollar for dollar, can give anything like comparable service.

We are ready to help you apply Wrought Iron to your uses. The kind of Wrought Iron that has survived the centuries—the kind Highland makes today.

Our suggestions involve no obligation on your part. Write us at once—tell us how you use metal—let's see whether Highland Wrought Iron can cut your rust losses.

THE HIGHLAND IRON & STEEL COMPANY

General Sales Office:
 400 West Madison Street, Chicago



*An Associate
 Company of the
 American
 Chain
 Company, Inc.*

**HIGHLAND
 WROUGHT IRON**

**IN CONSTRUCTION
 AND DECORATION**

Architects are realizing, as perhaps never before, the place of Wrought Iron in construction and for interior and exterior decoration. Sash of Highland Wrought Iron are coming into general use. They are especially desirable where smoke and fumes cause rapid corrosion. But even rust from moisture has come to be a serious problem. Sash of less resistant metals than Wrought Iron are showing signs of deterioration after only a few years' service. This is only one of the many applications of Wrought Iron in which economy can be assured.

ARCHITECTURE

REG. U. S. PAT. OFFICE

THE PROFESSIONAL ARCHITECTURAL MONTHLY

VOL. LXV, NO. 4

CONTENTS

APRIL, 1932

	PAGE		PAGE
Frontispiece: Scenes That Pass in the Night <i>From the drypoint by Gerald K. Geerlings</i>		Some Pitfalls in Supervision: XIX, Painting	223 223
Prefabrication and the Small House 187 <i>William H. Ham, director of the Bridgeport Housing Company, writes from a wealth of experience in building economically what people want for homes</i>	187	<i>W. F. Bartels continues his practical advice to the man supervising the job</i>	
Architectural News in Photographs 200 <i>A few preliminary perspectives, a few photographs of recently completed work throughout the country</i>	200	The Architectural Observer 225 <i>A new department in which you may find from month to month something that is interesting, constructively suggestive, or both</i>	225
Book Reviews 202	202	The Editor's Diary 226	226
The Palace of the Soviets, Moscow 203 <i>Winning drawings of Hector O. Hamilton, together with those of Joseph Urban and Thomas B. Hibben</i>	203	Working Drawings: XXIII 228 <i>Jack G. Stewart unfolds some of the ways in which roof flashing may be made effective</i>	228
The Problem of Ornament, I 205 <i>Claude Bragdon has discovered sources of ornament in mathematical relationships which he explains in text and drawings</i>	205	Le Puy 229 <i>Three pencil sketches by Gordon H. Kunz, reproduced almost in facsimile</i>	229
The Architectural League Exhibition 209 <i>A pictorial survey attempting the difficult task of reproducing a comparatively few of the many highlights</i>	209	Contacts: 231	231
Architecture, Sculpture, and Painting 217 <i>A series of before-and-after photographs indicating the finished results of collaboration in the Elks National Memorial, Chicago</i>	217	A Score Card for a House <i>A tentative suggestion from the President's Conference on Home Building and Home Ownership as to a practical method of rating</i>	
		A New Type of Concrete Construction <i>Norman V. Davidson describes a method of using pre-cast wall slabs now employed at San Diego</i>	
		ARCHITECTURE'S Portfolio of Leaded Glass Medallions 233 <i>A collection of sixty photographs</i>	233

ARCHITECTURE is published monthly, appearing on the 28th of the month preceding date of issue. Price mailed flat to members of the architectural and allied professions, to any address in the United States, \$5 per year in advance; to all others, \$10; add \$1 for Canadian postage and \$2 for foreign postage. Single copies, \$1. Advertising rates upon request. Entered as second-class matter, March 30, 1900, at the Post-Office at New York, N. Y., under the Act of March 2, 1879.

Copyright, 1932, by CHARLES SCRIBNER'S SONS. All rights reserved.

CHARLES SCRIBNER'S SONS, PUBLISHERS

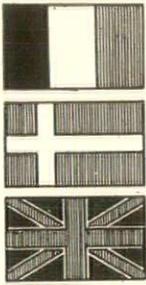
ARTHUR H. SCRIBNER, *President*

CHARLES SCRIBNER, JR., EDWARD T. S. LORD, WHITNEY DARROW, *Vice-Presidents*

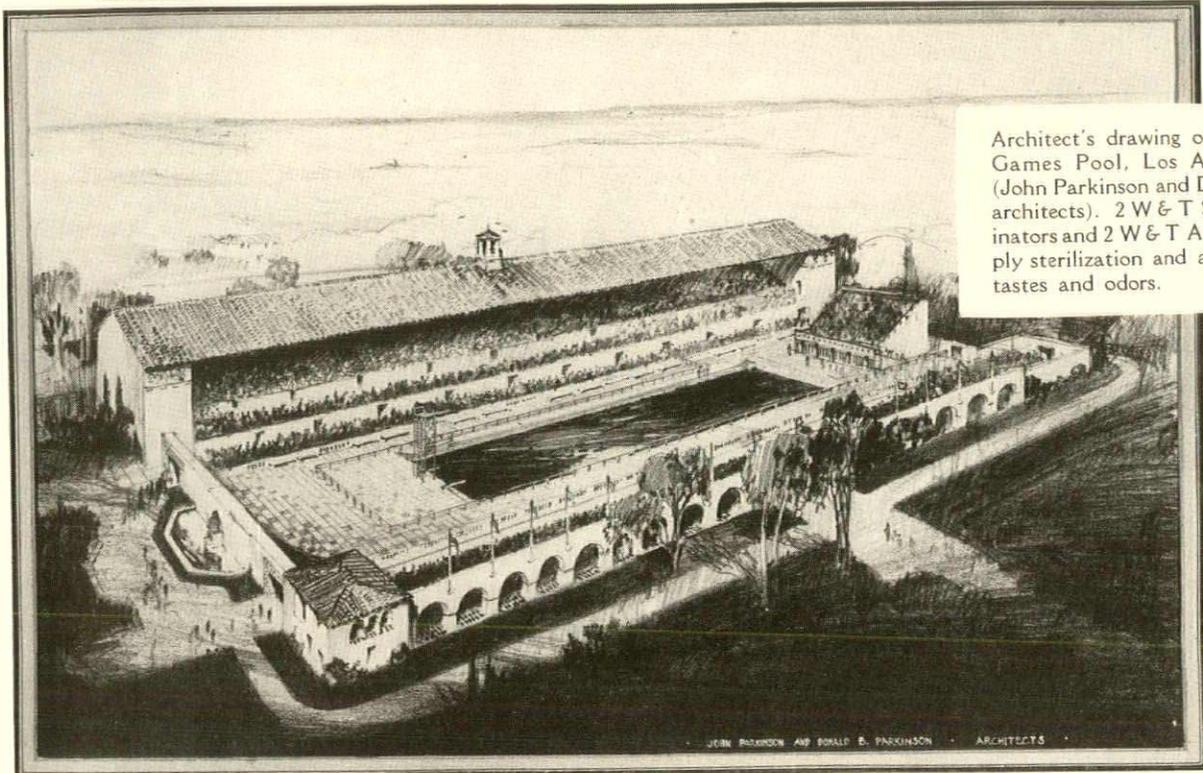
GEO. R. D. SCHIEFFELIN, *Treasurer*

MAXWELL E. PERKINS, *Secretary*

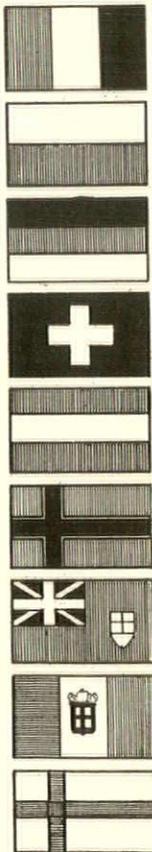
NEW YORK: 597 FIFTH AVENUE AT 48TH STREET



CHLORINATED POOLS . . . AS INTERNATIONAL AS THE OLYMPIC GAMES



Architect's drawing of the 1932 Olympic Games Pool, Los Angeles, California (John Parkinson and Donald B. Parkinson, architects). 2 W & T Solution Feed Chlorinators and 2 W & T Ammoniators will supply sterilization and a pool free of algae, tastes and odors.



LOS ANGELES—host to the 1932 Olympic Games—will welcome the swimmers of all nations in a chlorinated pool. From many climates and from many foreign straight-a-ways they gather to compete in a new pool, sterilized by the same method used in their homelands.

Every swimmer will be protected by the residual sterilizing action of chlorine. And ammonia—applied in conjunction with chlorine—will maintain the pool water free of algae, tastes and odors.

Throughout the world, important pools—and even the smallest private plunges, rely on W & T chlorinators for accurate, dependable chlorination. Over 3000 in daily use—each an assurance of adequate sterilization.

When writing for Technical Publication 41, ask for the complete W & T Swimming Pool Series—eight separate reviews of purification problems peculiar to different classes of pools.



"Swim in Drinking Water"

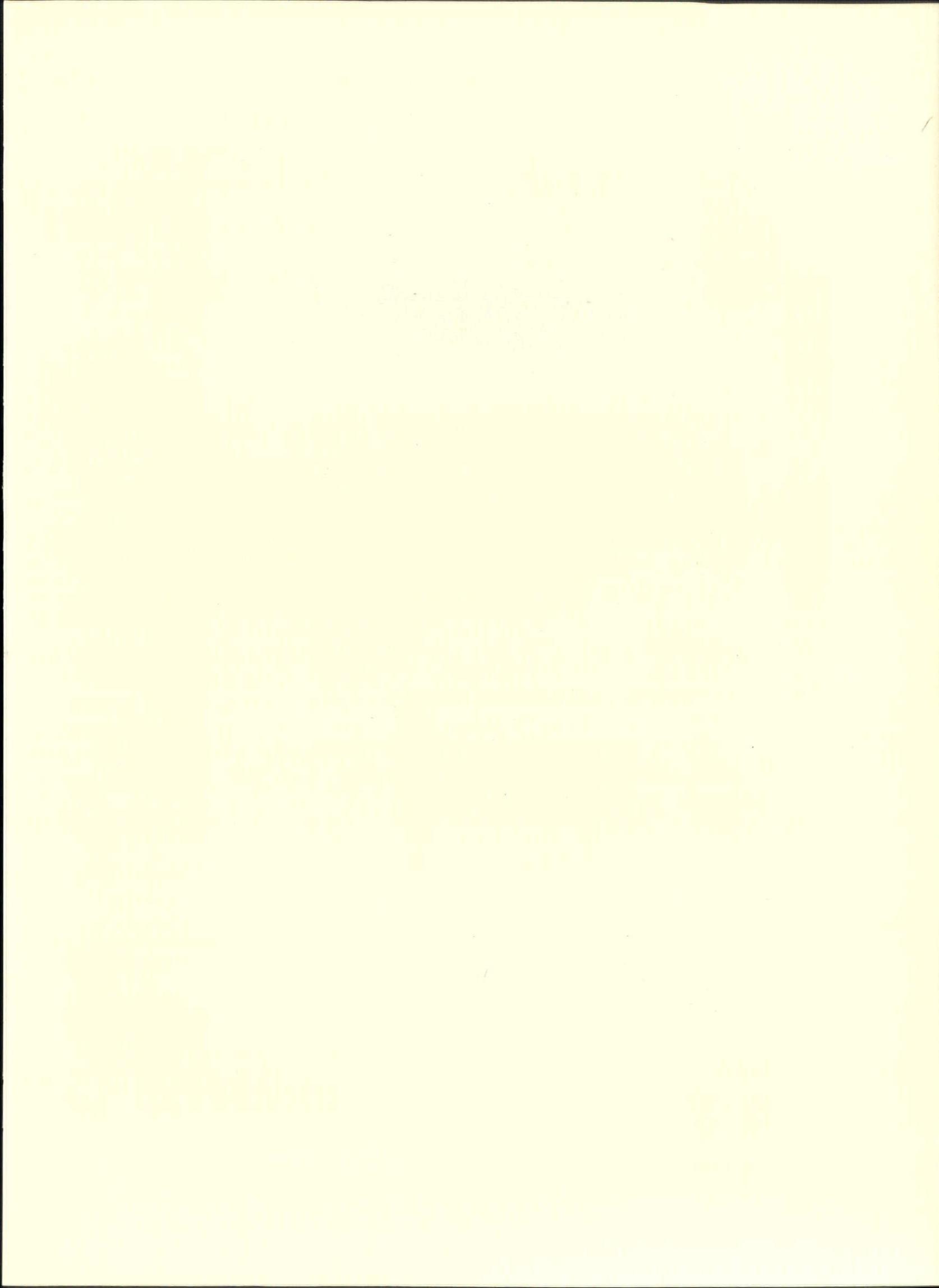
WALLACE & TIERNAN CO., INC.

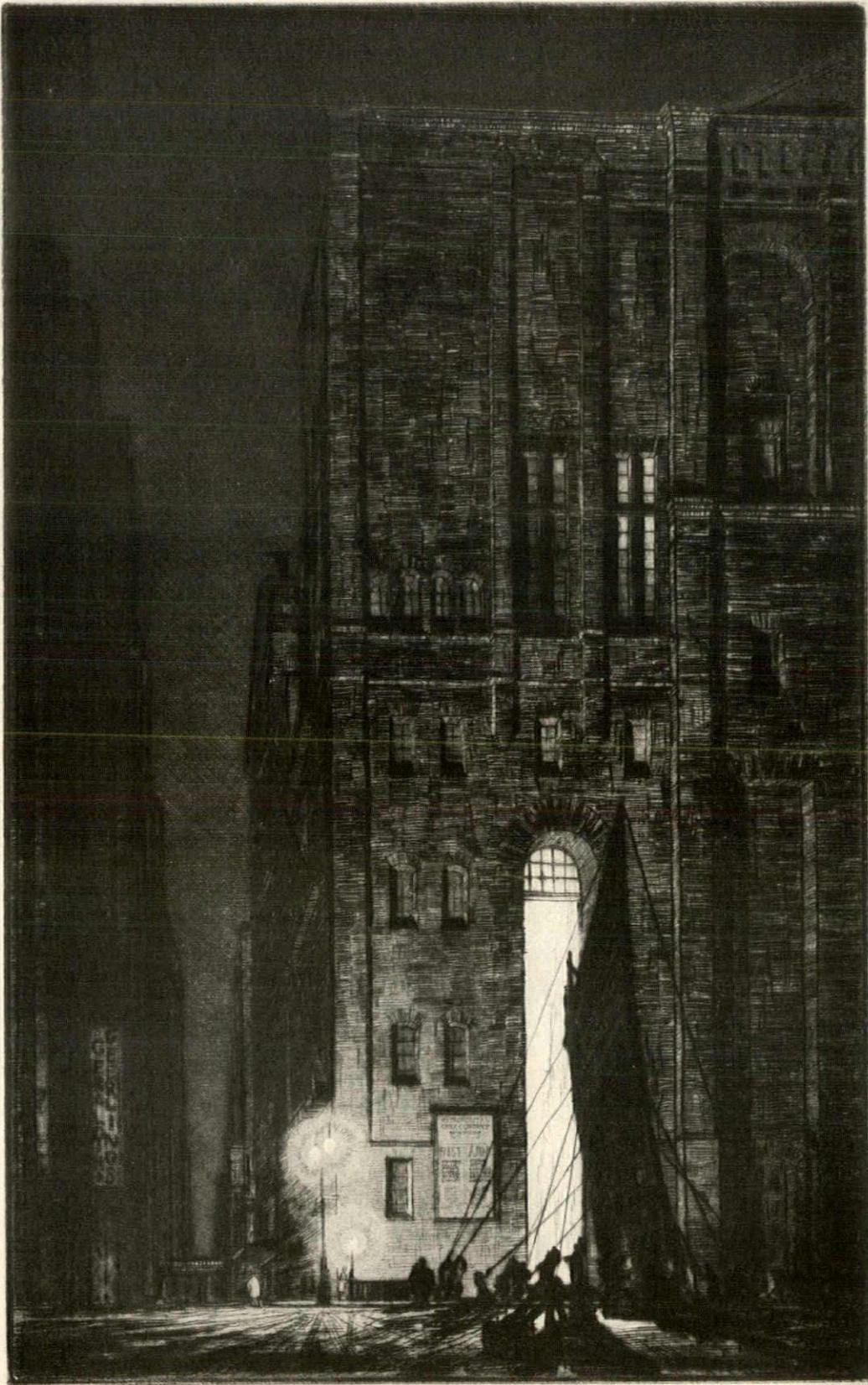
Manufacturers of Chlorine and Ammonia Control Apparatus

NEWARK, NEW JERSEY

Branches in Principal Cities

Main Factory—BELLEVILLE, NEW JERSEY





Acquired by the
South Kensington
Museum, London,
in the summer of
1931.
One of Fifty
Prints of the Year,
1932.

SCENES¹
THAT PASS
IN THE
NIGHT

*From the
drypoint
by
Gerald K.
Geerlings*

By courtesy of Kennedy & Co.

ARCHITECTURE

❖ VOLUME LXV

APRIL 1932

NUMBER 4 ❖

Prefabrication and the Small House

By *W. H. Ham, C.E.*

It is difficult to discuss relativity without mentioning Einstein; it is difficult to discuss housing without mentioning William H. Ham. As director of the Bridgeport Housing Company, he has been working at his problem since before the war, and he is working at it to-day. Few men have had his opportunities of learning what sort of homes people want and how to produce them. You will read here no mere imaginings of a theorist; here is an authenticated vision of to-morrow.

—EDITOR.

I AM committed, after ten years of study, fundamentally and absolutely to the belief that we can prefabricate 90 per cent of a house in the factory, assemble it, and make it a permanent, attractive, useful home. We know now enough about our requirements so that we need not make great errors in decision as to what type, size, or kind to build, and we have a sufficient history in our own national life to guide us in the selection of styles to be safe for a long-time investment.

We must pay our institutions which assemble and guard the money of those who save a fair return on the use of this money. If we are wise and careful of the future of our investments, we must set aside each year a fund to take care of depreciation, obsolescence, and other items unforeseen.

Roughly stated to-day, this means the bonds must pay an interest of 6 per cent. The more risky portion of the investment can be found in quantity at 8 per cent, and assurance against depreciation, obsolescence, and other items threatening our future investment ought to be at about 2 per cent of the cost of the structure.

I present specifications of these items, each of which is a fundamental part of the economics of the problem:

- (1) Every home shall have a front and back door independent of every other home.
- (2) Every home shall have a yard of its own.
- (3) Every window shall let in sunlight every day.
- (4) No design shall be used in creating these homes which has not had a precedent satisfactory from the standpoint of art and structure for the last one hundred years in America.

With these specifications we ought to proceed immediately to the analysis of the problem; find out what we can prefabricate and how we can do it; what we shall pay these men and women who work in the prefabricating shops; what form of working conditions they shall have so as to make them happy in their work.

If we do this, we shall find that men and women, working under the conditions which can be developed in the prefabricating shops and in the transportation and erecting departments, will have a continuity of work of proper division among those qualified for the right kind of a job, and be free from seasonal shutdowns. They will be perfectly satisfied with their wage, about one-half the hourly rate paid to the vagabond mechanics who build the house to-day, and about equal to the average annual wage received by these same vagabond mechanics.

I am very sure that these workers will produce, with their machines and their scheduling, at least double the amount of work per person that the vagabond mechanic, in his honest effort to produce, can actually deliver.

I believe, after long years of experience in the handling of materials for homes, that we will save not less than one-third of the material and produce a better home. I believe also that in this way we can ask and receive beauty from the trained architect and incorporate his ideas and his details in these prefabricated units far cheaper than we could do to-day, even in the

least expensive form of his co-operation with the builder using the vagabond mechanics.

This is so important that I want to illustrate. Very few homes have been created in America in the last one hundred years which have become at all important from the standpoint of art, except those truthfully copied or carefully developed from the earlier craftsman's homes built along the Atlantic seaboard, and those built following the Spanish influence in Florida and California. The architect knows this full well. He has struggled to create a new design for this day and age and call it an American home type of architecture; but he has not succeeded.

The best of those who make the small home have gone back to our early Dutch, our early English and French types of homes and have developed these in so much better ways than our forefathers ever did at their best that we have to-day before us these wonderful creations of simple, straightforward, truthful ways of building the small home.

An influence which perhaps ought also to be

added is that of the Greek Revival, which occurred about 1830 and which came to us through France from Athens, direct from the Acropolis, after being buried a thousand years or more. We have done a little in Italian and Spanish revivals, but not much. In the last ten years we have changed styles at least three times in our commercially developed, unstudied real-estate developments.

Carrying the illustration farther: Every architect knows that proportions, fenestration, mouldings must, in the successful house, be dictated by the trained man, and I would not be party to any prefabrication programme that did not give him all of these, and more, to design within bounds of economy, and stamp this home with the beauty that he has learned how to impart.

Let us go directly to the problem now and see what we can prefabricate in a shop that is arranged for this kind of work. We will list the items one by one, and comment briefly on them as to materials and methods. Later we shall write the specifications for each item with the



A characteristic view of Seaside Village, Bridgeport, Conn., designed by R. Clipston Sturgis and A. H. Hepburn, and built under Mr. Ham's direction



Mr. Ham is a firm believer in building houses of a style that is fixed by at least one hundred years of acceptance. This is another view in Seaside Village; R. Clipston Sturgis and A. H. Hepburn, architects

most meticulous care, yet with elasticity that will allow the man with the artistic touch to enter into the problem, the manufacturer with vision to come in and endeavor to make better materials and invent better methods of handling these materials, to get the result that we want.

As we divide our house up we find the following: foundations, walls, partitions, floors, ceilings, roofs, windows, doors, chimney, hearths, stairs, closets, dormers, cornices, gutters, etc. If the house is properly designed we shall find all of these bearing certain relations each to the other and to many more items which have been omitted in this brief list.

We shall also find some characteristics which make the house salable, such as color, materials that are indigenous, details that are strongly established by local custom or type, and some simple tricks of mechanics. To illustrate: Many a bad house, with cheap lumber and bad plaster, has been sold because of a clever folding ironing-board that cost \$9. We

must not forget these appeals to the housewife. The architect usually forgets them; the speculative builder does not. Let us start, then, to build the house by the fabricating process.

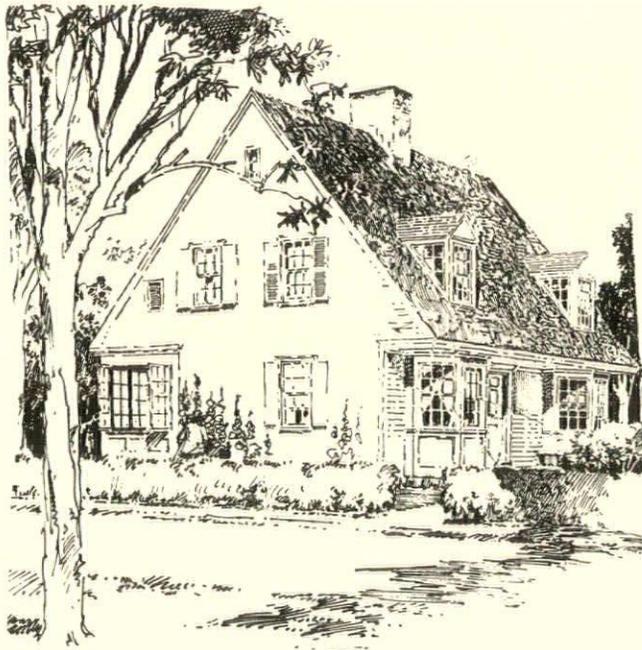
1. Excavation by machine, removing the dirt entirely from the site, except that needed for back-filling around foundations and for filling foundation blocks.

2. Footing blocks for walls, chimneys, and columns to be precast of required size and thickness.

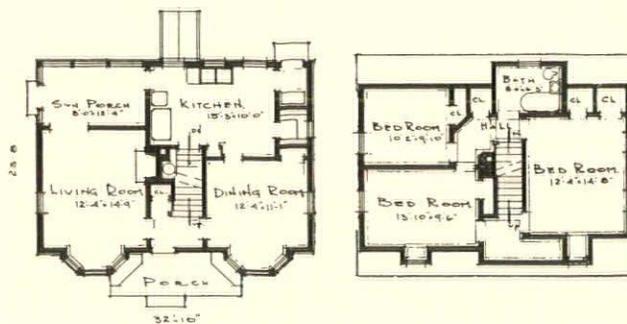
3. Foundation walls to be cast as hollow shells with walls of concrete about 2 in. thick, made so as to be keyed together with a poured wet mixture of fine-aggregate concrete, to be anchored to the foundation blocks below; these hollow shells to be filled with dirt from the excavation. Every movement to be made with machine, including the tamping of the dirt.

4. Footing blocks for chimneys and piers, the same.

5. Chimney to be complete from footing to the top of the roof; one piece, with openings as



A design for a six-room house which Mr. Ham has built several times. It was designed by Shaw & Hepburn, architects



needed for (a) heating plant, (b) fireplace, (c) incinerator, if desired. Other openings as required.

6. Bulkhead, stairs, and roof over bulkhead to be one piece, set as a part of the foundation with derrick. This ought to weigh about two tons.

7. Floor of the living-room and ceiling underneath entirely finished and placed as one piece. (For the workman's home this need not be over 12 by 18 ft.) This can be transported after fabricating at shop. Insulating material should be used for the cellar ceiling. Beams should be exposed and a hardwood floor of oak should be the surface finish of the living-room floor. It should be treated with oil of the proper kind, rubbed in and rubbed smooth. Floor boards should be very thin and should be thoroughly impregnated, so that they will not warp, shrink, twist, turn, or absorb. They

should be polished by machine so that the finish is permanent and in the wood and not on the surface material. (Water will not hurt these floors.) (House to be erected under a tent.)

8. Floor of another room: Same as above, but smaller in size. Floor of the kitchen, same, but finished with linoleum, cork, rubber, bakelite, or one of fifty other materials suited to kitchen floors.

9. Any other floors on the first story, same as above, using wood.

10. Partition walls between rooms on the first floor to have doors and other openings entirely and completely prefabricated and installed, using 2-inch thresholds settled into the spaces left for them for the stiffening member at bottom of the door frame. Outside of the door frame, within the partition, will be diagonal braces to hold the frame accurately in position. These partitions are completely finished, ready for the family to hang its pictures; no further surface treatment being required.

For these partitions there may be used some of the plaster boards suited to this work. A few of the manufacturers of plaster boards are equipped with apparatus so that they can ship them in full-size pieces: from end to end of partition and from floor to ceiling, one piece, eliminating the joints. These should, in the prefabrication, be applied to both sides of the partitions, the first thickness being thoroughly nailed to the trussed studding and the second, or finished, coat to be glued to the first and pressed into position so as to be flat, smooth, finished, and decorated. This must be done on the work-table in the shop for economy, all edges to be finished with proper protecting mouldings which, when erected in place, will become a part of (a) the base moulding, (b) the cornice moulding, and (c) corner mouldings. The balance of the mouldings, such as the base, are to be applied after erection of the partition and after the partitions and the floors are bolted together.

11. Outside walls to be finished waterproof on the outside and like the partitions on the inside; made in the shop with all windows, shutters, glass, screens, etc., installed ready for use. All windows to be weather-stripped in the shop. Painting and decorating finished, except outside surface which is to be later veneered, either with brick, cement, slate, shingles, stone, clapboards; anything that fits a house of this character. These exterior finishes should, together with the locations and sizes of the open-

ings, and details of the cornices, be dictated by the architect.

The house can be occupied before the veneer is applied, because it will be waterproof and thoroughly insulated, thus leaving to a proper season the erecting of the outer shell. (If brick is used, this will require approximately seven thousand average size brick.) I think we shall go farther and cut this in two by using a larger size brick, half as thick and better made.

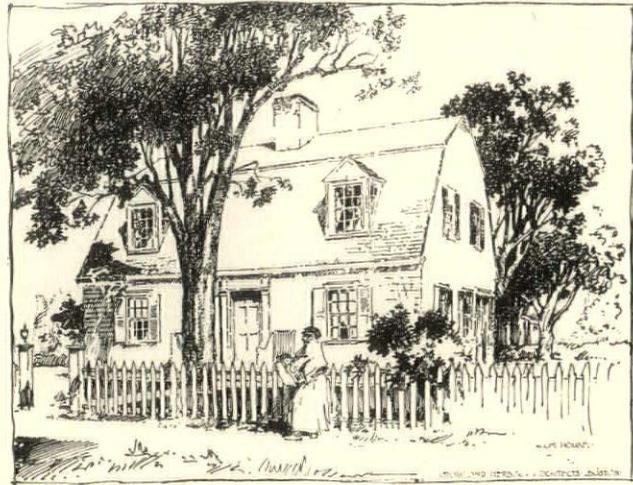
12. The floor above the living-room with the ceiling complete, preferably a beam ceiling for convenience of construction, durability, and easy repairs in the future; true, honest and strong, just the same as the ceilings in hundreds of houses in New England have been found to be constructed when we take off the plaster later applied by some one who wanted to be modern.

If a flat ceiling, smooth finish, is desired, it can be created with a two-process method, using a form of fibrous paper or cloth the full width of the room. Apply this after the insulating boards, which make the ceiling proper, are applied to the trussed timber frame of the floor itself. The finished floor on top of this member should be finished as the living-room floor was finished, impregnated with oil and rubbed until it is as smooth as desirable. Other floors and ceilings for other rooms are to be created the same way until we come to the bathroom.

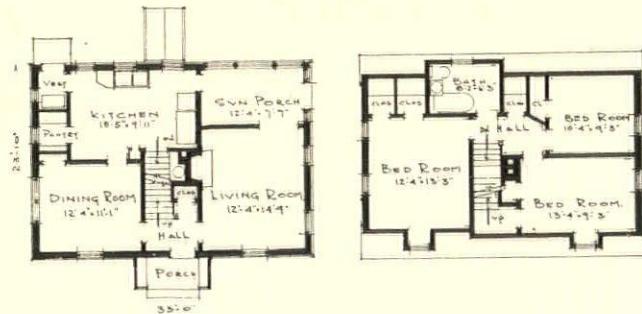
13. The bathroom ought to be a one-piece unit, built like an elevator cage, strong enough to hang on a hook. It should be equipped with all its fixtures and with three pipes—soil pipe, hot-water pipe, and cold-water pipe—projecting through to connect to the vertical lines in the walls underneath by special connectors at the cornice line of the ceiling of the room below; all pipes extend through the ceiling of the bathroom to connect to such vertical pipes as are needed above.

Floor of the bathroom can be waterproof with one-piece member of linoleum, rubber tile, or cement with proper ceramics. Walls can be of cement and asbestos or micarta, and should be finished from floor to ceiling with waterproof material. Bathroom ceiling as well should be waterproof.

14. The roof, in sections of proper length—approximately about one-third the length of the house—should be built complete with slate, shingles, metal, or other waterproof surface applied in the factory, leaving the joints between sections to be filled in with the same kind of



Another one of Mr. Ham's favorites is this six-room house with gambrel roof, with plans differing only slightly from those on the opposite page. Shaw & Hepburn, architects



material after the roof pieces have been erected. (All roofs should be insulated against the weather.)

15. The small ceiling in the second story should be complete and set into place on temporary supports until the roof is installed and the collar beams can be anchored; supports then to be removed and the connecting cornices, corner mouldings, and base mouldings installed.

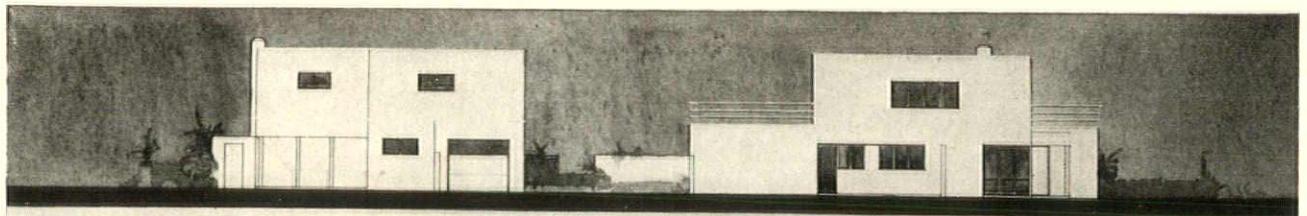
16. Stairs, complete, from first to second story, and from first story to cellar should be delivered completely prefabricated ready for installation as one piece, at the proper time.

17. Closets throughout the house should be fabricated ready to set in position, either as free-standing closets or built-in closets.

18. On top of the roof, dormers should be prefabricated, complete, and secured to the roof members by angle clips under the flashing, which is part of the dormer, before the final roof-covering members are applied.

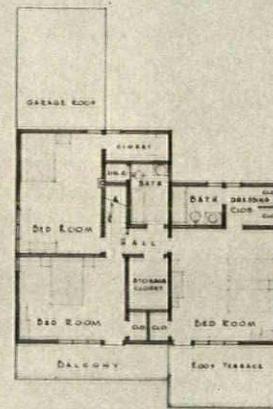
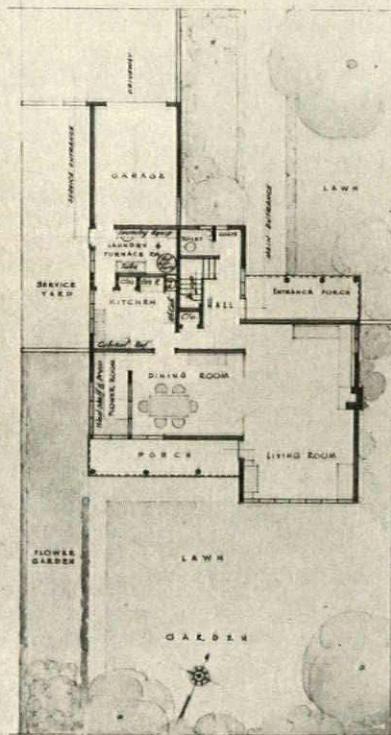
19. Front porch floor and steps together to be prefabricated, one piece. Side walls of the porch, the same.

20. Cornices, full-length members, to be

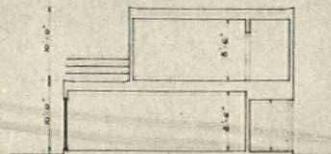


A HOUSE OF MODERN MATERIALS

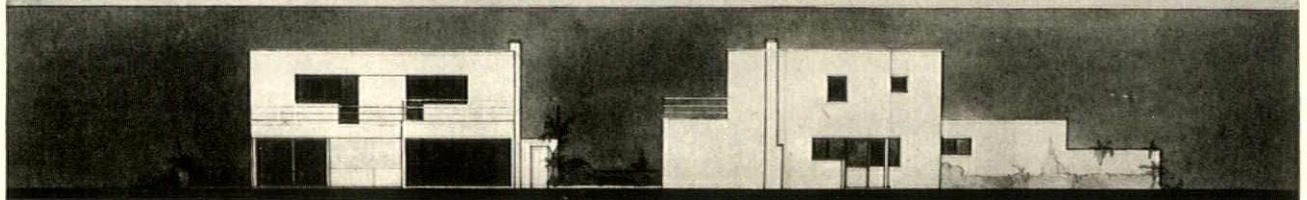
FACTORY FABRICATED. PANEL-UNIT WALLS ON STEEL FRAME. BASEMENT OPTIONAL BUT UNNECESSARY IN THIS PLAN AS THE HEATING IS BY AUTOMATIC GAS-FIRED. WATER-CONDITIONED, HOT-AIR FURNACE. KITCHEN, LAUNDRY & FURNACE ROOM ARE PLANNED TO CONSTITUTE THE MECHANICAL-OR WORK-UNIT OF THE HOUSE ***
 TIME OF ERECTION - 10 DAYS **
 COST SHOULD NOT EXCEED \$3000. ***



•SECOND FLOOR PLAN•



•BLOCK SECTION•



The winning design in a competition recently held by the Architects' Emergency Committee of New York, for unemployed architectural draftsmen, to secure a design suitable for mass production. S. Clements Horsley, architect



There is no reason whatever why a dormer window cannot be made in the mill in quantities, shipped to the house, and bolted in place on the roof, as Mr. Ham here proves at Rippowan Village



prefabricated, erected by derrick and bolted on. Covering mouldings only to be applied separately.

21. Gutters to be included in the cornice. Down-spouts where needed to be erected as one piece.

22. Garage is to be erected in the same way that the building is, or prefabricated and erected as a separate unit with single-piece members for side walls, four in number for each stall, and one-piece roof member for each stall. Floor probably precast in the factory and delivered whole.

23. Sidewalks, driveways, curbs to be precast at the factory and delivered whole in large sections, about two-ton sizes.

24. Heating unit, using oil, gas, or electricity, to be installed as one mechanism, connected to the required members already installed in the partitions and in the floors. Transmit the heat by either warm air, hot water, or steam as required. (Coal may be used in the same way with a different form of burner.)

25. Fireplace for living-room can be made as one piece with the hearth and erected with the derrick at the same time the living-room floor is erected.

Many other items, not suggested above, can be prefabricated.

Let us have the general specifications for the materials for these fabricated elements:

Outside walls are to keep out the weather, to look well, to be permanent, to be easily

maintained; and to be of materials, where possible, indigenous to the community in which they are used. This outer surface may well be applied after the structure has been finished, so as to pass over into the proper season of the year these processes which need to be governed by nature and the openings of climate and weather.

The openings in these exterior walls must be proportioned to be harmonious with the wall; and, as outlined above, the building must be so oriented that the windows will let in sunlight every day.

The partitions between the room units of the house must be built to perform their function, which is to separate parts of the house; and must be impenetrable to sight, sound, and the transmission of heat.

These partitions and these inner surfaces of outside walls must be lived with by the human family, and must be so created that they can be damaged and renewed and be as good as new after repairs. Materials that will give these results can be and are being used to-day. To a less degree they are important in the ceilings and floors, so that they may have all of these characteristics, namely, soundproofness, heat-insulating properties, durability, and capability of being repaired like new at small expense.

These surfaces must be such that dust, with its accompanying difficulties, and dirt, with its depressing results, can be eliminated easily, and wear and tear be reduced to a minimum.

The roof of our home should be thoroughly

waterproof, heatproof, non-reverberating, desirable as to exterior appearance as economy warrants, and renewable, without injury, when outer surface has been worn out, without damage to the design of the building.

Other items of our specifications as to the materials: Since we began to bathe regularly, not many years ago, we have created a tremendous interest in the use of water. This interest in our cleanliness should be properly supported by equipment satisfactorily complete and workable, designed in its relation to the other elements of the house so as to give results which will be satisfactory from the standpoint of appearance, durability as to fixtures, and proper damp-proofing of surfaces within the rooms that contain these water fixtures. That is to say, bathrooms, toilets, kitchens, and pantries should have waterproof floors, waterproof walls where possible, and at least damp-proof ceilings. This is a simple specification.

Fortunately, in the year of 1932 many manufacturers have proceeded far in advance of the architects, engineers and builders, and have prepared many items which are now being used in a limited way. Some have forced their way into universal markets and many of these possess the properties that we need to satisfy these general specifications and the detailed ones which are to follow, and enable us to prefabricate.

The first great revolution in the house-building art since the time of Nero was the introduction of a substitute for plaster, unless we say that the glorification of the bathroom constituted a revolutionary change. But structurally, and from the standpoint of prefabrication, plaster as applied by the plasterers of Pericles, those of Nero and Henry VIII, down to ten years ago, prohibited any advanced thought along the line of prefabrication which would create economies worth while.

Then we developed the substitutes for plaster in large-size units, and these materials have been progressing by leaps and bounds; they have created their own markets and are almost universally in demand to-day in every city, in every village, hamlet, and isolated farm home.

They can be bought in large sizes of desirable quality, wonderfully useful, and in various types to meet the requirements of our needs and our tastes. They can be prefabricated, with other members, as a finished product, and furnish beauty, harmony, and strength. With these we are ready to revolutionize our building programme.

They are so many that we need have no fear of any one dictating the direction in which we shall go. For illustration: A building is now being created in Boston using aluminum sheets on the outside; aluminum window frames; and on the inside, plaster substitutes, so that the whole panel is made in the shop, transported on a truck, erected with a derrick, and bolted to its supporting members which are covered with properly detailed mouldings in harmony with the design.

This is a revolution as great as the revolution in steel structures, where the skeleton preceded the masonry. In our small home for which we are planning a prefabrication process, we have many materials. A few of them are Celotex, Asbestolith, Insulite, Homasote, Gypsolite, Bestwall, and Sheetrock. These can be metal-covered for exterior; they can be printed upon for decoration; painted, impregnated, or plastered with a flexible coat, extremely thin and very durable. The plaster substitutes are here and ready for use.



The next question, after the decision to use a substitute for plaster, is how to develop frames of our large-size house members, such as walls, partitions, floors, with their ceilings attached, so that they will stand the rack and stress and strain of handling in the prefabrication shop, storing for future use, loading upon transportation conveyances, being unloaded, and erected.

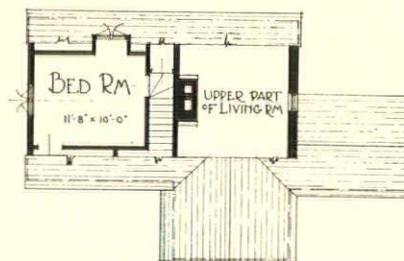
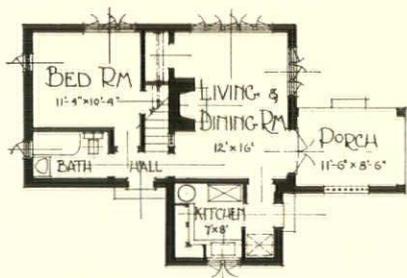
They must be so designed that they can be anchored strongly to other members, likewise prefabricated, and they must be accurately sized and properly edged. For we see with discomfort any errors at the edges, especially at the cornice, as well as in the middle.

These errors must be eliminated, which is easily done by covering with harmonious mouldings. The members must be handled with proper machines; they must be packed so as not to be damaged in transit.

They must be erected under a tent of some kind, so that the finished surfaces, which will not stand rain or snow, can be put together without being damaged. They must be of such material that, if they are damaged, the surface can be renewed and be as good as new; the same as new in appearance. This is a very important item.

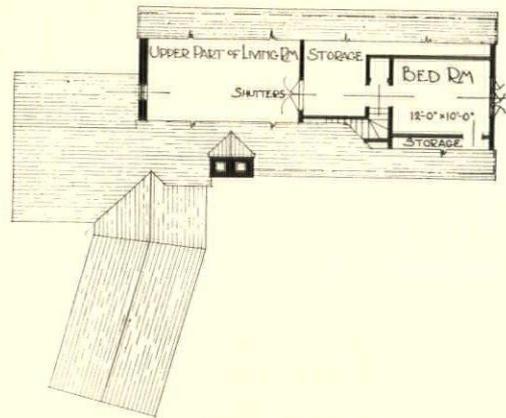
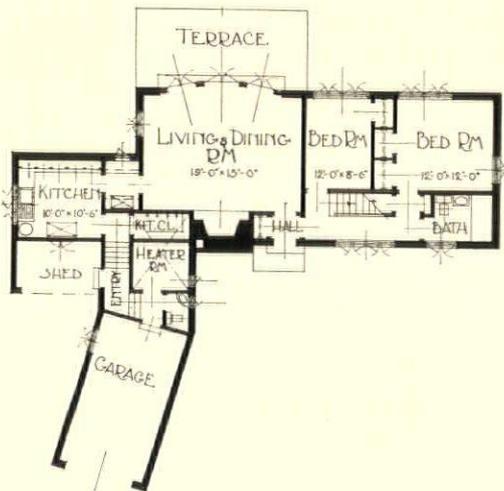


A cottage at Cohasset, Mass., built for the late Mrs. Frederic Cunningham by Constantin A. Pertzoff, architect. The cost of the building proper, without driveways, grading, and clearing of woods in the two-acre plot, was \$4,490. Concrete blocks are used for the walls with natural wood siding on the gable ends, and a shingle roof. The architect's conviction is that by careful planning, a rigid simplicity, and use of prefabricated materials, the cost of a pleasing and durable house can be brought much below our present cost levels. Group construction is a major source of economy





A somewhat larger cottage built at Cohasset, Mass., for the late Mrs. Frederic Cunningham. It was built at the same time as the one shown on the facing page, and, with its heating system, is adapted for year-round use. Mr. Pertzoff succeeded in building this one, exclusive of grading, clearing woods, building drives, etc., for \$7,590





Here is one of the living-rooms in which Mr. Ham has used wall board without plaster. He runs his lengths horizontally, covering the joints with a cornice moulding, a low picture moulding, a chair rail, and the baseboard. The greatest difficulty, of course, is a vertical junction at a projecting angle, which he solves with a special corner moulding

Let me illustrate: Plastering by the old-fashioned method with color in the mortar is very much cheaper than plastering in the natural color; then waiting until these plasters dry, lose their alkalinity, and become proper surfaces on which to paint. The difficulty is that these surfaces are often damaged in construction and installation of equipment, and it is very difficult to renew or patch these scars and damaged places to make them like the other undamaged portions of the wall. Every builder knows this. Probably that is the reason the colored mortars are not used much. They are very economical. But we must design our prefabricated unit, which is susceptible to accidents, so that it can be renewed—and this can be done.

A fundamental necessity is that it shall be smooth and that it shall be impregnated with a flexible material which hardens sufficiently to be free from the difficulties of over-softness, but never hardens until it is brittle and cracks. We have many materials of this kind to-day which can be applied to the surface of these substitutes for plaster, if they are smooth.

Let me illustrate again with Celotex. If a piece of Celotex, with its natural surface, is damaged, it is almost impossible to renew the damaged area without its showing; whereas if this Celotex is sanded, as we would sand the surface of a piece of lumber, it is very easy to renew, either with paint, lacquer, or other impregnated flexibles well suited to this work. In the same way, hard plaster, when it is smooth,

can be renewed and the injury made to disappear, using proper materials.

Let us go on with the prefabrication requirements. Definite planning of our work in advance; absolute dimensioning of all members; using such structural members as can be dimensioned properly, permanently, and furnish the required strength—not too much strength, as is usually found because of commercial sizes, but proper strength for all of the stresses that come to these structural members. When we analyze these with engineering accuracy we shall find that we can save tremendously in the structural design of common house members.

Let me illustrate by a building which I rebuilt, using for a span of 17 ft., 6 by 13 in. timbers, doubled, and spaced with only 12 in. between, expecting therefore to have a stiff and rigid floor. But when this was completed and before the ceiling was put on, I was horribly disappointed at the shaking of these timbers; vibration with only human loads. Through the sagacity of a carpenter, this floor was made absolutely rigid by the introduction of just a few diagonal braces. From that day to this I have emphasized in all my recommendations in connection with structures which are to take stress the proper use of diagonals.

All partition frames should be diagonally braced, so as to keep the doors rigid, and, in the outer walls, windows rigid, in place and plumb; so as to obviate the tremendous amount of cracks which are due to wind stresses and sun stresses in these buildings.

There are many other things in connection with the design of buildings, their equipment, and the facilities which change from year to year, but there is no useful feature which we want to install which does not lend itself to improvement through proper study by the engineer and architect, and which cannot be properly designed so as to become a part of this revolution in the building method.

Summarizing very briefly the whole problem of our home for the great average group of our people, it should be designed to suit the varying needs of life; youth with its small earnings and small family; proceeding to more income, larger responsibilities and increased family needs; earning more, investing more, having more.

The financial structure should be set up to follow this need, keeping throughout to sound economic lines, not charity, not government ownership, not tax exemption. A construction method is needed to take the dream of the architect into the laboratory; with the engineer's precise, analytical method to subdivide the parts of this structure into large-size workable units suited to the materials of to-day, the transportation and machine equipment of to-day; to introduce economies that make it possible to meet the requirements of the great number of employees in our industrial, mer-

cantile, and professional life; to furnish a better product, with better satisfied working men and women, producing the product at a cost far below that of the handwrought product of to-day.

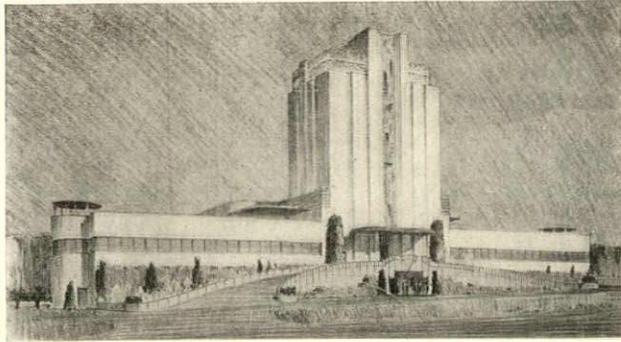
The city man will say, perhaps, that this cannot be done in the large metropolitan areas and in the large buildings. To those who do not believe that it can be done, I want to say that it has been done, though with different materials, in every single item which I have outlined, with the exception of the bathroom. The bathroom apparently has not yet been prefabricated for houses, though it has been done for ships.

There seem to be only two questions of right and wrong in the whole proposition. First, is it right that our young married people should have a home? Second, is it right that working men and women who build these homes should have the opportunity to use machine processes in a machine age and work under the conditions of industry, rather than to maintain their mediæval crafts in the vagabondry of to-day's methods?

The answer to both of these is the same: if we can make this boy and this girl happy, we ought to do so, provided that the men and the women who prefabricate these buildings are happy when they are doing it.



Rippowan Village, in which roads were twisted to save the old trees. Here are housing units of three, four, and five rooms. The village was designed by Mr. Ham, A. H. Hepburn, architect, and Arthur Shurcliff, landscape architect

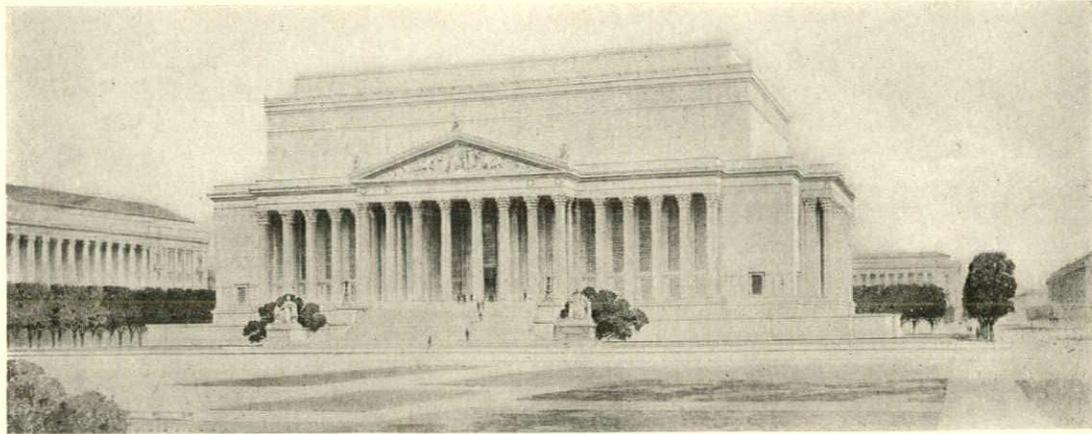


Preliminary perspective of the proposed Sears Roebuck Building for the World's Fair in Chicago. Nimmons, Carr & Wright, architects



Preliminary perspective of the proposed Bronx County Jail, New York City. Max Hausler & Joseph H. Freedlander, associate architects

Architectural News in Photographs



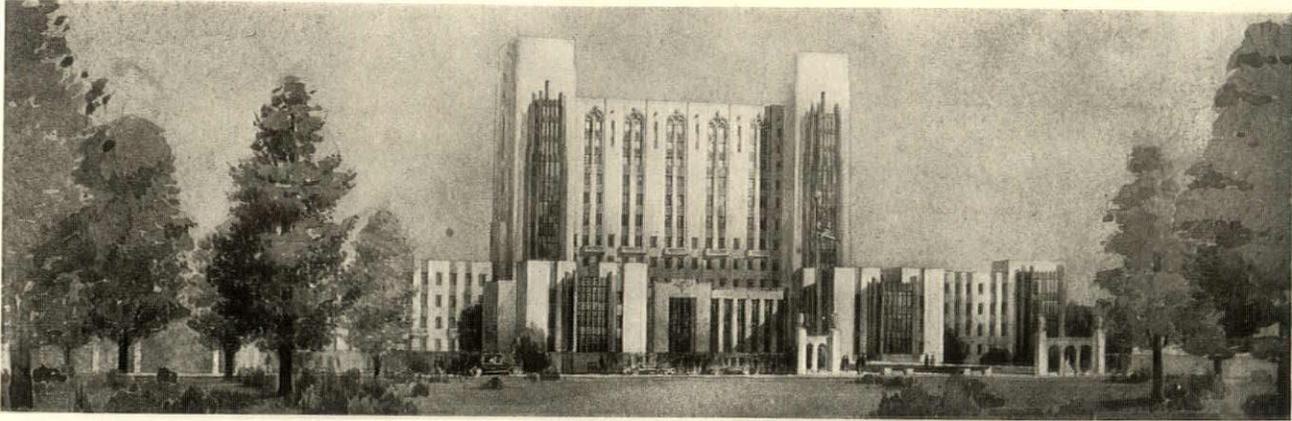
Preliminary perspective of the Archives Building, to be erected by the Federal Government in Washington as part of the Triangle Development. Office of John Russell Pope, architect; Office of the Supervising Architect, Treasury Department, collaborating

The Joseph Urban show in The Architectural League of New York's exhibition room. The lighting is above a cheesecloth ceiling on wires



The Tavern Club of Chicago has recently remodelled its rooms. Among the new features is the wall decoration painted by John W. Norton



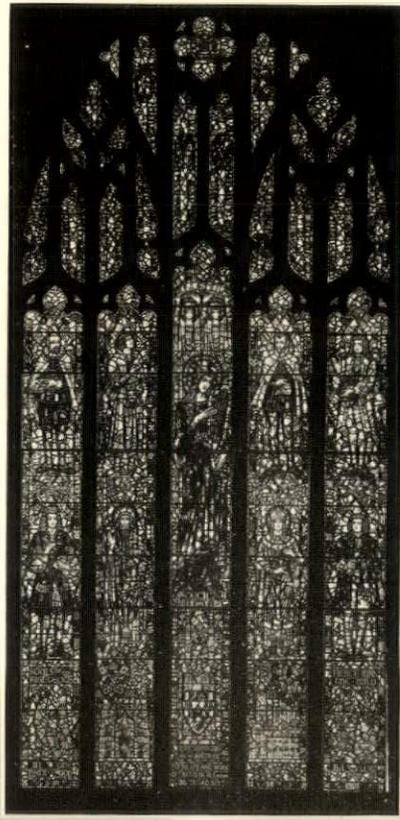


Proposed United States Naval Hospital for Philadelphia. Walter T. Karcher & Livingston Smith, architects

A window recently unveiled in St. Thomas's, New York City, as a tribute to Dr. T. Tertius Noble, organist. Designed and executed by James Powell & Son, Ltd.



Limestone following the cast aluminum spandrels up the steel frame. Rockefeller Centre, New York City



Cathedral of Learning, Pittsburgh, is nearing completion. Charles Z. Klauder, architect

The U. S. Appraisers Stores for Chicago. Burnham Brothers, Inc., and Nimmons, Carr & Wright

Illinois Bell Telephone Co. Building, West Monroe Street, Chicago. Holabird & Root, architects



BOOK REVIEWS

DUTCHESS COUNTY DOORWAYS AND OTHER EXAMPLES OF PERIOD WORK IN WOOD, 1730-1830. By HELEN WILKINSON REYNOLDS. 280 pages, 8½ by 11 inches. New York: 1931: William Farquhar Payson. \$22.50.

This volume supplements the author's "Dutch Houses in the Hudson Valley Before 1776," sponsored by the Holland Society of New York, which was published in 1930. The present volume tells of the homes in Dutchess County, N. Y., belonging in the century between 1730 and 1830. In addition to the "accounts of houses, places and people," the two hundred and four plates form an excellent record of the woodwork in detail, both inside and out.

A HISTORY OF ARCHITECTURE ON THE COMPARATIVE METHOD. By SIR BANISTER FLETCHER. 1033 pages, 6¼ by 9½ inches. Illustrations from drawings and photographs. Printed in Great Britain. New York: 1931: Charles Scribner's Sons. \$12.

Sir Banister Fletcher's great work has become so widely known that it is but necessary to say that this is the ninth edition, revised and enlarged, containing about 4,000 illustrations.

FARMSTEAD DEVELOPMENT. A Series of Bulletins Outlining Iowa Farmstead Planning for Utility, Profit, Health and Enjoyment. Prepared by the Department of Landscape Architecture, Iowa State College. 44 pages, 7½ by 10½ inches. Illustrations from maps, photographs, and diagrams. Pamphlet binding. Ames, Iowa: 1931: Extension Service, Iowa State College. 10 cents.

APPLIED ARCHITECTURAL DRAWING. By TOWNE R. ABERCROMBIE. 156 pages, 6¾ by 10 inches. Illustrations from drawings and photographs. Milwaukee: 1931: The Bruce Publishing Co. \$2.

The author is instructor in drawing in the public-school system of Cincinnati. His book, prepared for the student, and unlike most books on the subject, devotes itself largely to the methods, forms, and symbols used in working drawings.

PERSPECTIVE IN DRAWING. By D. D. SAWER. Introduction by ALLEN W. SEABY. 60 pages, 5 by 7½ inches. Illustrations from drawings and photographs. Frontispiece in color. Printed in Great Britain. New York: 1931: Charles Scribner's Sons. \$1.75.

Miss Sawyer, who is art lecturer at the Diocesan Training College, Brighton, tells of perspective with the

artist's needs in mind rather than the more elaborate technical needs of the architect. Excepting for elementary perspective methods, the author aims to inculcate in her reader a basic knowledge of perspective and an instinctive feeling for its proper expression in freehand drawing.

OUTLINES OF THE HISTORY OF ARCHITECTURE. Part I, Ancient Architecture (Revised and Enlarged). By REXFORD NEWCOMB. 176 pages, 8¼ by 10½ inches. Illustrations from charts and maps. New York: 1931: John Wiley & Sons, Inc. \$2.50.

Professor Newcomb has prepared these outlines, of which there are four parts, for use in his teaching at the University of Illinois. They represent a digest of illustrated lectures, and were prepared originally in mimeograph form to obviate the difficulty of taking notes in a darkened room.

WOOD-LIQUID RELATIONS. By L. F. HAWLEY. 34 pages. 5¾ by 9 inches. Illustrations from drawings and graphs. Technical Bulletin No. 248. Pamphlet binding. Washington: 1931: U. S. Department of Agriculture. 10 cents.

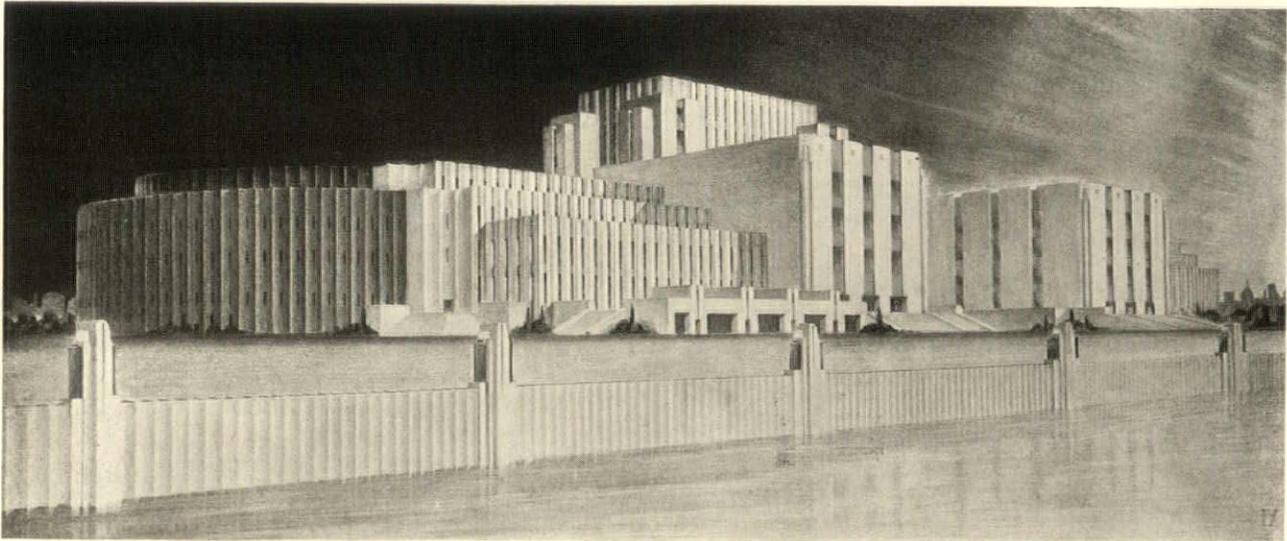
Examining the problems of impregnation and drying.

RECENT TRENDS IN AMERICAN HOUSING. By EDITH ELMER WOOD. 317 pages, 5½ by 7¾ inches. Illustrations from photographs. New York: 1931: The Macmillan Co. \$3.

Dr. Wood deals with the question of housing as related to all of its component elements: health, morals, citizenship, happiness, supply and demand, income, and so on. She formulates lessons learned in our crude efforts of war housing, and brings to bear on the problem the experiences of European and other foreign countries before, during, and after the war. Dr. Wood has given us here a foundation work, on which doubtless many other volumes will arise in the near future.

PLANNING FOR SUNSHINE AND FRESH AIR. By ALFRED HOPKINS. 236 pages, 6¼ by 9½ inches. Illustrations from photographs and drawings. New York: 1931: Architectural Book Publishing Co., Inc. \$5.

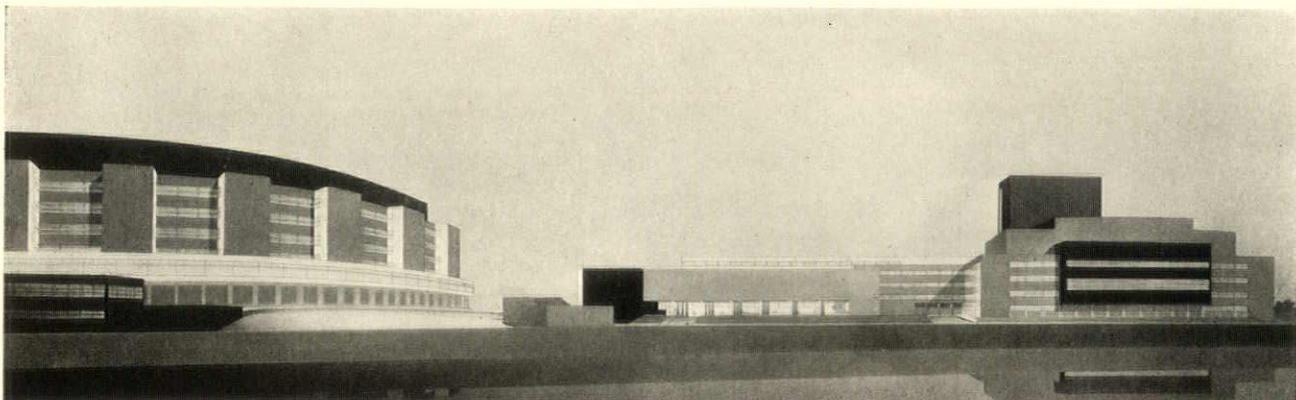
Alfred Hopkins is far more than an architect. His book is not to be included among the stereotyped volumes which contain dogmatic instructions from the man who insists that he knows and that what he knows you must learn. Mr. Hopkins is a philosopher mellowed by much travel and by much contact with human beings. His writing reflects both.



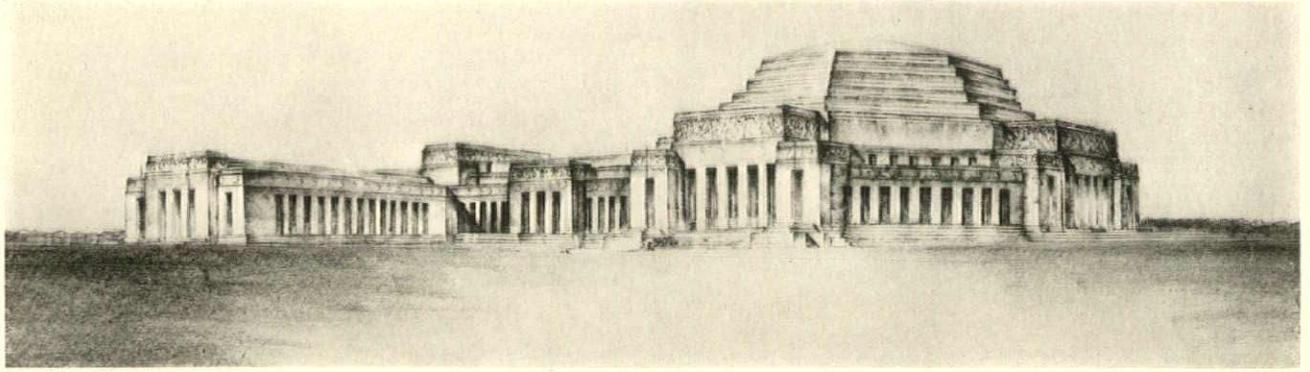
Above, perspective and front elevation of the design by Hector O. Hamilton, of New York City, which design shared one of three first prizes in the competition

The Palace of the Soviets, Moscow

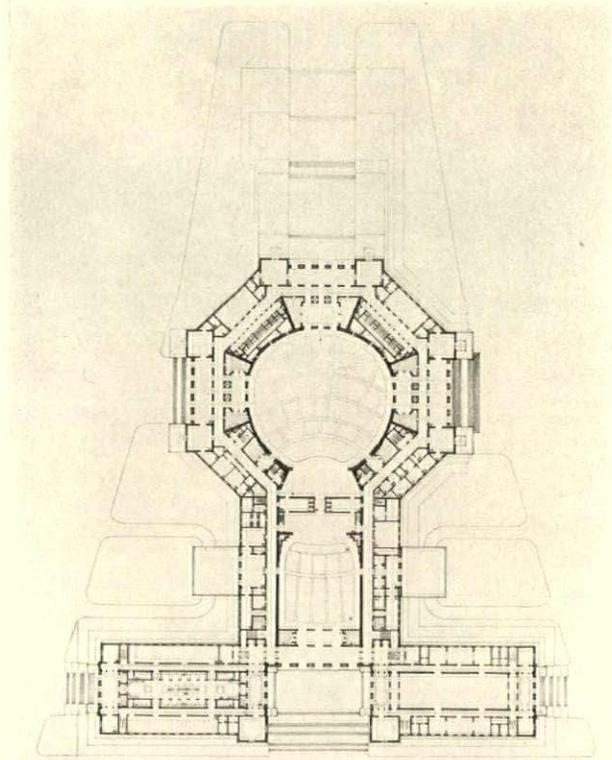
The Palace of the Soviets, the name given the capitol of the Soviet Union in Moscow, will be one of the largest public buildings in the world. In addition to two main auditoriums seating 15,000 and 6,000 persons respectively, there are to be offices for government officials, diplomatic corps, and foreign press representatives; a huge library, a restaurant, and facilities for staging mass pageants, great concerts, and public demonstrations. The work is expected to take three years for completion



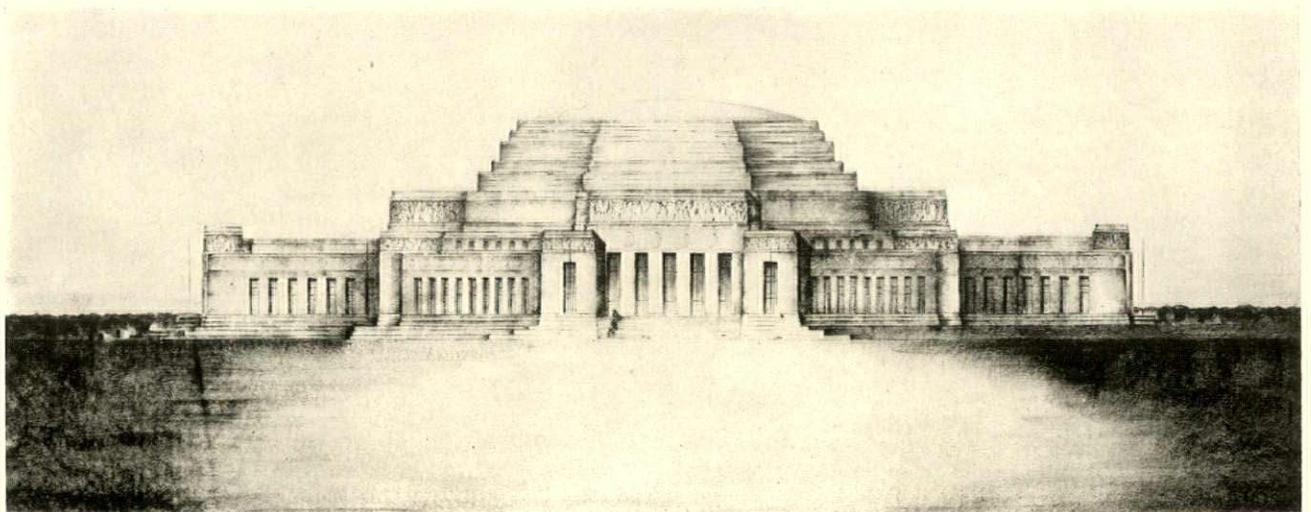
Perspective view of a portion of the design submitted by Joseph Urban, architect

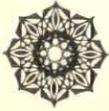


Perspective, first-floor plan, and east elevation of the design submitted by Thomas Hibben, architect. Full details of the awards are not yet available. Two com-

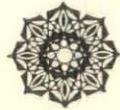


petitors who shared first honors with Mr. Hamilton are Russians. Alfred Kastner and Oscar Stonorov, of New York City, were awarded a second prize





The Problem of Ornament



IN TWO PARTS: PART ONE

By *Claude Bragdon*

WHenever opportunity offers or indulgent editors permit, I am given to saying my say on the subject of ornament, because nothing so reveals our æsthetic poverty as the fact that we have no ornamental mode which we can rightly call our own. So shoot if you must this old gray head, for this is just another wave of the flag nailed from far back on my window-sill.

The need of ornament which should express the psychological mood of this age rather than that of the past, or of an individual, became acute for me in 1911, when I was called upon to design a railway station for my native city of Rochester, N. Y. Though not averse to dipping into the dust-bin of Meyer's "Handbook of Ornament," in this case it seemed imperative that no ornament should be used which antedated steam transportation. There is none. Therefore I was confronted with the necessity of eliminating ornament altogether or of inventing it.

The first seemed too stark an alternative, and the second too difficult for a talent enervated by that order of parasitism practised by me in the past. What I did therefore was to deal with some of the canonical ornamental motifs with a free hand—much as a jazz band-leader might syncopate or otherwise distort the masterpieces of Beethoven and Bach.

This compromise, though moderately successful, was so far from satisfying that I undertook a searching inquiry into the whole subject. One of the things which I discovered was that all good ornament submits itself to a geometrical synopsis; that much of it indeed—like Gothic tracery and Moorish decoration—consists solely of the repetition or the symmetrical assemblage of the most elementary geometrical forms, and that all floral forms have a mathematical substructure: the rock can exist without the lichen, but not the lichen without the rock.

In mathematics, then, I seemed to have found the mother lode of all ornament whatsoever, and it was there that I decided to plant my metaphysical spade. Ours is pre-eminently an age of mathematics; not only has it given us our mastery over nature but it has enabled us to penetrate far beyond the range of the senses.

Non-Euclidian geometry is a new portal to the world of the wondrous. Sing, therefore, the mathematical age in terms of its own music, by making mathematics yield the ornamental mode of which we are in search. Such was my conclusion, shared, I found afterwards, by Ruskin, who wrote: "I believe the only manner of rich ornament that is open to us is in geometrical color mosaic, and that much might result from taking up that mode of design."

Easily said; not so easily accomplished. My position was something like that of Watt at the time when he observed that the expansive force of steam was sufficient to blow the cover off a tea-kettle but had not devised a way to make it run an engine. My idea was good, but how could I develop it?

I took as my watchword Keats's dictum: "Beauty is Truth; Truth, Beauty." Philip Henry Wynne had once told me that mathematical truth was absolute within its own limits, I had therefore only to discover some method of translation of the *truth-to-the-mind* into *beauty-to-the-eye*. In time I discovered several, and there are doubtless many others awaiting any one who devotes himself to this quest.

MAGIC LINES IN MAGIC SQUARES

My first experiments were with magic squares, because a magic square constitutes a conspicuous instance of the intrinsic harmony of number—of mathematical truth: A magic square is a numerical acrostic; a progression of numbers (usually arithmetical) arranged in square form in such a manner that those in each band, whether horizontal, vertical, or diagonal, shall always form the same sum.

Now, every magic square contains a magic path, discoverable by tracing the numbers in their original sequence from cell to cell and back to the initial number. This is the magic line. Such an endless line makes, of necessity, a pattern, and these are interesting and sometimes beautiful—the raw material of ornament. At all events in this way the chasm between number and form has been bridged, mathematical truth has been made to reveal itself as beauty. It remained only to intensify this beauty—to

ONE METHOD OF FORMING ODD-NUMBER SQUARES

COMPLETED 5 X 5 SQUARE AND ITS MAGIC LINE

FORMATION OF THE 5 X 5 SQUARE BY MEANS OF DIAGONAL SQUARES THE VACANT CELLS OF WHICH ARE FILLED BY TRANSFERRING NUMBERS FROM OUTSIDE TO INSIDE IN THE MANNER SHOWN

3 X 3 SQUARE AND ITS MAGIC LINE FORMED BY THE SAME METHOD

DIFFERENT MAGIC LINES IN THE SAME SQUARE

"EVALUOR" AND "MELANCHOLIA" 4 X 4 SQUARES AND THEIR MAGIC LINES FOUND BY FOLLOWING NUMBERS IN SEQUENCE

THE TWO MAGIC LINES FOUND BY FOLLOWING THE ALTERNATE NUMBERS—AN ODD SERIES AND AN EVEN: 1, 3, 5, 7, ETC.; AND 2, 4, 6, 8 ETC.

THE FOUR MAGIC LINES FOUND BY FOLLOWING THE NUMBERS WITH AN INTERVAL OF FOUR: 1, 5, 9, 13, ETC.; TWO ODD AND TWO EVEN.

Illustration 1

deal with the magic line in such a way as to subserve æsthetic ends.

I began with the simplest of all magic squares, that of 3 by 3, consisting of the nine digits, three in each row, with a magic sum of fifteen. It is constructed according to the following rule, applicable also to all odd-number squares:

The numbers are first written in their natural order, equally spaced, in lines of equal length, so that the whole forms a square. Parallel diagonal lines are then drawn between these numbers with the effect of forming rectangular cells, every alternate cell being a blank. The empty cells are filled as shown graphically in illustration 1.

By following the numbers in their natural order from cell to cell, using a free-hand curve, a line of intrinsic beauty is developed—the magic line of the 3 by 3 square, as shown in illustration 2. I used this as a Celtic interlace, combined with floral forms, for a series of ceiling ventilators, cast in white plaster, in the Rochester Chamber of Commerce, as shown in illustration 3. I was amused by the comment of

an eclectic architect: "I don't remember that design in Meyer's 'Handbook of Ornament.'" He seemed to feel that I had cheated because I had *not* used a crib. In illustration 4 two other decorative uses of this line are shown. In its angular form it yields the border shown in illustration 5.

Another method of formation yields what

MAGIC LINES IN MAGIC SQUARES
A MAGIC SQUARE IS A NUMERICAL ARRANGEMENT OF THE VERTICAL, HORIZONTAL, & LONG DIAGONAL COLUMNS YIELDING THE SAME SUM.
A MAGIC LINE IS THE CONTINUOUS LINE TRACED BY FOLLOWING THE NUMBERS FROM CELL TO CELL IN THEIR NATURAL ORDER.

MAGIC SUM 65

MAGIC SUM 34

MAGIC SUM 15

MAGIC SUM 260

A 5 X 5 SQUARE

ONE OF EULER'S KNIGHT'S MOVE SQUARES—MOTIF FOR BORDER

A 4 X 4 SQUARE

THE 3 X 3 SQUARE

AN 8 X 8 KNIGHT'S MOVE MAGIC SQUARE

Illustration 2

are known as "knight's move" squares, so called because the magic path follows the move of the knight on a chess board—two squares forward and one to right or left. Two examples of these knight's move squares are shown in illustration 2, one of 5 by 5 the line of which supplied the motif for the enclosing border; and one of 8 by 8, whose line is seen developed into the book-cover design shown in illustration 4. Other knight's move squares account for the elevator door in illustration 6, and the cabinet doors in illustration 7.

But there is another way of using magic lines which gives individual initiative and the æsthetic intuition freer play. This is by repeating and reversing any given line and ar-

ranging them in chess-board fashion, and using the network thus engendered as a warp for the weaving of a great variety of patterns, for it acts both as a guide and a check. In this way the creative faculty is subjected to a control and direction which, because it is mathematical, makes for a beauty which is orderly and necessitous. A textile pattern made according to this method is shown in illustration 4, and I have developed others from this same line, used in this way. With the number of lines at one's disposal the possibilities are infinite.



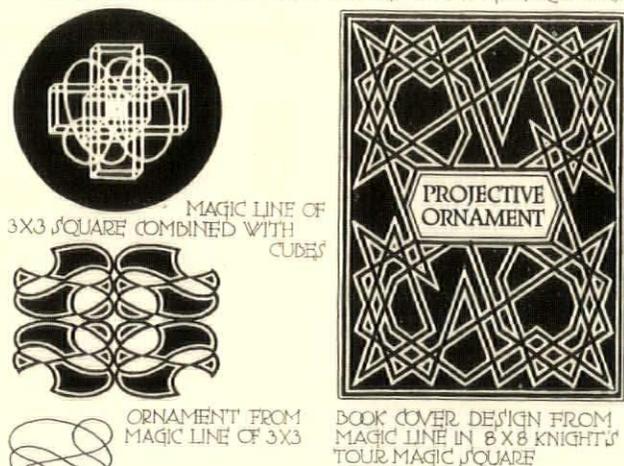
DESIGN FOR A VENTILATING REGISTER DERIVED FROM THE MAGIC LINE OF THE MAGIC SQUARE OF 3

Illustration 3

are no less than 384 possible arrangements, each yielding, of course, a different magic line. Furthermore, from every one of such squares more than one line can be developed, for in addition to the line which results from following the numbers in their natural sequence—1, 2, 3, etc.—two other magic lines are developed by following the odd numbers and then the even—1, 3, 5, etc., and 2, 4, 6, etc.—and four more lines by using an interval of 4—1, 5, 9, 13; 2, 6, 10, 14, etc. Such lines in

the same square being thus reciprocally related, are often more interesting than those of the ordinary sort. Take, for example, the so-called "Melancholia" 4 by 4 square (so called because represented in Dürer's famous etching of that title) represented in illustration 1. Its magic line, developed by following the numbers in sequence, is good enough, but the two lines found by following alternate numbers make a better pattern, while the four lines, made by using an interval of 4, yield the best decorative material of all. The same thing holds true with regard to the corresponding lines in the Gwalior square (illustration 1). The leaded-glass design

ORNAMENT FROM MAGIC LINES IN MAGIC SQUARES



BELOW: TEXTILE PATTERN FROM 5X5 SQUARE

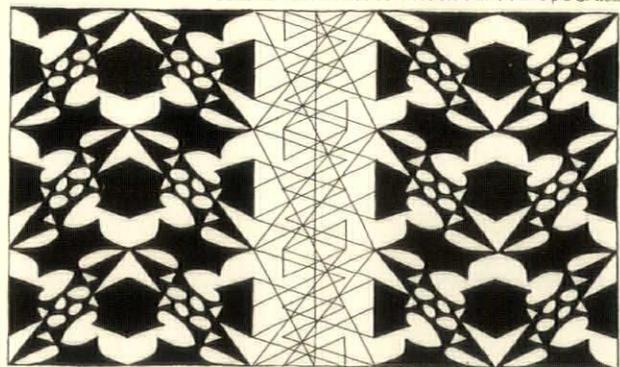


Illustration 4

The number of magic lines at the disposal of the designer is practically limitless. To a mind uninitiated to the wonder-world of mathematics it may seem remarkable that there is even one arrangement of the numbers from 1 to 16 in square form in which the vertical, horizontal, and diagonal columns will yield the same sum, 34, whereas it has been estimated that there

VARIOUS ORNAMENTAL PATTERNS: THEIR DERIVATION

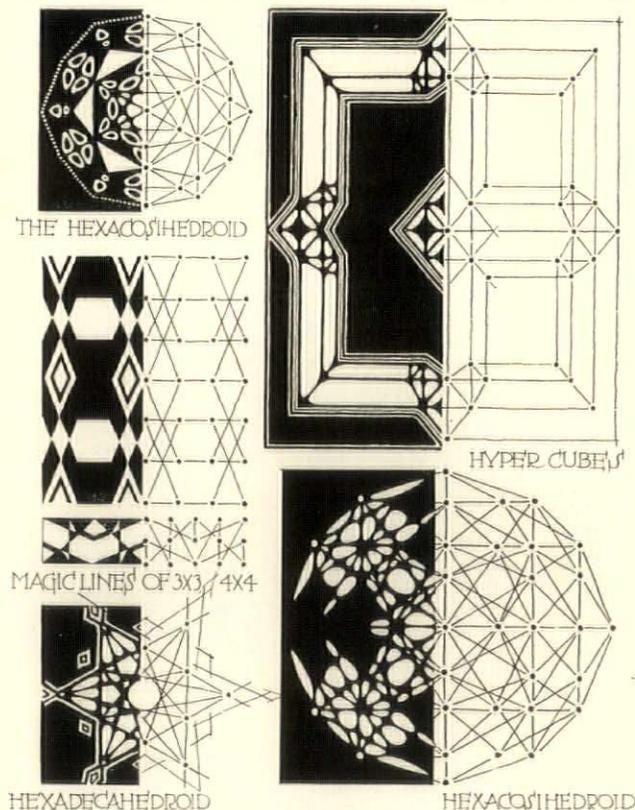
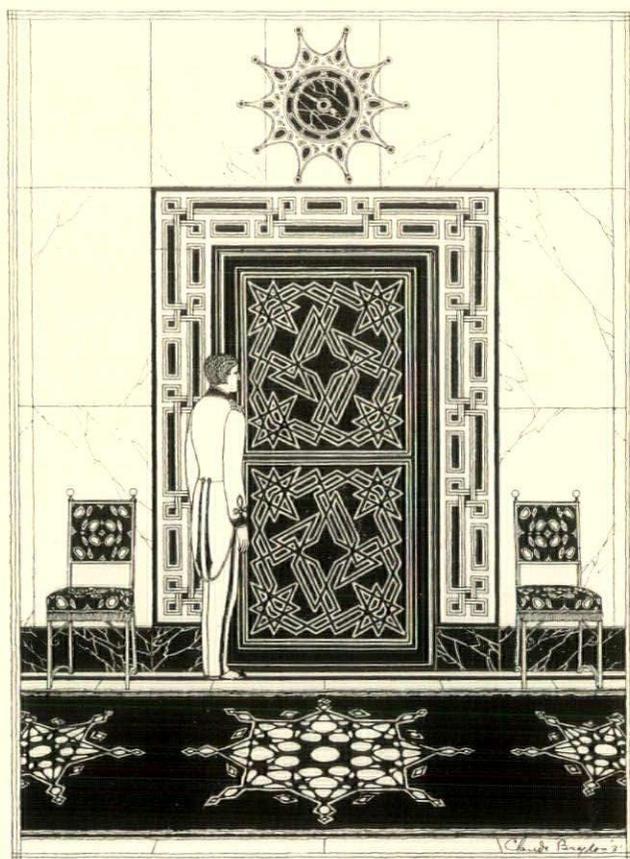
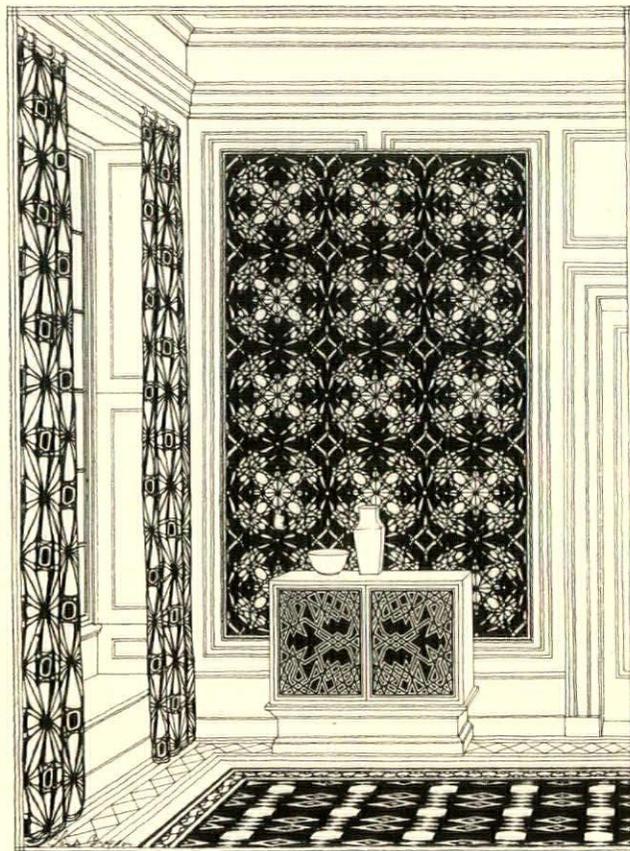


Illustration 5



Illustrations 6 (above) and 7 (below)



in illustration 8 and the rug pattern in illustration 7 are seen to be derived from these two squares.

It is not within the scope of this essay to describe the various methods of magic-square formation; they are easily learned from the available literature on the subject. I might refer the interested reader to W. S. Andrews's "Magic Squares and Cubes." In general, it may be said that magic-square formations are the result of rotations which establish a *polarization*, and they are as different from any fortuitous square arrangement of numbers as a horse-shoe magnet is different from a horse's shoe. This balance or polarity is indicated to the eye by the magic

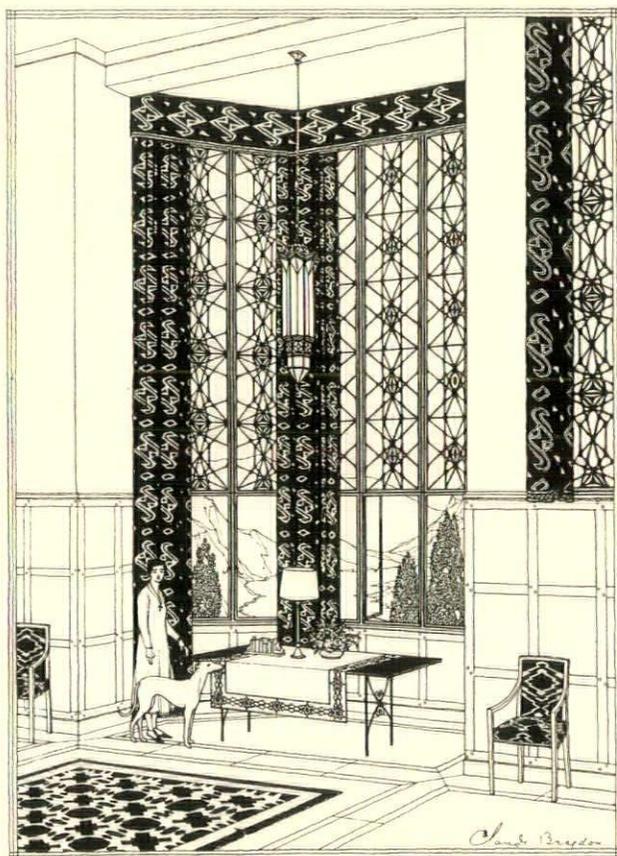
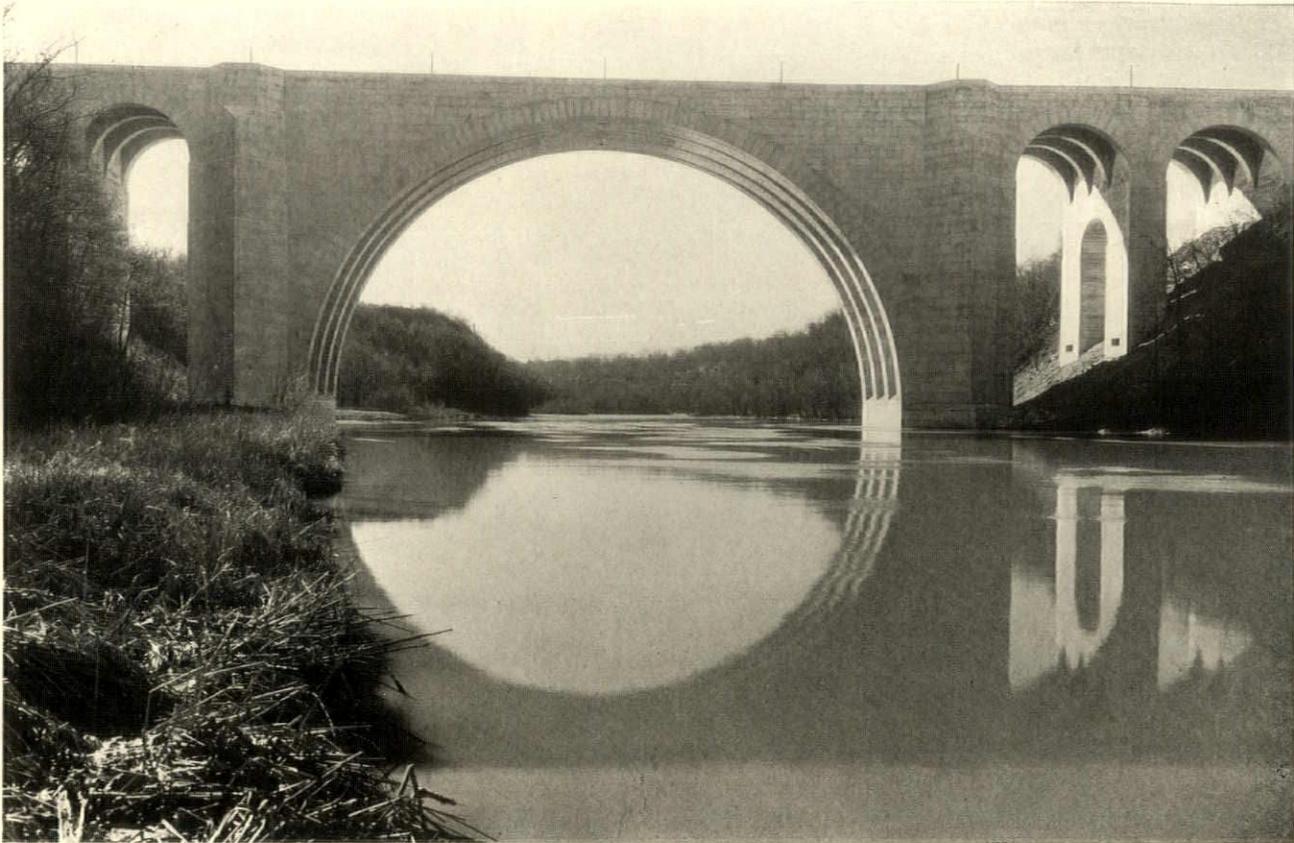


Illustration 8

line in a manner analogous to the way that magnetism in a magnet is revealed by the shapes assumed by iron-filings exposed to its magnetic field.

I believe that magic lines are a legitimate and useful aid to the designer of ornament, if not slavishly used; for the æsthetic faculty, the intuitive perception of beauty and rhythm, and not a mathematical formula, should be the final arbiter.

[PART TWO WILL APPEAR IN THE JUNE ISSUE]



Veterans' Memorial Bridge over the Genesee Gorge, Rochester, N. Y. Gehron & Ross, architects; Frank P. McKibben, engineer. For this bridge and the one at Harrisburg, Pa., Mr. Gehron was awarded The League's Silver Medal in Architecture

The Architectural League Exhibition

AWARDS

Silver Medal in Architecture for works of major importance, to William Gehron, of Gehron & Ross, for the Memorial Bridges at Harrisburg, Pa., and at Rochester, N. Y.

Honorable Mention for works of minor importance, to Philip T. Shutze, of Hentz, Adler & Shutze, for the residence of Mrs. J. J. Goodrum, Atlanta, Ga.; to William L. Bottomley, of Bottomley, Wagner & White, for the residence of Amory S. Carhart, Warrenton, Va.; to Leigh French, Jr., for the residence of Mrs. Evelyn Patterson, Dayton, Ohio.

Gold Medal of Honor in Painting to D. Putnam Brinley for his "County Fair" and other works.

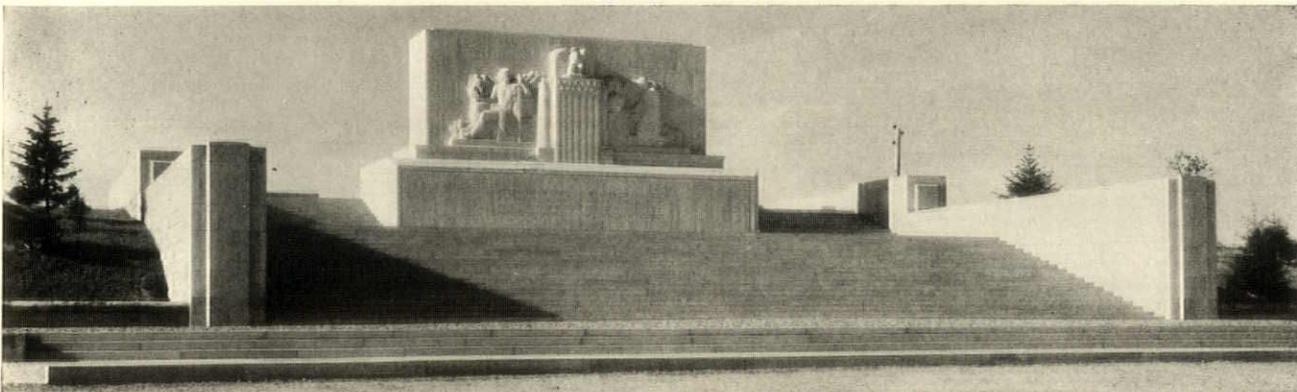
Gold Medal of Honor in Sculpture to A. Stirling Calder for his statue of Leif Ericson.

Gold Medal of Honor in Landscape Architecture to Annette Hoyt Flanders for the French Gardens around the Play House of Mr. and Mrs. Charles E. F. McCann, Oyster Bay, Long Island.

Gold Medal of Honor in Native Industrial Art to Ravenna Mosaics, Inc., for excellence of craftsmanship, particularly in color and materials in the Greek study of Leon V. Solon.

Michael Friedsam Medal to Albert Blum for the printing and dyeing of silk fabrics.

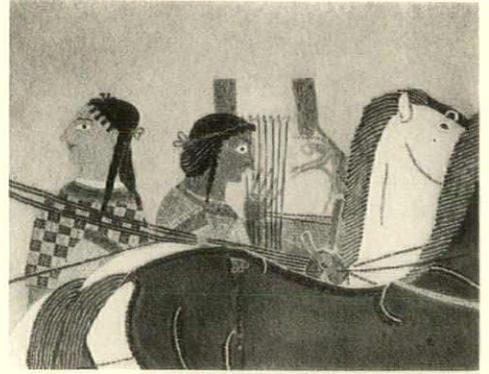
Avery Prize for Small Sculpture to David Rubins for his "Victory."



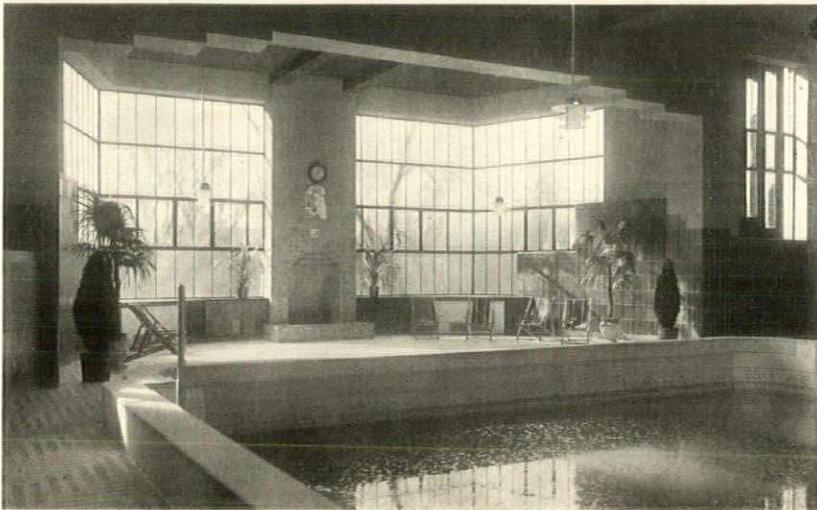
War Memorial near Bellicourt, France. Paul P. Cret, architect; A. Bottiau, sculptor



Map of Canada designed by A. Manghanti for City Bank Farmers Trust Building, New York City. Cross & Cross, architects



Study in the Greek (fifth century) manner in silhouette mosaics by Leon V. Scion. Executed by Ravenna Mosaics, Inc., who received the Gold Medal of Honor in Native Industrial Art



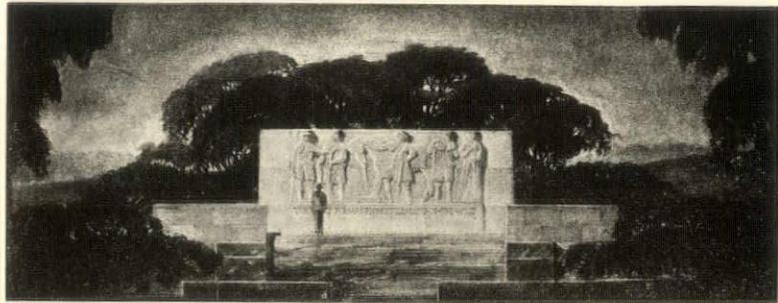
Solarium end of natatorium, Sports Building, College of New Rochelle, New Rochelle, N. Y. Office of Henry J. McGill, architects

A Georgian garden near New York. Marian Coffin, landscape architect. The stone dogs, by Wheeler Williams, sculptor





"The Merchant of Venice," a panel on the exterior of the Folger Shakespeare Library, Washington, D. C. John Gregory, sculptor; Paul P. Cret, architect; Alexander B. Trowbridge, consulting architect



Winning design for Monument to the Memory of the First Permanent Settlers of the West at Harrodsburg, Ky. Francis Keally, architect; Ulric Ellerhusen, sculptor; Armistead Fitzhugh, landscape architect

Interior of chapel, Hotchkiss School, Lakeville, Conn. Delano & Aldrich, architects



House of Amory S. Carhart, Warrenton, Va. Bottomley, Wagner & White, architects; Charles F. Gillette, landscape architect. For this work William Lawrence Bottomley received Honorable Mention for works of minor importance





Looking into courtyard, house of Schofield Andrews, Chestnut Hill, Philadelphia. Tilden, Register & Pepper, architects



Aluminum grille for house of Frederic W. Allen, Manhasset, Long Island. Austin Purves, Jr., designer; Cross & Cross, architects



Spiral stair of red oak, steps mortised and tenoned in three-sided spiral carved post. Designed and executed by Wharton Esherick

House of Detention for Women, New York City. Sloan & Robertson, architects

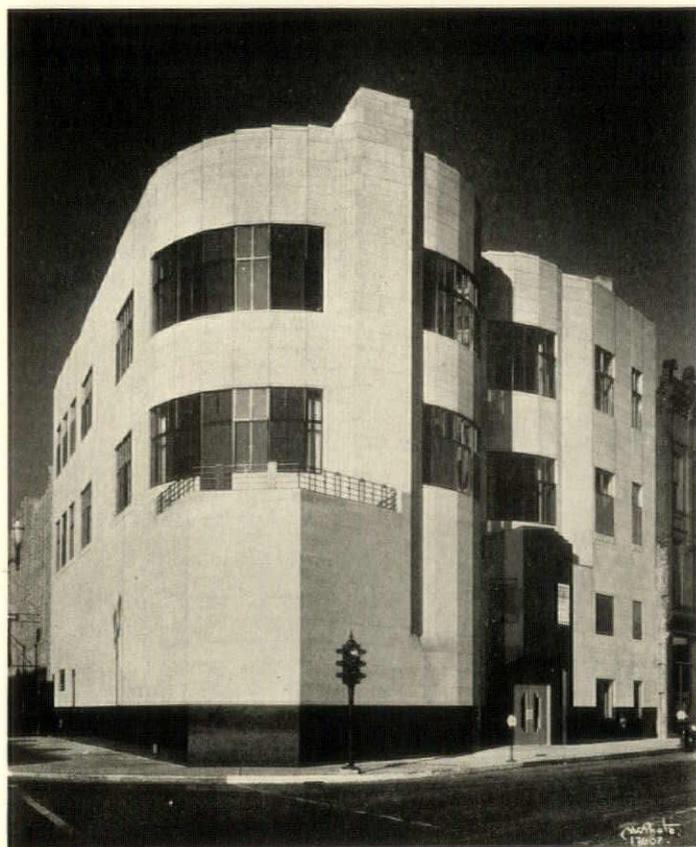




House of Mr. and Mrs. Randolph P. Compton, Scarsdale, N. Y. Electus D. Litchfield, architect; Ruth Dean, landscape architect



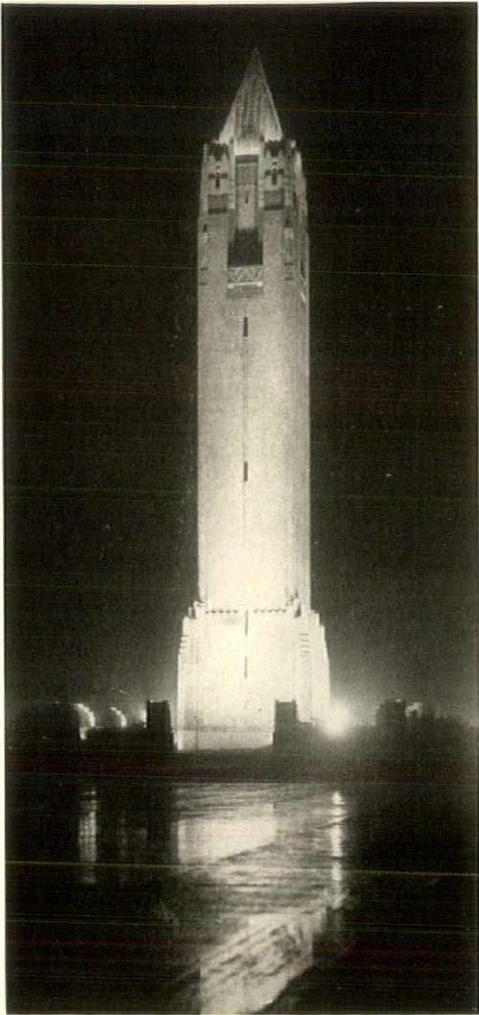
Aluminum grille for house of Frederic W. Allen, Manhasset, Long Island. Austin Purves, Jr., designer; Cross & Cross, architects



Women's City Club, St. Paul, Minn. Magnus Femme, architect



Plaster model of statue to Leif Ericson for which and "for the originality of conception of his many high achievements" A. Stirling Calder received the Gold Medal of Honor in Sculpture

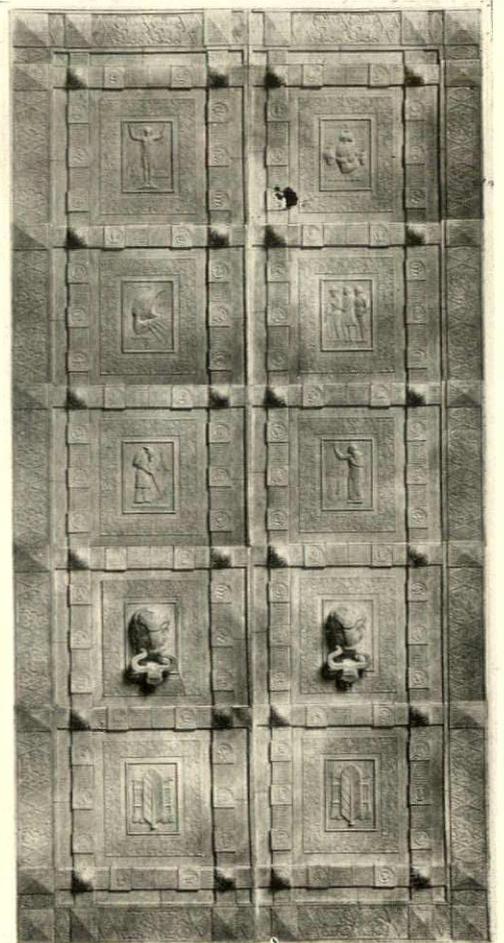


Water tower at Jones Beach, Long Island. Herbert A. Magoon, architect; Harvey Wiley Corbett, consultant



Master's bedroom in the residence of Alfred Mausolff, architect, New Canaan, Conn. The built-in bed has a casement window of its own with heavy curtains to keep the bedroom warm at night

Plaster model of bronze doors for the main entrance of Ohio State Office Building, Columbus Ohio. Alvin Meyer, sculptor; Harry Hake, architect



"Science," a panel for the entrance lobby of the New York Museum of Science and Industry, New York City. Paul Fjelde, sculptor





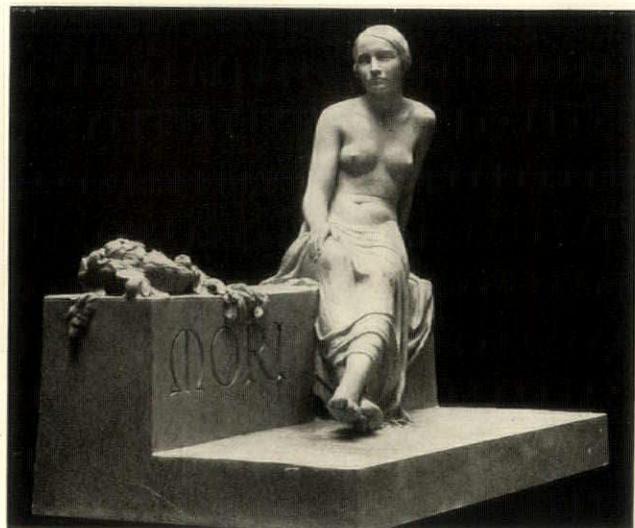
Napoleon China Room, apartment of Archibald M. Brown, River House, New York City. Peabody, Wilson & Brown, architects

Main entrance, Sports Building, College of New Rochelle, New Rochelle, N. Y. Office of Henry J. McGill, architects



Headquarters of the New York Chapter, American Red Cross, New York City. Delano & Aldrich, architects

Plaster model of Mori Memorial, Woodlawn Cemetery, New York City. Charles Keck, sculptor; Raymond Hood, architect





"County Fair," painted by D. Putnam Brinley. For this, "together with other works, notably the decoration for the Brooklyn Savings Bank and for

the essential decorative quality of his work through many years," Mr. Brinley received the Gold Medal of Honor in Painting



Reception room, Irving Trust Company Building, 1 Wall Street, New York City. Hildreth Meière, designer of the glass mo-

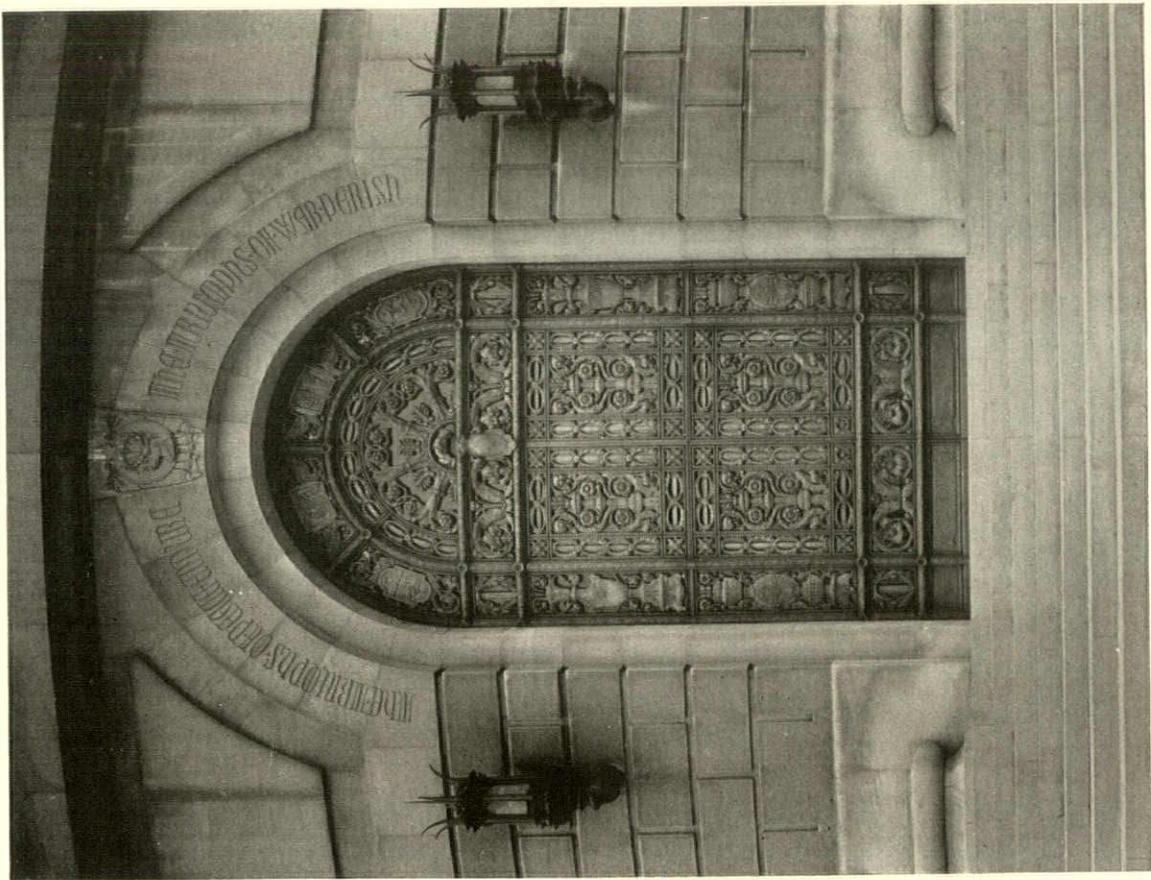
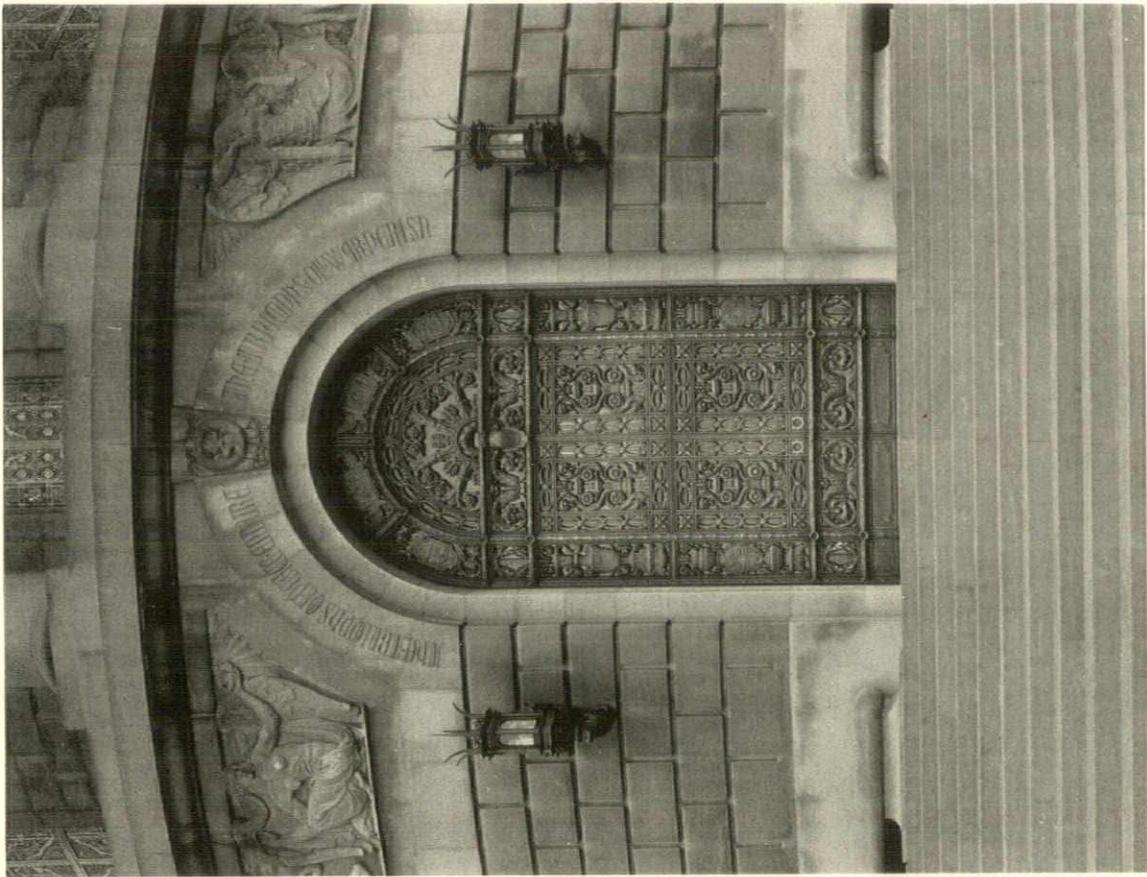
saic; Ravenna Mosaics, Inc., craftsmen. Voorhees, Gmelin & Walker, architects



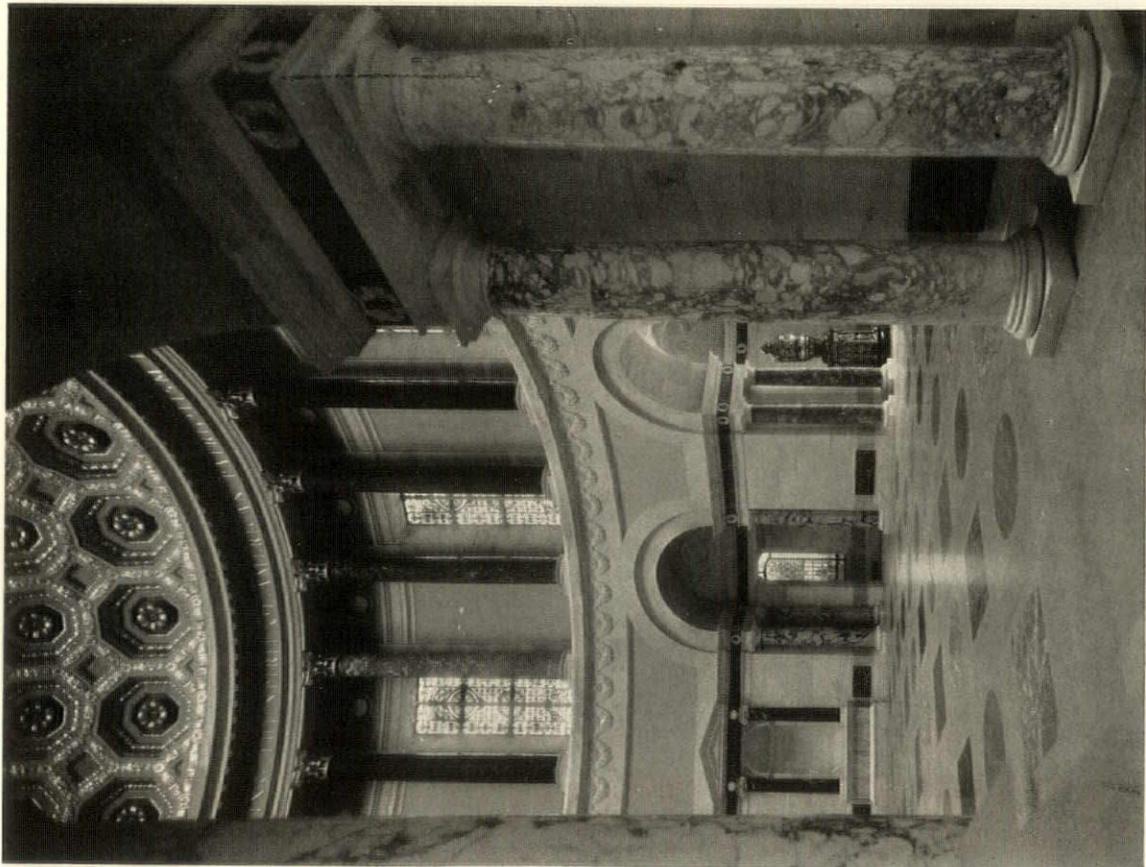
Reception Room, Elks National Memorial, Chicago. Egerton Swartwout, architect; murals by Eugene Savage

Even in these days, when our understanding and appreciation of collaboration have shown marked increase, architecture frequently is designed by itself and for itself, with the allied arts following along as afterthoughts. Not so in the case of the Elks National Memorial. Egerton Swartwout designed it as a monument which should be a complete creation only when painter and sculptor had finished their work. The following photographs illustrate this fact with unusual emphasis

Architecture, Sculpture and Painting



*The main entrance, before and after the sculptured band had been carved above the rusticated base
Egerton Swarzewski, architect; A. A. Weinman, sculptor*



Memorial Hall, before and after the murals were put in place. The whole scheme of the interior, even to the selection of the marbles, was designed for the effect which has only now been achieved
Egerton Swartwout, architect; Memorial Hall murals by Eugene Savage; mural in the distant lobby by Edwin H. Blashfield



Another view of Memorial Hall, showing, in this and the photograph opposite, the extent to which the scheme as a whole is dependent upon the closely welded work of architect, sculptor, and painter



Egerton Swartwout, architect; murals by Eugene Savage; sculpture in the niches (Charity, Justice, Brotherly Love, and Fidelity) by James E. Fraser



Detail of the wall painting, "Paths of Peace," shown in the Reception Room on page 217. The small sculpture seen in silhouette on the table is by Laura Gardin Fraser

Egerton Swartwout, architect; Eugene Savage, painter

Some Pitfalls in Supervision

By *W. F. Bartels*

XIX. PAINTING

PAINTING is at once an art, a racket, and (to the superintendent) a "headache." To the

designer and owner it is one of the last steps in their efforts to achieve beauty. To the painter—too often—it means fooling every one he can. But to the superintendent it means a final nightmare. The painter's bagful of tricks is full and varied. Many of these are common. But, since many a painter seems to have little private ones up his sleeve in constant readiness for special use on particular people, the superintendent's sleuthing is not the simplest. He must be ever on the alert and half the time refuse to believe even what he sees.

The first story the painter tells is this: He has been in business for over thirty years, and uses nothing but pure white lead and pure linseed oil in mixing his paints. Just what these statements mean no one knows, but nine out of ten painters carry them as a part of their permanent equipment.

When red lead and linseed oil is specified for iron, it is seldom used. Venetian red too nearly approximates the color of red lead to be readily detected, and, when mixed with the proper pigment and oil, a man can apply it twice as fast as red lead and oil. The latter combination is more expensive in materials, but an even greater margin exists in the labor required. A painter I once caught using a substitute stoutly denied it to be anything but red lead. I told him it was not gritty enough to be red lead. On the next inspection the same paint was still being used. On being reprimanded the painter argued that it was new paint, and said: "Just feel how gritty it is." He was right. It was as gritty as sand paper. But I reminded him that his shanty, which was open, contained a bag of fine marble dust—but no trace of red lead.

When it is desirable to thin paint, turpentine is generally avoided and benzine or kerosene substituted, because brushes slide more easily with them. The use of either should be strictly forbidden.

On one job a painter was employing a thinner in a prepared paint, contrary to the directions for using the latter, and forbidden by the specification. Several barrels of thinner were finally found, whereupon the painter promised not to use it again. A chance conversation with

the driver of the truck delivering the paint barrels revealed that instead of their coming directly from the freight station as previously,

they were now being brought from the painter's shop. The supposedly new barrels were carefully examined and appeared to have been tampered with. The paint was analyzed and found to have been thinned. Confronted with this, the painter admitted thinning the paint at his shop. And, needless to say, the job was thinned of one dishonest contractor. Then followed the kind of anti-climax which gives superintendents gray hairs or hydrophobia. After a large painting firm had been given this same job, they maintained that thinners would have to be used. They summoned a representative of the paint makers to bear out their contention. (Naturally a concern which was a good customer must not be offended!) So the irony of the story is that the representative of the paint makers gave his unqualified approval to use almost as much thinners as did the contractor who had been put off the job. And the architect was overridden by an appeal direct to the owner.

Another owner, desiring to get a high quality paint job, gave orders that none but Blank Brand paint should be used. The painter acquiesced, and Blank Brand paint was delivered, although in such a small quantity that it would obviously do only part of the job. The barrels were stored in the painter's room. Some days later enough paint for the entire job was seen in the painter's room. A careful check was made. Blank Brand labels had been taken off the original containers and put on the substitute barrels of paint. A telephone call to Blank Brand's agent revealed that no such quantity had been purchased, whereupon the painter was faced with the problem of removing it all from the job at once or facing more serious charges.

Trickery extends even to the sizing of ceilings to be calcimined. A painter caught calcimining without sizing agreed to do it properly and made a big show of preparing the size. When the superintendent, not entirely satisfied with the looks of the size, tested it he found it to be only dirty water.

It is evident from these stories, for which the writer can vouch, that no precautions should be overlooked in an effort to check all materials

which are used. The architect's reputation is at stake in this trade as well as in the others. But the superintendent's ingenuity as a Sherlock Holmes will be taxed to the limit in jealously protecting both his employer's name and the owner's investment.

Where one or two ground coats are applied, followed by an enamel or similar finish, it is fairly easy to keep a check on the work done. It is on outside work, such as for windows, that the number of coats becomes difficult to check. If it is possible without having a deleterious effect on the final color schemes, a different shade or color should be used for each successive coat, enabling the number of coats to be readily determined. On built-up work of the same color, a mark must be depended upon. It is advisable to put this on the identical spot each time, and either so small as not to be seen or made to resemble a small accidental smudge. If the coats on the exterior windows are to be all the same color, a small number on the muntin or other inconspicuous place enables the superintendent to keep tab on the number of coats. A painter boss may intend giving the proper number of coats but his workman, when left by himself on a floor, may feel that a rest will do him more good than paint will do the window sash.



It should be kept in mind that the finishes applied are expected to last a long time, hence any effort to employ shortcuts or hurried applications will only be lamented in the years to come. A case might be cited where a standard brand of paint was used on the entire exterior of a house. It was a good paint, but, to avoid the hard labor necessary to apply it, the painter thinned it considerably with turpentine. The paint as prepared by the manufacturer was sufficiently good to last in this section for four or five years. Instead, at the end of the second year it was chalky and showed obvious loss of its binder (linseed oil), which had been so cut by the thinner as to lose its ability to withstand the weather.

When the exterior is ready for paint the superintendent will of course see that in the case of iron work the surface is free from rust and scale. Any scale that can be seen, and some that

cannot, will often hold enough moisture to cause more scale and rust to form, and, if painted over, will sooner or later cause the paint to peel or blister. The surface of woodwork must also be clean. The wood should be free from moisture. In the case of knots or sappy-looking spots, a coat of shellac should be put over such places before the paint is applied; otherwise they will show through later. Putty that is used in nail holes and other spots should be of good quality and have some of the paint mixed with it. Bare spots must be primed before puttying. Failure to do this will allow the wood to absorb all the oil from the putty with resulting spots later on. The superintendent should not allow paint to be applied in any but dry and above-freezing weather. Paint should not be applied in torrid sunshine or in excessive heat. The paint should be well brushed in and given plenty of time to dry before a second coat is added.

On interior work all surfaces should of course be clean. On new work this is assumed, but on old work if a satisfactory job is desired the surfaces should be cleaned with either soap and water or a cleaning solution.

Painting on plaster before it is thoroughly dry will result in peeling. In fact, the plaster should be allowed to set as long as possible before it is painted. Alkalies in the plaster will result in spots and peeling of the paint. If it is desired to make sure no alkali spots are present, a small amount of phenol-thalein, brushed on with a small clean brush, will show a pink or red color. Washing the plaster with a solution of zinc sulphate will go far toward reducing the effective alkali on the plaster surface. If the spots appear on plaster already painted, a paint with aluminum as a pigment is very efficient in stopping "burning spots."

Finally, it might be said that paint should wear off—but should not peel, crack, or flake off. Provided a good paint is used, most defects are due to improper application or application at the wrong time. Blistering and peeling are directly traceable to painting over moisture.

Cracking of paint is generally due to drying or contraction of the wood, and of course cannot be justly held against the paint itself.

Spotting is caused by the surface materials absorbing the oil in the paint; it is prevented by shellacking all soft spots before painting.

Checking is due to a contraction of the paint itself, and is most frequent where the tension of the several coats differs.

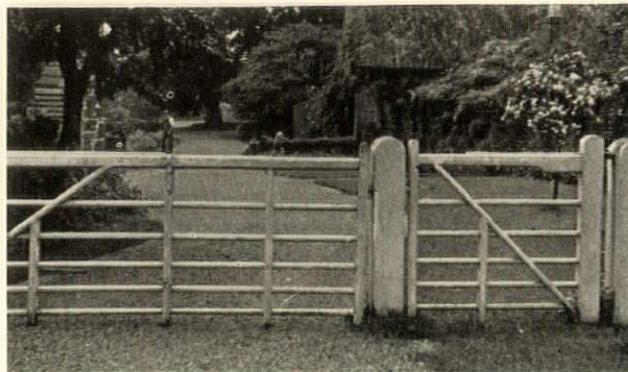
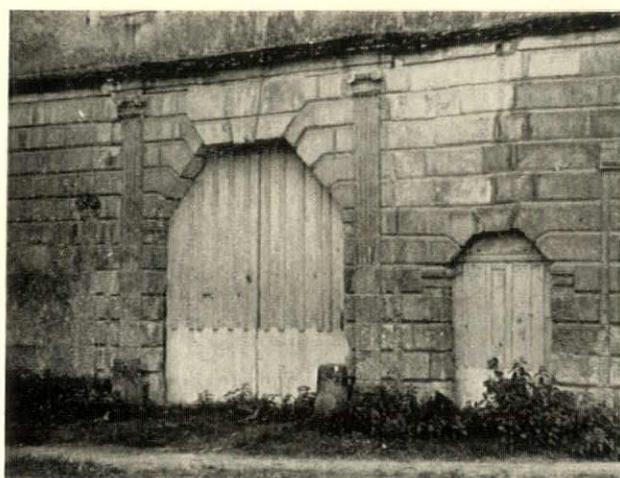


The Architectural Observer



IN this architectural day when we try hard to find new "forms" and congratulate ourselves when we do, it is ironically amusing to find tucked away in some little hamlet occasionally a brand-new form which we were the first to discover—or so we thought. If you take the main road leading southward out of Auxerre in the province of Yonne, not many kilos pass before you arrive in Vincelottes. The main show is secluded across the river, which is lucky for it, considering the number of tearing tourists which stir up dust on the main highway. But on the far

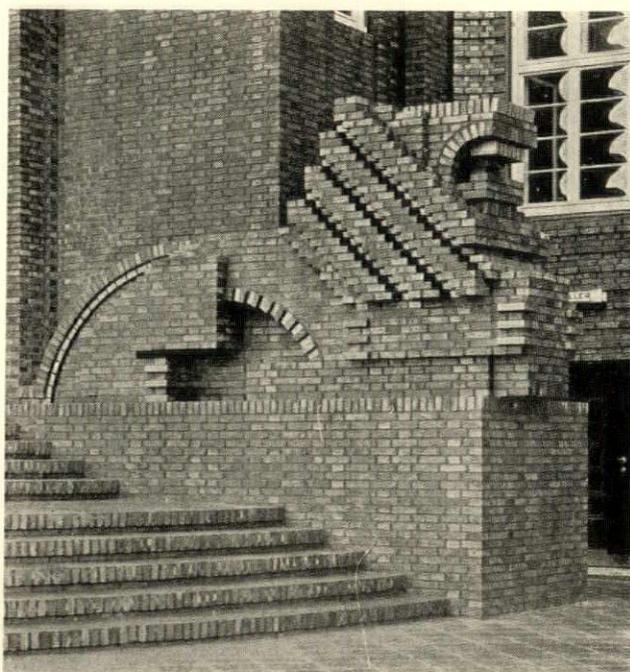
not only adds dead weight at the very point it should be lightest, but appears less beautiful



than this example. Viewed from a purely esthetic angle, the pattern is not so different from the type of geometry subscribed to by the moderns in terms of extravagant praise. Yet no one at Chipping Warden thinks it anything but a good old-fashioned gate.



or east side of the Yonne River you can find this novel arch *parti*. The stone is varied in color—buff somewhat, gray too, and running toward dark tones in places. There is no date on the building. But from all appearances the modern movement could have been born within its walls.



THE cottages and barns surrounding the Hall at Chipping Warden (about six miles northeast from Banbury) form one of the most idyllic groups in the Cotswold country. On every hand there is some unusual solution, such as this combination of pedestrian and carriage gates. The outstanding feature about these gates is the excellent brand of home-made engineering: the top horizontal members are the heaviest, as they should be, and the diagonal braces have vertical supports. The vertical which carries the hinges is far heavier than the other one, which has only the latch—also as it should be. Yet most of our gates in this country are invariably of a uniformly thick frame, which

BRICK work is being strained to unusual limits these days, but this example in Fritz Höger's Municipal Building in Rüstinger seems to be about as far as one could go in this direction.

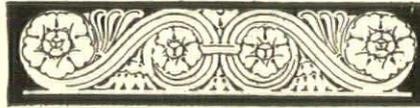
Monday, February 1.—Attended a dinner arranged by Aymar Embury in honor of Diego and Mrs. Rivera, at which I was hoping to have a chance to hear something of his philosophy of life and painting. Unfortunately, he speaks no English. Ted Embury's caricatures of Rivera's work, numbered, hung, and catalogued in true exhibition fashion, formed one of the most enjoyable features of the affair.

Tuesday, February 2.—Mischa Elman played for us after lunch, and I was impressed as never before with the tremendous expenditure of self inherent in the true master's efforts in self-expression. Playing with his eyes almost closed, and with an almost visible flow of emotional energy from his body, he seemed limp at the end of the three numbers. Even when one has mastered his technique, there seems to be no possibility of self-expression in any form without tremendous concentrated effort. I was interested in the care bestowed by Elman upon his violin, which he returned with many wrappings of silk, linen, and wool to its bulky case, looking for all the world like a built-in Russian bed.

Wednesday, February 3.—Edwin H. Hewitt of Minneapolis dropped in on his way to Washington, and joined the architectural editors at their monthly luncheon at The Architectural League, bringing us none too cheerful news of architectural progress in Minnesota.

Thursday, February 4.—Robert Edmund Jones, just back from Hollywood, gave us some of his impressions at The League to-night. Jones finds something fascinating in the place, and also something sinister. Its fascination lies partly in the fact that here is a community of people in which the attainment and preservation of physical perfection is the first law. It is also a land of miracles. To one who is accustomed to the limitations of the stage—the things that the carpenter, the electrician, the painter cannot do, Hollywood outdoes Aladdin and his lamp. One has only to ask for something—anything—and it is produced. While Jones was there some one took it into his head that he wanted four hundred Pygmies. He got them. But the less inviting side of the picture lies in the fact that possibly the screen as it now exists is dulling our imagination. The days of illusions are gone. What we want is the actuality, or at least a close-up photograph of it. Is it possible that in satisfying our appetite for photographic realism, we are atrophying our power to think and to imagine?

Friday, February 5.—Last spring, on the way back from Paris, William Van Alen tucked a luncheon menu for Wednesday, June 17, into a beer bottle,



The Editor's Diary



having noted on the card the fact that he would pay five dollars for its return. The other day a letter appeared claiming the five dollars, signed by Colin Campbell, Argyllshire, Scotland, where the bottle was discovered on January 10. The bottle had made a journey of no less than two thousand miles.

Saturday, February 6.—Almost over night the gravity system of hot air heating has become metamorphosed into a new thing—warm air heating under pressure. Warm air heating, after having been knocked about the ring a bit by hot water and vacuum vapor systems, has suddenly come back with a new strength. Warm air heating in its present incarnation, which provides filtered and humidified air under pressure, will bear watching. It is a question of a very short time before we shall have, even for residential work, complete air conditioning. At the moment all that the new warm air systems lack is cooling for hot weather. At present it can be done, but at too great cost. That hurdle will soon be leaped.

On the other hand, the hot water, steam, and vapor systems are by no means inactive. Already there is at least one self-contained unit which will supply humidified warm air in the winter and dehydrated cool air in summer—an attachment to a steam or vapor system.

Monday, February 8.—Attended a dinner meeting of the Snag Club to hear David Coyle discuss with this representative group of men interested in civic betterment, the question, "Can We Tax Ourselves Into Permanent Prosperity?" Sat next to Henry Pratt Fairchild whose article, "The Fallacy of Profits" in the February *Harper's* makes very clear the fact that in this period of plenty-economy we have got to revise our habits of mind formed by the age-long period of deficit-economy. The things that were proper for us to do in a time when we were unable to produce enough for our needs are the things that are quite wrong for us to do now.

Tuesday, February 9.—Dropped in at The Public Library this evening to see the opening of the annual exhibition of Fifty Best Books of the Year. Edward F. Stevens, chairman of the committee responsible for assembling the exhibition, presented Frederick G. Melcher and Lester Douglas who reviewed the year's work. It was interesting to see in the slides that were shown, and in the books themselves shown in another wing of the library, a tendency paralleling that in architecture, of using traditional forms as a point of departure rather than in imitation. As compared with architecture there seems to be decidedly less of a break with tradition; rather, an evolutionary development from the traditional forms with a freshness and inclination toward greater sprightliness instead of pure dignity.

Wednesday, February 10.—Forty of his brothers in the arts gave a dinner to-night to Joseph Urban upon the occasion of opening his one-man show in The League galleries. Julian Levi presided, and called upon Grover Whalen, Deems Taylor, Alvin Johnson, Raymond Hood, Harvey Corbett, John Holabird and Ely Kahn. Like the dinner to James Monroe Hewlett, it was largely a demonstration of affection on the part of every one present for an artist who has pointed the way to a clean, fresh, open-air kind of architectural expression. As Harvey Corbett put it, one cannot enter into this exhibition without having the feeling of just having had a cold, refreshing shower. Artur Bodanzky joined us after conducting Donna Juanita at the Metropolitan, and found the party going strong.

Friday, February 12.—Ely Kahn is busy these days with a most engrossing job—that of chief of the industrial arts section of the World's Fair. He conceived the idea of showing, in a circular or polygonal building, various developments of our industrial arts, somewhat as was done at the Metropolitan Museum two years ago. The group would show possibly a living-room, library, kitchen, business office, a sales office—all of which would be furnished and equipped with the products of our industrial arts system. The public, having examined the complete product in place, might conceivably want to know how these things were made. Extending radially from the building behind each of the completed works would be exhibits showing the processes that contributed to the finished result—new textiles in the making, the fabrication of metals, wood veneers, wall materials, carpets, furniture. Such a feature would certainly be worth going a long way to see, even if there were nothing else in the Fair.

Monday, February 15.—The building industry being apparently at its nadir, it seems an ideal opportunity to build

oneself a house. The excavation having been made in a day and a half with the aid of a steam-shovel and without encountering any frost in the ground, I went to Huntington to see the footings properly laid. The cost of residential construction on Long Island at the moment seems to be little more than one half of what it was three years ago.

Tuesday, February 16.—Thomas S. Holden, in a paper delivered before the American Statistical Association, brings to light a new factor to be reckoned with in estimating our national construction in the future. We have always figured upon a constantly growing population, which increase naturally requires housing, stores, churches, etc. It now appears that our population growth is slowing down, and may soon become stationary. This would mean that in our building for the future we must lay more stress upon rebuilding outworn structures and building them better, rather than merely adding to our volume.

Thursday, February 18.—The Architects' Emergency Committee put on display to-day the drawings received as a result of a competition for a factory-built small house. The details as to the boards will be found in the Bulletin pages. Talked with S. Clements Horsley, whose design won the first prize. His scheme called for a light steel frame on which were hung wall slabs consisting of two finished faces with an air space between, this air space to be varied in width to meet requirements of space for piping. Vertical and horizontal joints in these slabs were to be filled with mastic. Mr. Horsley seemed to be laboring under the delusion that his house could be erected in ten days at a cost of three thousand dollars. Many of the designs showed an intelligent grasp of prefabrication requirements, but very few of them a correspondingly able grasp of æsthetic requirements.

Friday, February 19.—Lunching with Julius Gregory to-day, we fell to dis-

cussing the enormous amount of stress that this generation lays upon gadgets in building. Most of them are rather widely known through the efforts of the advertising fraternity, but one that was new to me is radio control of garage doors. An "aerial" is sunk in the driveway, and a generating mechanism included in the car. As the car approaches, the underground antenna picks up the impulse, trips the switch of an electric motor, and the garage door is opened. As the car passes in, the lights of the garage are lighted, and the door closed. Incidentally, Gregory was telling me that in a recent installation he utilized the same principle for lighting the lights along the driveway as one approached in a car. Of course, there are other ways of accomplishing the same thing, such as with the use of a photo-electric cell, or even a switch in the driveway, operated when the wheels pass over it, but either of these devices may respond to the wrong car.



"International Style" was the label applied to-night at the Museum of Modern Art to the form of expression that has become so familiar to us in the work of Le Corbusier in France, Dudok and Oud of Holland, Gropius and Miës van der Rohe of Germany, Asplund of Sweden, Howe & Lescaze and Neutra of the United States. The occasion was a meeting for discussion called by Alfred H. Barr, Jr., the director of the Museum, who presented Lewis Mumford, Henry Wright, George Howe, Henry-Russell Hitchcock, John Wheelwright of Boston, Harold Sterner, and Harvey Corbett. Pope Barney of Philadelphia and Raymond Hood also joined in the discussion which, for the most part, was a pæan of praise for functionalism and all its works. It seems a pity that there is apparently a well-organized movement to label and codify contemporary architecture. As Raymond Hood suggested, the moment we try to make rules about color and ornament, materials, shapes, etc., we are confining what might be art in a strait-jacket. The work in this so-called "international style" has about it something that is fresh and clean, something that is straightforward and logical, but it also has about it some of the greatest absurdities into which architecture has

ever fallen. For example, here is a plan featured in the Exhibition, showing the Savoye house, Poissy-sur-Seine, by Le Corbusier and Pierre Jeanneret. One of the tenets of this new cult is that its work shall be free from traditional restrictions of material or of method. Yet here is a plan which binds itself absurdly into a system of supports. The architects have apparently said to themselves, "Let us design a house in cantilever construction." They have made what is apparently an arbitrary spacing of supports and built upon these. Of what advantage was it to set back the row of columns across the front? The continuous line of windows does not justify it, for the curtains obviously take more space where gathered together than the slim column would have required in the front wall. It would be a strange client who would knowingly take these columns out of the wall and stick them out in the living-room.

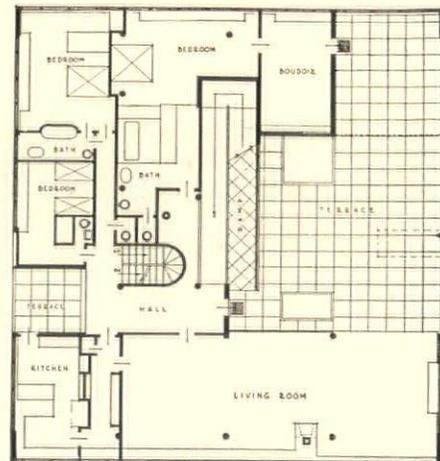
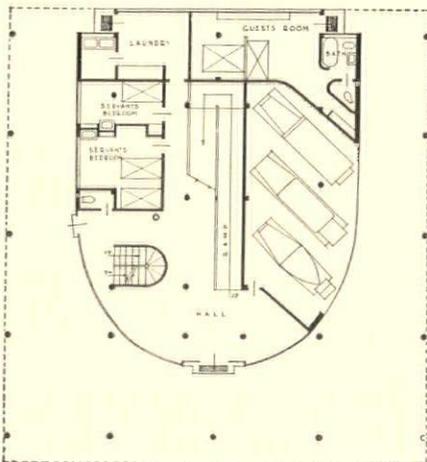
The garage plan seems to indicate that the central car may be driven in without hitting a post, but neither of the other two could make it.

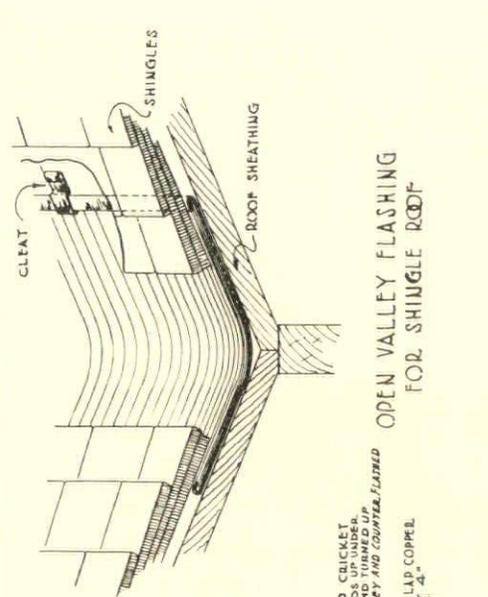
Is there any advantage in appearance or convenience in the form of the guest-room closet? Is there any possibility of using the guest bath in comfort? Is there any advantage in having the occupants of the guest-room double bed dodge a column in getting in or out?

On the upper or main floor, is there a conceivable gain in dragging the fireplace and its chimney out from the wall into the floor space in order to preserve the unbroken band of front windows in the living-room?

Just why the striving for *la vie intime* in providing no partition between the bathroom and the main bedroom? Possibly there may be some good reason for building a ramp from the ground floor to the main floor, in addition to a stairway, but the need is not obvious.

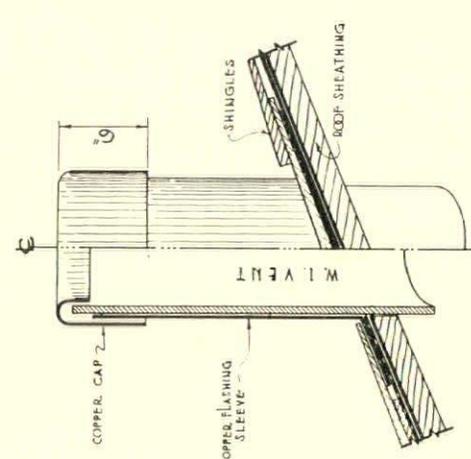
In other words, have the architects tried to design a livable house, or have they been occupied in solving some abstract problem of cantilever construction?



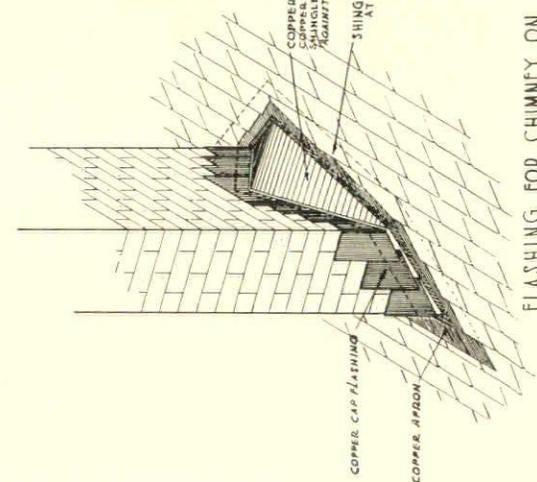


OPEN VALLEY FLASHING FOR SHINGLE ROOF

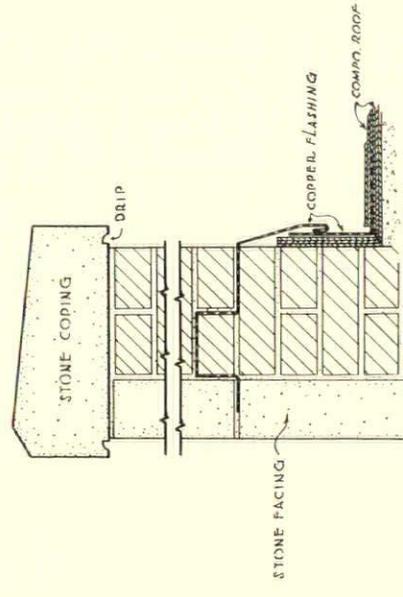
COPPER COVD CRICKET
COPPER EXTENDS UP UNDER
SHINGLES AND UNDER
ROOF SHEATHING AND
SHINGLES TO LIP COPPER
AT LEAST 4"



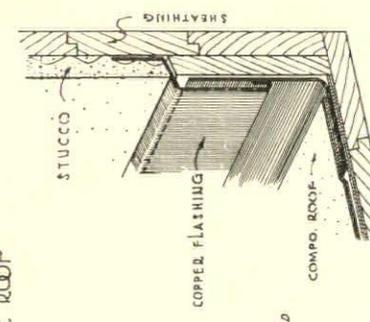
FLASHING FOR IRON VENT



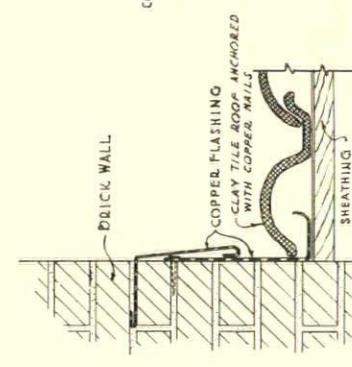
FLASHING FOR CHIMNEY ON SLOPE OF SHINGLE ROOF



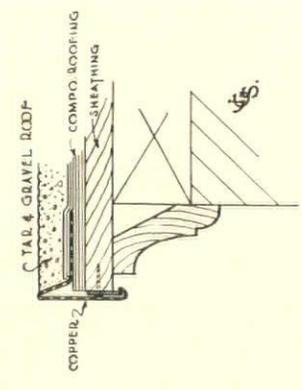
FLASHING FOR STONE FACED PARAPET



FLASHING FOR STUCCO WALL ON WOOD CONSTRUCTION ABOVE COMPO. ROOF



FLASHING FOR TILE ROOF AGAINST A BRICK WALL

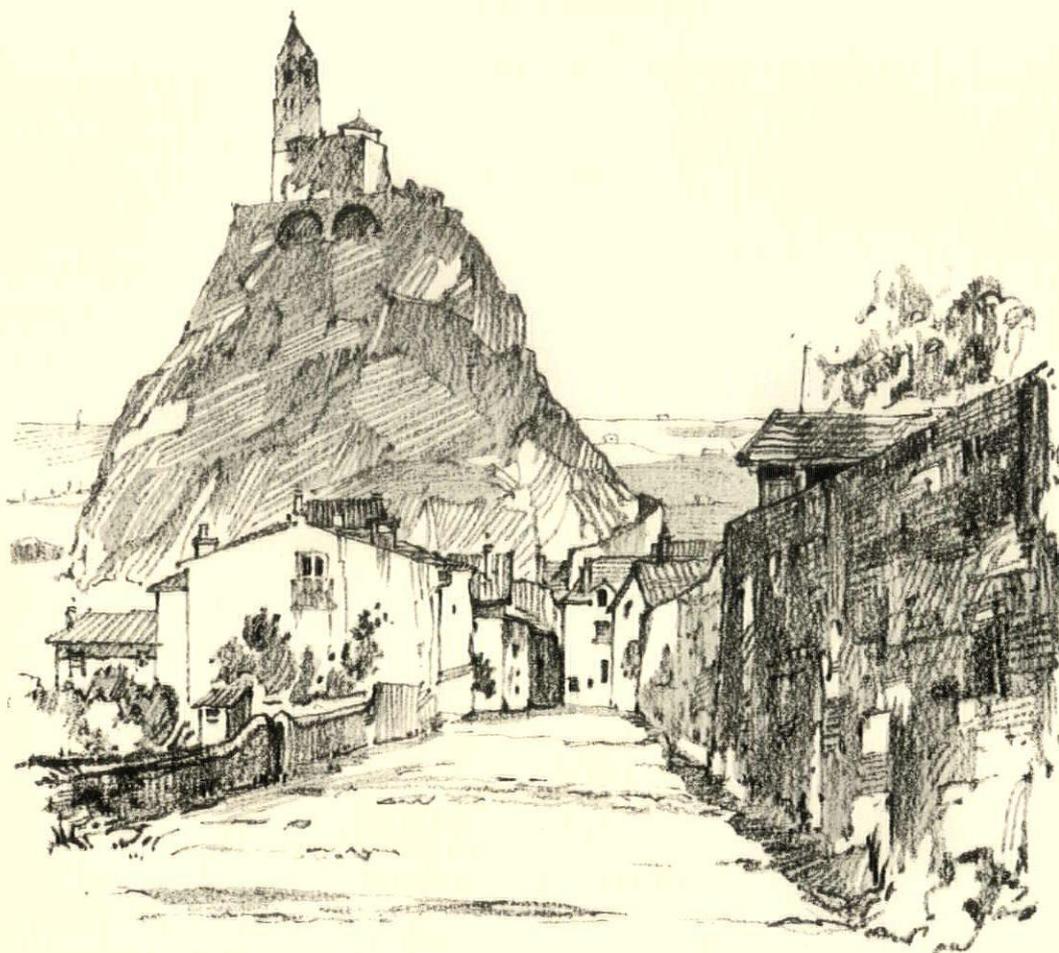


GRAVEL STOP & DRIP FOR FLAT ROOF

DETAIL OF ROOF FLASHING
A SERIES OF WORKING DRAWINGS BY JACK G. STEWART

NO SCALE

PLATE NO 23



LE PUY - ST. MICHEL

G. N. KUNZ -
1930

Le Puy

THREE SKETCHES IN PENCIL BY GORDON H. KUNZ

The drawing above is reproduced at the same size as the original

◀ ARCHITECTURE ▶

At left, the reproduction is from an original measuring $7\frac{7}{8}$ inches high. Below, the reproduction is from a sketch measuring $5\frac{1}{8}$ inches high.



LE PUY

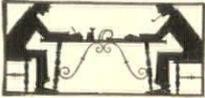
G. H. KUNZ
1930



LE PUY

G. H. KUNZ
1930

CONTACTS



DEVOTED TO A BETTER UNDERSTANDING OF THE BUSINESS SIDE
OF ARCHITECTURE AND ITS RELATION TO THE INDUSTRIES



A Score Card for a House

THE elements on which one must base an opinion of the quality of a house, as a place in which to develop a home, are many and diverse. The lack of any standard measuring rod by which to appraise their relative values makes difficult the establishment of any agreed rating for individual houses.

The Committee on Design decided that it would be helpful if an acceptable standard Score Card could be devised that would indicate the various basic elements involved and establish approximately accurate relative values for these elements, so that a final composite rating could be calculated that would indicate the quality of the house as a whole.

Tentative drafts were considered by the committee, and the difficulties involved in the design and practical use of a Score Card were made clear, but its value was equally clearly indicated. It was therefore decided to include in an addendum to the committee's report a tentative draft of a Score Card with a brief explanation of its construction and use, in the hope that it might later be perfected into a form generally acceptable and capable of helpful use.

The committee desires to emphasize the fairly obvious fact that impartial appraisers are essential if the use of a Score Card is to develop a dependable rating. The judgment of the owner of the house would generally be prejudiced on certain points and inexpert on others. The judgment of a real-estate operator about a house he was trying to sell, or of an architect about a house he had designed and supervised, would be equally and inevitably prejudiced.

Both architectural and real-estate values are involved as well as financial judgment. It is suggested that an appraisal should therefore be based upon the united judgment of an architect and a realtor, and that possibly to those should be added a banking agency official.

In one community it is already

The President's Conference on Home Building and Home Ownership brought out an overwhelming mass of findings as a result of the committees' preliminary study. Not the least valuable is the following, which constituted Addendum 5 to the report of the Committee on Design, of which William Stanley Parker, of Boston, was chairman, and Henry Wright, of New York, was research secretary.—EDITOR.



proposed to create within the local Building Congress an appraisal committee to appoint appraisers and to review appraisals, thus creating official standards for the community which would tend automatically to eliminate the sub-standard product.

The following tentative draft of a Score Card is presented as a first step, and in no sense as a final conclusion. Comments are requested, and it is hoped that serious study of it will be given by architects, realtors and bankers in many different communities with a view to perfecting it into a practicable instrument that will be helpful by creating that standard measuring-rod which to-day is clearly lacking.

Attention is called particularly to the footnote to the Score Card which states that to be entitled to a final composite rating a house must have a rating of at least 60 per cent on each of the six main items. This seems a desirable rule to apply in some way. A person contemplating building or buying a house is solely interested in the result as a whole. He desires assurance that the design and the construction of his house are adequate, but these will be of small consolation to him if he finds he has built his house in a depreciating or unprotected district that makes his house valueless as a home in a few years.

Serious deficiency in any one of these six underlying factors may outweigh a perfect score on all the other items. We have suggested 60 per cent as the low limit of safety. This is a pure assumption and we are not prepared to say that 75 per cent or even 80 per cent is not a better percentage to adopt for this purpose. Perhaps only practical experience in the use of such a Score Card can determine this question, which is one of many questions concerning the Score Card on which comments are desired.

SCORE CARD

A. Surrounding Community Conditions.....	1000
(1) General character of occupancy	
(2) Trend of character of occupancy	
(3) Service by public utilities	
(4) Transportation facilities	
(5) Recreational facilities	
(6) Health conditions	
B. Obsolescence.....	1000
(1) Character of property in relation to current type of construction	
(2) Character of property in relation to current types of equipment	
(3) Character of property in relation to modern living habits and economies.	
C. Physical Depreciation.....	1000
(1) General structure	
(2) Exterior finish	
(3) Interior finish	
(4) Heating plant	
(5) Plumbing	
(6) Wiring	
(7) Equipment	
(8) Appurtenances	
(9) Planting	
D. Relation of House to Surroundings.....	1000
(1) Outlook and orientation.....	240
(2) Relation to adjacent property uses.....	240
(3) Adequacy of lot.....	200
(4) Location on the lot—privacy.....	160
(5) Garage and services.....	80
(6) Planting.....	80
E. Design.....	600
(1) Plan	
(a) Adequacy and proportions of room sizes.....	120
(b) Inter-relationship of rooms.....	120
(c) Economy of space (halls vs. rooms).....	120
(d) Work spaces and equipment (heat and plant), adequacy, arrangement.....	80

- (e) Light and ventilation..... 80
- (f) Closets—size and equipment.. 40
- (g) Usable wall spaces..... 40

- (2) Appearance..... 400
 - (a) Exterior Total 240
 - (1) Use of materials..... 40
 - Simplicity
 - Good combination of materials
 - Logical use of materials
 - Texture
 - Character of details
 - (2) Character of decorative motives..... 40
 - (3) Relation to adjacent designs.. 40
 - (4) General mass..... 40
 - (5) Proportions of openings..... 30
 - (6) Relation of openings to wall surfaces..... 30

- (7) Color..... 20
- (b) Interior Total 160
 - (1) Treatment of stairs..... 40
 - (2) Relation of openings to wall surfaces..... 20
 - (3) Treatment of fireplace..... 20
 - (4) Standing finish..... 20
 - (5) Treatment of wall surfaces... 20
 - (6) Electric fixtures and hardware.. 20
 - (7) Color..... 20

- F. Construction.....1000
 - (1) Quality of materials....500
 - (a) Foundations
 - (b) Walls, floors and partitions
 - (c) Roofing
 - (d) Exterior finish
 - (e) Interior finish
 - (f) Flooring

- (g) Heating plant
- (h) Plumbing
- (i) Wiring
- (2) Quality of workmanship 500
 - (a) Foundations
 - (b) Walls, floors and partitions
 - (c) Roofing
 - (d) Exterior finish
 - (e) Interior finish
 - (f) Flooring
 - (g) Heating plant
 - (h) Plumbing
 - (i) Wiring

Note: If the rating of any one of the six main factors is less than 60 per cent, serious question would be raised as to the value of the property and no final percentage rating should be allowed.

A New Type of Concrete Construction

By
Norman V. Davidson

AFTER seven years of experimentation, a new type of hollow concrete construction has been developed for houses or other small buildings, and is now being used in San Diego, Calif. The system employs what might be termed a wall unit principle and, through its simplicity, surmounts a number of difficulties that have been stumbling-blocks in hollow concrete construction. The general advantages of the system are those claimed for hollow concrete, or reinforced concrete and hollow tile, while the additional claim is made that it allows greater flexibility of design while holding the cost down to a figure comparable with that of common frame structures.

The new system employs a standardized tile unit of channel shape measuring 4 in. by 12 in. by 7 ft. Tiles are placed on end, two at a time, with their tongues fitting into a groove cast in the foundation, and with their hollow sides facing each other. Thus two tiles make a complete wall unit 8 in. thick, 12 in. long, and 7 ft. in height. The tiles

are locked to the foundation by a small quantity of cement poured in the base between tongues. At the top, simple metal fittings and a rim of reinforced concrete hold the tiles.

This concrete rim may hold either a ceiling of tile units in conjunction with reinforced concrete joists, and at the same time be the foundation for a second-story wall of tiles, or it may accommodate a roof of either tile or wood.

Unlike hollow tile and reinforced concrete construction, the new tile is used as a part of the reinforcing column, which accounts in part for the cost saving claimed. The reinforcing members are inserted in the space between the two tiles and the concrete poured in about them.

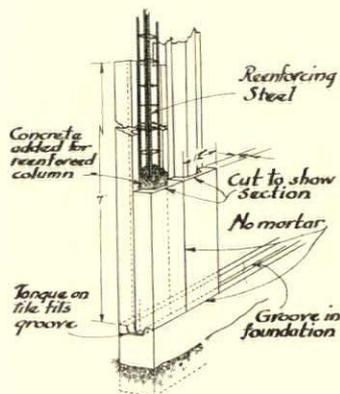
Since the new tiles run from the floor to the ceiling, it is unnecessary to plumb each tile separately. The entire wall is plumbed just prior to the pouring of the rim, a step that resembles closely the similar opera-

tion in wood frame construction, and it is said to be another feature that keeps the cost down.

The hollow space between the tiles is ample for all plumbing and electrical conduits and the surfaces are sufficiently rough to allow a good bond for application of the stucco directly on the outside or plaster on the inside, without lath or other material for binding. In this climate the need for furring is not pressing.

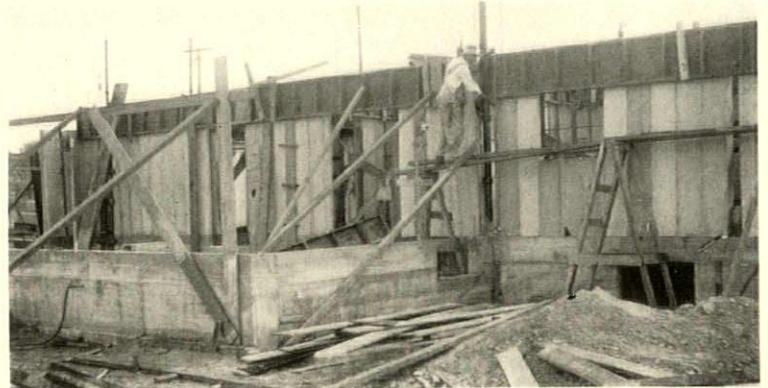
Since the structural system calls for nearly 100 per cent concrete, the tiles are made on the job, and the mixer and its crew are therefore kept busy at a steady pace without slack periods.

The windows generally employed are all metal and are secured in place during pouring. Wooden flooring, mouldings, etc., are taken care of in the usual manner by the inclusion of wooden strips or with nail-crete. Because of the many advantages of this type of construction, and the fact that it is comparable in cost to frame, it is believed that its use will become widespread. The system is patented.



Here is an isometric drawing of a foundation with tiles in place.

At right, a wall of the tiles in place, with the forms set at top to receive poured rim. Note soil pipe projecting above the tiles.



THE SIXTY-SIXTH IN A SERIES OF COLLECTIONS
OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR
ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF LEADED GLASS MEDALLIONS

❖ 1926
DORMER WINDOWS
SHUTTERS AND BLINDS

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

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

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

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

❖ 1931
BANKING-ROOM CHECK DESKS
SECOND-STORY PORCHES
TOWER CLOCKS
ALTARS
GARAGE DOORS
MAIL-CHUTE BOXES
WEATHER-VANES
BANK ENTRANCES
URNS
WINDOW GRILLES
CHINA CUPBOARDS
PARAPETS

❖ 1932
RADIATOR ENCLOSURES
INTERIOR CLOCKS
OUTSIDE STAIRWAYS



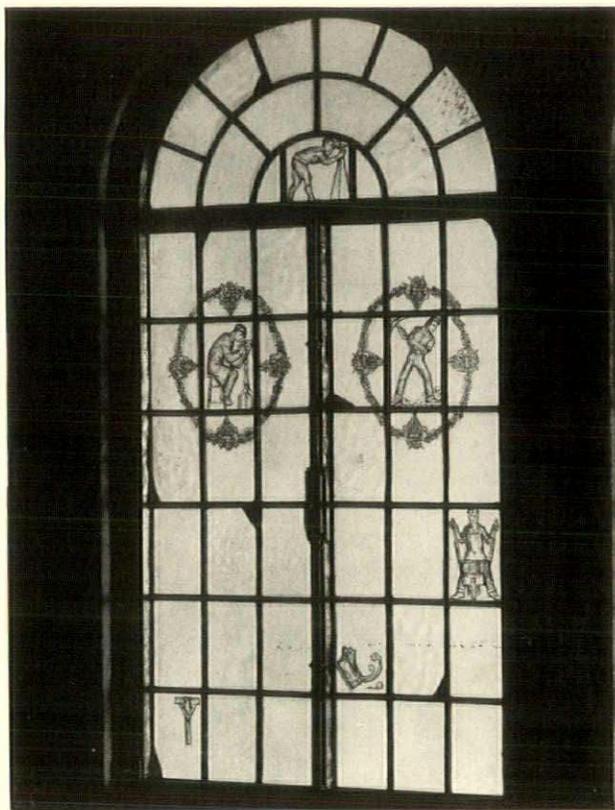
Subjects of Previous Portfolios Are Listed at Left

Forthcoming Portfolios will be devoted to the following subjects: Exterior Doors (May), Metal Fences (June), Hanging Signs (July), Wood Ceilings (August), Marquises (September), and Wall Sheathing (October). Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication date.



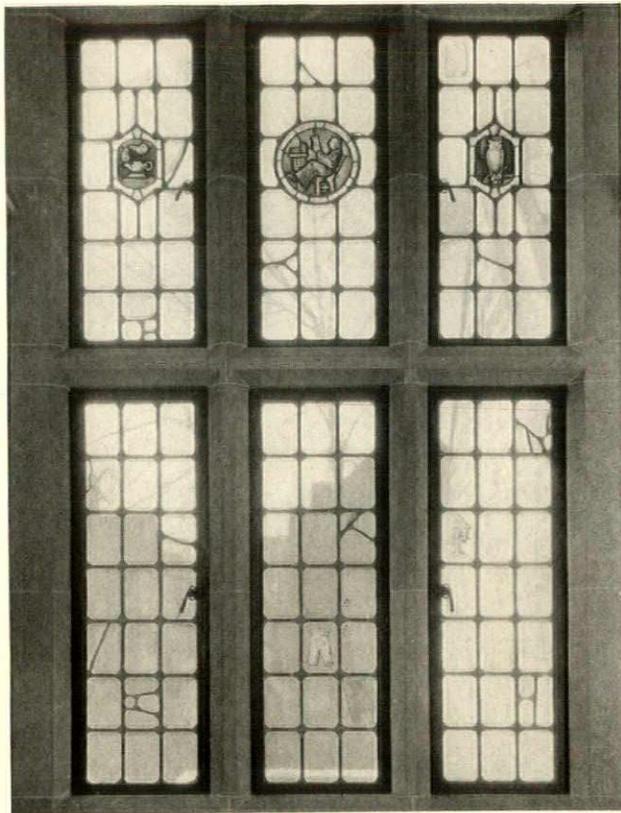
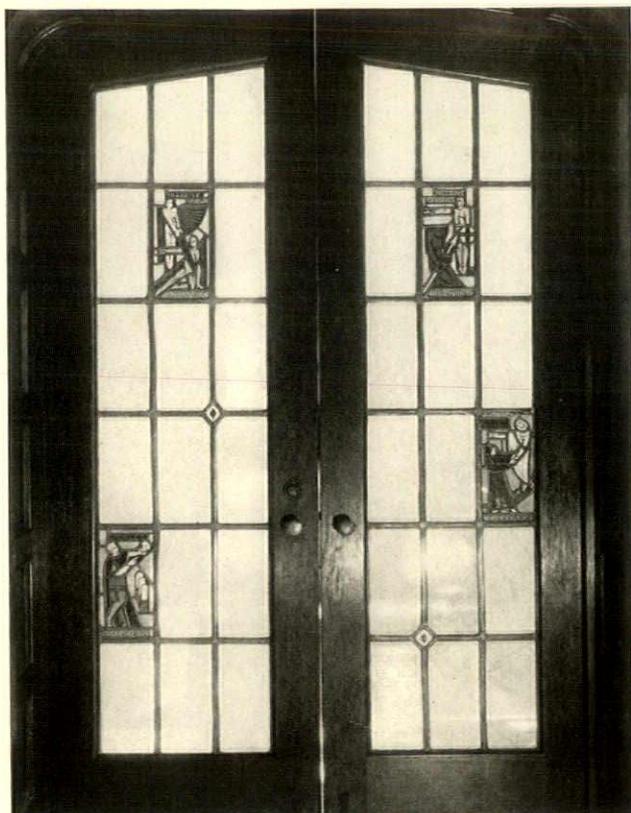
Henry D. Dagit & Sons, architects

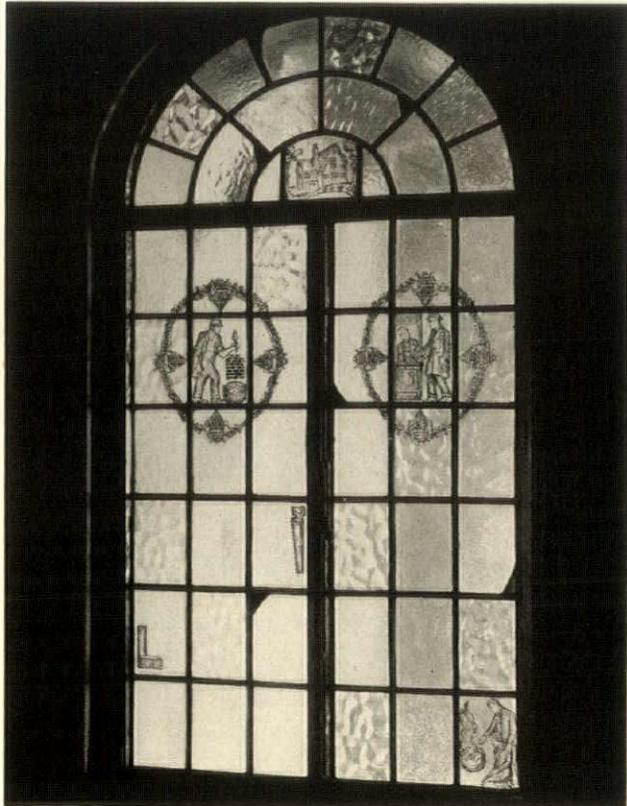
*Designed and executed by Charles J. Connick
Charles F. Cellarius, architect*



*Designed and executed by Charles J. Connick
Charles F. Cellarius, architect*

Designed and executed by Henry Lee Willet





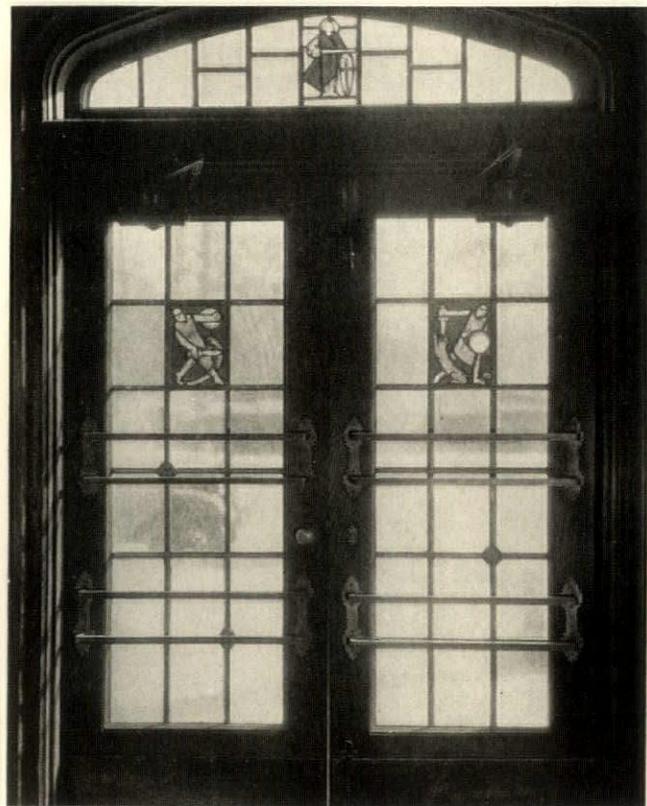
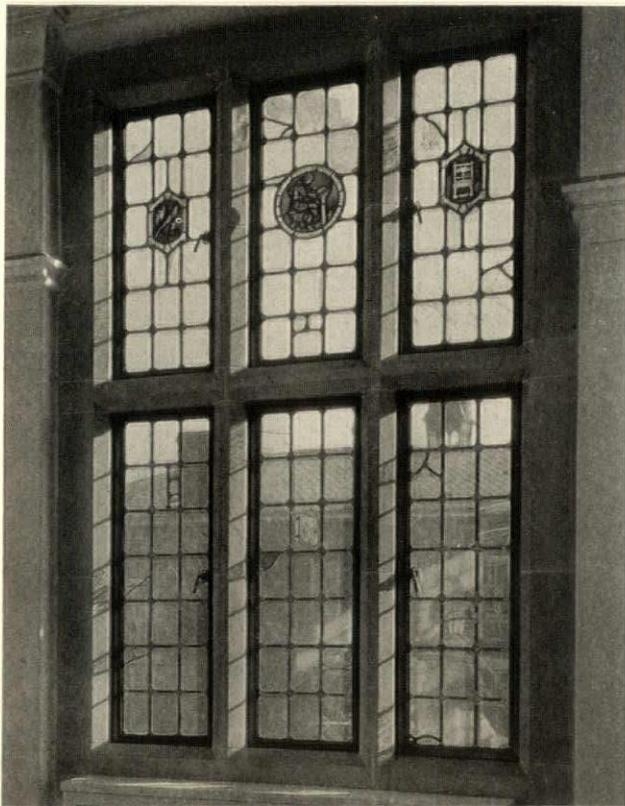
*Designed and executed by Charles J. Connick
Charles F. Cellarius, architect*

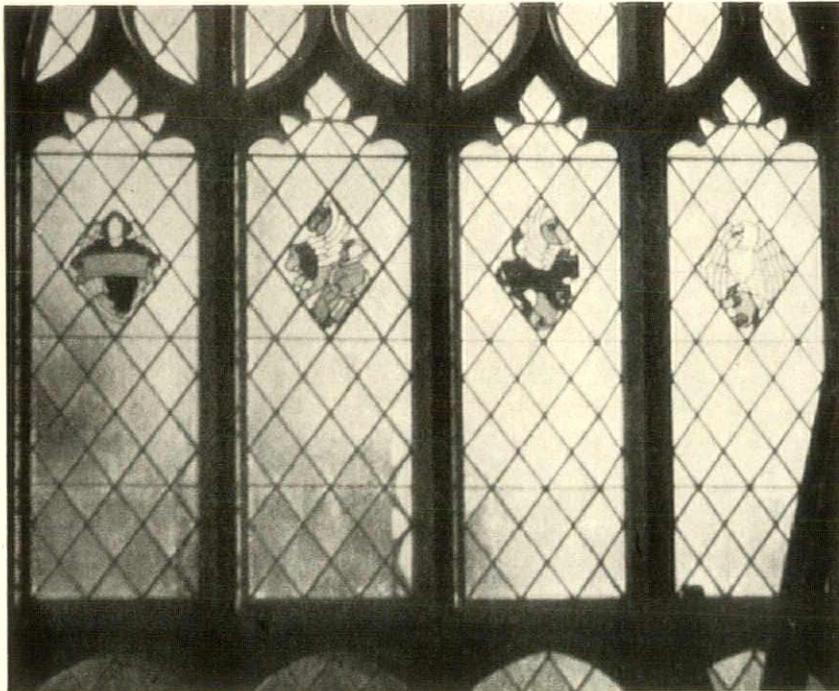
Designed and executed by Henry Lee Willett



Henry D. Dagit & Sons, architects

*Designed and executed by Charles J. Connick
Charles F. Cellarius, architect*



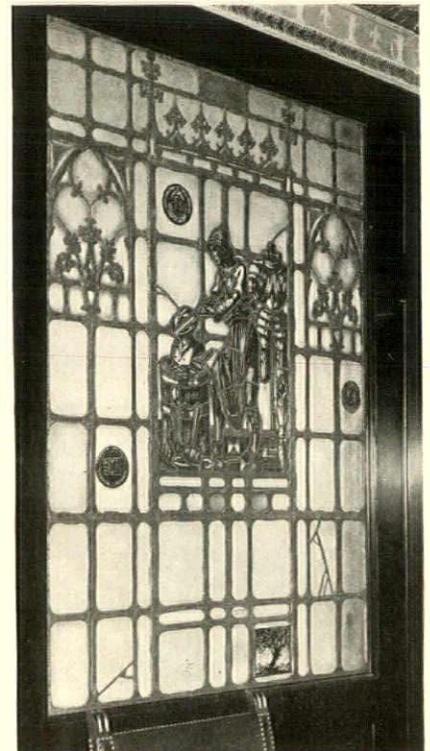
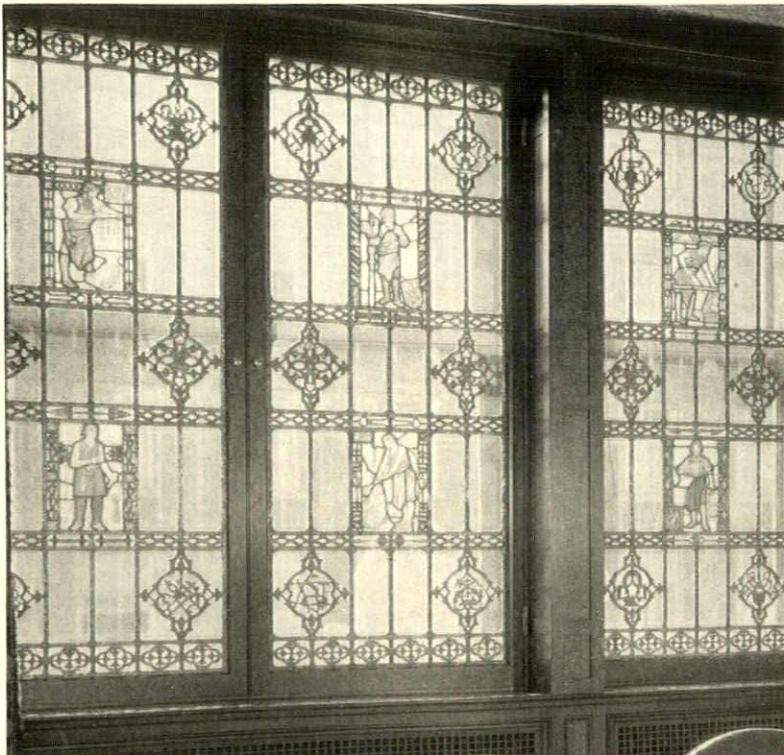
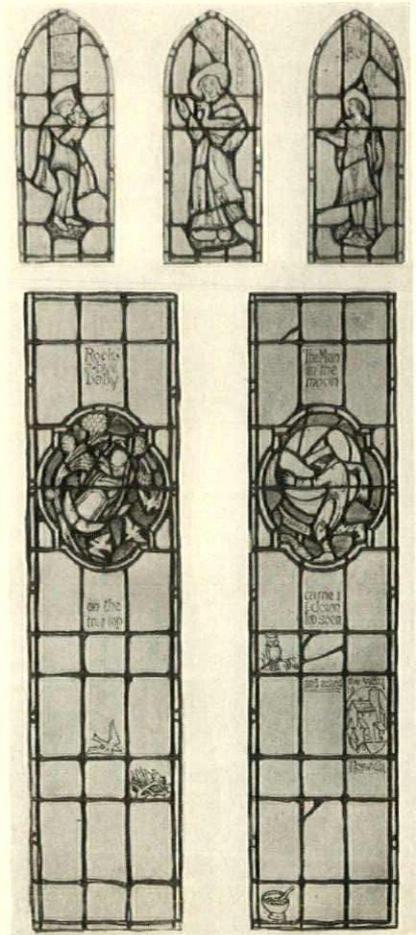


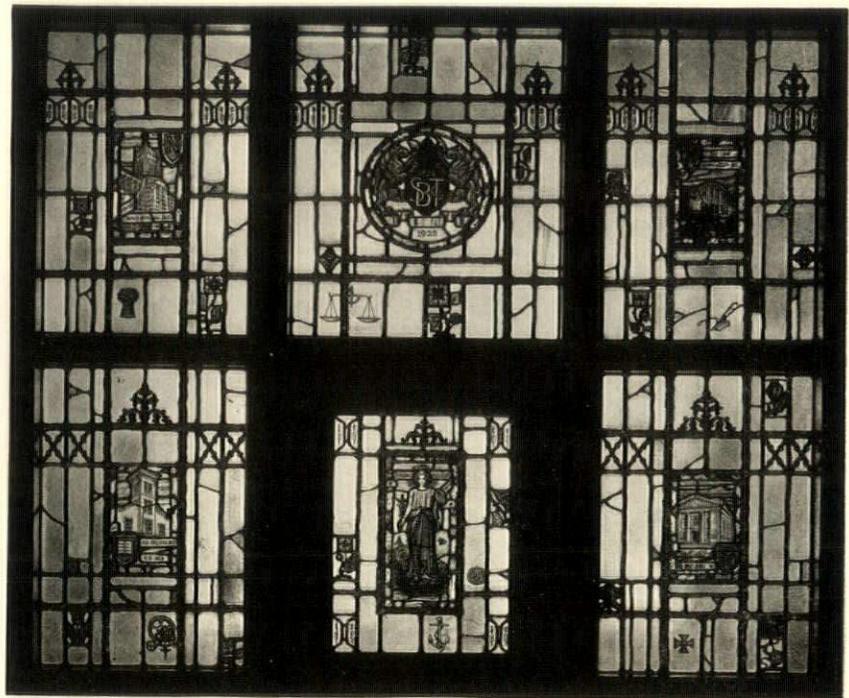
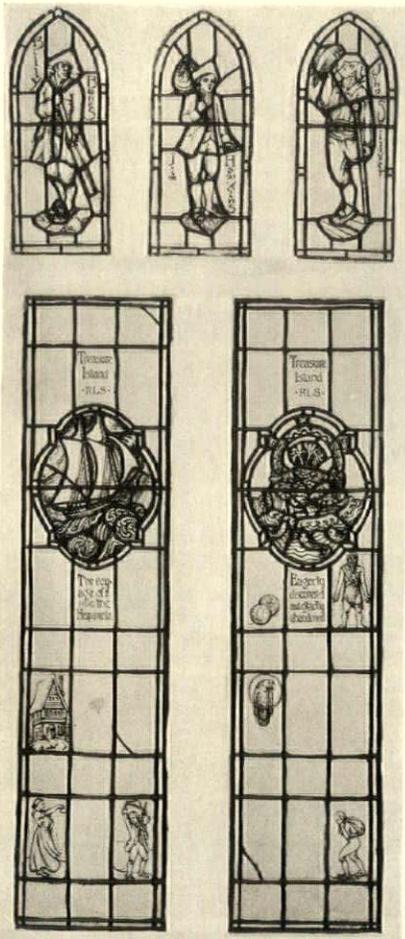
William W. Price, architect

*Designed and executed by Charles J. Connick
Stanley Matthews, architect*

*Below at right, designed and executed by G. Owen Bonawit, Inc.
Childs & Smith, architects*

*Designed and executed by The Linden Company
Childs & Smith, architects*



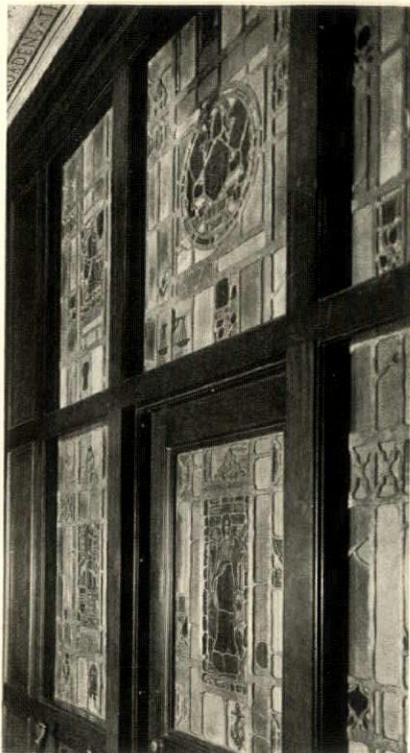


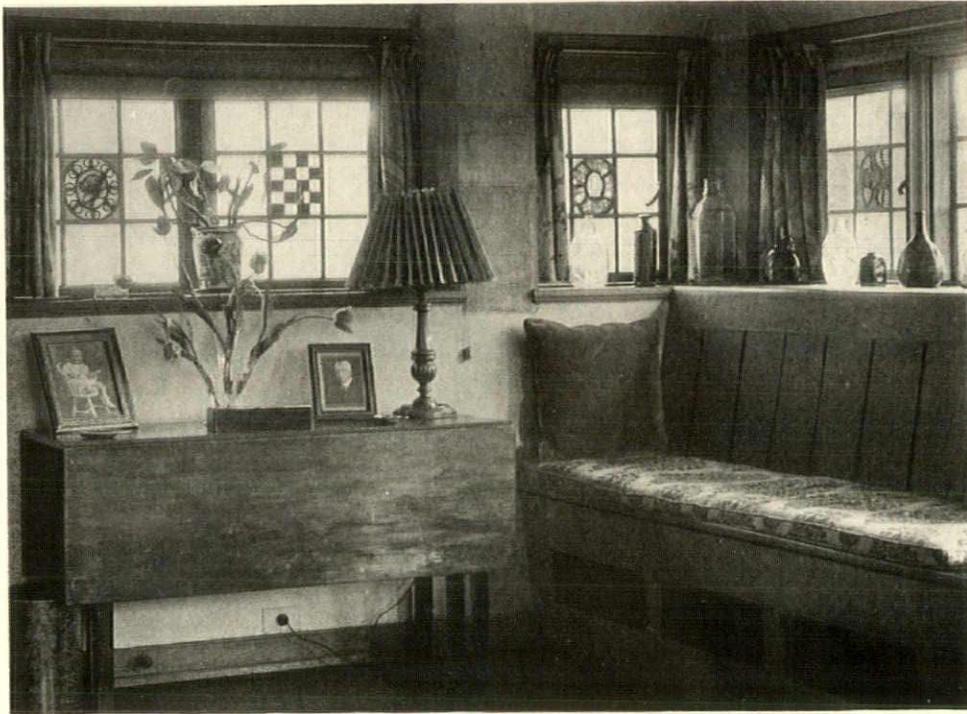
*Designed and executed by The Linden Company
Childs & Smith, architects*

*Designed and executed by Charles J. Connick
Stanley Matthews, architect*

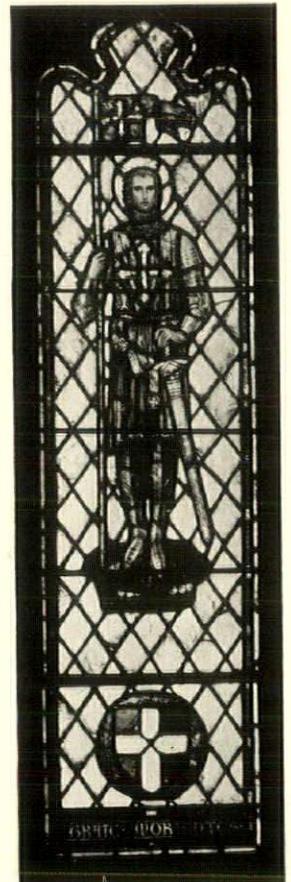
*Below at left, designed and executed by The Linden Company
Childs & Smith, architects*

*Executed by Clement Heaton
Frederick L. Ackerman, architect*

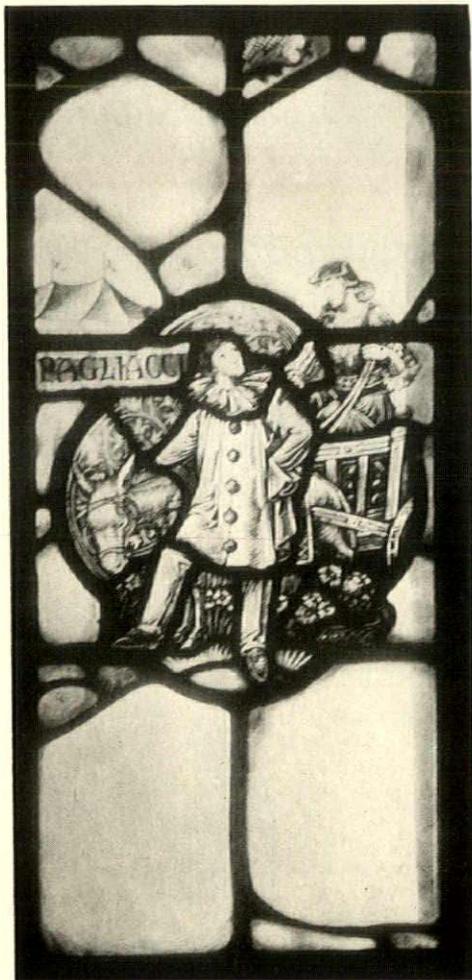




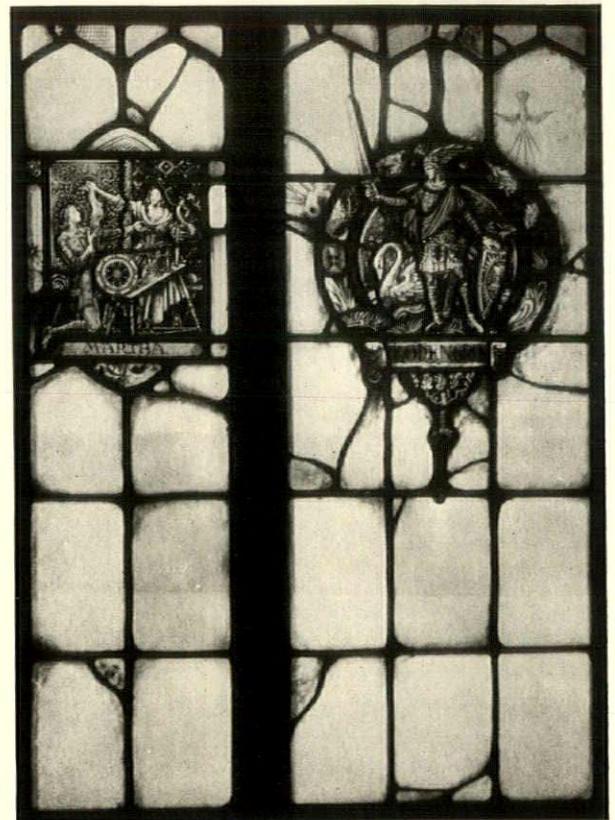
Wesley S. Bessell, architect



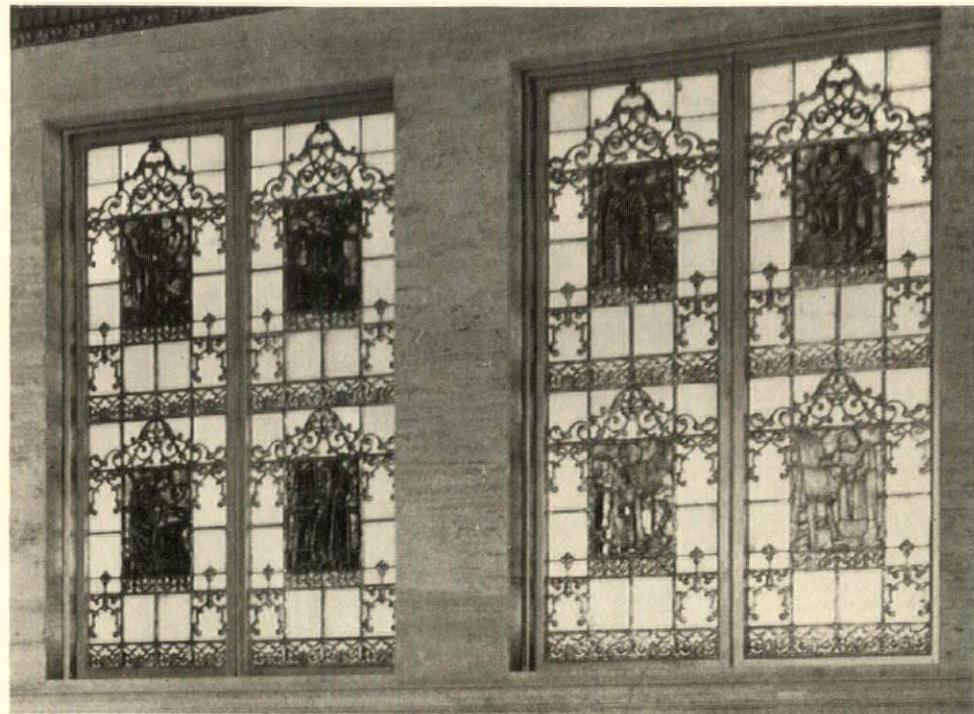
*Designed and executed by
Charles J. Connick
Cram & Ferguson, architects*



*Designed and
executed by
The
D'Ascenzo
Studios*

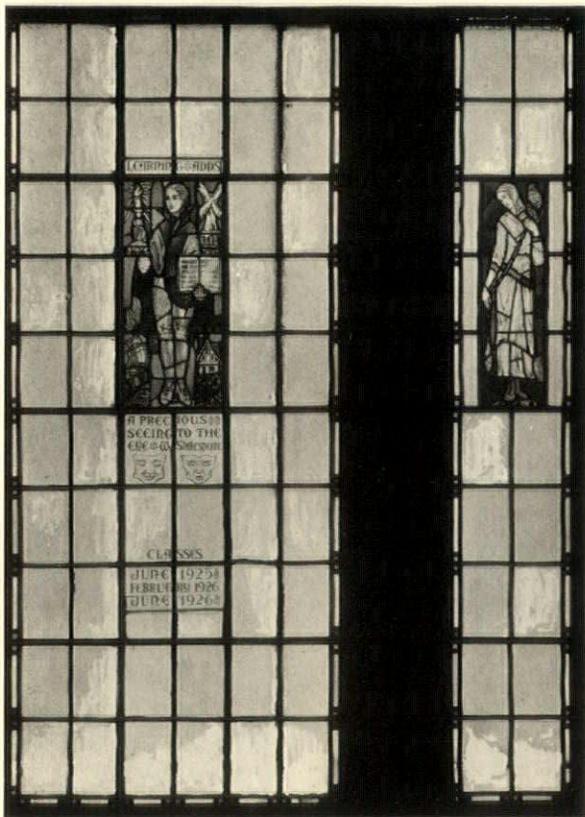


*Designed and
executed by
The
D'Ascenzo
Studios*



*Designed and executed by G. Owen
Bonawit, Inc. Childs & Smith, architects*

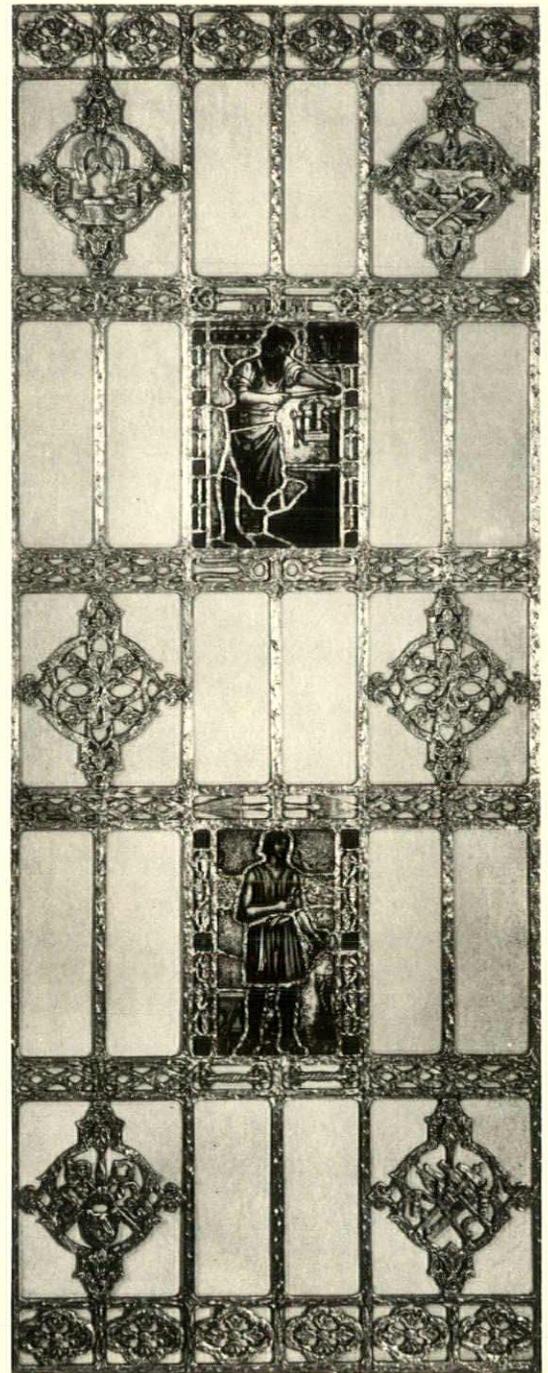
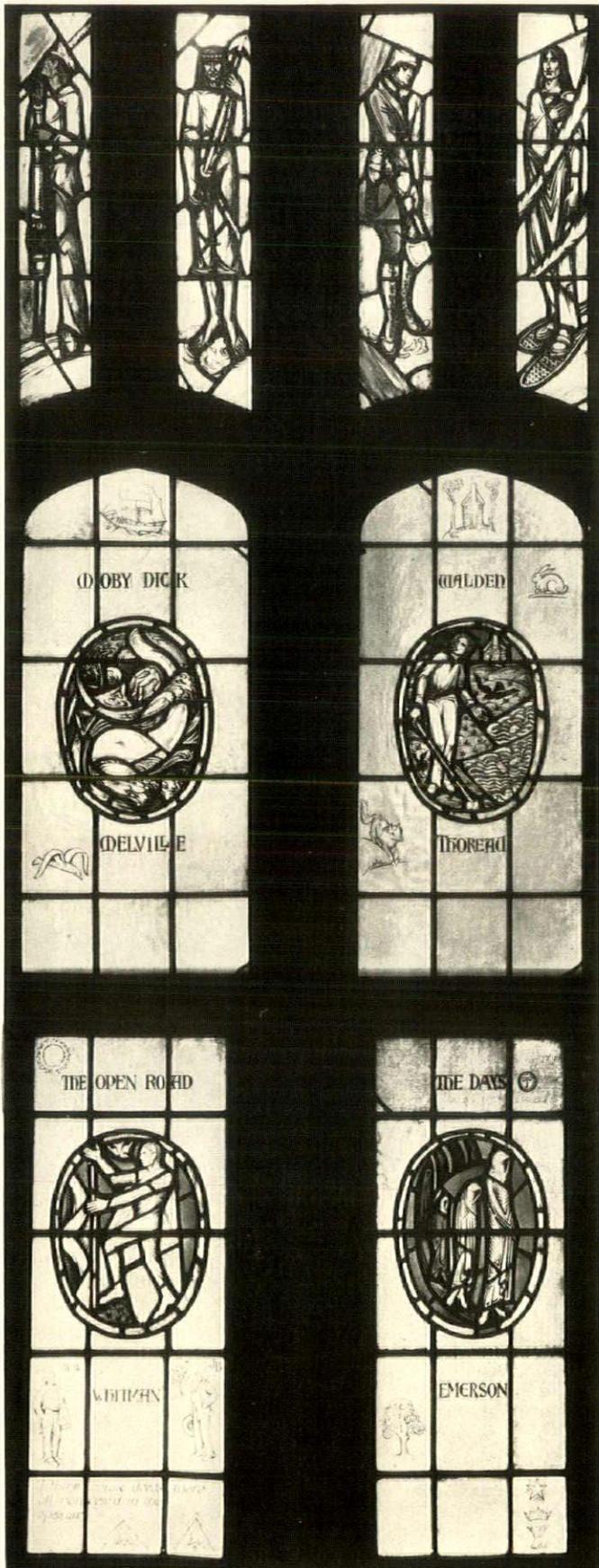
*Designed and executed by
Charles F. Connick
Cram & Ferguson, architects*



*Henry Raeder,
architect; N.
Max Dunning,
George C.
Nimmons
& Co.,
associate
architects*

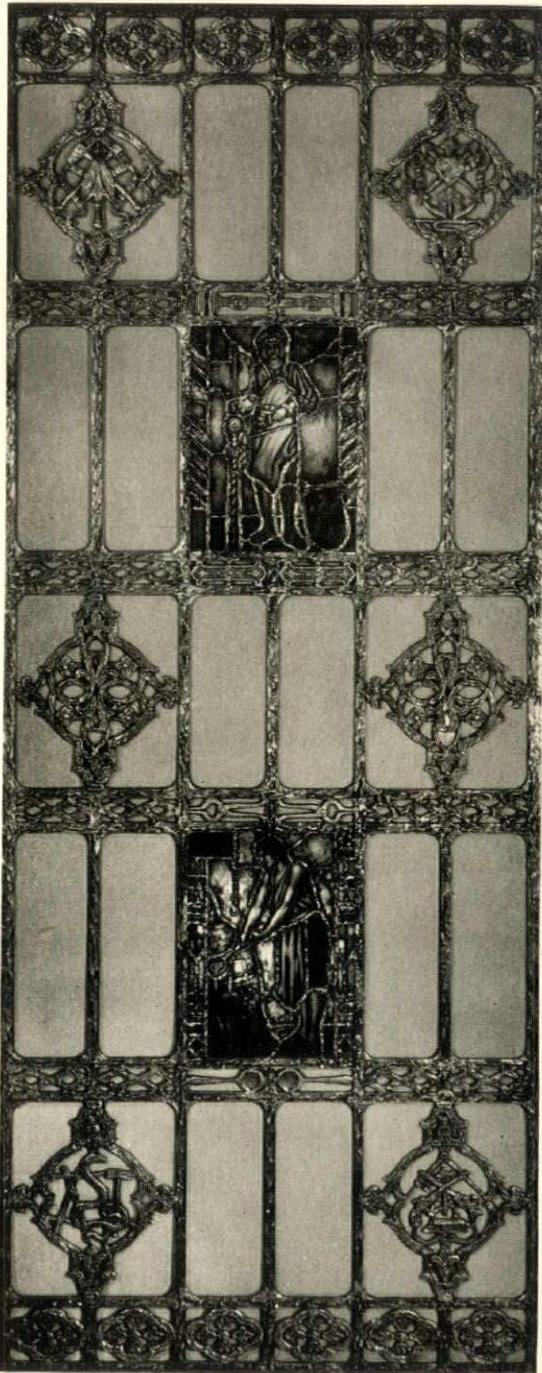
*Designed and
executed by
Charles F.
Connick*



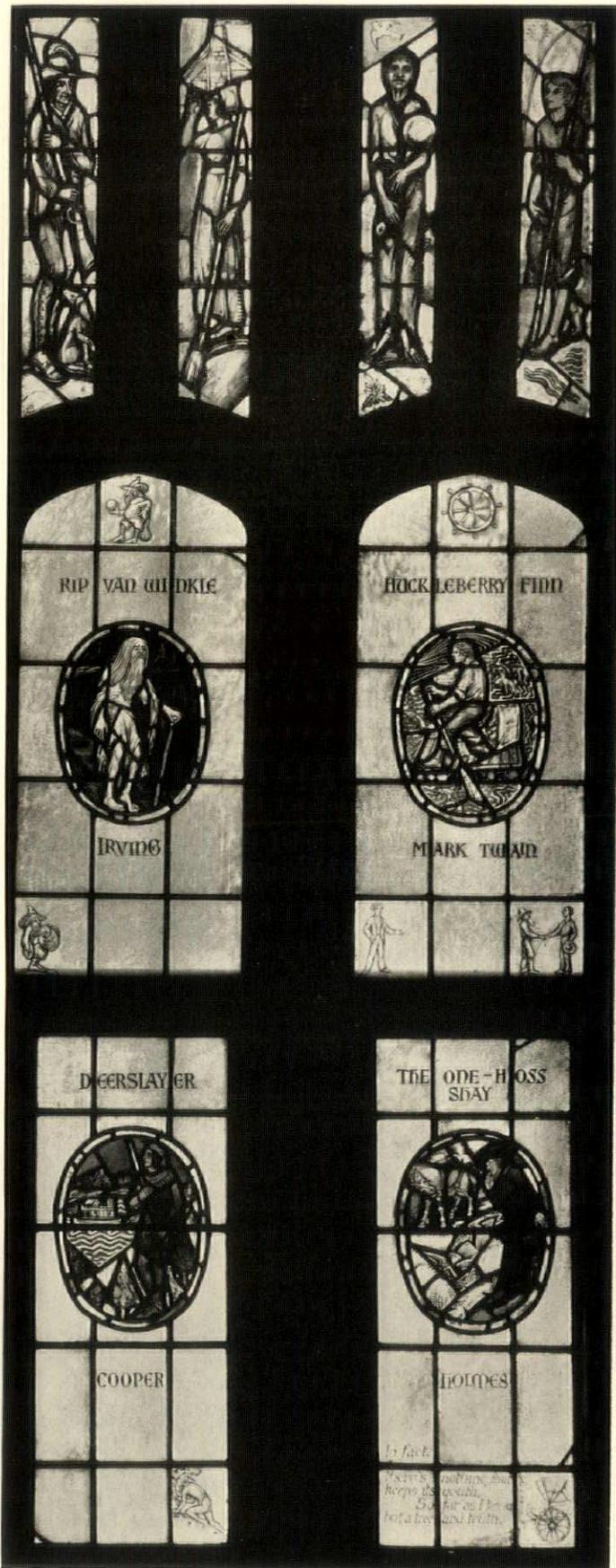


*Executed by The Linden Company
Childs & Smith, architects*

*Designed and executed by Charles F. Connick
Granger & Bollenbacher, architects*

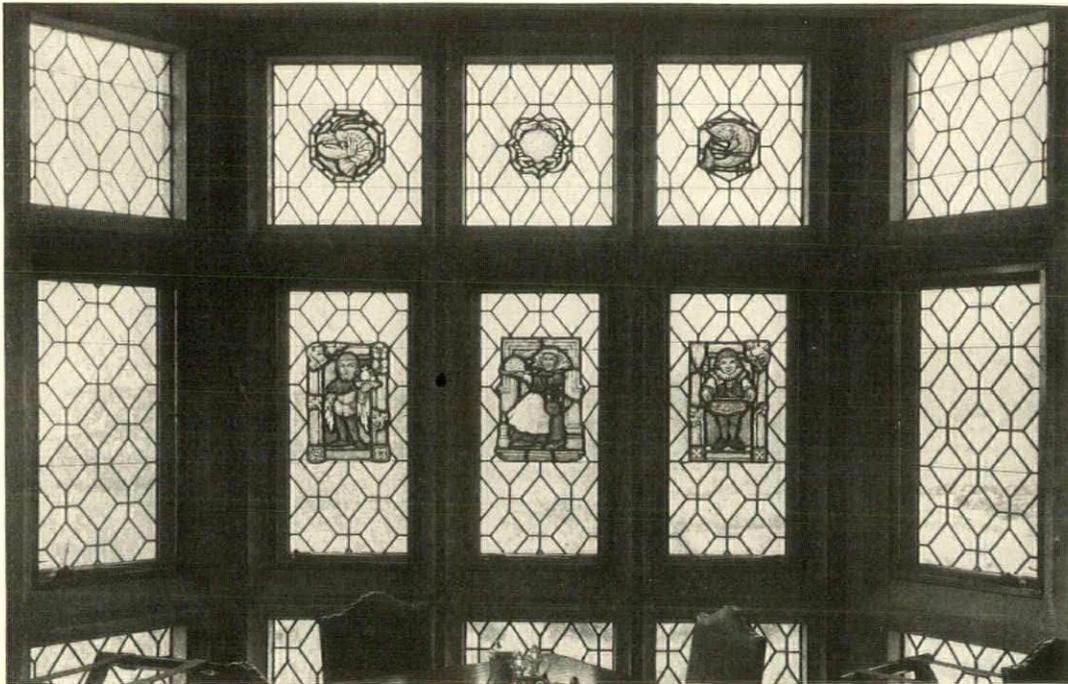


Executed by The Linden Company
Childs & Smith, architects

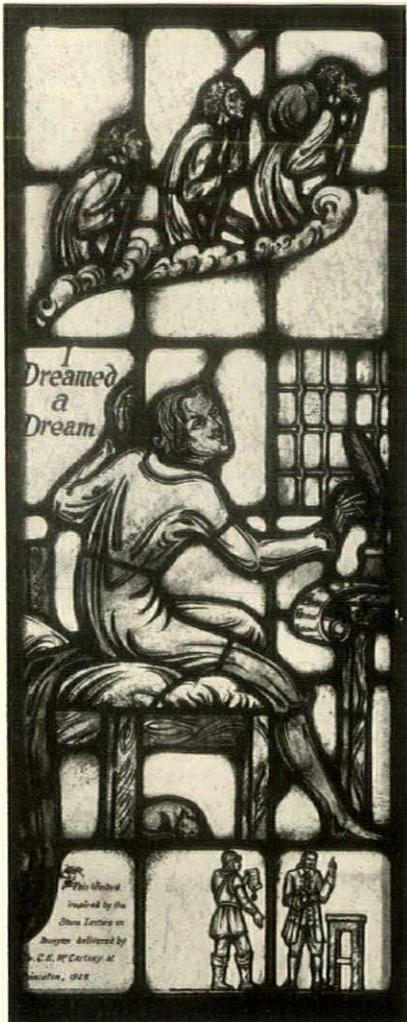


Designed and executed by Charles J. Connick
Granger & Bollenbacher, architects

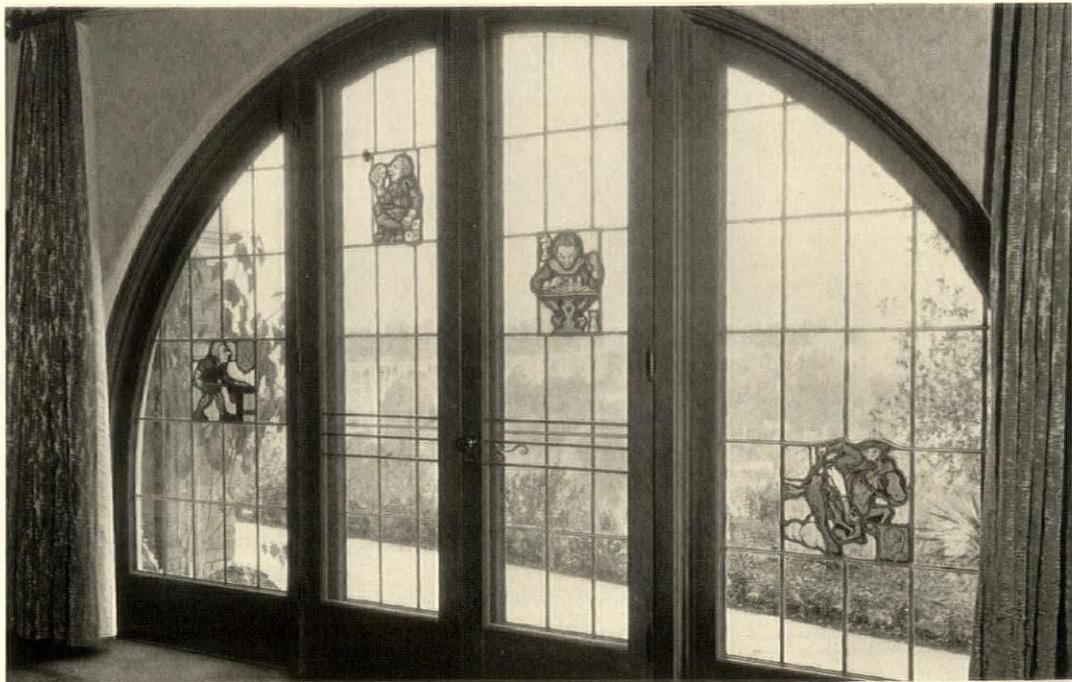
*Allison &
Allison,
architects*



*Designed and
executed by
Henry Lee
Willet*



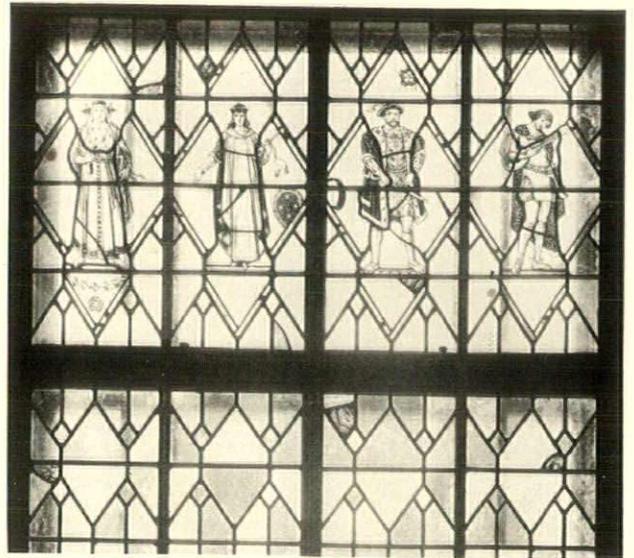
*Paul R. Williams,
architect*



*Designed and
executed by
Henry Lee
Willet*

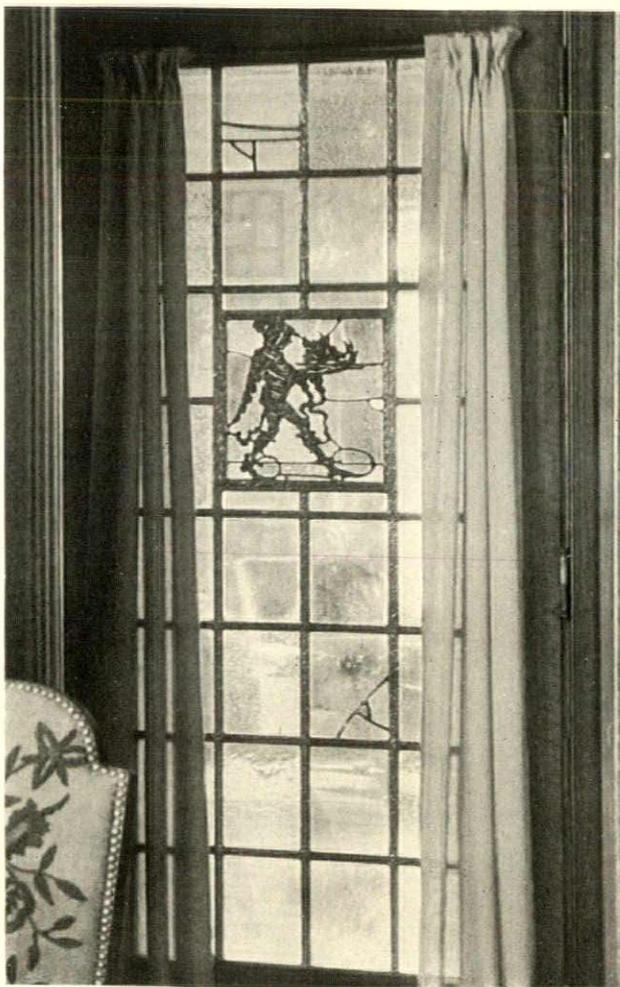


*Bridging
Chaos*



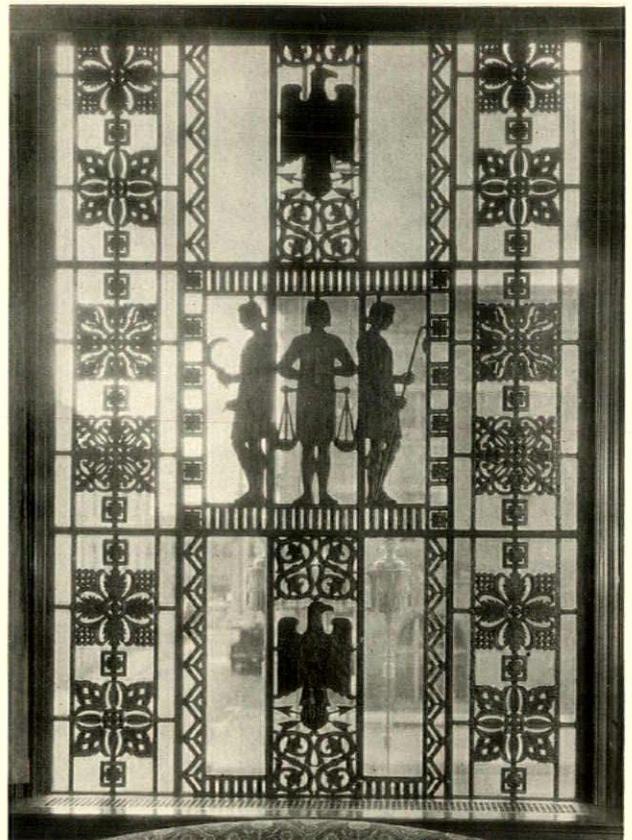
*Designed and executed by The D'Ascenzo Studios
Paul P. Cret, architect*

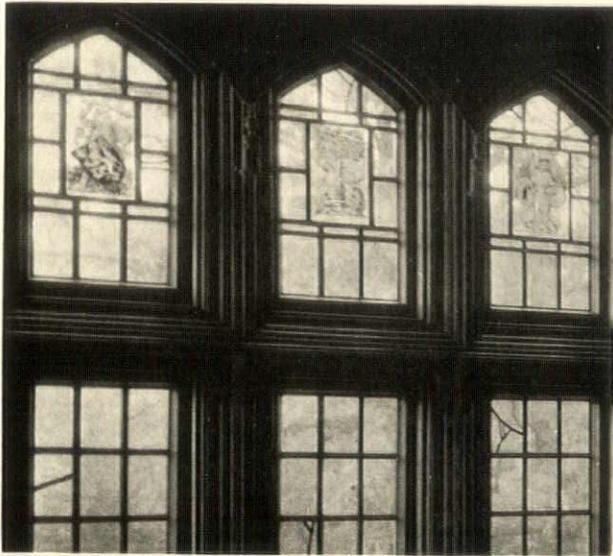
*Designed and executed by G. Owen Bonawit, Inc.
James Gamble Rogers, architect*



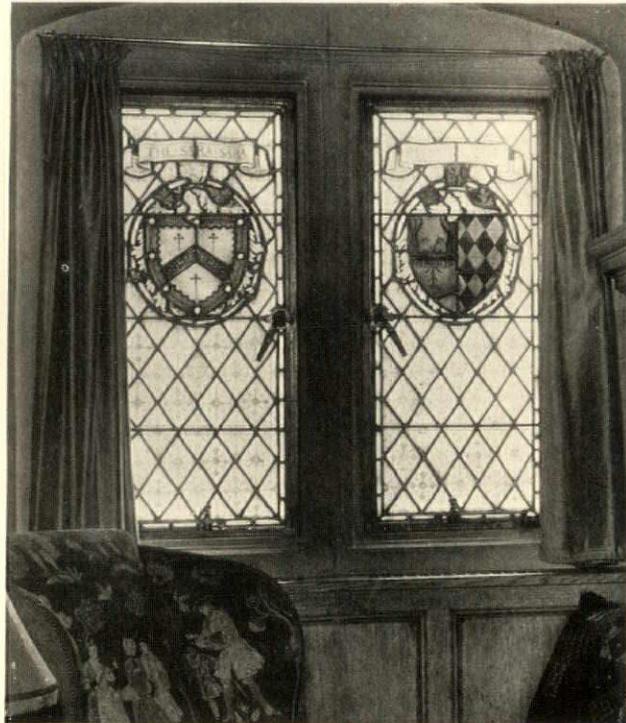
Louis Hessler, decorator

*Designed and executed by The Linden Company
Childs & Smith, architects*





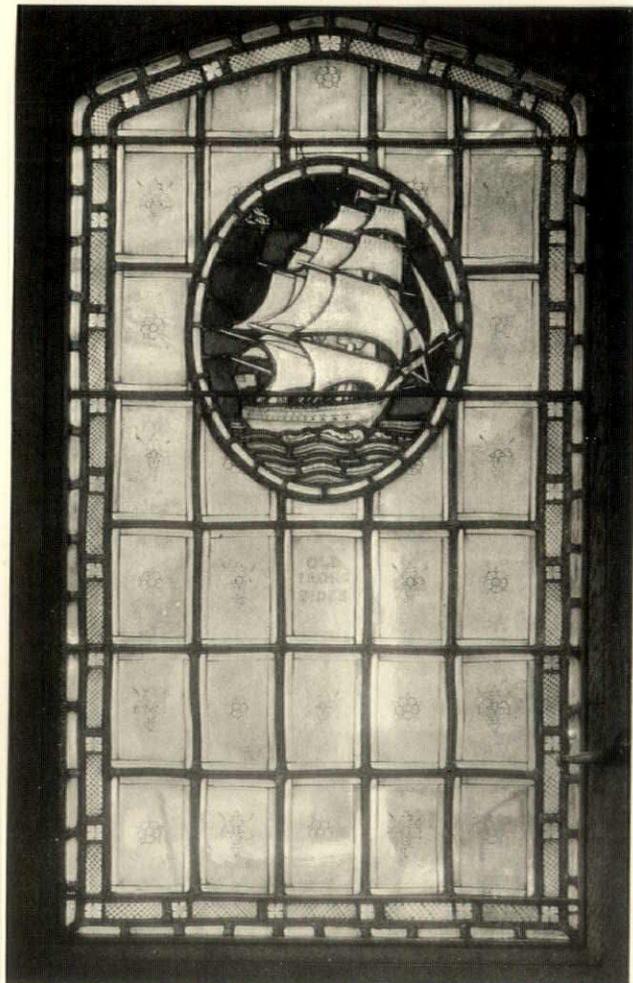
Benjamin V. White, architect

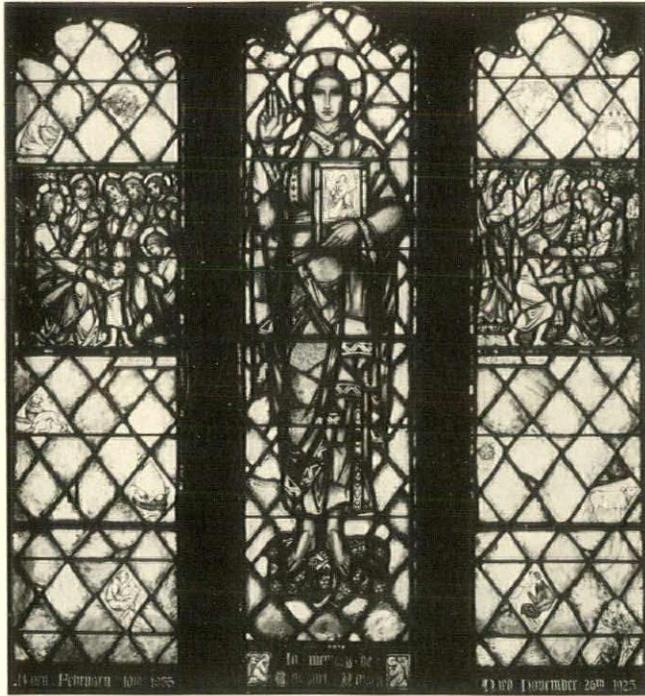


*Executed by Clement Heaton
Frederick L. Ackerman, architect*

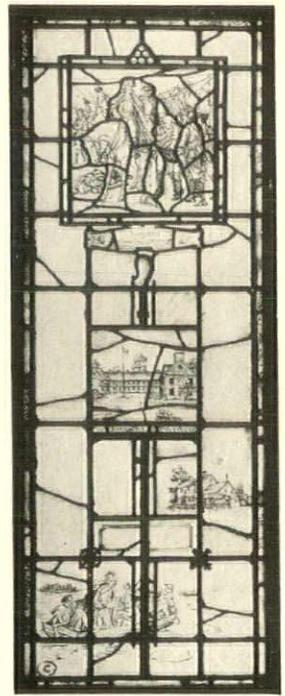
*Executed by Clement Heaton
Frederick L. Ackerman, architect*

Paul R. Williams, architect



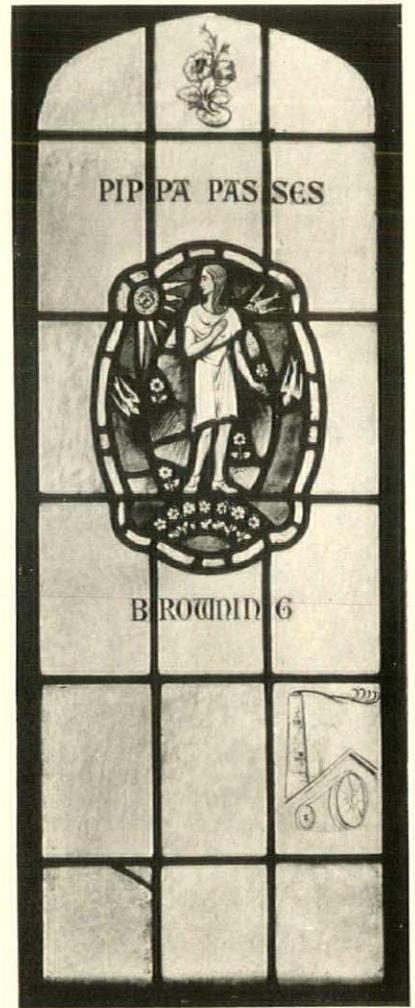


Designed and executed by Charles F. Connick Cram & Ferguson, architects

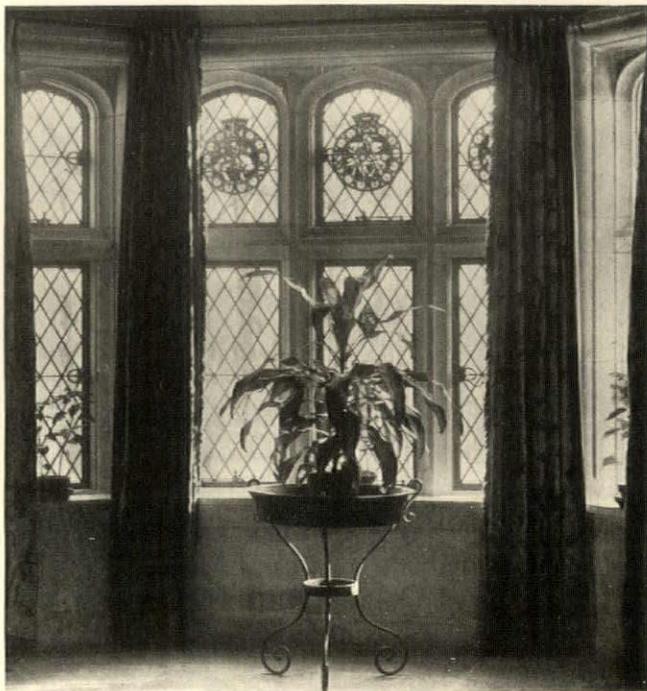


Designed and executed by The D'Ascenzo Studios

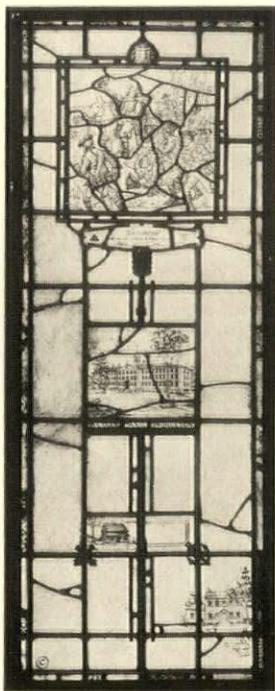
Below, three panels, designed and executed by Charles F. Connick Granger & Bollenbacher, architects



*Executed by
Mary Hamilton Fry
Roger H. Bullard,
architect*

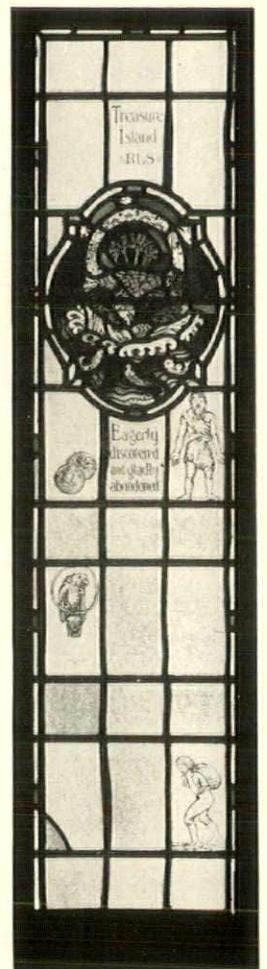
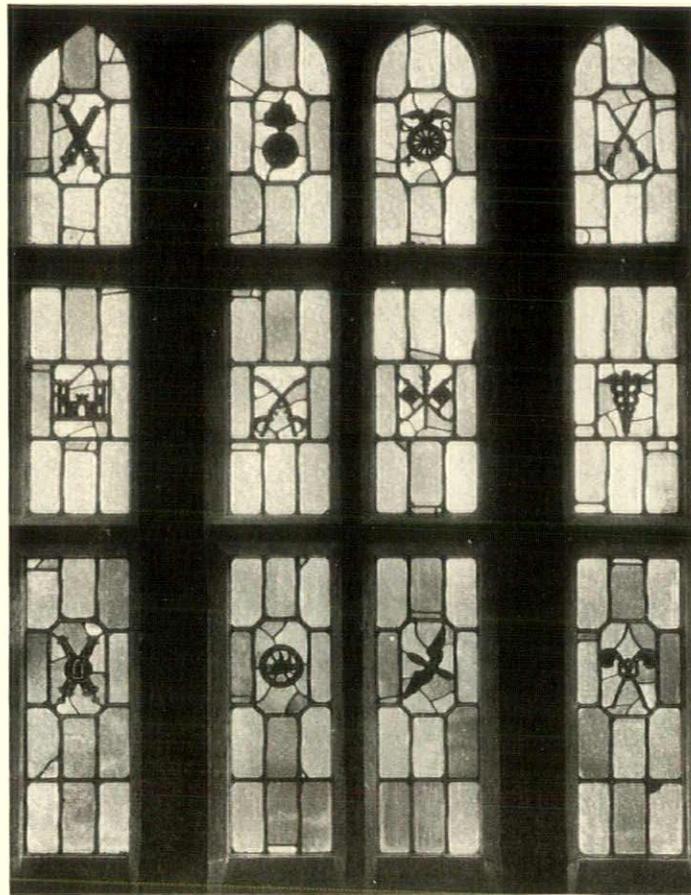


*Designed and
executed by
The D'Ascenzo
Studios*

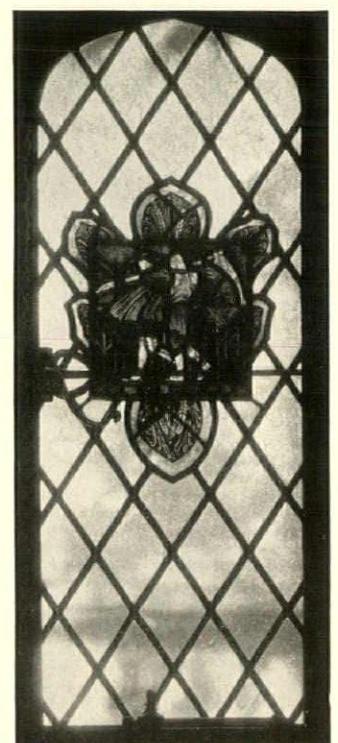
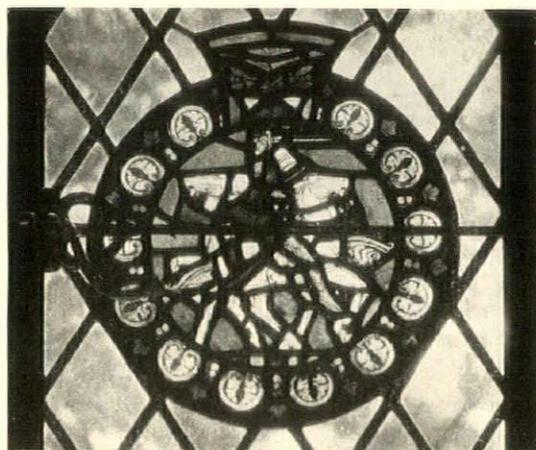


*Below, three panels,
designed and executed by
Charles F. Connick
Granger & Bollenbacher,
architects*





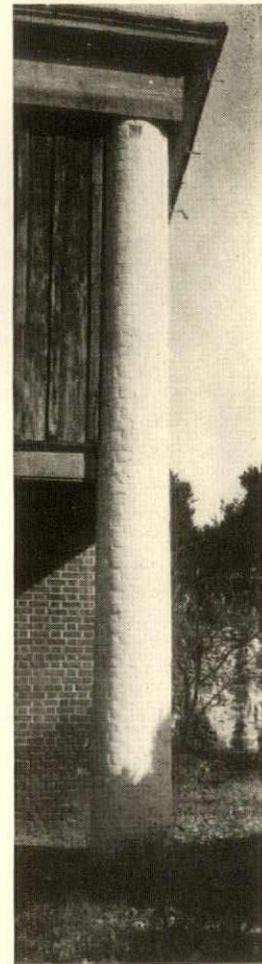
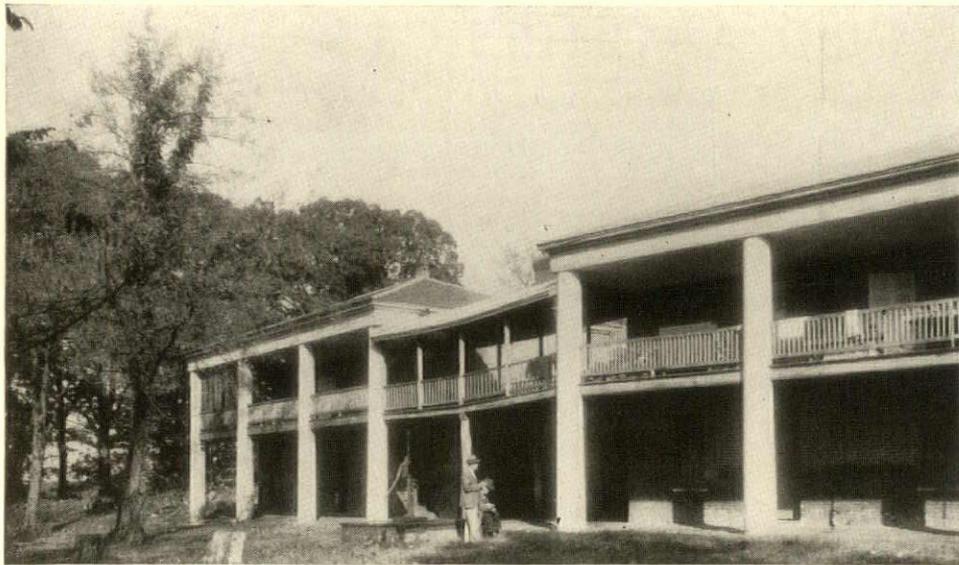
*Walter T. Karcher & Livingston Smith, architects
Flanking panels above, designed and executed by
Charles J. Connick. Stanley Matthews, architect*



*Executed by Mary Hamilton Fry
Roger H. Bullard, architect*

*Designed and executed by
The D'Ascenzo Studios
Edward Buehler Delk
architect*

*Executed by
Mary Hamilton Fry
Roger H. Bullard
architect*



Lovely Old Rambling Barboursville—The—First

Designed by Mr. Jefferson

RECKON you all up North, might think it odd that always down here in old Virginy it's Mr. Jefferson, not Thomas. Do it, because there's a certain dignity about it, that we sort of count a privilege to render.

Yet in his time and day, everybody knew him as Tom. So when his contemporary statesman, the first Barbour of Barboursville, wanted a residence in keeping with his acreage and standing, his friend Tom was asked to design it.

He made a delightful rambling affair quite apart in feeling from anything he had done, and admirable for its location.

This is the so-called rear view, but quite the most interesting in its exposed brick columns and gallery. Which latter, by the way, served a tolerable valuable purpose as a passage between the main portion and the wing.

Like most of these early Virginia homes, the brick for it was made right on the grounds. Mr. Jefferson had no sort of patience with any brick not having the squarish header dimension, and saw to it that the ones for

Barboursville were made that way and none other.

Columns, which he always reckoned on using, when so much as half an excuse was in sight, were made of brick, plastered over. These at Barboursville-The-First, turned out to be so passably good looking that he just left the brick showing, and a mighty pleasing effect it gives at that. The repeated coats of whitewash seem just to have softened down their texture about right.

We called this Barboursville-The-First, because there's one hard by that's The-Second. About it hangs a romance, almost a mystery, that to see it "takes you plumb out of where you are and takes you to where you ain't," as our old darky Sam has a way of putting such things.

Next time will tell you about The-Second. In the space between I'll be looking after making a passel of our Jefferson brick. Some mould-mades. Some handmades. But everyone of them having a look about them, that takes you way back to the cavalier days of old Virginy.

Your surmise is right, these columns are made of radial brick, although some times they were made with regular bricks, using a passing lot of headers and dutchmen. What mattered when mostly they were plastered over anyway.

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

OLD VIRGINIA  BRICK

Old Virginia Brick Company
Salem, Virginia



ARCHITECTURE'S SERVICE BUREAU FOR ARCHITECTS



ARCHITECTS AND EVERY ONE INTERESTED WILL FIND HERE THE LATEST AND MOST UP-TO-DATE INFORMATION ON BUILDING EQUIPMENT AND ACTIVITIES IN THE INDUSTRY. THESE PUBLICATIONS MAY BE HAD BY ADDRESSING ARCHITECTURE'S SERVICE BUREAU FOR ARCHITECTS, 507 FIFTH AVENUE, NEW YORK. OUR SERVICE BUREAU WILL OBTAIN ANY OTHER CATALOGUES OR DATA YOU REQUIRE.

BRICK

The Western Brick Co. of Danville, Ill., has an idea apparently that the charm of brickwork needs recapturing. At any rate their most recent literature is entitled "Recapturing the Charm of Old Brick Work." And if you desire a fresh inspiration in your brick problems you will find it in the many exceptionally fine color plates in this brochure on Westmold Face Brick. Their slogan is "the Product of Ancient Tradition and Modern Ceramic Skill." Their face-brick specialists are on call for the solving of particular architectural and technical problems.

VENETIAN BLINDS

The Columbia Mills, Inc., of 225 Fifth Avenue, N.Y., have published an excellently prepared A. I. A. file catalogue on their Venetian Blinds and Shades. Data is given on their various sales channels, and their architectural service department. Detailed specification directions are included as well as some very useful detail drawings on the blinds, brackets, head rail and roller box. In addition to these there are attached samples of Columbia Shade Cloth in varying color and quality. You will want this catalogue for your file.

"HERMOSA"

The American Encaustic Tiling Company, Ltd., of 16 East 41st Street, New York, has a new product for your consideration—Hermosa Tile. It is produced in both white and colored glazes, and in Bright and Matt surfaces. It is guaranteed against crazing. The installation in the new Hotel Waldorf-Astoria, involving over 348,000 square feet, speaks for the quality and usefulness of this new tile. The company will gladly send you color charts and typical panels.

ASPHALT TILE FLOORING

The Johns-Manville Architectural Service of New York provides both technical and artistic information regarding Johns-Manville Asphalt Tile Flooring in an illustrated booklet, your copy of which is waiting your mailing directions. It is fully descriptive of the flooring, showing the many colors in which it is available. A partial list of installations is given, indicating not only the location, but more valuable still, describing the type of building and service conditions under which the material has been used.

THE STAINLESS STEEL FAMILY

The American Stainless Steel Company, Commonwealth Building, Pittsburgh, has issued a booklet entitled "Forward with Stainless," which is illustrated in graphic and sometimes startlingly modern manner. It gives a comprehensive idea of stainless steel from its origin—not an alloy of any fixed composition, but a family of metals—a combination of chromium, iron and carbon in widely varying proportions. Chapters are devoted to the interest of the

architect, the designer of metal products and the fabricator in the almost limitless possibilities of stainless steel. In conclusion there is a list of 120 corrosive agents to which stainless steel is either wholly or practically immune.

CONCRETE ASHLAR WALLS

Perhaps the most interesting feature of the literature published by the Portland Cement Association of 33 West Grand Avenue, Chicago, on "Concrete Ashlar Walls," is that giving suggested patterns. This alone should be a stimulus for the use of the product. The 16-page booklet contains illustrations of residences, schools, and other buildings in which concrete ashlar has been used for both exterior and interior walls. There is a discussion of the color treatments possible, and stress is laid on the important feature for to-day—that of economy.

OIL BURNERS

The full title of the catalogue under review is "Oil Burners That Fit the Boiler." That should be sufficient to make you send for it. It is published by the Petroleum Heat and Power Co. of Stamford, Conn. It covers the Petro commercial and industrial oil-burning equipment, with installation diagrams, cross-section views, capacity tables, etc., and specifications for the various models.

WOOD FLOORS

Our mail this month included a well-prepared catalogue from the Eaglesfield Hardwood Flooring Co. of Indianapolis. It reminds us in this day of innovation and composition products that there still exist conditions demanding "Wood Floors of Distinction." For more than thirty years this company has been designing and manufacturing wood floors for clients all over the country. The brochure shows detail, design and application of various kinds of wood floors. You will find it highly interesting and useful.

JOINTITE

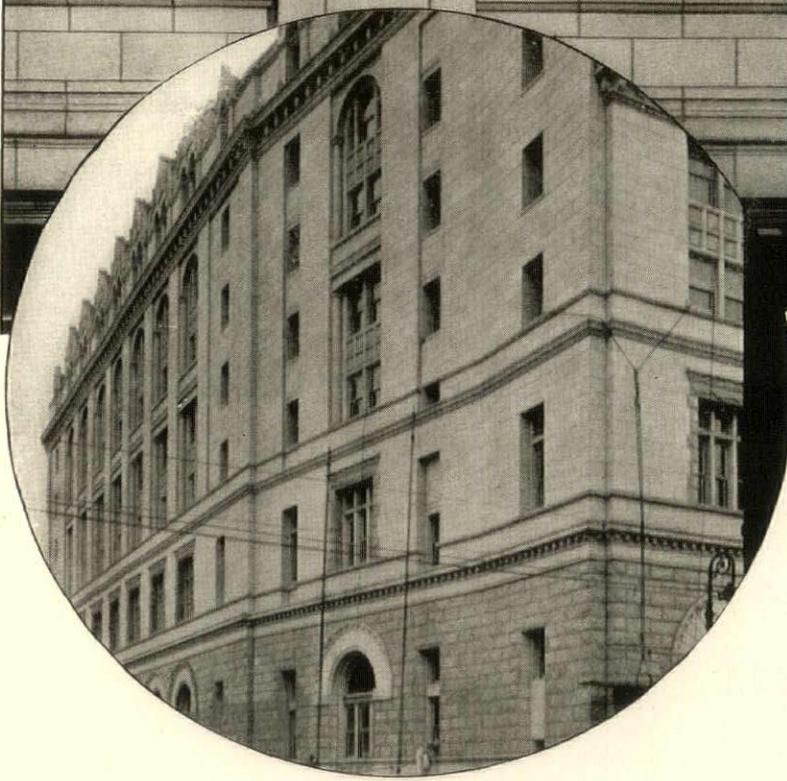
The Ulandet Cork Corp. of 450 Seventh Avenue, New York, has issued a new catalogue entitled "Jointite Cork Products." It contains full information on the uses of cork for insulation purposes, including tables and charts on problems of refrigeration, soundproofing, heat prevention, heat conservation, vibration deadening and condensation prevention. Space is also given to cork, its properties and history, with photographs and drawings showing specific uses.

STORE FRONTS DE LUXE

The Newman Mfg. Co. of Cincinnati, Ohio, has ready for your files a very complete catalogue of information on bronze, monel, nickel and aluminum store fronts. You will find the detail drawings and specifications of incalculable service in your problems of store fronts. The company offers gratis its designing service.

(Continued on page 17)

FEDERAL SEABOARD TERRA COTTA CORPORATION



Brooklyn Post Office, Brooklyn, N. Y.
 James Wetmore, *Architect*
 Magoba Const. Co., *Builder*

MONUMENTAL

IN THE accompanying illustration Federal Seaboard Terra Cotta is again shown in a scale entirely commensurate with the monumental character of the building. It harmonizes perfectly, both as to color and size with the granite of the first story.

**FEDERAL SEABOARD
 TERRA COTTA CORPORATION**

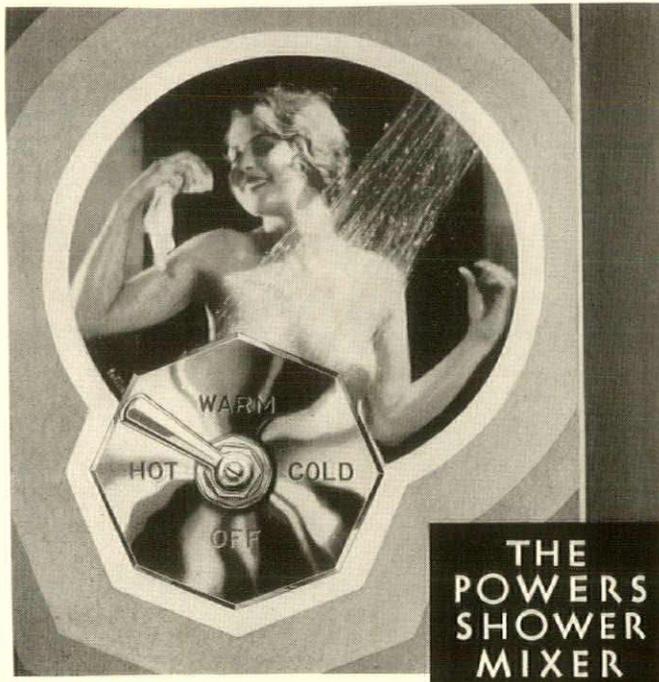
**ARCHITECTURAL
 TERRA COTTA
 MANUFACTURERS**

**OFFICES
 10 EAST 40th ST.
 NEW YORK CITY
 TELEPHONE ASHLAND
 4-1220**

FACTORIES:

Perth Amboy, N. J. Woodbridge, N. J. South Amboy, N. J.

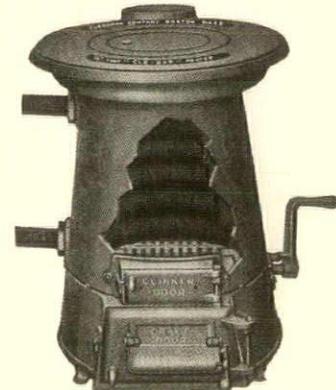
SAFETY — COMFORT — ECONOMY



In thousands of schools, clubs, hotels, and homes this remarkable SAFETY mixer is replacing ordinary mixing valves because it prevents sudden "shots" of cold or scalding water due to the use of nearby faucets, flush valves, etc. Write for Book. The Powers Regulator Co., 2741 Greenview Ave., Chicago — also 38 other cities.

WATER THAT IS HOT

Special
Copper
Coils
for
Rustless
Water



CLE-BAR
Easily
Installed
by
Local
Plumber

SPECIFY
CLE-BAR WATER HEATER

"Good for a Lifetime"

And you'll hear no more complaints about cracked sections, rusty water, or no hot water.

CLEGHORN CO.

86 Broad Street

Boston, Mass.

PRACTICAL... and SANITARY, too

No. 601
*A modern,
popular
wall type*



St. Louis University of Commerce, Law and Finance. Architect, HENRY P. HESS. Plumbing Contractor, C. Moynehan & Son. Jobber, N. O. Nelson Manufacturing Co. . . . All of St. Louis.

THE CHOICE OF SCHOOLS!

● Only Halsey Taylor fountains have the exclusive Halsey Taylor advantages that promote positive sanitation and drinking convenience. Architects and school executives know their specification means satisfaction and freedom from servicing annoyance. **The Halsey W. Taylor Co. • Warren, Ohio**

EXCLUSIVE FEATURES

Automatic stream control and two-stream projector; stream never too high, never low —lips need never touch projector.

HALSEY TAYLOR
DRINKING FOUNTAINS

The printing plates for the editorial pages in this issue of

ARCHITECTURE

WERE MADE BY

THE BECK ENGRAVING COMPANY

INCORPORATED

Designers • Engravers • Printers



Four plants located for national service

NEW YORK
305 E. 45TH ST.

PHILADELPHIA
7TH & SANSOM STS.

CHICAGO
21ST & CALUMET AVE.

SPRINGFIELD, MASS.
10 BROADWAY

SEND FOR OUR BOOKLET "BECK GRAVURE"

"CROSS CONNECTIONS"

Being the report of the Research Committee of the American Society of Sanitary Engineering. If you have not received your copy, send for it now. Copies can be obtained from the office of the President, T. M. Dugan, 1308 Freemont Street, McKeesport, Pa., or on request to this bureau. It covers such important topics as Functions of a Plumbing System, Distributing Systems, Siphonage, Legal Aspects and Drainage Systems.

"KEEP THAT OUTDOOR COMPLEXION"

The American Radiator Co. has gone Palmolive. It advertises its Ideal Cascade Humidifier as an aid to "Keeping that Outdoor Complexion." A catalogue of this humidifier with the Arco Humidistat considers the facts about the air we breathe, the necessities of humidification and the meeting of those necessities through the use of the new Ideal Cascade Humidifier. The company has established a Design Bureau for the development of heating and plumbing equipment in relation to architecture and decoration. The profession is invited to visit their laboratories.

CALCULATING BEAM PROBLEMS

Is a cinch with the new Winslow Strength Computing Slide-Rule. A circular from Henry W. Tomlinson, Morris Building, Joliet, Ill., describes the new rule. With former editions, only calculations for transverse strength could be performed, while the new rule quickly takes care of deflection and shear and lateral flexure. The rule is "direct-reading" and its operation extremely simple. One architect states that a "man familiar with its use can do the work of three men computing with the aid of handbooks."

ENGINEERING SERVICE

The Sullivan Company of Memphis, Tenn., manufacturers of Kouset, Sealcote, and other waterproofing products, announce an engineering service available to the profession. Send your waterproofing problem with essential details to the Engineering Department of this Company and they will write you, free of charge and obligation, a complete specification for the situation involved.

KELSO VALVE BOWLS

Now a manufacturer in the plumbing fixture field goes modern to the extent of not mincing words in its advertising. The latest literature from the Kelso Sales Co., Inc., of the M. & M. Building, Houston, Texas, states that the slogan of the Kelso Valve Bowl is that "any closet bowl that does not remove odors should be installed outdoors." The points stressed in favor of the Kelso Valve Bowl for indoor use are its down draft ventilation, insuring it as odorless, its construction guaranteeing it as floodless, and its quietness.

SANITARY OVERFLOW

While we are on the subject of closet bowls, we direct your attention to literature from the John Douglas Co., of Cincinnati, describing the new Douglas Bowl with its Sanitary Overflow, designed to prevent back syphonage. The overflow ports make cross connections between waste lines and supply lines impossible under any conditions. They prevent water in the bowl from rising to the flushing rim whenever stoppage in the drainage system would ordinarily cause it to do so.

(Continued on page 19)

Stained Glass Windows



For illustration of recent installation, see the Architectural News Section of this issue. The window recently unveiled at St. Thomas' Church in New York in tribute to Doctor T. Tertius Noble, was

designed and executed by

JAMES POWELL & SONS, Ltd.

(Whitefriars) Est. 1680

100 WIGMORE ST., LONDON, W1

ADRIAN A. BUCK — Distributor — 665 5th Ave., N. Y.

BUILD WITH ARCHITECTURAL TERRA COTTA



HORN & HARDART RESTAURANT, Broad and Chestnut Streets, Philadelphia.
RALPH B. BENCKER, *Architect*

Meeting Sanitary Demands

Restaurants must keep their premises in a hygienic condition. Aside from its artistic and architectural quality, Conkling-Armstrong Terra Cotta provides a sanitary surface, easily maintained in spotless condition.

The illustration well shows what can be achieved with Architectural Terra Cotta. The main surfaces are in a light mottled buff, the columns and sanitary cove base in a two tone dark mottled brown.

CONKLING-ARMSTRONG TERRA COTTA COMPANY

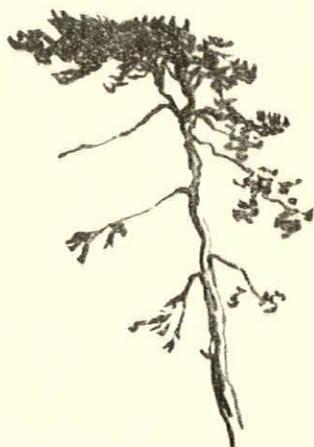
Sales Office
Architects Bldg., 17th and Sansom Sts.

Philadelphia, Pa.

Executive Offices & Plant
Wissahickon Ave. & Juniata St.

QUALITY, SERVICE, CO-OPERATION

*Three books on
pencil
sketching*



Outdoor Sketching

By F. HOPKINSON SMITH

6 illustrations, 2 in color, by the author. 5 $\frac{3}{8}$ x 7 $\frac{3}{4}$ inches.

Composition, mass, water-color and charcoal treated in a non-technical way. Hardly a term defined or suggestion made without illustration by an example or applicable anecdote from the author's experience.

\$2.00

Sketching in Lead Pencil:

For Architects and Others

By JASPER SALWEY

57 illustrations. 6 x 9 inches.

Sketching as opposed to drawing, in the open air. Considers all points from general principles to week-end sketching. \$3.00

The Art of Drawing in Lead Pencil

By JASPER SALWEY

122 illustrations of noteworthy examples. 6 x 9 inches.

A practical manual dealing with materials, technique, sketching, form and style, seascapes and landscapes, etc. 2d edition. \$4.50

CHARLES SCRIBNER'S SONS

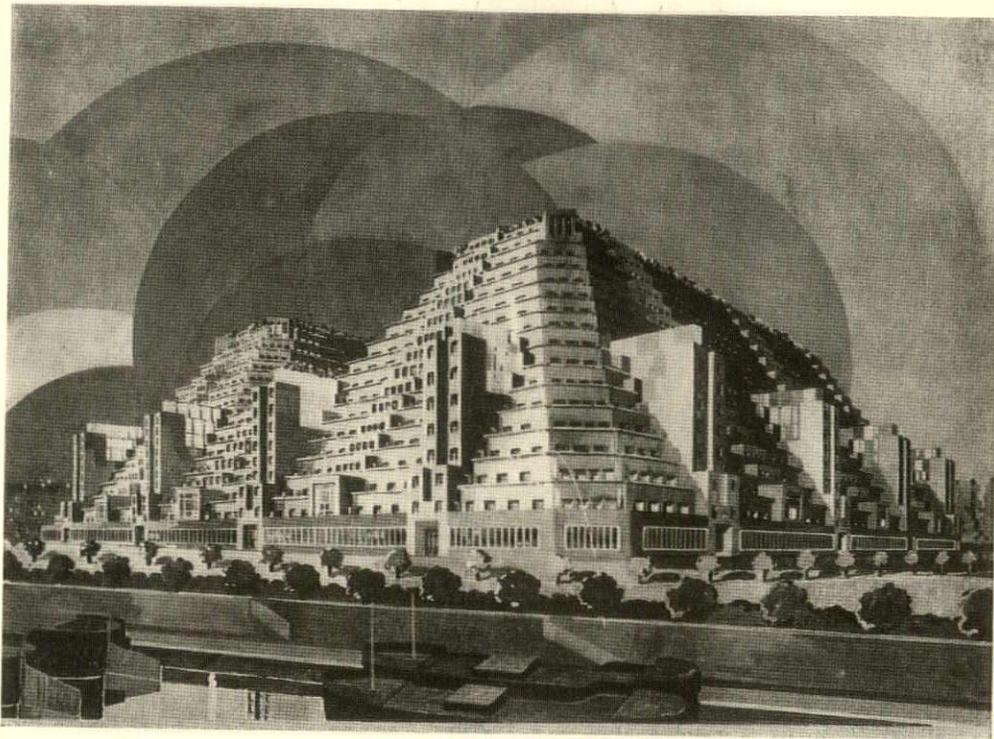
ARCHITECTURE

597 FIFTH AVENUE, NEW YORK

PUBLISHERS

ARCHITECTURAL BOOKS

THE NEW STYLE



A conception of what Paris might become, by the architect Sauvage

ARCHITECTURE AND DECORATIVE DESIGN

With an introduction adapted from the French of

MAURICE CASTEELS

HERE is a book that presents a survey of our first faltering steps into a new style, both in Europe and in America. The title of the book in its original French—*L'Art Moderne Primitif*—is not an easy one to render into concise English. This is unfortunate, for the French title conveys the thesis of the book in a nutshell. A new style is being born; its eyes are but partly open as it gropes its way toward maturity. It is an art in its primitive stages still, but already it has moved from uncertain experiment to disciplined, assertive production.

The illustrations have been chosen with considerable care to form a synthesis of the first phase of twentieth-century architecture and decorative design.

62 pages and 144
plates, 8¼ x 11 inches

Price, \$8.50

CHARLES SCRIBNER'S SONS NEW YORK

Announcing

DOMESTIC
COLONIAL ARCHITECTURE
OF TIDEWATER VIRGINIA

By Thomas Tileston Waterman
and John A. Barrows

With an Introduction by FISKE KIMBALL

"That the great plantation houses of the Virginia Tidewater should have hitherto lacked exact study is surprising, but it is true. By those who know the Tidewater it will be readily understood. Standing by the riversides in vast stretches of coastal territory where communication was once almost solely by water, approached from the land mainly on horseback over roads which until recently were frequently almost impassable to vehicles, they . . . have remained deeply inaccessible to the hurried architect of an industrial world.

"A few houses, to be sure, fortunately placed near the growing urban centres, early attracted visiting students. Westover and Shirley owed their exclusive early fame little more to their own magnificence than to their being within reach from Richmond for a hasty trip with camera and rule. Blandfield and Stratford were as imposing in their distant retreats; Rosewell, Mount Airy, and Cleve were once as richly finished, before fire gutted them in their succorless isolation.

"The pioneer student of a generation ago made hasty measurements, guessed heights, finished his drawings far from the possibility of verification, forgot out-buildings, neglected to note materials and colors. To this day architects using the older works generally suppose the doorways of Westover to be of wood. Pretty are the theories which have been built on such premises! The vast plane surfaces of houses like Carter's Grove have seemed barren to those who were not informed of the rich variety of color and gauging in their brickwork, and which, unlike mouldings, did not appear in summary outline drawings.

"A whole province of great mansions, most of them never drawn or published before, is rediscovered. The background of a vanished civilization is exactly set forth."—FISKE KIMBALL.

210 pages, 11x14; illustrated with photographs and measured drawings reproduced at scale; double-page drawings opening flat on guards; bound in blue linen, in labelled slide case; price, \$15.

CHARLES SCRIBNER'S SONS, New York

AIR CONDITIONING

The Frigidaire Corporation has entered the air-conditioning field. It has introduced a diversified line of unit-type conditioners suitable for commercial use, for restaurants, shops, residences, and hospitals. The first public showing was made to the members of the American Society of Heating and Ventilating Engineers at their recent convention in Cleveland. In the production of the units, an adaptation has been made of the principles used in Frigidaire refrigerating products. There are three models, the horizontal floor type, the vertical wall type, and a suspended type. These conditioners not only heat but cool, clean, dry, moisten, and circulate the air. Enclosed in walnut or mahogany covers they may be installed in place of the conventional hot-water, steam, or vapor radiator. It is simply a matter of "turn on the heat or turn on the cold."

HAND RAILS

In response to questions concerning American-made hand rails and as a result of the development ensuing, the Atlantic Steel Company of Atlanta, Ga., announces in a recently issued folder four hand rail sections. The folder shows in actual size, with full description, the four types of Dixisteel Hot Rolled Hand Rail sections.

DOUBLE DECK ELEVATORS

The Otis Elevator Company has prepared a special pamphlet giving a detailed description of Double Deck Elevators installed in the new Cities Service Building, the world's third highest skyscraper, opening this month at Cedar and Pine Streets, New York. This first installation of Double Deck Elevators marks a new high level in elevator achievement. Whether or not you are building skyscrapers this descriptive matter will interest you.

WATTS REGULATOR SYSTEM

"Controlled Hot Water Heat" is the slogan of the Watts Regulator System as expressed in their folder just issued for your file. If you misplaced it, send for another, as you will want it for reference from time to time. Watts Regulator Co., Lawrence, Mass., is the address.

FLOOR COVERING

Three contracts recently completed by Congoleum-Nairn, Inc., are ample evidence of the value of Sealex linoleum. One is the installation in the Federal Building at Juneau, Alaska; the second in the new Ohio State Office Building at Columbus; and the third in the Baker Memorial School at Tuxedo Park, N. Y. The latter represents the latest in school building, a memorial presented to the town by George F. Baker and designed by Guilbert & Betelle. The Federal Building in Alaska presented unusual flooring difficulties due to extreme low temperatures, constant tracking of snow, and moist atmosphere. Details on Sealex linoleum and its varying applications and wide range of designs and colors are available on request.

INTERLOCKING STEEL FLOOR

The Belmont Iron Works, of Philadelphia, has issued in file folder form a reprint from *Engineers and Engineering* on their new Rolled Structural Steel Interlocking Floor. The article deals with comparative tests of riveted, bolted, and welded rolled structural steel interlocking floor panels and includes a table of safe loads and deflections.

Painted Decoration

Under the direction of the Architects, Rambusch has executed decoration in the following buildings:

Empire State Building . New York City
Public Lobbies and Observation Tower—86th Floor
Shreve, Lamb, and Harmon, Architects

New Waldorf-Astoria Hotel . N. Y. City
Main Foyer, Lobby and Appurtenant Rooms
Schultze and Weaver, Architects

Nebraska State Capitol . Lincoln, Neb.
House of Representatives Ceiling—House Lounge Ceiling
Mayers, Murray and Phillip, Architects
Hildreth Meiere, Designer

Nat'l Title Guaranty Co. Bank . Bklyn.
Corbett, Harrison and MacMurray, Architects

Club Boca Raton . Boca Raton, Florida
Schultze and Weaver, Architects

Roxy Theatre . . . New York City
Walter W. Ahlschlager, Architect

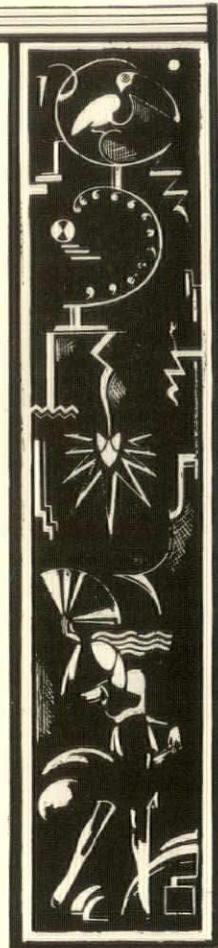
Paramount Theatre . Stapleton, S. I.
C. W. and Geo. L. Rapp, Architects

RAMBUSCH

Painting, Decorating and Murals

2 West 45th St. . . . New York City

BANKS
CHURCHES
CLUBS
SYNAGOGUES
HOTELS
RESTAURANTS
THEATRES
PUBLIC BUILDINGS



THE CUTLER MAIL CHUTE

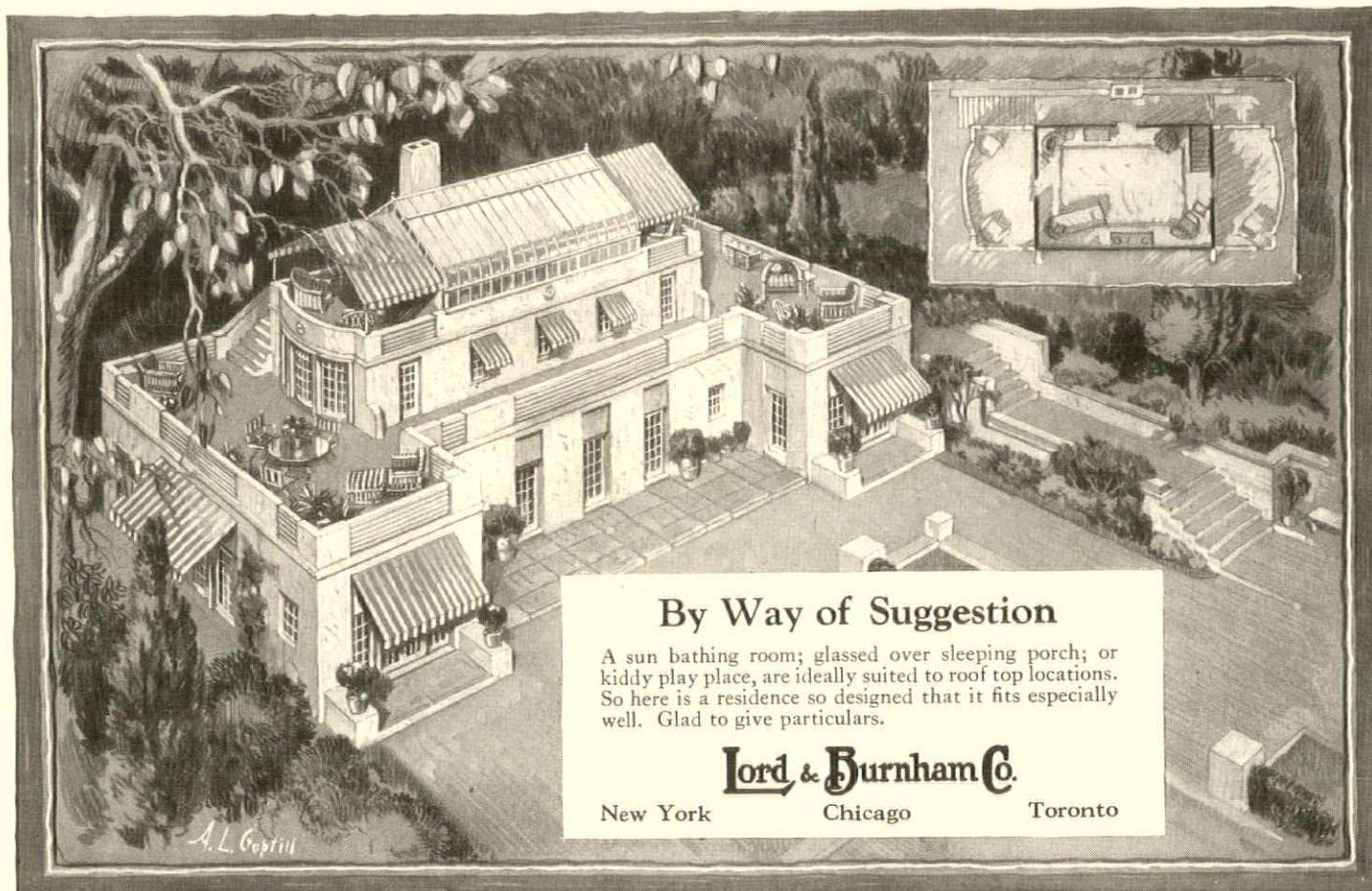
TO INSURE standard, dependable equipment installed promptly at moderate cost, the Cutler Mail Chute should be specified by name. If desired, approximate estimates will be furnished in advance.

If preferred, a stated sum may be allowed to cover this item.

Full information, details, specifications and estimates on request.

CUTLER MAIL CHUTE CO.

General Offices and Factory
ROCHESTER, NEW YORK



By Way of Suggestion

A sun bathing room; glassed over sleeping porch; or kiddy play place, are ideally suited to roof top locations. So here is a residence so designed that it fits especially well. Glad to give particulars.

Lord & Burnham Co.

New York Chicago Toronto

FOR FOUR GENERATIONS BUILDERS OF GREENHOUSES

• TRUSCON The Most Complete Line •

Popular Steel Casements for Modern Homes

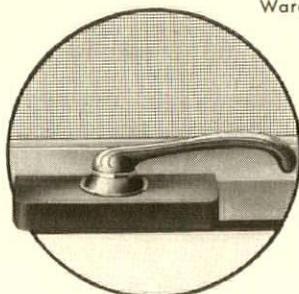
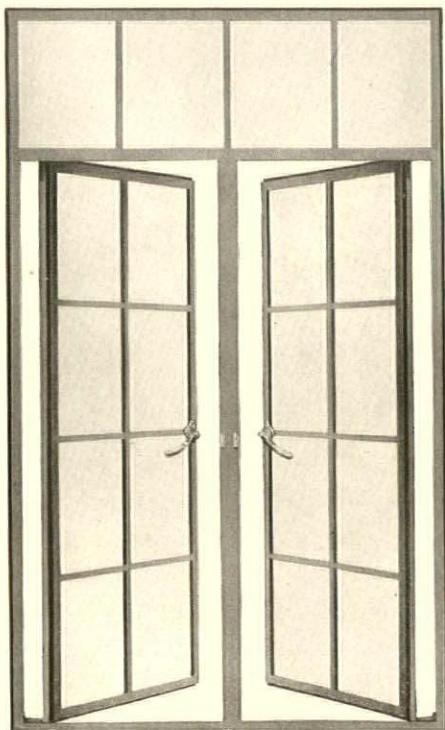
The Truscon Residence Steel Casements provide a high quality product which can be used economically, even in the modest home. Every desirable feature of the more expensive heavy casements is offered in the Residential Type.

Under-screen operators of either the Artex or Auto-Lock Type can be furnished as standard equipment. Or, if desired, standard Rol-Up or Side-Hinged Screens can be supplied at moderate cost. Truscon Residential Casements are available in numerous standard sizes of single and combination units and with transoms.

Complete catalog on request.

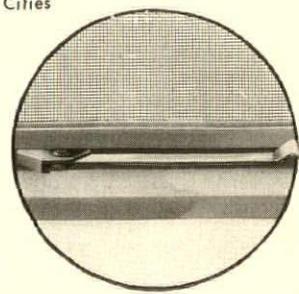
TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

Warehouses and Offices in Principal Cities



ARTEX UNDER-SCREEN OPERATOR

An ingenious device that opens the sash to any position and locks it in place.



AUTO-LOCK OPERATOR

A specially designed Push Bar for operating the sash under a fixed screen.

ADVERTISERS' INDEX

WHAT TO SPECIFY

WHERE TO BUY

IF YOU ARE INTERESTED IN OBTAINING THE CATALOGUES OF ANY OF THE ADVERTISERS IN THIS ISSUE OF ARCHITECTURE (AS LISTED BELOW) LET ARCHITECTURE'S SERVICE BUREAU SEND THEM TO YOU. ANY ADDITIONAL DATA CONCERNING THE INDUSTRY THAT THE READERS OF ARCHITECTURE REQUIRE WILL GLADLY BE COMPILED FOR THEM BY OUR SERVICE BUREAU.

	PAGE
American District Telegraph Co.	3
Ar-Ke-Tex Corp., The	2d Cover
Austral Window Co.	4th Cover
Beck Engraving Co.	16
Cleghorn Co.	16
Conkling-Armstrong Terra Cotta Co.	18
Cutler Mail Chute Co.	19
Federal Seaboard Terra Cotta Co.	15
Georgia Marble Co.	22
Gorham Co., The	8
Grenci & Ellis, Inc.	5
Highland Iron and Steel Co.	10
Hood Co., B. Mifflin	4
Lord & Burnham Co.	20
Old Virginia Brick Co.	13
Powell & Sons, James	17
Powers Regulator Co.	16
Rambusch Decorating Co.	19
Sears, Roebuck & Co.	3d Cover
Taylor Co., Halsey W.	16
Truscon Steel Co.	20
Wallace & Tiernan Co.	12
Webster & Co., Warren	6
Westinghouse Electric Elevator Co.	1

REFER TO PAGE 14 FOR ANNOUNCEMENTS OF THE MOST UP-TO-DATE PUBLICATIONS OF MANUFACTURERS.

SCHOOL BUILDINGS

To-day and To-morrow

READ MAY ISSUE

ARCHITECTURE

Thirty-four pages in the May issue of ARCHITECTURE will be devoted to the moot question of progress in school construction. Mr. James O. Betelle, of Guilbert & Betelle, noted for their schools, in an article on "School Buildings To-day and To-morrow" will point the way to likely progress to meet the changing needs of our educational systems. The article will be profusely illustrated.



Sculpture by LEE LAWRIE.



The Architectural Observer—a new way of treating shutters; an ingenious way of keeping a swimming-pool clean.



Working Drawing—JACK STEWART.



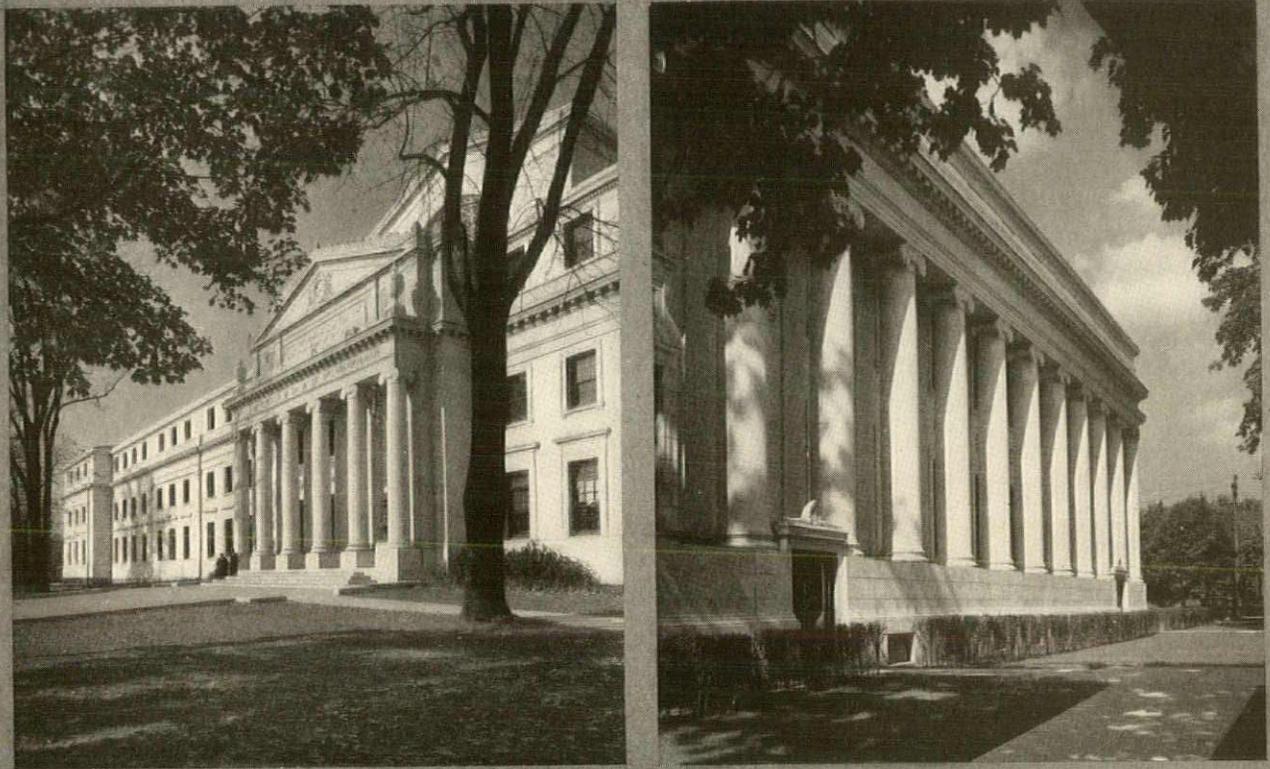
Portfolio of Exterior Doors of Wood.

ARCHITECTURE

Published by CHARLES SCRIBNER'S SONS
597 FIFTH AVENUE NEW YORK CITY

*The only architectural publication
that increased its professional
circulation in 1931.*

A superior product . . . plus our facilities to quarry, finish, deliver and erect . . . won this marble contract



GEORGIA MARBLE

DELAWARE COUNTY COURT HOUSE, MEDIA, PENNA.

CLARENCE W. BRAZER, architect for the old building, erected in 1913, and for the present additions.
Left. South facade looking west. *Right.* East end colonnade (entirely new).

ALL of the exterior marble work of the new portions of the Court House at Media is Georgia Marble. This work consists of the addition of a large wing at each end, a third story to the old building and a law library extending above the roof of the center portion.

It was not by mere chance that Georgia Marble was chosen for this extensive and important piece of work. The appearance, quality, and durability of the

THE GEORGIA MARBLE COMPANY

Tate, Georgia

NEW YORK . . . 1328 Broadway
 ATLANTA . . . 814 Bona Allen Bldg.
 CHICAGO . . . 648 Builders' Bldg.
 CLEVELAND . . . 1200 Keith Bldg.
 DALLAS . . . 622 Construction
 Industries Bldg.

marble, the ability of the producers to quarry, finish, deliver, and erect the marble for such a large contract were considered most carefully by those responsible for the finished building.

Our operations extend beyond working the marble from our nine active quarries in Georgia. We take contracts for both interior and exterior work in any combination of marbles necessary to carry out the architect's design and color scheme.