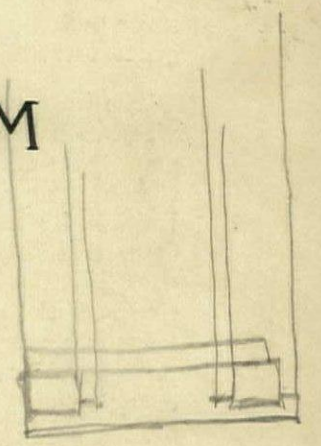
FEBRUARY 1930

PENCIL POINTS

A JOURNAL FOR THE DRAFTING ROOM



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Spandrels of Terra Cotta

Selected for architectural interest

In a Portfolio of Spandrels recently published by an architectural magazine:

24 out of 43 examples were Terra Cotta.

6 were brick.

The balance divided among seven different materials.

The popularity of Terra Cotta for spandrels is based on flexible modeling and unlimited variety of color.

These two advantages are unique with Terra Cotta, and the great majority of other materials are far more expensive.

Spandrels of Terra Cotta will outlast a building in which they are used—*without maintenance.*

Atlantic Terra Cotta Company
19 West 44th Street, New York

Atlanta Terra Cotta Company
Atlanta, Georgia

NO MATCH

Not to mention the wind's ceaseless racking wear and tear—plenty of unarmored roofs are actually blown off!

But there is *one* roof that laughs at wind, fire, ice, rain, sun and other roof-wrecking agents. It is the ATP Roof—made of materials that actually improve under conditions ruinous to other roofs. Water preserves pitch—heat makes it self-welding, sealing up all cuts and cracks. Fire, the elements and mechanical wear are helpless against ATP slag, tile or gravel armor.

With or without bond, ATP Roofs are all made of exactly the same materials. The bond is *optional*. Dollar for dollar over periods of 25 to 40 years, ATP-type roofs consistently outwear any other type of roofing known to man.

AMERICAN TAR PRODUCTS COMPANY
Division of The Koppers Company
KOPPERS BUILDING, PITTSBURGH
New England Division: TAR PRODUCTS CORPORATION, Providence, R. I.
Plants at Chicago, St. Louis, Birmingham, Milwaukee, Kearny, N. J., Youngstown, Ohio, Providence, R. I., and Follansbee, W. Va.

Roofed with ATP
ARCADE BUILDING, St. Louis, Mo.
Architect: T. P. Barnett Company
Gen. Contractor: John Hill Const. Company
Roofing Contractor: Keystone Roofing Co.

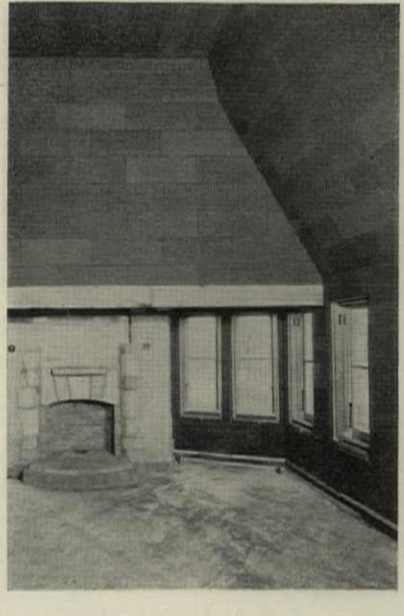
for ATP

..... THE ARMORE

COAL-TAR PITCH *and* FEL

ROOF

Well-to-do clients will-ingly pay for insulation that gives comfort.



In town or country house, ½" thickness of Arm-strong's Corkboard for walls and 2" for roofs or ceilings is adequate for average conditions.

Comfort comes *first* with these clients

They accept your judgment without question when you specify Armstrong's Corkboard

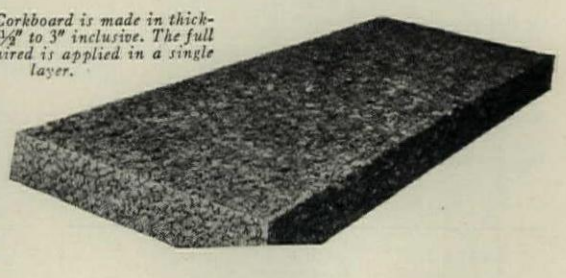
PARTICULAR clients want the very best. Beauty—yes! Convenience—yes! Comfort—most of all! Which means, for one thing, corkboard insulation in their homes. These are clients who are not content with half-way measures when they understand the advantages of insulation.

Comfort is *built in* when walls and ceilings are insulated with Armstrong's Corkboard. The house is protected against outside temperatures. Every room is as pleasantly comfortable in January as it is in June. Constant temperatures are easily maintained. The cork-lined house is warm in winter and cool in summer.

Because Armstrong's Corkboard is insulation that can be applied in thicknesses that are really adequate, the maximum of year-round comfort is assured. Heating is made easier and more uniform. Drafts are eliminated. Street sounds are shut out. And in summer, rooms are easily kept many degrees below outside temperatures.

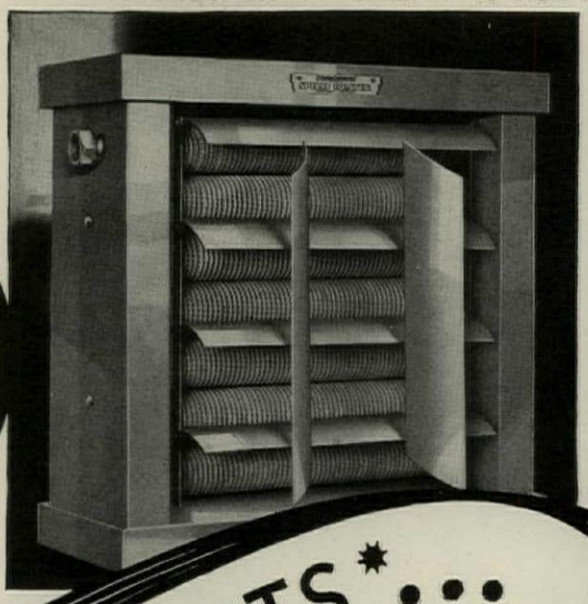
Clients who must scrutinize cost, and even well-to-do clients, will be interested to know that the initial cost of Armstrong's Corkboard is soon repaid by the saving in fuel dollars. This ideal insulation is fire retarding. It will not deteriorate. It will not swell, shrink, or buckle. It is a perfect plaster base, and is easily erected in any type of construction. Are you planning a home for particular clients? Estimates on the insulation will be supplied promptly and without obligation. Armstrong Cork & Insulation Company, 902 Concord Street, Lancaster, Pa.

Armstrong's Corkboard is made in thicknesses from 1½" to 3" inclusive. The full thickness required is applied in a single layer.



Armstrong's Corkboard Insulation

Adequate Insulation for Comfortable Homes



THE PERTINENT FACTS*...

*This advertisement was suggested by a prominent Architect.

...about SPEED HEATERS

"As many useful facts as possible... all the data and no drama"...

SPEED HEATERS are suspended electric blower-type steam heaters for industrial and commercial applications. Very rapid action. May be thermostatically controlled. Extremely economical in first cost and operation.

"Facts, with the least insulation possible"...

SPEED HEATERS have two operating speeds. High speed for quick heating. Low speed for maintaining set temperature. All models equipped with high pressure Aerofin... for steam pressures up to 350 lbs. Vertical louvres spread air steam over wide area. Units are very quiet.

Sturtevant men are in principal cities ready to figure on short notice. Our "blue" catalog contains complete working data for Architects and Engineers. Copies distributed by our local offices. The coupon awaits your pencil.

THE PRICE IS 'WAY DOWN

COUPON

B. F. STURTEVANT CO.
Hyde Park, Boston, Mass.

Kindly send me a copy of the SPEED HEATER DATA BOOK.

Name of Company.....

Street Address.....

City.....*State*.....

B. F. STURTEVANT COMPANY

Plants and Offices at: Berkeley, Cal. ∿ Camden, N. J. ∿ Framingham, Mass. Galt, Ontario ∿ Hyde Park, Mass. ∿ Sturtevant, Wis.

Branch Offices at: Atlanta; Boston; Buffalo; Camden; Charlotte; Chicago; Cincinnati; Cleveland; Dallas; Denver; Detroit; Hartford; Indianapolis; Kansas City; Los Angeles; Milwaukee; Minneapolis; Newark; New York; Omaha; Pittsburgh; Portland; Rochester; St. Louis; San Francisco; Seattle; Washington, D. C.
Canadian Offices at: Toronto; Montreal and Galt. ∿ *Canadian Representative:* Kipp Kelly, Ltd., Winnipeg
Also Agents in Principal Foreign Countries

Sturtevant
(REG. U. S. PAT. OFF.)

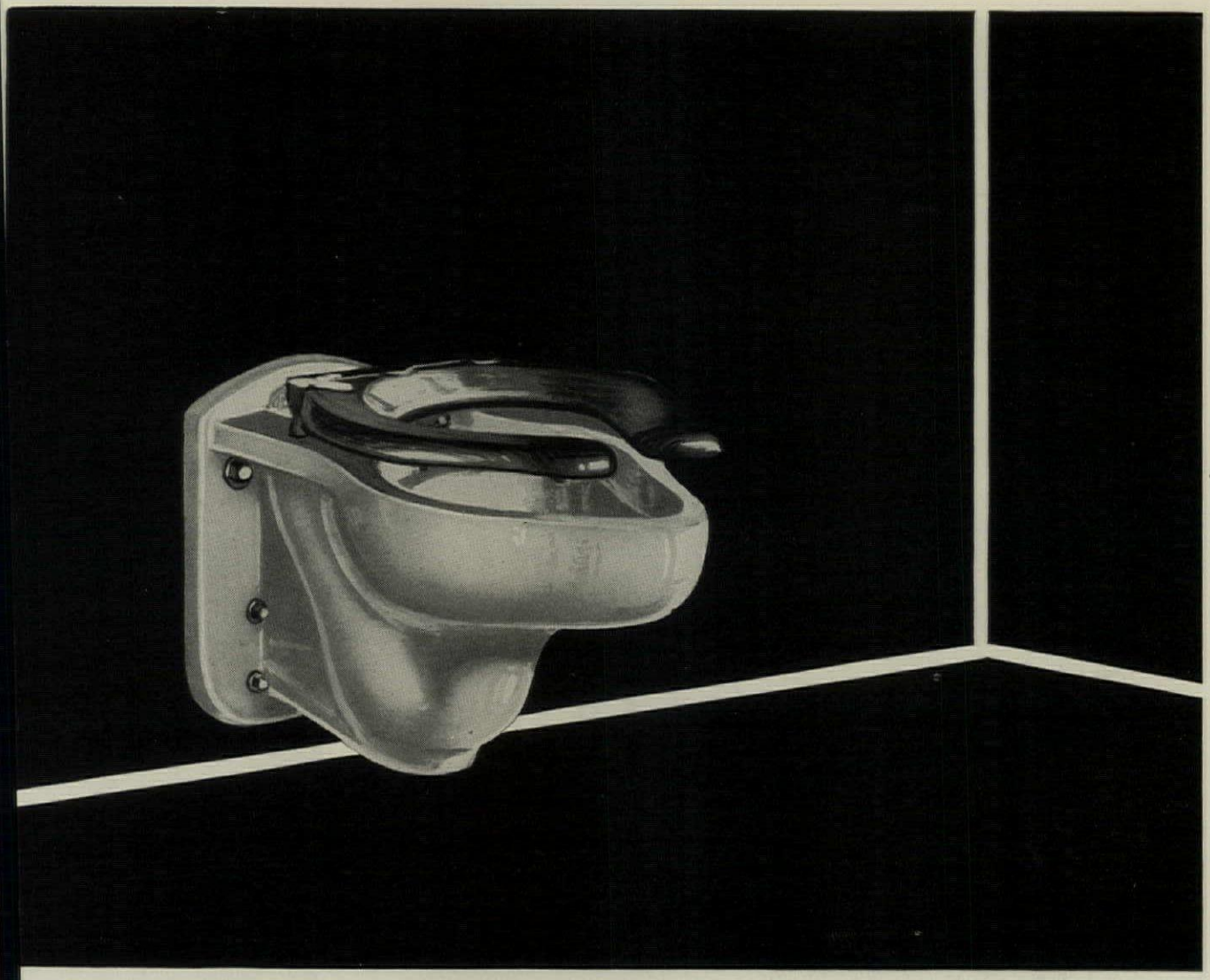
SPEED HEATERS
"More Heat Less Steam"

TERRA COTTA models showing symbolic designs used, with other ornamentation, to enrich the facades of the Laramie State Bank, Chicago. This building is a fine example of the successful use of color in architecture. Meyer & Cook, Architects.

The repetition of rich ornament in architecture is economical in terra cotta for the same reasons that a Rolls Royce sells for only a fraction of the cost of one original model. Neither product is "cheap" simply because the ultimate unit cost is relatively low. And in addition to this advantage of ECONOMY, terra cotta has the QUALITY of successfully resisting acid and soot in the ladened atmosphere of great cities. The finest details of the sculptor's original design are thus permanently preserved.

THE NORTHWESTERN TERRA COTTA COMPANY

DENVER · CHICAGO · ST. LOUIS

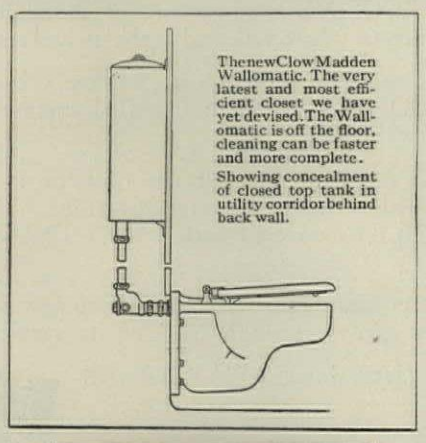


NEVER FAILED...*because someone forgot...*

Clow Madden Automatic Closets never have and *never will* . . fail to flush because someone forgot.

Automatically . . immediately . . a cleansing flood cleans the bowl, from top through trap.

Clow Madden Automatics "carry on" for the life of the building. Records prove them still "young" after 25 years' steady service.



The new Clow Madden Wallomatic. The very latest and most efficient closet we have yet devised. The Wallomatic is off the floor, cleaning can be faster and more complete.

Showing concealment of closed top tank in utility corridor behind back wall.

Record No. 101
After 27 years of high school service at Rock Island, Illinois —29 Clow Madden Automatics are ready for as many more.

The simply-built, stout-hearted Madden Valve . . wastes no water. Cost records are small, as service records are large.

Don't let forgetfulness leave unflushed closets . . and filthy germs to hatch. Health is too precious to place in the hands of a play-thoughtful child . . a hurried workman . . a careless transient.

James B. Clow & Sons, 201-299 N. Talman Avenue, Chicago

CLOW MADDEN AUTOMATIC

Forty-Eight Styles, Heights and Types to Meet Your Requirements

The BATTLE for LIGHT is WON··when you Specify

3-WAY TRANSPARENT ROOFING

THERE exists, today, a "shadow line", in every city—a growing area which is darkened by taller buildings—where daylight is too often replaced by artificial light, unless the light coming from the sky directly above is utilized.

To specify 3-WAY TRANSPARENT ROOFING is to procure an abundance of this valuable direct light in locations where reflected light is weakest.

Space beneath courts, extensions, and roofs, in the line of shadows, over which 3-WAY TRANSPARENT ROOFING has been installed instantly become more useful and thus more valuable.

3-WAY TRANSPARENT ROOFING does not obstruct the roof for it is part of the roof itself—barreled, pitched or flat to meet specifications. The entire roof may be put to use although fully covered with 3-WAY TRANSPARENT ROOFING.

This 3-WAY construction is easily kept clean and will remain like new for a long time, without upkeep. Light glows through 75% of its surface.

Send the coupon for illuminating facts about 3-WAY TRANSPARENT ROOFING.

AMERICAN 3-WAY LUXFER PRISM CO.

13th St. and 55th Court, Cicero, Illinois
55 West 42nd St., New York, N. Y.

AMERICAN 3-WAY LUXFER PRISM CO.
13th St. and 55th Court, Cicero, Ill.

Please send complete facts and illustrated folders.

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

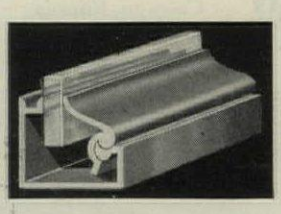
Successful Chains "Dress up" in BRASCO

THERE is perhaps no more distinguishing mark of the chain store than its brilliant, inviting front. Shrewd management recognizes the "attraction value" of this element and through its architects, carefully compares all available constructions for permanent beauty, distinction in design, selection of metals, safety to the plate and other factors.

The popularity of Brasco with these discerning operators, as evidenced by the great number of chain stores using it, is proof positive of the maximum value offered by this complete, advanced line of store front constructions. Catalogs, full-sized details and actual samples gladly sent to architects, on request.

BRASCO MANUFACTURING CO.
HARVEY (Suburb of Chicago), ILL.
36-07 to 36-11 33rd St., Long Island City, N. Y.
Commonwealth Bldg., Philadelphia, Pa.

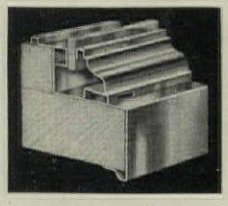
A Dr. Reed Shoe Store with modern, attractive front of Brasco PermaWite construction. This is but one of many Brasco installations for chain stores both large and small, in all parts of the country.



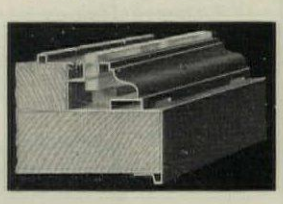
DAVIS
SOLID BRONZE

The finest construction available today, possessing a permanent rich beauty and dignity. The patented Davis fulcrum principle with its positive but indirect screw pressure assures utmost safety to the largest plates. All glass is set from the outside without need of putty or plastic cement.

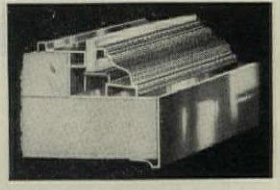
Davis Solid Bronze construction is in use today on some of the country's fine shops in office, apartment and hotel buildings, department stores and on individual stores. Write for complete data.



PERMAWITE
Of solid metal, PermaWite successfully retains its flashing chromium-lustre whiteness, resisting wear and weather.

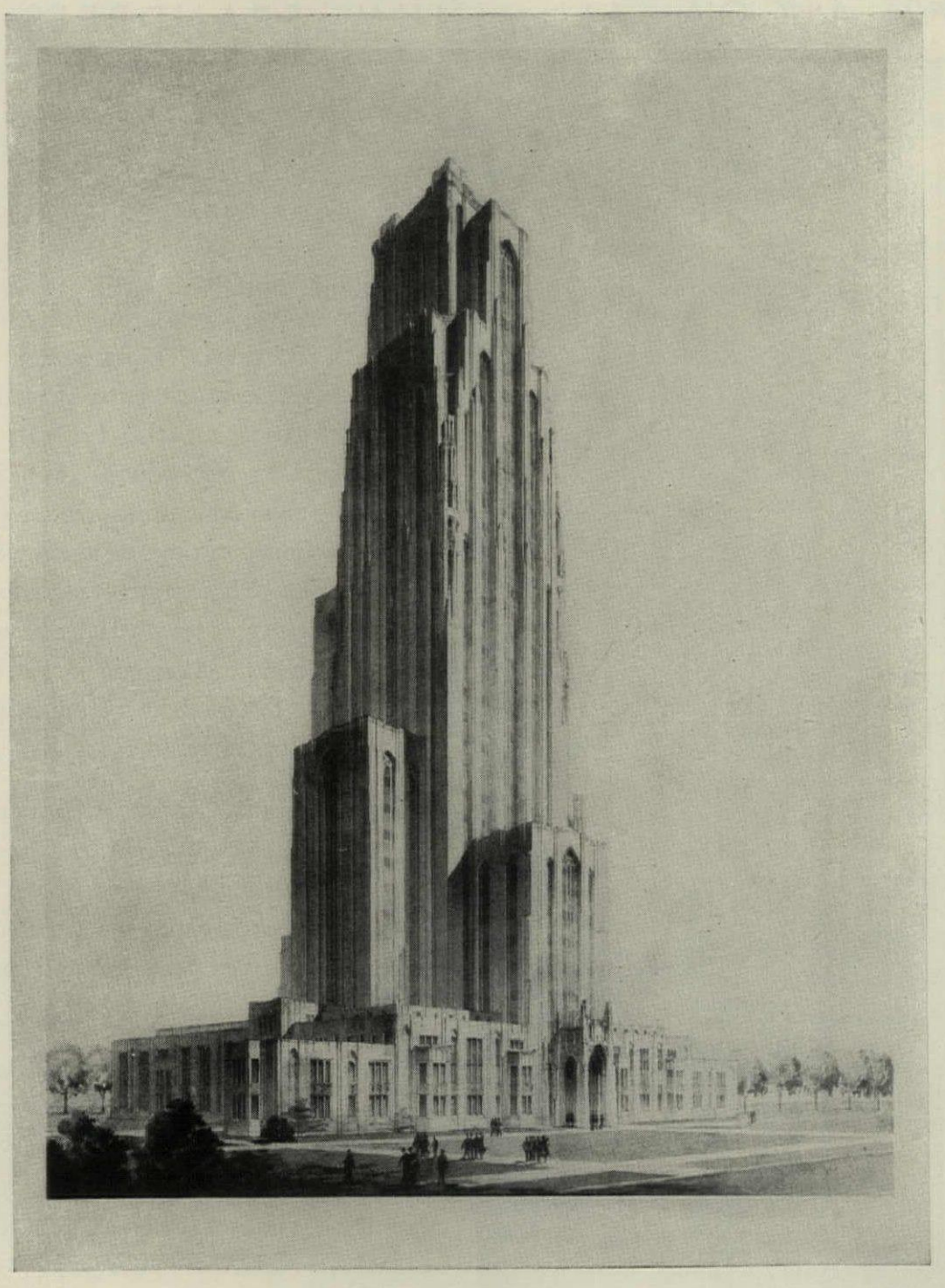


COPPER or BRONZE
The metals of proven merit, serving successfully on thousands of Brasco store fronts all over the country.



ART BRONZE
Offering a distinct contribution to modern store architecture with its striking patterned effects in deep relief.

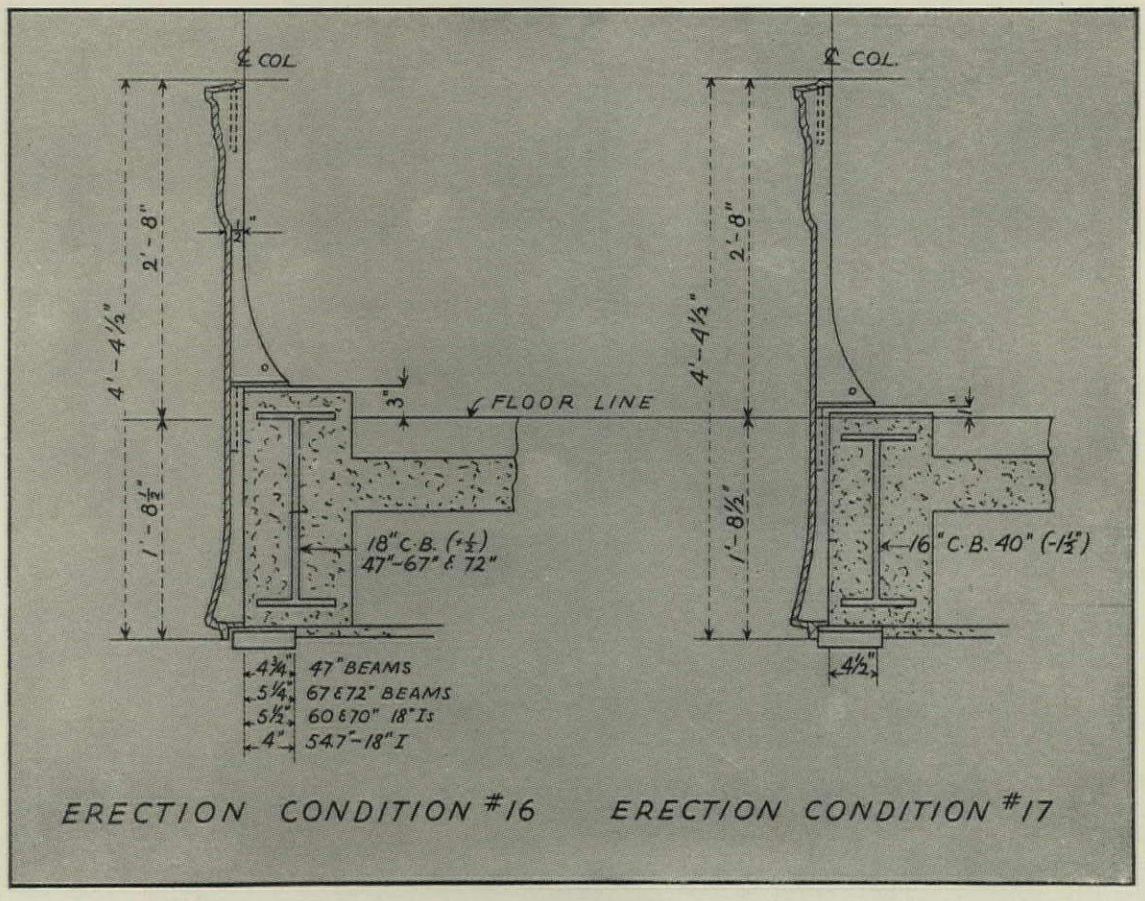
Brasco
STORE FRONTS



Cathedral of Learning at the University of Pittsburgh. Architect, Charles Z. Klauder of Philadelphia. Contractor, Stone & Webster. Alcoa Aluminum Spandrels used. See next two pages for details.

PITTSBURGH'S "CATHEDRAL OF LEARNING"

SPECIFICATIONS



These Aluminum Spandrels shall be made of Alcoa No. 43 alloy, having a silicon content of 5%. The weight shall not exceed .097 pounds per cubic inch, and the average tensile strength shall be not less than 17,000 pounds per square inch.

The surface shall be sand blasted and given a deplated finish. The surface shall be free from imperfections and equal in all respects to the sample submitted.

ALCOA ALUMINUM

ALCOA ALUMINUM

Albert Randolph Ross, Architect, tells about MacArthur performance on the contract that saved $73,000 for Milwaukee County on its new Court House

ALBERT RANDOLPH ROSS ARCHITECT

110 East Wisconsin Avenue,
Milwaukee, Wisconsin.
November 27, 1929.

Re: Milwaukee County Court House

MacArthur Concrete Pile Corporation,
19 West 44th Street,
New York City.

Dear Sirs:-

Now that your contract for the cast-in-place concrete piles for the above building is completed, let me supplement my report and opinion based upon preliminary tests made last summer, on the satisfactory result of which you were awarded this piling contract in competition with others, by stating, that your speedy and efficient completion of this work has been, indeed, altogether satisfactory and gratifying.

Believe me,

Yours very truly,
Albert R. Ross
Architect.

ARR:AW

THE HERMAN NELSON CORPORATION MAKES AN ANNOUNCEMENT TO THE ARCHITECT

During more than twenty years of developing and pioneering work, this organization has met with the resistance always encountered in efforts toward progress.

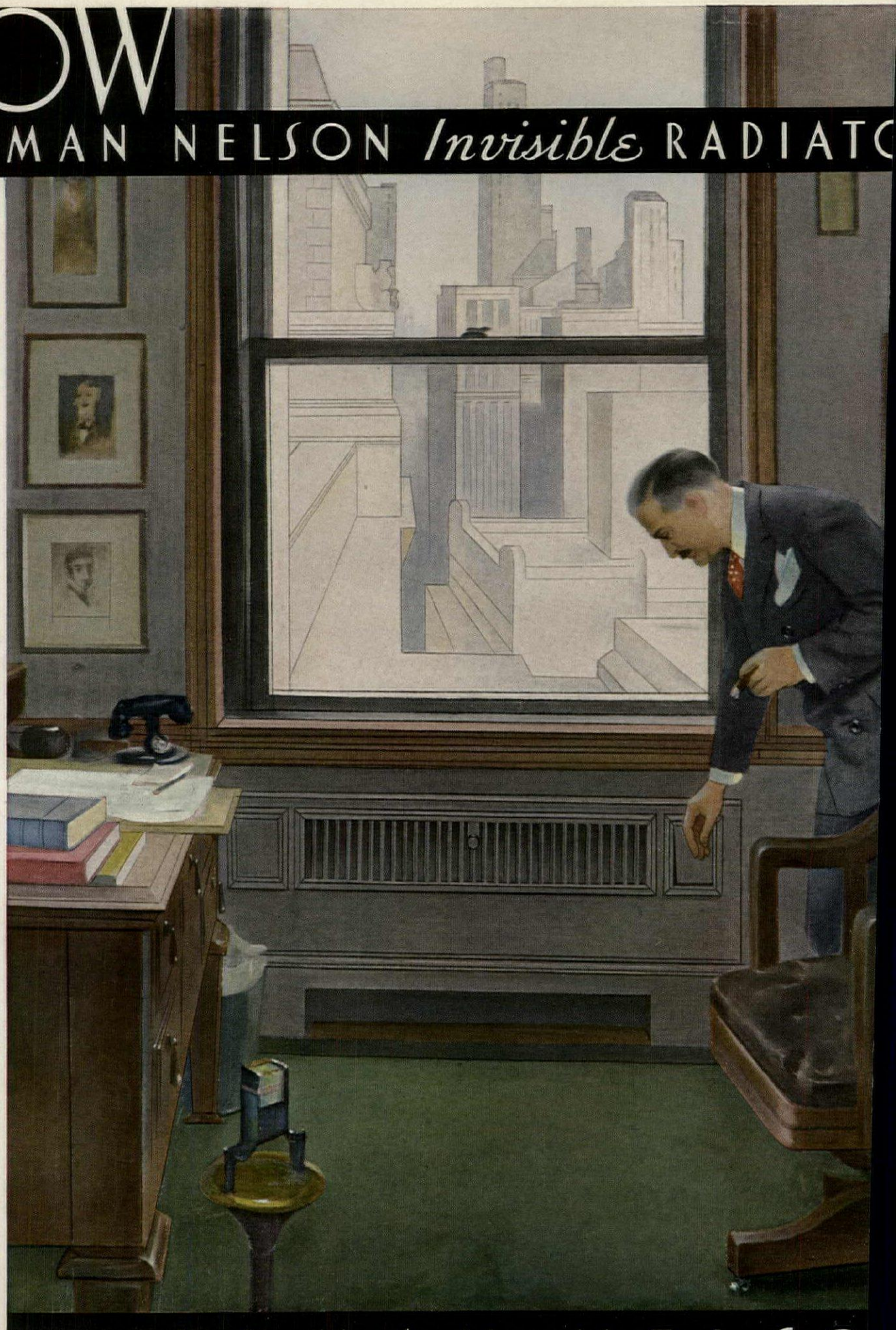
Architects and engineers, however progressive in spirit, naturally hesitate to quickly accept innovations. They have seen too many "cure-alls" come and go! They feel their responsibility to their clients. They are wary of fads and demand—results.

Having experienced the difficulties of pioneering for so many years—and having weathered them—we have, deep in our hearts, a feeling of gratitude for those far-seeing architects and engineers who have shown their faith in this organization; who have worked with us and fought for us, thereby making possible a mutual progress.

Today, therefore, when we announce a *new* Herman Nelson product, it is only fitting that we publicly register our appreciation to the architect for the expression he has so often voiced—"If it is made by the Herman Nelson Corporation, it is right."

NOW

HERMAN NELSON *Invisible* RADIATO



BEHIND THAT GRILLE IN THE WALL... THERE'S A RADIATOR THAT SAYS, "THIS BUILDING IS MODERN."

THE HERMAN NELSO

VAILABLE *for* MULTI-STORY BUILDINGS

EVEN YEARS AGO, when the Herman Nelson Wedge Core iator was incorporated in Univent tilating equipment, there began a olution in the design of all such pment.

our years later, in answer to insist- demands for a direct radiator incor- ting this light but indestructible ing element, the Herman Nelson ible Radiator made its appearance. he Invisible Radiator, "Immured" was expressly designed and built nstallation behind the plastered where it would occupy no room and, therefore, make possible bet- ecorative and furnishing effects. satisfactory were results that this ype radiator was adopted for thou- of residences and other build- nly a few stories in height, where ate pipe risers could be used and controlling valves, traps, etc. be placed on branches leading to risers. In such buildings the prob- f accessibility was not a factor. erman Nelson Invisible Radiator e known—and is still recognized he last word in radiator heating.

A request is answered

se of the success of the Herman n Invisible Radiator, in fine resi- and similar buildings, this com- has been consistently urged to this radiator for use in multi- uildings.

meet this demand, it was neces- sary to provide access to controlling valves, thermostatic traps and pipe connections. We were unwilling, however, to recommend that our heating element be merely placed in a hole in the wall, or that it be encased or covered in some haphazard manner. Specialized heating experience of over twenty years and a determination to keep faith with our clientele would permit no compromise. We, therefore, bent our efforts upon perfecting a complete unit of scientific design and scientific construction.

After three years of consistent painstaking effort, both in our scientific laboratory and in the field of practical application, we have produced such a unit—the Herman Nelson Invisible Radiator, "Paneled" type, incorporating the identical durable heating element as our "Immured" type, but meeting the special installation requirements of larger and taller buildings.

Guaranteed ratings

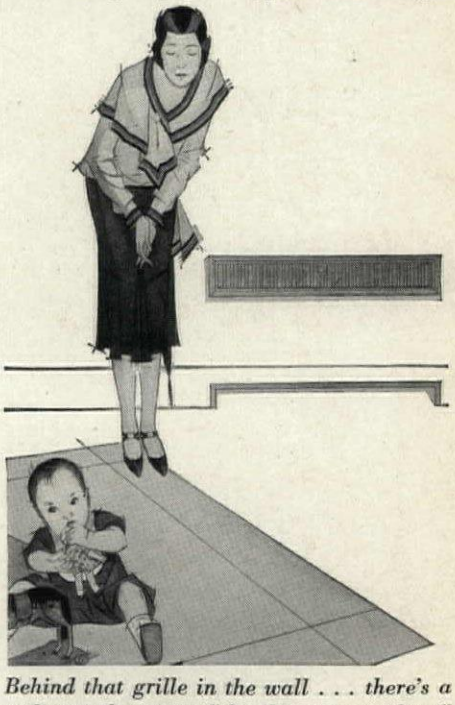
The Herman Nelson Invisible Radiator, "Paneled" type, is designed, built and sold as a complete unit. Each radiator is given a definite guaranteed rating as compared with the ordinary cast-iron radiator. The heating element is enclosed in a sturdy steel case with an instantly removable front panel. A unique dust-proof telescoping arrangement is employed, eliminating the use of bolts or screws to keep it in place. The removable panel is complete with cast outlet grille and graduating damper. There is a self-closing door on each side of the grille. The doors give hand access to the radiator control valves.

An adjustable base and adjustable grounds for meeting varying thicknesses of floors, plaster or tile walls are provided.

Easy to install

We confidently believe that this radiator is as easy to install as a cast-iron radiator and that you will find it everything you could ask for in the way of appearance, accessibility, cleanliness and—trouble-proof heating results.

While this company has never built down to a price but always up to a standard, large scale production and scientific manufacturing methods bring this new-day radiator well within the economic grasp of all types of buildings.



Behind that grille in the wall . . . there's a radiator that says, "this home is modern."

CORPORATION MOLINE ILLINOIS

OUR CONTRIBUTION TO THE ART OF HEATING AND VENTILATION

The Herman Nelson Wedge Core Radiator is an exclusive feature of all Herman Nelson Heating and Ventilating Products and accounts for their satisfactory performance. ✣ ✣ ✣ THE HERMAN NELSON CORPORATION, Moline, Illinois.

BELFAST, ME.	BUFFALO	CHARLOTTE, N. C.	CINCINNATI	GREEN BAY	MEMPHIS	SALT LAKE CITY	TORONTO
BOSTON	PHILADELPHIA	GRAND RAPIDS	TOLEDO	MINNEAPOLIS	DALLAS	BUTTE	WINNIPEG, MAN.
SPRINGFIELD	SCRANTON	SAGINAW, MICH.	INDIANAPOLIS	DULUTH	OMAHA	SPOKANE	CALGARY
PROVIDENCE, R. I.	HARRISBURG	FLINT, MICH.	CHICAGO	ST. LOUIS	EMPORIA, KAN.	PORTLAND, ORE.	LONDON
NEW YORK CITY	PITTSBURGH	DETROIT	PEORIA, ILL.	BIRMINGHAM	KANSAS CITY	SEATTLE	OSLO
SYRACUSE	JOHNSTOWN, PA.	CLEVELAND	DES MOINES	ATLANTA	TULSA, OKLA.	SAN FRANCISCO	MELBOURNE
ALBANY	WASHINGTON, D. C.	COLUMBUS	MILWAUKEE	NEW ORLEANS	DENVER	VANCOUVER	TOKYO, OSAKA

MOSAIC FAIENCE TILES

for Floors *of artistic beauty*

Lobby in an apartment house, Yonkers, N. Y., with floor of Mosaic Faience Tiles. Architect, William P. Katz.

Random Design No. F-503 (See Mosaic Faience Catalog). Choice of large group of beautiful colors and innumerable designs.

FLOORS of distinctive attractiveness, floors that give the room itself an effect of unity without uniformity, are created with Mosaic Faience Tiles. Your artistry of achievement with Mosaic Faience is heightened by the hand-made character of these tiles. Their wide scope of colors, sizes and shapes makes your designs as original as you please. The 80-page book, "Mosaic Faience Tiles", contains scores of helpful suggestions. Send for it. And feel free to consult our design department.

THE MOSAIC TILE COMPANY
02 Coopermill Road ' ' ' Zanesville, Ohio
NEW YORK CHICAGO
OS ANGELES ST. LOUIS SAN FRANCISCO

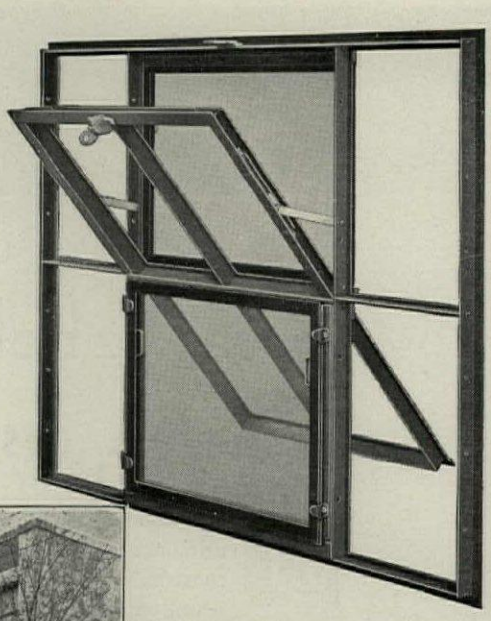
MOSAIC

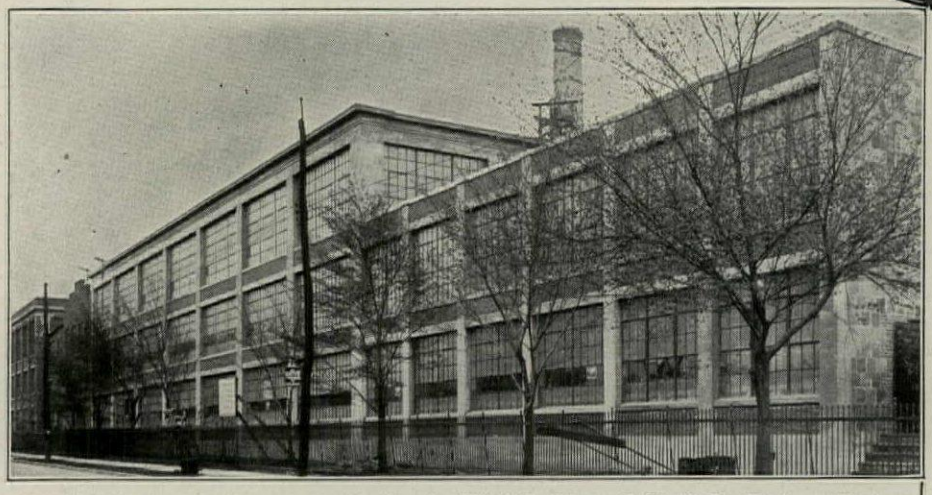
The name "Mosaic" is stamped on all products of The Mosaic Tile Company, which include ceramic mosaics, vitreous, semi-vitreous, wall and faience tiles, as well as "All-Tile" bathroom accessories. The word "Mosaic" should be used in writing tile specifications.

The Textile Industry

also turns to

Bayley Pivoted Windows Screened





The Scranton Lace Co. Scranton, Pa. Designed and Built by Morton C. Tuttle Co., Engineers, Boston

RECOGNIZING their outstanding advantages in solving ventilation problems, the textile industry, in common with other industries, is using Bayley Pivoted Windows Screened in a large way. Adequate, controlled and screened ventilation is thus assured, and flying insects — apt to fall into delicate products and force suspension of operations until damaged portions are removed—are kept out.

Architects, builders and owners prefer Bayley Pivoted Windows Screened because of their . . .

EASY OPERATION . . . ventilators operate without movement of screens or flexing of screen contacts. Screens are easily removed, without use of tools, for cleaning or winter storage . . .

LOW COST . . . quantity production on the Bayley standardized plan reduces first cost . . . and Bayley design and construction eliminate the usual upkeep expense . . .

APPEARANCE . . . no offsets, extensions, or operating chains to mar looks. Made an integral part of the windows, the screens themselves are neat and attractive looking . . .

STABILITY . . . sections are 1½" deep, adding extra strength and durability.

Take advantage of our more than 48 years' engineering experience when preparing your plans and specifications. Write for address of nearest Bayley district office . . . The William Bayley Co., 134 North St., Springfield, Ohio.

BAYLEY
STEEL WINDOWS & DOORS

District Offices:

New York, 67 W. 44th St.
Boston, 5 Park St.
Chicago, 75 E. Wacker Drive
Springfield, O., Cleveland, 449 Terminal Tower
Washington, 1427 I St., N. W.
Atlanta, 407 Bona Allen Bldg.
North St.

Sales Agencies also in Principal Cities

Other representative mills protected by Bayley Pivoted Windows Screened:

Westcott Hosiery Mills
Dalton, Ga.

Alton Park Hosiery Mills
Alton Park, Tenn.

Champion Mills
Cleveland, Tenn.

Crystal Springs Bleachery
Chickamauga, Tenn.

P. H. Hanes Knitting Mills
Winston-Salem, N. C.

Shelbyville Mills, Inc.
Shelbyville, Tenn.

Magnet Knitting Mills
Clinton, Tenn.

T. Walter Fred Hosiery Mills
Nashville, Tenn.

Cheltenham Hosiery Co.
Cheltenham, Pa.

Blackwood Hosiery Co.
Blackwood, N. J.

Miller Hosiery Mill
Robesonia, Pa.

Apex Hosiery Co.
Philadelphia, Pa.

Highland Cotton Mills
Highland, N. C.

Richard Oswald Hosiery Co.
Philadelphia, Pa.

Artcraft Silk Hosiery Mills
Philadelphia, Pa.

Textile Dyeing Co.
Hawthorne, N. J.

Powell Knitting Mills
Spartanburg, S. C.

Saratoga-Victory Mills
Guntersville, Ala.

Piedmont Print Works
Taylors, S. C.

Bossong Hosiery Mills
Ashboro, N. C.

High Rock Knitting Co.
Bristol, Va.

Lanett Bleachery & Dye
Lanett, Ala.

Carolina Silk Products Co.
Greensboro, N. C.

Clinton Silk Mill
Clinton, S. C.

Alice Mfg. Co.
Arial, S. C.

Standard Looms, Inc.
Spartanburg, S. C.

Adams-Millis Corporation
High Point, N. C.

Other leading industries which have turned to Bayley Pivoted Windows Screened include packing houses, candy factories, bakeries, dairies, hotel kitchens, restaurants, hospitals and food markets where strict compliance with State and Municipal Food Laws is required.

BENJAMIN-STARRETT

Heavy Duty
Lighting Panelboards and Steel Cabinets

Safety Front Type Heavy Duty Benjamin-Starrett Panelboard

The wide variety of circuit arrangements makes it easy to select just the right panel to meet any residence, commercial, institutional or industrial wiring requirement.

Many exclusive Benjamin-Starrett features cut installation time to the minimum.

The unit sectional construction and individualizing of parts provide the greatest accessibility and flexibility, assuring the highest type of continuous service at a minimum of maintenance expense.

Special Features

Easy to Install

4-inch wiring space on all four sides; adjustable trim clamps; extra large panel mounting holes; slip-off barrier easily removed; one-piece panel back.

Quick Delivery

Boxes carried in stock at local distributors and district warehouses. Unit section construction insures quick assembly of panelboard.

All Parts Removable from Front

Should replacement of parts ever become necessary, the switches and fuse receptacles are individual units which may be removed without disturbing the trim. Replacements or changes in branch circuits made without removing panel from box.

Heavy Duty Switches

Branch Circuit tumbler switches on both two-fuse and one-fuse panels are heavy duty type—30 ampere, 250 volts.

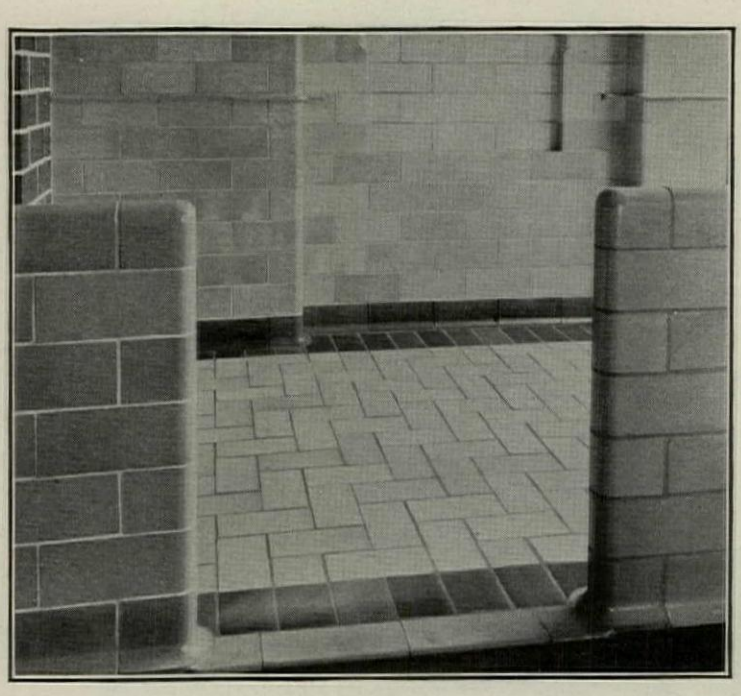
Three Styles of Cabinets

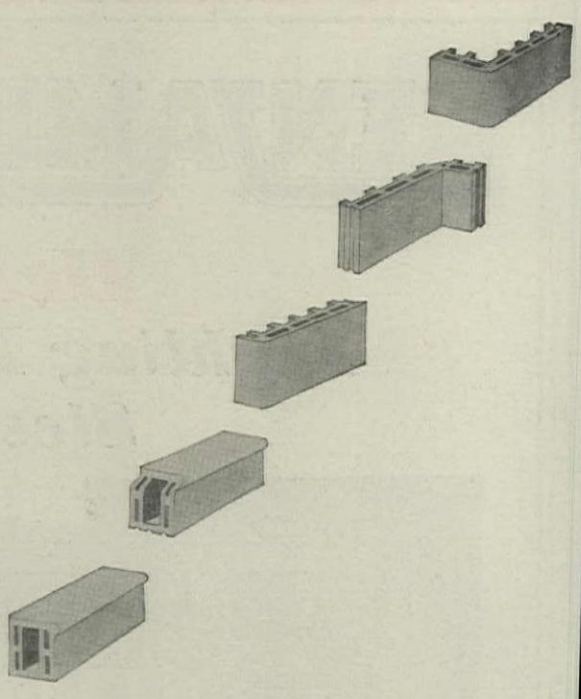
Safety Front, Protective Front and Open Front to suit any specific requirement.

FREE! This 80-Page Catalog The complete listings with their practical arrangement and the clear and detailed illustrations make it easy to select the right panelboard for any job in any type of building. Send for it today.

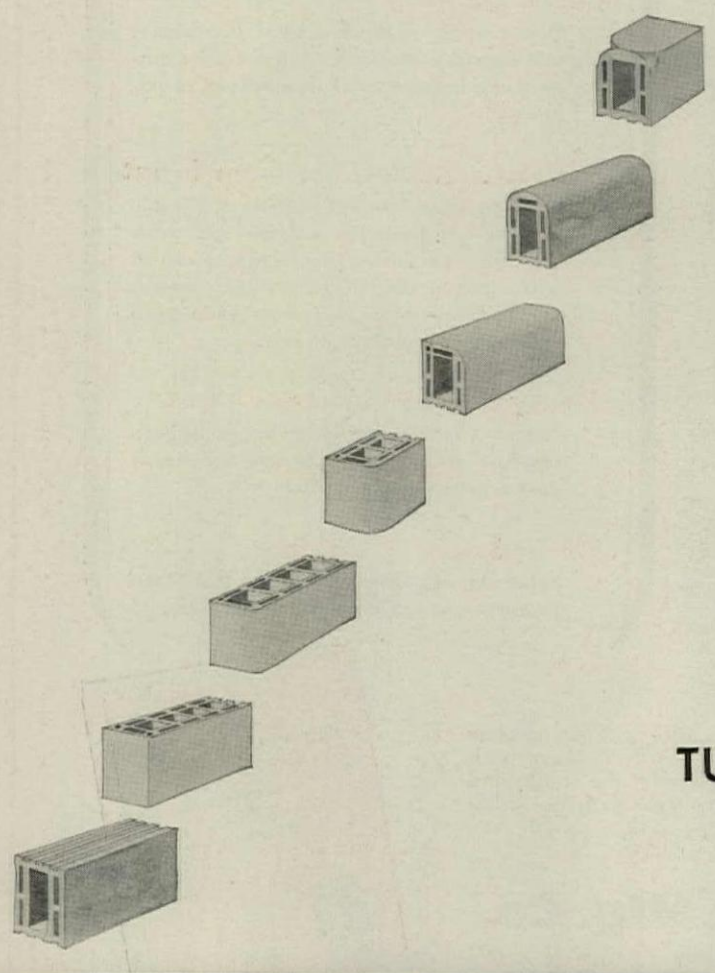
Benjamin Electric Mfg. Co.

General Offices and Factory
DES PLAINES, ILL. (Chicago Suburb)
New York Chicago San Francisco





NEW LATITUDE IN *Design*



BOTH COLOR AND STRUCTURAL . . .

LIGHT, delicate glazed tans, pastel-like in delicacy—broader ranges, emphasized with high buffs . . . orange buff, rich, warm, and inviting . . . A full range, all the tones effectively blended . . . A rich, bold chocolate brown, for harmony by tone contrast.

These various shade ranges of Natco Vitritile offer the architect a new artistic medium in which to work, new possibilities in color design to realize. A complete line of shapes, comprising corners, closures, sills, lintels, bases and caps, and so on, offers new freedom in structural design.

Natco Vitritile is glazed Structural-Clay Tile, furnished for interior and exterior load bearing walls and partitions, and also kerfed for furring. Colors are permanent—surfaces are sanitary—double shell construction provides insulating value—tests have demonstrated high crushing strength. We'll gladly send a catalog, if you don't have one.

TURN TO SWEET'S

NATCO
THE *COMPLETE* LINE *of*
STRUCTURAL CLAY TILE

NATIONAL·FIREPROOFING·CORPORATION

THE LARGEST CONCERN IN THE WORLD MAKING A COMPLETE LINE OF STRUCTURAL CLAY PRODU

GENERAL OFFICES: FULTON BUILDING, PITTSBURGH, PA. BRANCHES: NEW YORK, CHANIN BUILDING; CHICAGO, BUILDERS BUILDING; PHILADEL
LAND TITLE BUILDING; BOSTON, TEXTILE BUILDING — NATIONAL FIRE PROOFING COMPANY OF CANADA, LTD., TORONTO, ONT

Armstrong's
A
The Mark of Quality

This is the Long Distance Operators' room in the Ashtabula Telephone Exchange at Ashtabula, Ohio, floored with Armstrong's Cork Tile, laid in 12-inch blocks.

A Sign *asks for* Silence...

a Cork Tile Floor *Guarantees it!*

PUT up a "silence" sign if you wish. But make sure f your floors, too, for careless eet, hurrying over hard-sur- ced floors don't believe in gns.

If you are planning an in- erior where silence is neces- ary—where foot-easy comfort desirable—no floor is better ited to your purpose than a oor of Armstrong's Cork Tile. hese resilient tiles of quiet rk silently cushion every ep, smother every annoying uff and scrape.

An Armstrong's Cork Tile loor has a quiet dignity, an d world beauty, that distin- ishes a skillfully designed and-laid floor. The three ades of rich brown, natural colorings of clean, baked cork, allow the architect to plan appropriate designs in keeping with any type of interior. Individualized designs are made easier by a wide selection of sizes.

But this beautiful hand-laid floor has practical virtues, too. It is warm, comfortable, non-slippery, easy to clean. And it will last a generation without losing its pleasing shading or cushioning resiliency.

Armstrong's Cork Tile Floors have been installed in hundreds of business and private homes, libraries, banks, churches, and other public buildings all over the country. This modern floor is one you should be acquainted with. Why not let us send you samples and our new book "Custom-Built Floors of Cork," which will tell you all about Cork Tile and about Linotile, another hand-laid Armstrong Floor. Address Armstrong Cork Company, Custom Floors Department, Lancaster, Pennsylvania.

Armstrong's Custom Floors

LINOTILE **CORK TILE**

MADE BY THE MAKERS OF ARMSTRONG'S LINOLEUM

NTRODUCE
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FOR CASTING MOLDING GAUGING FINISHING

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pioneering spirit is essentially progressive.
o serve more completely the building industry,
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complete line of plasters in stock at our plant
icine Lodge, Kans., now makes possible mixed-
ments promptly on order.

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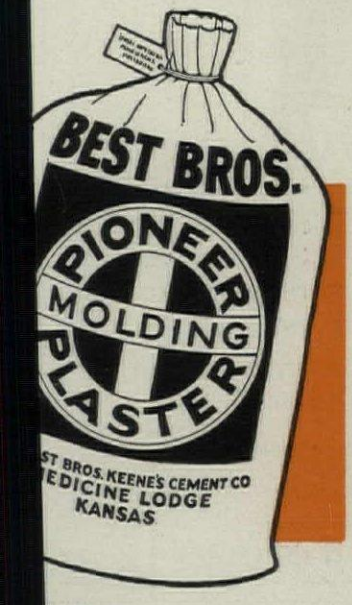
is ready for you. We shall be glad to send you
or your files.

BROS. KEENE'S CEMENT COMPANY
1040 W. 2nd Ave., Medicine Lodge, Kansas
Offices in: New York, Chicago, Toledo, St. Louis,
San Francisco, Atlanta, Philadelphia (50)



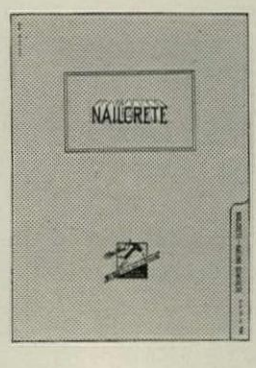
NAILCRETE

Used in This Fine Country Club Building

Capital City Country Club, Atlanta, Georgia
Burge & Stevens, Architects, Robert G. Lose, Engineer,
Griffin Construction Co., Contractors

IN THE splendid new home of the Capital City Country Club, Atlanta, Georgia, **Nailcrete** . . . the original nailing concrete . . . was used as the nailing base for the slate roof. This is one of many Country Clubs in which this modern building material has been extensively employed.

Every square inch of **Nailcrete** is nailable. It has, too, the additional important advantages of being fire-proof and rot-proof . . . and its insulating capacity is two to three times greater than that of stone concrete.



Nailcrete is the superior nailing base for floors and roofs in large and small construction. When used for wood floors it eliminates sleepers, sleeper clips, fill and underflooring.

Write for our illustrated descriptive booklet, "Nailcrete."

THE NAILCRETE CORPORATION
105 WEST 40TH STREET, NEW YORK CITY

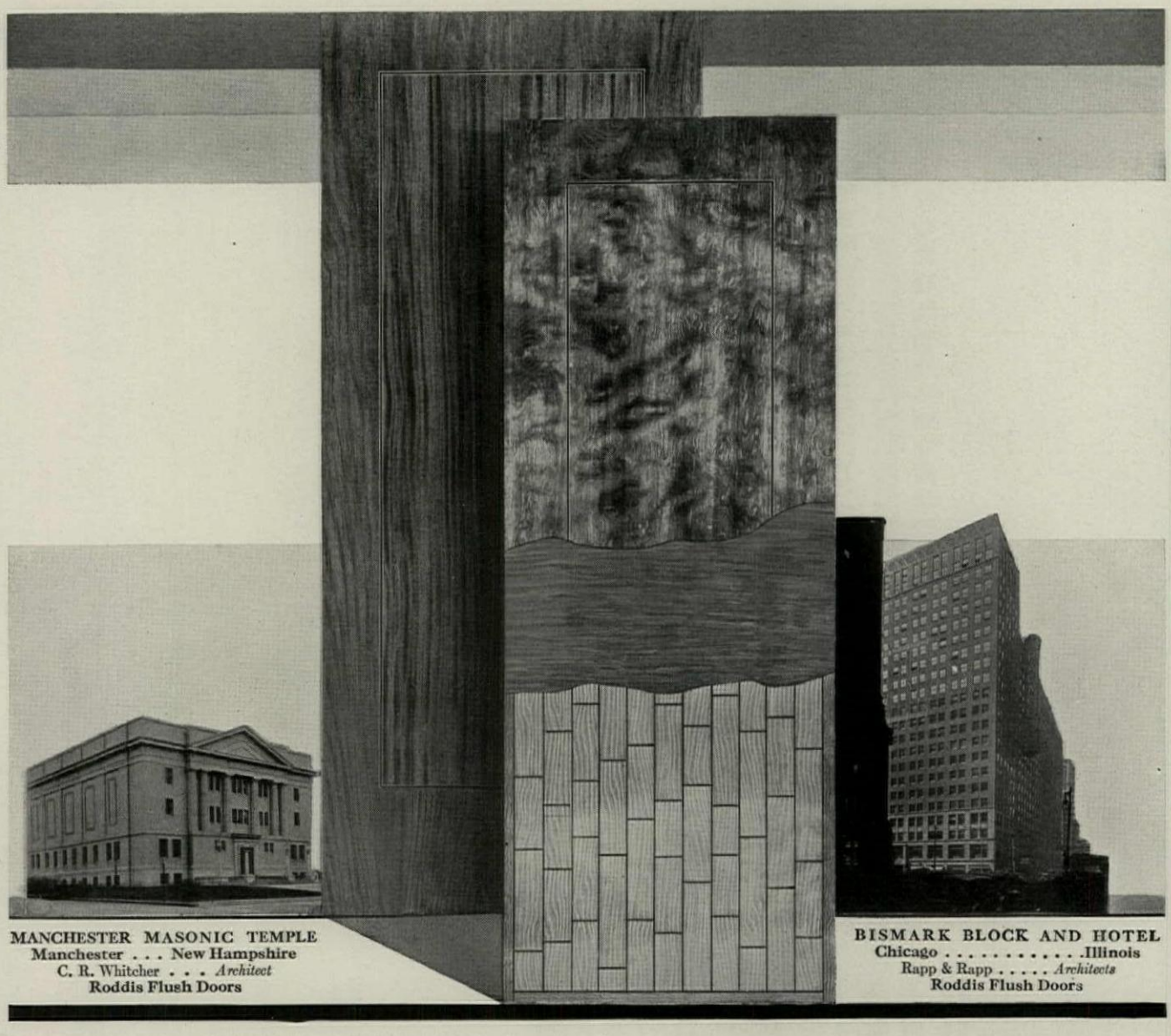
The Palmolive Building, Chicago, Holabird & Root, architects, equipped throughout with Sargent Hardware.

AN EXPRESSION OF HIGHEST CRAFTSMANSHIP

MASTERFULLY conceived and engineered, the great commercial structure is one of the most modern expressions of craftsmanship at its finest. Each step of growth is planned minutely. Its sinews must be tested steel. Famous quarries furnish the stone. Only the choicest materials can meet its precise specifications. • Sargent Hardware is installed in the Palmolive Building, as in many other outstanding structures of the country. Sargent Hardware is selected for its fitness of design. For its perfect operation. For its durability. Sargent reputation rests on many years' insistence on the finest materials and the most expert workmanship. The high quality of Sargent Hardware can be counted on. Sargent & Company, New Haven, Connecticut; 94 Centre Street, New York City; 150 North Wacker Drive (at Randolph), Chicago, Illinois.

SARGENT

LOCKS AND HARDWARE



MANCHESTER MASONIC TEMPLE
Manchester . . . New Hampshire
C. R. Whitcher . . . *Architect*
Roddis Flush Doors

BISMARK BLOCK AND HOTEL
Chicago . . . . . Illinois
Rapp & Rapp . . . . . *Architects*
Roddis Flush Doors

DOOR BEAUTY AND ADDED STRENGTH

Roddis Flush Door construction, as illustrated here, consists of (1) a soft wood core, (2) a horizontal grain cross band veneer on both sides and (3) a vertical grain surface veneer on both sides: with a hard wood edge strip on all four edges of the door. A 5-ply completely solid door, of standard weight and measurements. Added to that is a series of extra doweling, for further mechanical strength and durability: the strongest door made, the most correct door construction design and principle.

Roddis Flush Doors endure permanently, withstanding severest usage—and retain their beauty of appearance and fine finish throughout their long period of service: the handsomest door and the most economical door, as well as the most serviceable door. The interesting Roddis Catalog illustrates and describes all Roddis details, with a presentation of Roddis styles and some of the prominent installations made. Sent on request.

RODDIS LUMBER & VENEER CO.
128 FOURTH ST. *Established 1890* MARSHFIELD, WIS.
Distributors In All Principal Cities
Flush, French, Panel and Custom Built Doors

RODDIS FLUSH DOORS

Koh-i-noor for Color!

A SERIES OF SUGGESTIONS FOR STUDENTS AND DRAFTSMEN BY A. L. Guptill

We here reproduce the last of this interesting series of drawings by Mr. Guptill. A limited number of sets of reproductions are available for teachers, students and draftsmen. There will be no charge for them.

In Combination with Black

THOUGH many successful sketches are made with "Koh-i-noor" colored pencils or crayons alone, it is not unusual to find others in which color is employed in combination with black. In the sketch shown above, for example (drawn, incidentally, on a very rough paper at this exact size), the darker tones were done with a "Koh-i-noor" Wax Crayon No. 60, ivory black. The color was then added with other pencils from the same set, resulting in a homogeneous effect. Not infrequently, however, successful pencil drawings are done with our regular "Koh-i-noor" Drawing Pencils, being later touched up with our "Koh-i-noor" Polycolor Wax Crayons or our "Mona Lisa" Colored Oil Chalk Crayons or Pencils. Results obtained by either method are usually most interesting.

Sometimes the black, instead of predominating, is used rather sparingly for the accenting of drawings done mainly in color.

The student would do well to experiment with both these types of work. He might try, too, drawings in black and one color, and black and color combinations on tinted papers. The possibilities along these lines are unlimited.

Color charts of "Koh-i-noor" Polycolor and "Mona Lisa" Crayons, also our booklet "The Right Pencil in the Right Place" sent upon request.

KOH-I-NOOR PENCIL COMPANY, INC.

34 EAST 23rd STREET, NEW YORK

If your dealer does not carry these Crayons in stock, he can quickly obtain them for you. Insist on POLYCOLOR or "MONA LISA", ordering by name and number. When these cannot be obtained from the dealer we will supply them direct.

--with no premiums to pay

THE Westinghouse Nofuz panelboard is an insurance against the dangers of overfusing, with the resultant possible overloading of the wiring. It is also an insurance against the loss of valuable good-will because of wiring troubles due to inadequate protection.

And maintenance costs are the minimum.

In homes, large buildings, stores and industrial plants, the Nofuz panelboard insures positive protection to the wiring, and greater convenience in restoring service.

Note the features of this new panelboard. A circuit-breaker replaces both switch and fuse in the branch circuits. No adjustments are necessary after tripping, except to reset the breaker. The contacts cannot be held closed against an abnormal overload or short circui because the automatic mechanism trips-free from th handle.

The breaker calibration cannot be altered or the breake action blocked so as to remove its protective feature

The panelboard is very easily installed.

Complete information can be obtained from the neare Westinghouse office and a panelboard specialist will b glad to show you a sample circuit-breaker.

WESTINGHOUSE ELECTRIC & MANUFACTURING C
BROOKLYN WORKS BROOKLYN, N.

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Westinghouse

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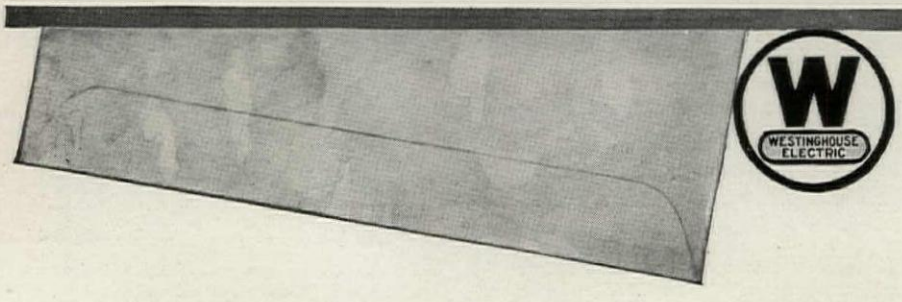
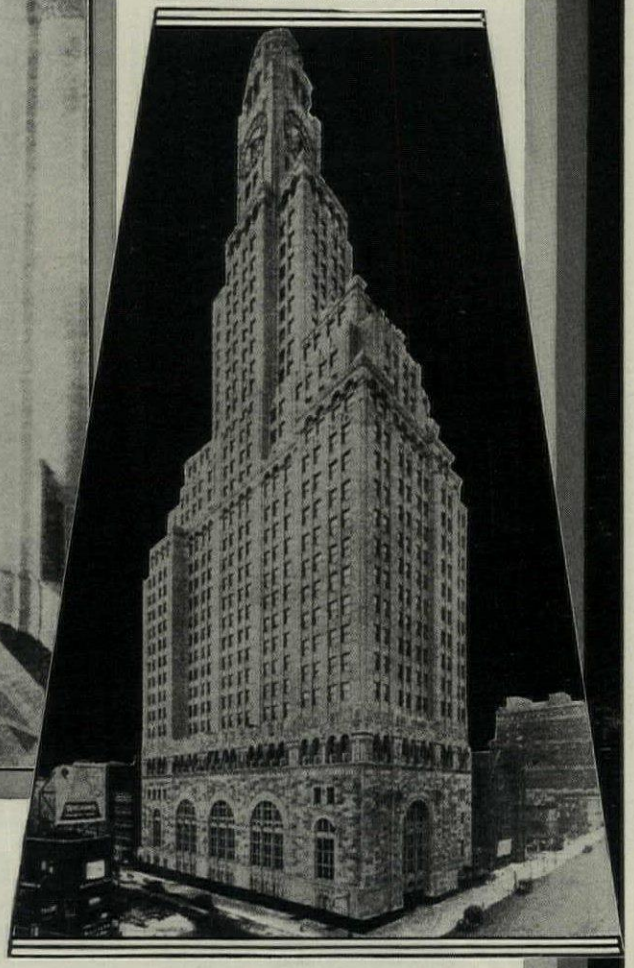


The Williamsburg Savings Bank Building . . Brooklyn, New York
With View of Main Banking Room . . .
Halsey, McCormick & Helmer, Inc., *Arch.*



JOHNSON Room Thermostats con-
l the direct radiators, separately, in the main bank-
room, offices, work spaces, etc. in this building.

eumatic push buttons are installed to control
vestibule, elevator lobby, entrance halls and ad-
ional banking room radiators.

e Johnson System controls each ventilating ap-
atus in the building: Johnson Cold Air Therm-
ts placed in the cold air inlet control the first
heater coils; a Johnson Warm Air Thermostat
he fan discharge controls the inner row of the
ter coil.

connection with each ventilating fan apparatus
re is placed in the cold air inlet one copper
vre damper, operated by an electric magnetic
tch. This switch is connected to the electric
ing to the motor of the fan; and when the fan
rned on to operate it opens the cold air in the
vre damper, and when the fan is stopped, it
es it. This arrangement of pneumatic electric
rol also applies to all vent fan apparatus.

midity control is obtained by humidostats placed in the fan discharge controlling three-way valves in the hot water line entering the spray nozzles. The hot water in connection with each fan apparatus is heated by a closed heater and in addition to controlling the three-way valve we also operate a steam diaphragm valve on the steam inlet to the closed hot water heater; thus preventing overheating of the water in the closed heater when the three-way valve closes off the hot water and is recirculating water from the air washer storage pan which lies at the bottom of the air washer.

SUCH wide-range completeness and thoroughness again emphasizes Johnson leadership, and the recognized value of automatic control for the heating and ventilating apparatus in a building.

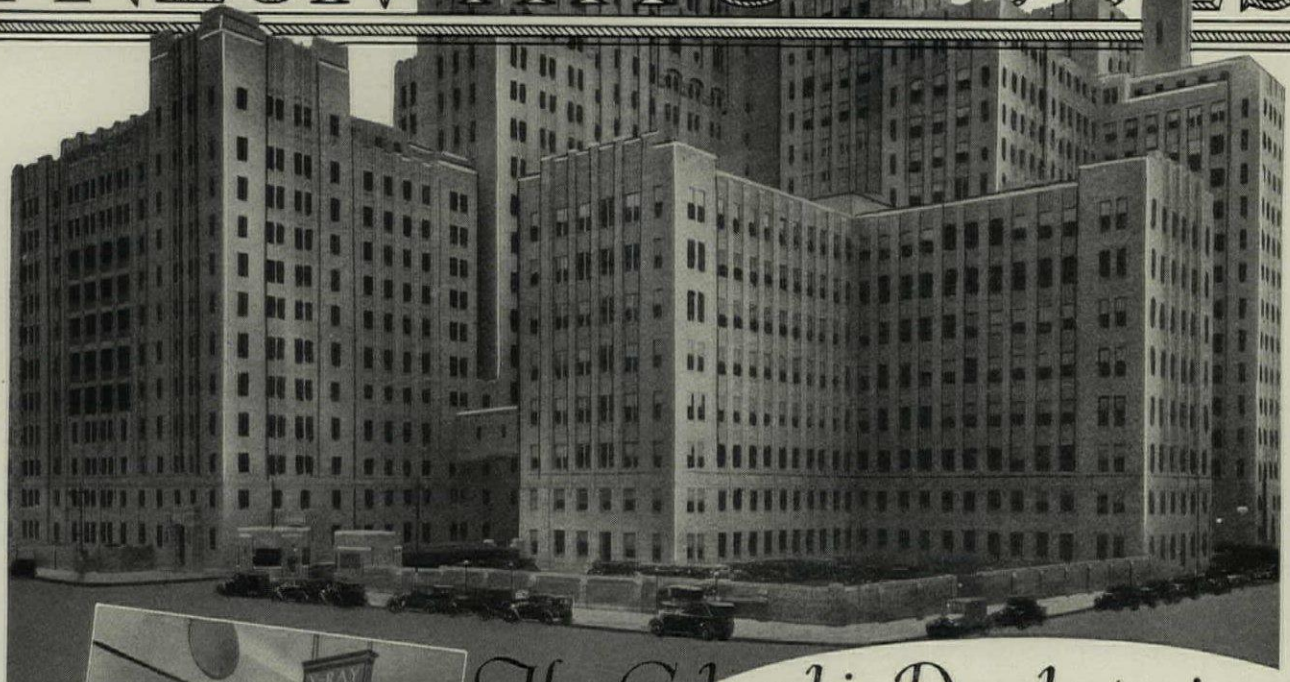
JOHNSON SERVICE CO., MILWAUKEE, WIS.

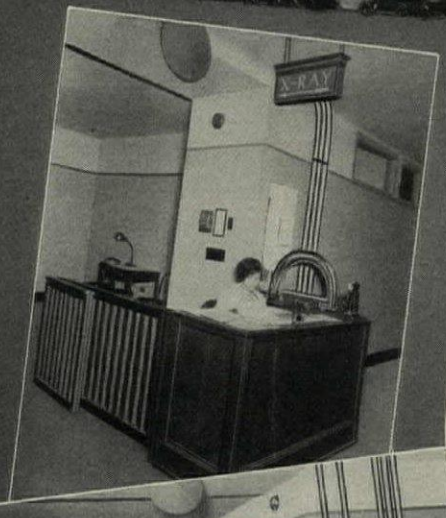
ESTABLISHED 1885

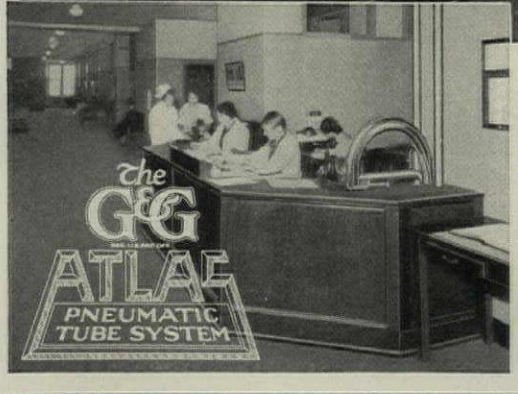
BRANCHES IN ALL PRINCIPAL CITIES

OHNSON HEAT & HUMIDITY CONTROL

PNEUMATIC TUBES







The Columbia Presbyterian Medical Center

uses G&G Atlas Mechanical Messengers

The plans of James Gamble Rogers, New York, *Architect*, included for this notable institution a G&G Atlas Pneumatic Tube System as follows:

CENTRAL STATION IN REGISTRATION ROOM
FLOOR A — NOSE & THROAT CLINICS AND EYE CLINIC
FLOOR B — MEDICAL CLINIC
FLOOR C — SURGICAL — MEDICAL — EMERGENCY WARD
FLOOR D — PEDIATRICS — MATERNITY — VAGINITIS CLINIC
FLOOR E — NERVE & SKIN

With the tendency toward larger and higher buildings, hospitals have come to use these modern Mechanical Messengers for distribution of case histories, gauze, bandages, absorbent cotton, medicine, including liquids; sending charge vouchers to bookkeepers; for ordering special materials or foods; for reports and instructions from Superintendent of Nurses; and for sending samples to laboratory and for delivering reports of analysis.

"Mechanical messengers are faster and more dependable than human messengers."

Drawing of typical hospital tube installation . . . and descriptive pamphlet . . . now available upon request.

Catalog in Sweet's Archt. Cat. 24th Ed. pp. D 5113-15
Catalog in Specification Data 1929 Ed. pp. 228-229

G&G ATLAS SYSTEMS, INC.

548 West Broadway New York, N.Y.
406 Dominion Bank Bldg., Toronto

NAMES such as these are familiar throughout the hospital field. G&G Atlas Pneumatic Dispatch Tube Systems are in use in:

JOHN SEALY HOSPITAL	Galveston, Tex.	*R. L. White, Architect*
CHILDRENS' HOSPITAL	Cincinnati, O.	*Matthews & Short, Architects*
MILWAUKEE CO. EMERG. HOSP.	Milwaukee, Wis.	*Van Ryn & DeGelleke, Architects*
BELLEVUE HOSPITAL	New York	*McKim, Mead & White, Architects*
COLUMBIA PRESBY. HOSP.	New York	*James Gamble Rogers Architect*
GRASSLAND HOSPITAL	Valhalla, N. Y.	*Walker & Gillette Architects*
ROCHESTER GEN'L HOSP.	Rochester, N. Y.	*Gordon & Kaelber Architects*

The art

OF MAKING

a house a *home*

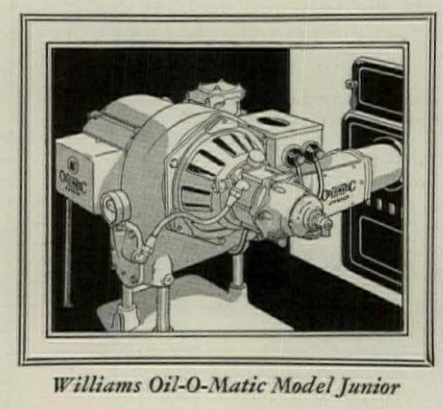
YOU bear a large share of the responsibility, you men who plan the buildings of your clients. Yours is the art of making a house more than a shelter—the art of making it a *home.*

The burden is lighter, the satisfaction greater when the plans you put on paper materialize into a cozy, comfortable healthful home. And the realization of this ideal is easier and simpler, more certain of being just the right thing if you specify Williams Oil-O-Matic—Model J for large homes, Oil-O-Matic Junior for homes of moderate size.

Economical and dependable day after day and year after year, Williams Oil Heat has already proved itself in nearly 100,000 installations under all sorts of circumstances. The moderate first cost of these oil burners is appealing.

Their economy of operation is gratifying—they burn low-cost *fuel* oil quietly, efficiently to the last drop; and nation-wide service, factory-trained is further assurance of permanent satisfaction.

To assist you in the successful pursuit of your profession—the art of making a house a *home*—Williams offers prompt, practical co-operation on every heating problem. You will find much of value in the "Architect's Manual of Oil Heating," a copy of which you may have on request



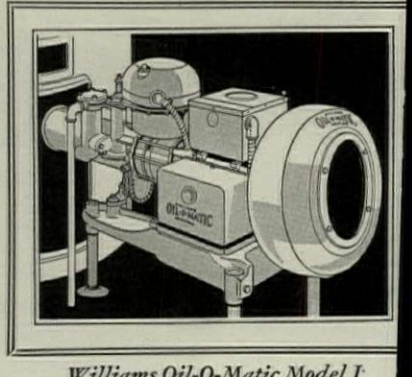
Williams Oil-O-Matic Model Junior

A RADIO TREAT

Tune your radio to WJZ and NBC chain stations at 10 o'clock Eastern Standard Time each Tuesday night. Friday nights at 8:30 Central Standard Time tune in WGN, Chicago

WILLIAMS
OIL-O-MATIC
HEATING

Listed as Standard by Underwriters' Laboratories



Williams Oil-O-Matic Model J

WILLIAMS OIL-O-MATIC
HEATING CORPORATION
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LIGNOPHOL GIVES ENDURANCE TO WOODEN FLOORS FOR 1c TO 2c A SQUARE FOOT

WHEN you specify Lignophol for preserving wooden floors you can depend that your floor problems are solved once and for all.

Lignophol adds to floor durability by supplying the wood with natural oils and gums which penetrate throughout. It binds the fibres together to make the floor hard, wear-resisting, dustless. It obviates splintering, checking, warping, dry and dust rot, and makes the floor easier to keep clean.

Lignophol is not a mere surface coating, but a through-and-through penetrant that will not wear off or evaporate. One treatment lasts for years, and any workman can quickly apply it with a long-handled brush.

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Make use of Sonneborn consulting service. We co-operate with your contractor and give him the benefit of our 25 years' experience. This co-operation helps your contractor to come up to your exacting specifications while keeping the work within bounds of economy. Every Sonneborn product is guaranteed to do a good job.

The attached coupon brings descriptive literature and samples of Sonneborn products. Send the attached coupon for them today.

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Hydrocide No. 633
Plaster Bond—For damp-proofing interior of exterior walls above ground.

Hydrocide Colorless
For waterproofing exterior of exposed walls.

Lapidolith
—the original concrete floor hardener and dustproofer.

Hydrocide
Liquid, mastic and semi-mastic
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For waterproofing mass concrete, stucco and mortars.

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Dept. 2, 114 Fifth Avenue, New York
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Name.....
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Company.....
Position.....

22 *empty apartments . .*

AMERICAN RADIATOR WARMTH rented them all *and gave the landlord*

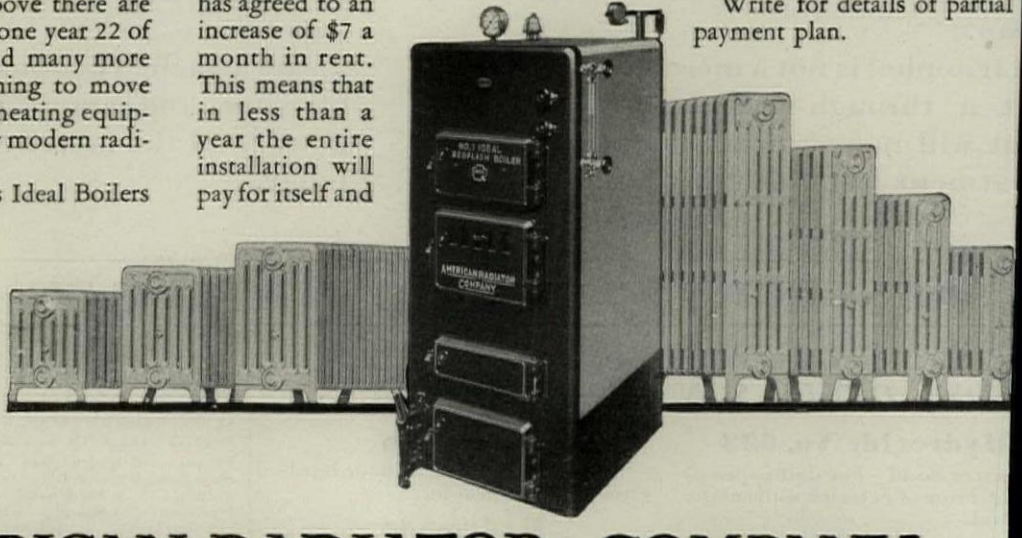
$735 A MONTH BESIDE

HERE is a true story that tells why American Radiator warmth is one of the greatest sales influences that you can add to any building. In the two buildings above there are 105 apartments. For one year 22 of them were vacant and many more tenants were threatening to move unless old-fashioned heating equipment was replaced by modern radiator warmth.

In both apartments Ideal Boilers and American Corto Radiation were installed at a total cost of $16,000. Today every apartment in both buildings is rented and every tenant has agreed to an increase of $7 a month in rent. This means that in less than a year the entire installation will pay for itself and the landlord will continue to get an increased income of $735 every month.

An "All-American" job is a real investment, not an expense.

Write for details of partial payment plan.



AMERICAN RADIATOR COMPANY

40 WEST 40TH STREET, NEW YORK

Division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

"But how about that question of price?"

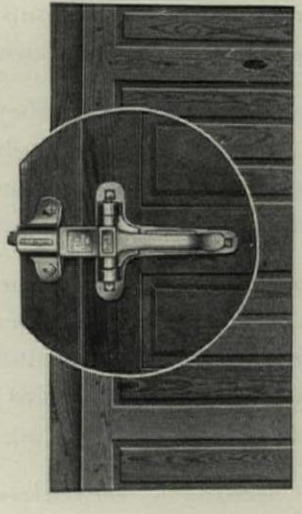
Mr. Architect, do you realize that Jamison and Stevenson plants, with their large volume of business and an organization specially concentrated on but one line, are in a position to produce doors at lower cost than any other manufacturer in the business? » » » What's the answer, when a concern offers to *sell* for less than we know it costs to *make* a good door? Who loses? We lose an order; *your client* stands to lose his original investment, plus the efficiency of his entire plant. » » » Suppose you save three or four dollars on the original cost. That's only a drop in the bucket compared with what your client will lose in escaping refrigeration, claims for ruined goods, space out of service, and labor losses when the door proves it is not "as good as Jamison or Stevenson", after all. » » » When Jamison and Stevenson doors show service records of 30 years and longer, why gamble on a promise or the hope of equal service? It's not worth it when our doors offer *proved* performance. » » » Let's compare door costs on a year-by-year basis—

J. W. Jamison Jr.

see our advertisement in March, 1930, Issue

The new, patented Jamison
WEDGETIGHT
Door Fastener

is quicker, easier, more positive in operation, and stronger, enabling Jamison and Stevenson Doors to seal and *stay sealed* so tightly that temperature seepage is prevented. Offered optionally on Jamison-Stevenson Doors at slight extra cost (no extra charge on Jamison Vestibule Door) Write for descriptive folder.



Jamison & Stevenson
Cold Storage Doors

OLDEST and LARGEST makers of Cold Storage DOORS

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STEVENSON COLD STORAGE DOOR CO.
. . . . . Chester, Pennsylvania, U. S. A. . . . . .
. . . *Branch Offices:* 2 W. 45th Street, NEW YORK . . . .
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333 Market Street, SAN FRANCISCO . . . D. E. Fryer & Co.
SEATTLE & SPOKANE . . . Southern Representatives address Hagerstown . . . *Foreign Agents:* Von Hamm-Young, HONOLULU . . . . Armstrong Cork Co., Ltd., LONDON
. . . . . Okura & Company, JAPAN . . . . . .

Libbey-Owens

has put *beauty* into *window* glass

Residence of Capt. W. G. Roper, Atlanta, G
Glazed with Libbey-Owens Glass

There *was* a time when any kind of glass was used f
windows—but that day has passed. And architects, pe
haps more than any other group of individuals, are respo
sible for obsoleting that practice.

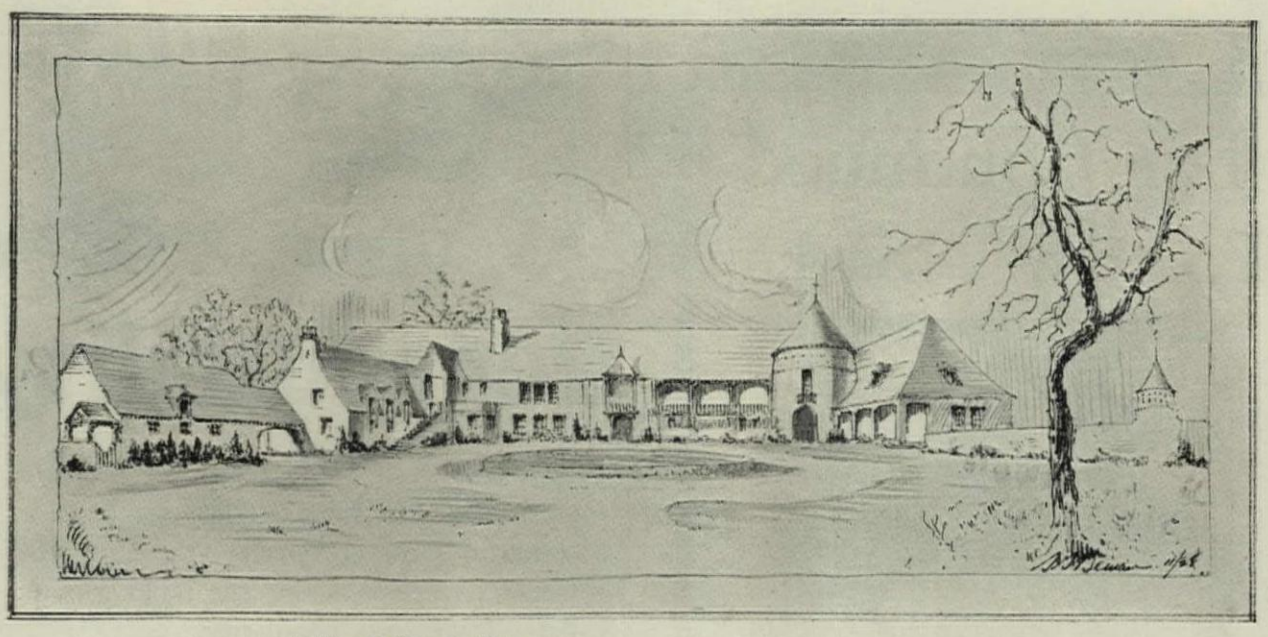
With the inception of the Libbey-Owens process of man
facture, a totally new *kind* of glass was produced—a gl
that was truly flat and without bow—that possessed
sparkle and lustre never before known in window gla

Architects quickly saw in Libbey-Owens Glass a produ
that would really enhance their own art—the art of cre
ing beautiful homes and buildings. Hundreds of th
immediately made it a standard practice to specify Libb
Owens Glass for every building they designed.

Because architects *recognized* the superior qua
of the Libbey-Owens product—and in increasing numb
specified Libbey-Owens Glass—Libbey-Owens has beco
the recognized quality glass for fine buildings of ev
description.

For your protection and identification, every light
Libbey-Owens "A" quality glass bears the familiar
label. Be sure to include it in your specifications. Libb
Owens Glass Company, Toledo, Ohio.

Libbey-Owens
FLAT DRAWN
CLEAR SHEET GLASS



Architect's Sketch of the
ROLSCREENED RESIDENCE OF GEORGE B. EVERETT - - WINNETKA, ILLINOIS
Wells Bros. Construction Co., Contractors *S. S. Beman, Architect*

. . . "ROLSCREENS of Pella meet with my entire approval as a modern improvement in exceptionally fine window screening. I include them in my plans regularly without hesitation.

"Important to me in specifying 'Rolscreens' is the integrity and financial stability of the Rolscreen Company of Pella, which gives ample assurance to any guarantee they may offer."

S S Beman

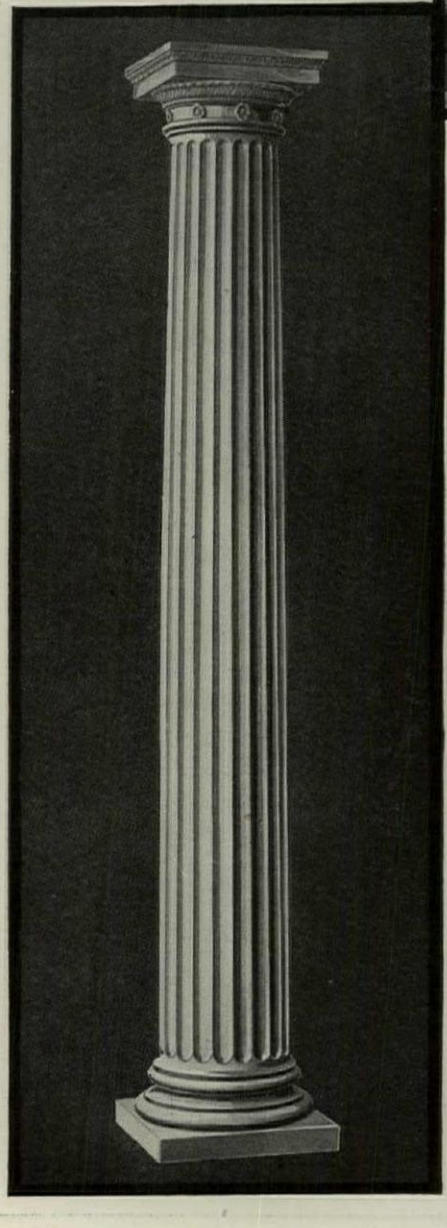
Mr. S. S. Beman, in accord with other leading architects of America, finds Rolscreens best suited for the screening of fine windows.

Rolscreens
TRADE MARK
PELLA IOWA

Iscreen Representatives in all Principal Cities...See Sweets Catalog Volume B...Pages B2742-46

The Beauty of the Past Lives in Pressed Steel Columns

Residence of Edward S. Blick, Esq., Beverly Hills, Birmingham, Mich.
Architect and Builder: Walter Mast. Union Metal Columns No. 224.



Union Metal Columns No. 224 —Roman Doric. One of ten classical designs made in heights from 5′ to 35′ and in diameters from 8″ to 42″.

TYPICALLY American, the Colonial entrance has come down to us as one of our most valued national architectural forms. To best express the charm and dignity which is a part of the Colonial tradition, Union Metal has developed a series of pressed steel columns.

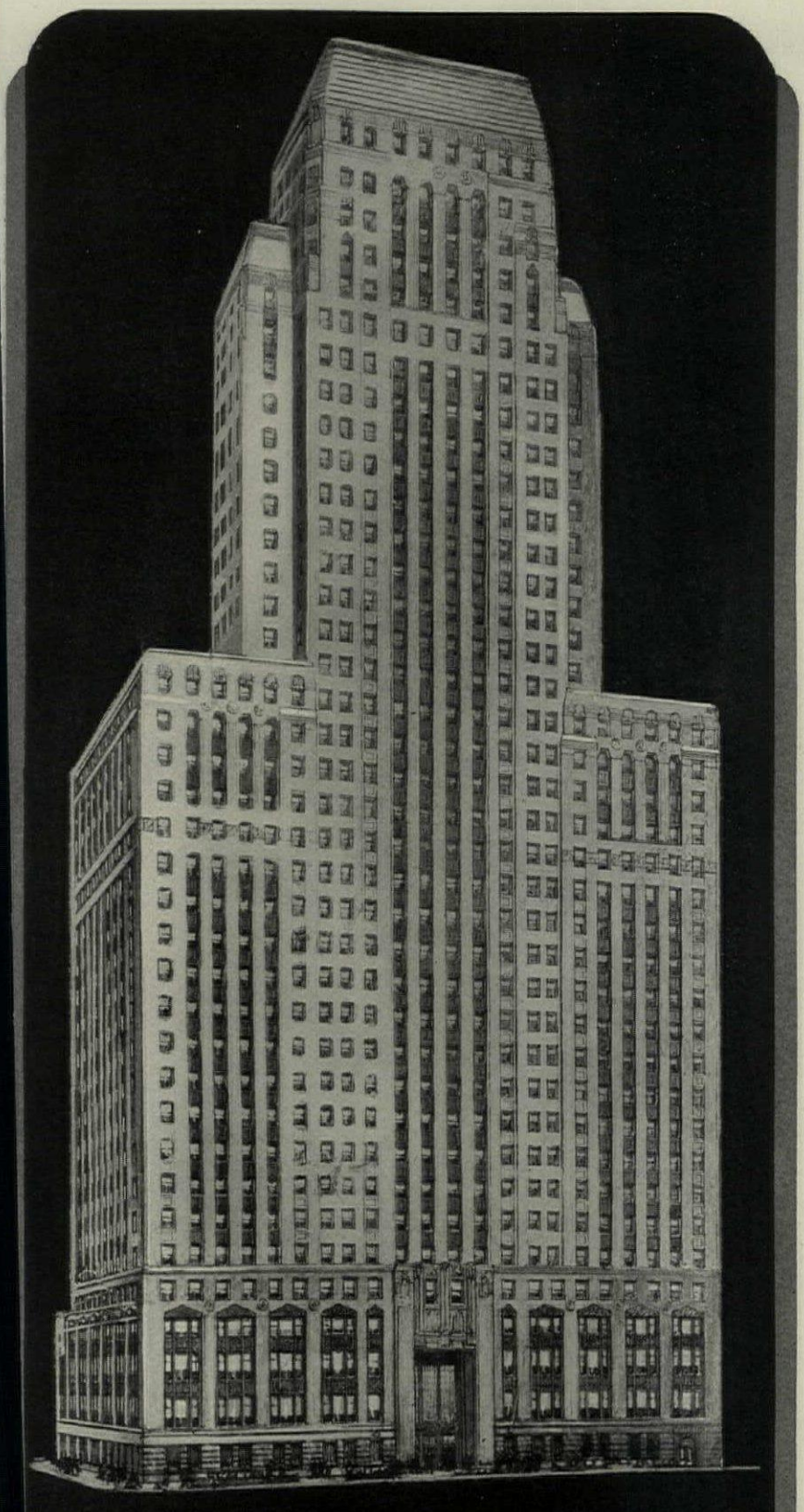
These columns have sharp, clean-cut lines, perfect architectural details. In the wide range of styles there are columns which will impart time-tested beauty to all types of buildings from the small home to the imposing public structure.

But aside from the artistic achievements which are possible, there is the important advantage of economy. Union Metal columns are low in first cost and are free from the warping, rotting and splitting troubles peculiar to the ordinary type of column. Once installed, they are good for a lifetime of service.

THE UNION METAL MANUFACTURING CO.
GENERAL OFFICES AND FACTORY, CANTON, OHIO
SALES OFFICES: New York, Chicago, Philadelphia, Cleveland, Boston, Los Angeles, San Francisco, Seattle, Dallas, Atlanta
Representatives throughout the United States

UNION METAL COLUMNS

"THEY LAST A LIFETIME"



WESTINGHOUSE Elevators, swift and precise, are the finest obtainable, supplying essential impetus to the modern business efficiency of this great building.

Westinghouse Elevators are the logical highways of modern architecture.

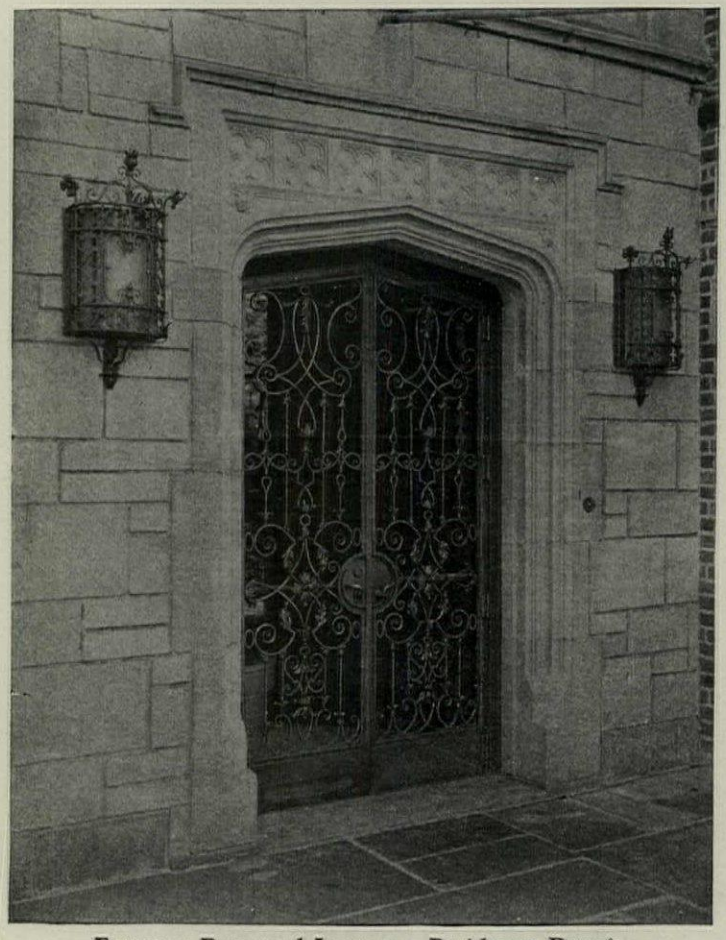
FOREMAN BANK BUILDING
CHICAGO

GRAHAM, ANDERSON, PROBST & WHITE
Architects

PASCHEN BROTHERS
Contractors

Westinghouse Electric Elevator Company

WESTINGHOUSE ELECTRIC
ELEVATORS



Entrance Door and Lanterns—Residence, Detroit
Burrows & Eurich, Architects
Jury Metal Arts Co., Craftsmen

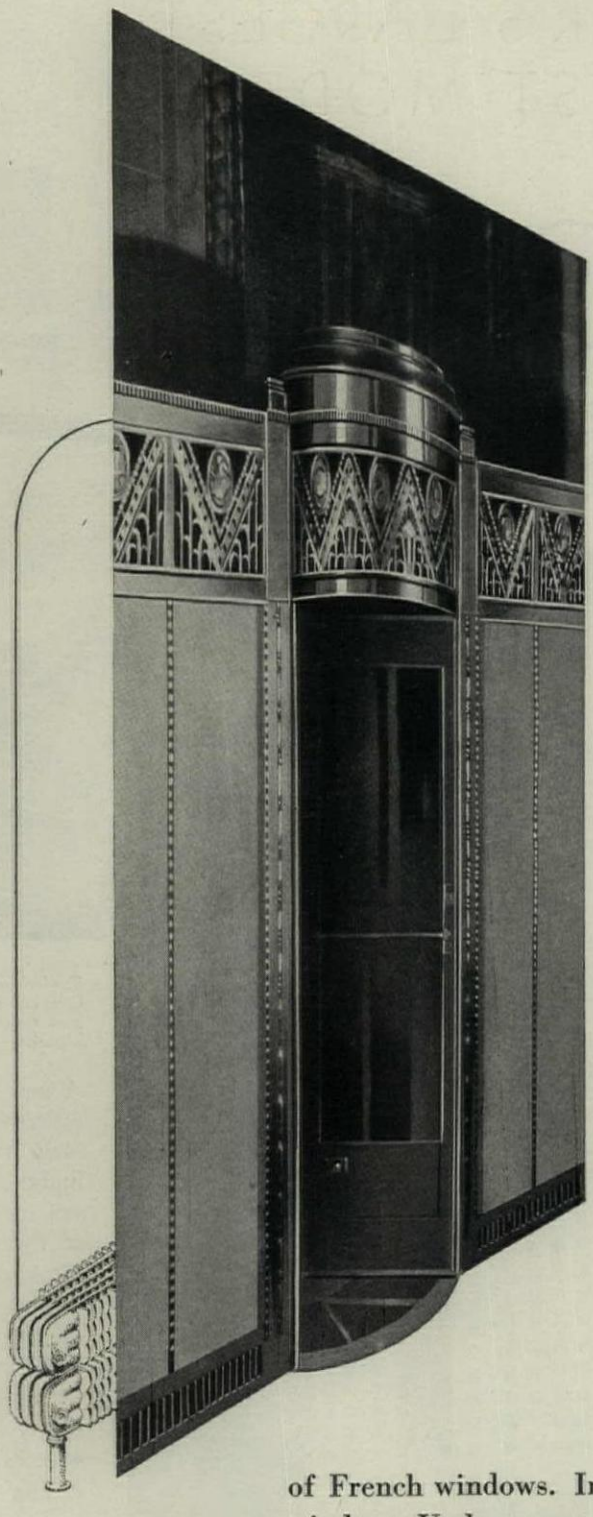
A Masterly Use of Wrought Iron Ornaments

DOORS and lanterns, in this instance, were made up entirely from wrought iron ornaments stocked by Braun.

There is a satisfaction to the designer, in the knowledge that he can draw on a variety of ornaments exceeding 3000 numbers. They come in all shapes and forms, whether it be a tulip, a leaf, a flower or a rosette and in all periods, from the Renaissance to the Modern.

What is equally important is the appreciable saving over hand wrought ornaments, despite the fact that they approach hand work in masterly fashioning. They are readily reshaped to conform to the general outlines.

If our catalogs are not in your files, please write for them.



Integrity Trust Building, Philadelphia, Pa. Paul P. Cret, Architect; Isaac H. Francis, Engineer; Charles Monday, Heating Contractor.

Where the radiators went . . .

IT is astonishing where radiators can be made to go—when they are Robras 20-20 Radiators. In the beautiful Integrity Trust Building, in Philadelphia, the radiators that *might* have marred the effect of a striking lobby are back of the lobby, out of sight, out of the way. (As the illustration shows).

There are Robras 20-20 Radiators in sills of French windows. In bulkheads of show windows. Under counters in banks. Behind wood panelling in churches . . . In all conceivable kinds of odd spaces, in homes, not over 4 inches deep!

The whole interesting story of this extremely versatile radiator is ready for you—in Sweet's catalog, or at one of our own offices (or in your A.I.A. file). ROBRAS 20-20

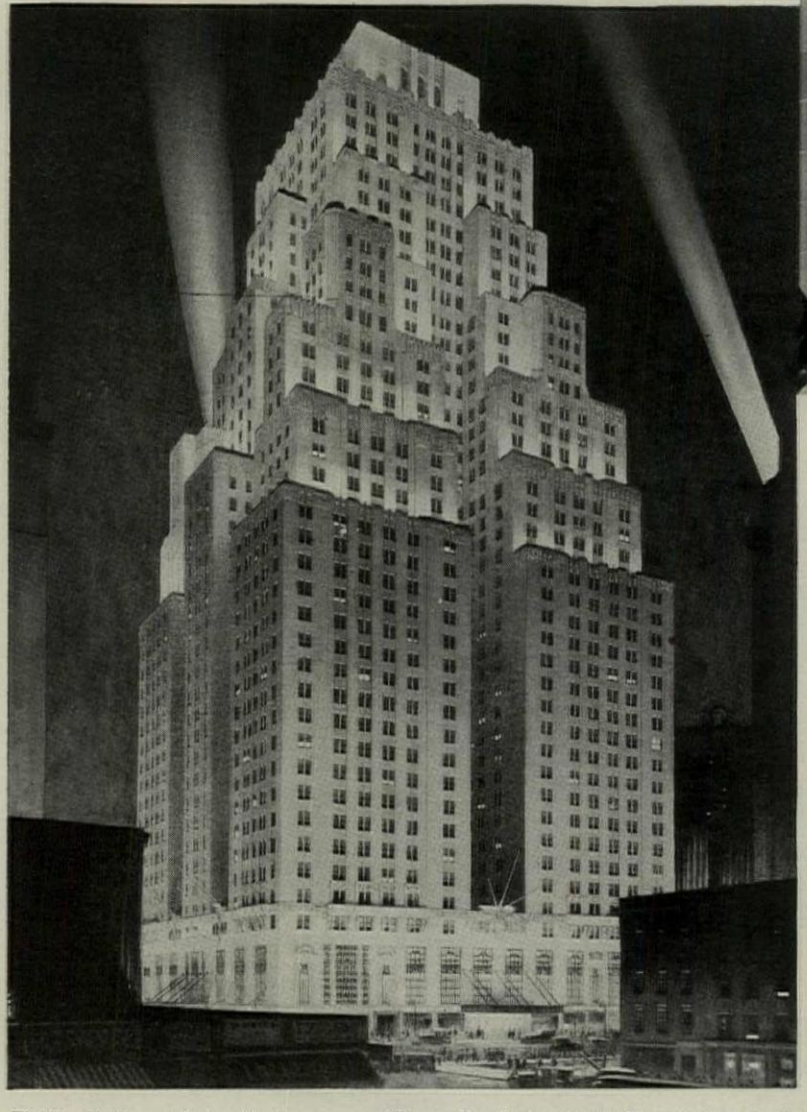
ROME BRASS RADIATOR CORPORATION, 1 East 42nd Street, New York, N. Y.

NEW YORK'S LARGEST AND MOST MODERN HOTEL

KOHLER

EQUIPPED THROUGHOUT

Typical guest bath in the New Yorker. Equipped with Kohler CHESTER *lavatory of vitreous china, Kohler* VICEROY *tub—both with Octachrome fittings, and Kohler* PENRYN *closet. Fixtures are white—walls and floors are finished in soft green and brown.*



The New Yorker was designed by Sugarman and Berger, New York architects. The contract for Kohler products was placed with the Standard Plumbing Supply Company of New York City, wholesalers, and installed by W. G. Cornell Company, New York, plumbers. The building was erected by Mack Kannor, the consulting engineer being A. E. Hanson.

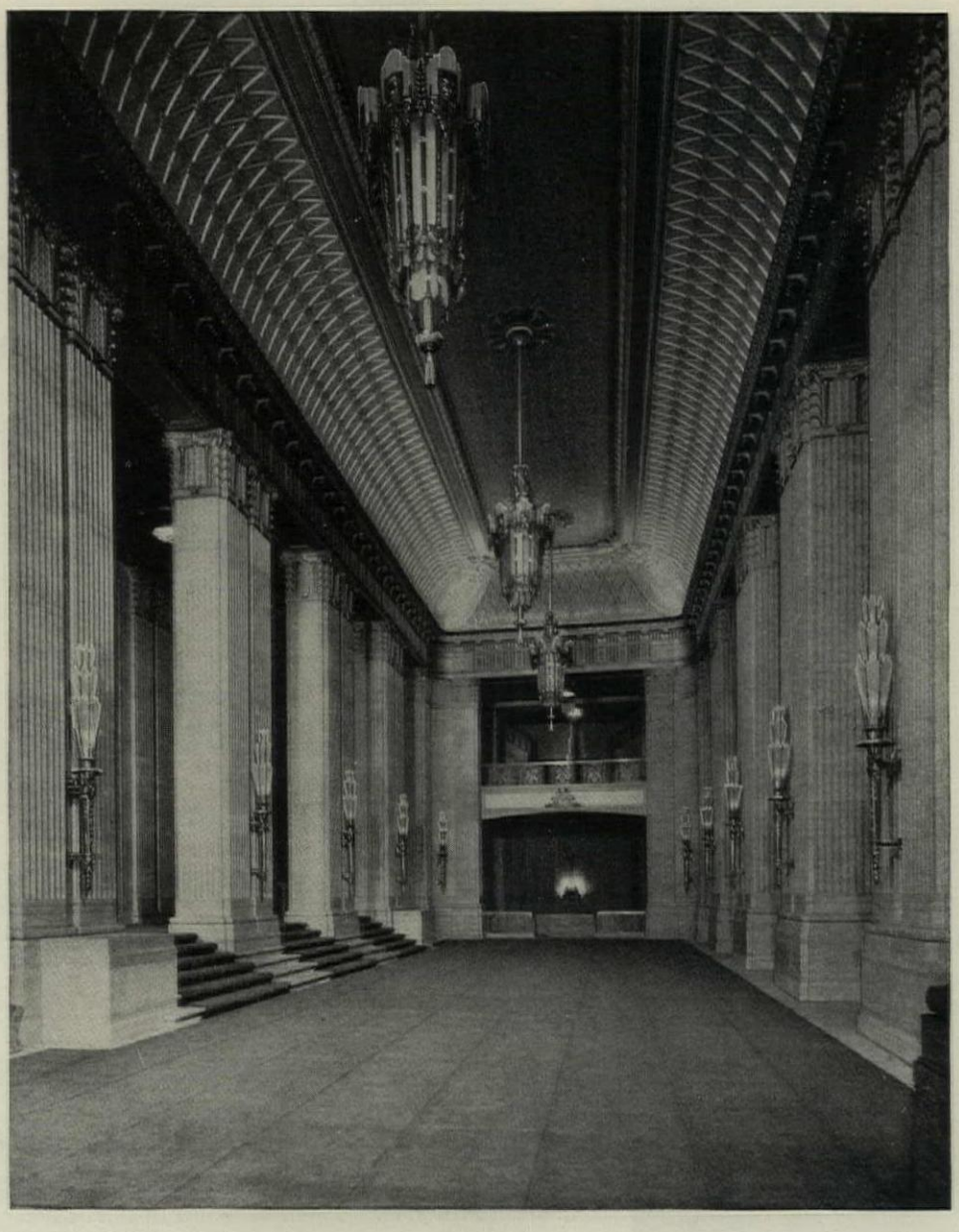
A NEW and greater home-away-from-home now welcomes New York's visiting throngs. The New Yorker . . . rising forty-five stories above Eighth Avenue at Thirty-fourth Street and sinking five stories below street level . . . one of the largest hotels in the world, costing $22,500,000 to erect.

This hotel used Kohler fixtures and fittings exclusively. Amost 7500 units—acid-resisting baths, vitreous china lavatories and closet bowls—besides hundreds of other pieces, including ninety colored fixtures for the barber shop—all with Kohler chromium-plated brass fittings.

The quality of Kohler products and the service given by the Kohler Co. have been approved without qualification by all concerned with this notable installation, one of the largest orders ever placed with one manufacturer in this field. . . . Kohler Co., *Founded* 1873 Kohler, Wis.—*Shipping Point*, Sheboygan, Wis.—*Branches in principal cities*. . . . Look for the Kohler trade-mark on each fixture.

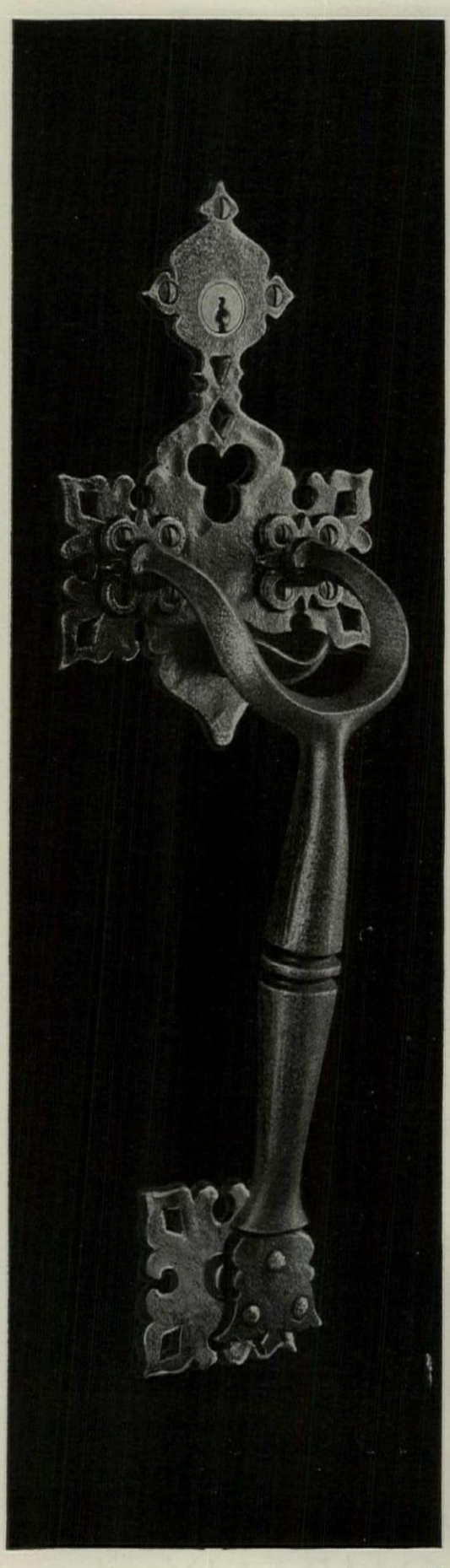
KOHLER OF KOHLER

PLUMBING FIXTURES



Grand Foyer, Civic Opera House, Chicago; Graham, Anderson, Probst & White, Architects, for which we designed and manufactured the lighting fixtures.

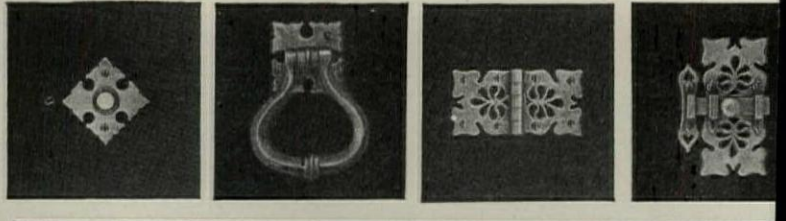
STERLING BRONZE COMPANY, Inc.
EAST 40th STREET · · · NEW YORK CITY

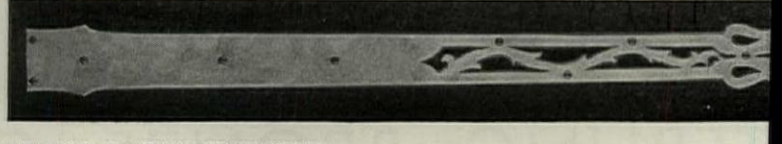


PENN LOCKS AND FINISHING HARDWARE

PENN

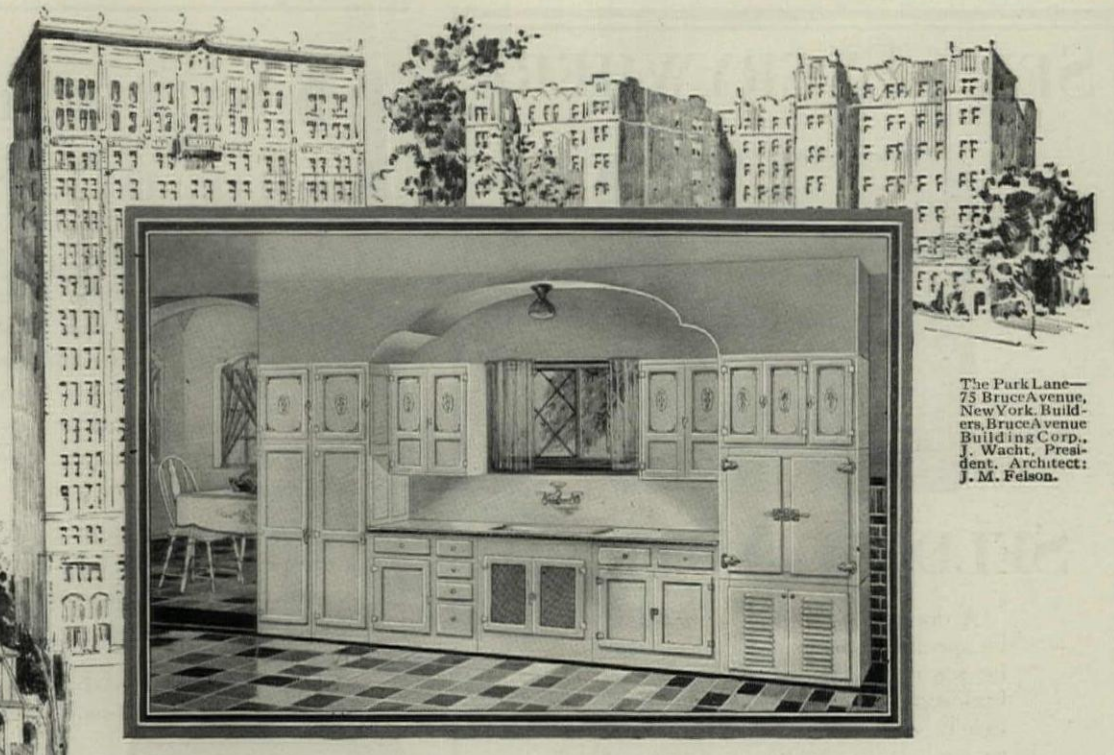
The Penn-Kenilworth designs shown here are authentic reproductions
Old English hardware from historical manor houses . . . Besides this gro
Penn presents several other charming patterns from this period to m
possible the selection of hardware fully appropriate to the architectu
and decorative plan. To their wide line of classic pieces Penn has ad
a comprehensive group of brilliant modern designs. All Penn desi
are equipped with Penn-made locks suitable for any requirem





ILLUSTRATIONS: PENN-KENILWORTH

PENN HARDWARE COMPANY · Reading · Pennsylva
BOSTON · CHICAGO · LOS ANGELES · NEW YORK CITY · PHILADELPHIA · SAN FRANC



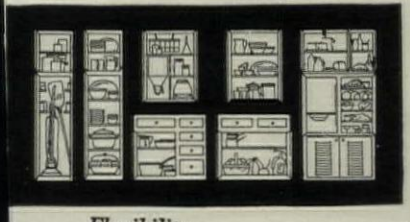
The Hawthorne—St. Louis' finest apartment is fully equipped with Sellers Unit Kitchen Furniture. Architects: Pleitsch & Price.

The Park Lane—75 Bruce Avenue, New York. Builders, Bruce Avenue Building Corp., J. Wacht, President. Architect: J. M. Felson.

Columbus, Ohio
Architect: S. A. S. Ziroli
Contractor: George M. Young

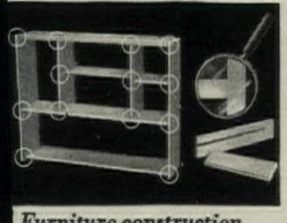
The latest improvement for modern kitchens . . .

Sellers Built-in Furniture



Flexibility

Over sixty units enable you to build around windows or sinks, filling any space from 15 inches up.



Furniture construction

The Sellers wedge tenon dovetail joint is the strongest and most accurate of all wood joints. It is air-tight and dust-proof. Note how the tenon tapers its full length.

Convenience

Open the base door of Sellers Master unit and the shelf *automatically* slides forward bringing pots and pans within easy reach. This is but one of its 15 famous features.

Sellers Kitchen Furniture Units with their colorful beauty, trim compactness and amazing built-in convenience are revolutionizing kitchen designs. They offer new features that actually rent apartments and sell homes—*all at no extra cost*. Here is a new type of kitchen equipment with a powerful buying urge for your most influential customer—the modern woman.

Finished in smart, happy colors—

Having the trim beauty and sturdy construction found only in the finest furniture—

Packed full of built-in labor-saving features.

—Sellers Kitchen Furniture Units are a tremendous improvement over the old-fashioned kitchen with its rambling nailed-together cupboards.

Flexibility is another advantage of this modern kitchen equipment. Over sixty separate units enable you to correctly equip the largest or smallest kitchen.

Built entirely of seasoned and kiln-dried hardwood, Sellers furniture does not warp. The patented 3-point suspension Sellers drawers have the smoothest drawer action known to the woodworking industry. They never stick or jam, and they move at the slightest touch—even in wet weather.

A Sellers kitchen actually costs no more installed than an ordinary nailed-together kitchen. All units are delivered with baked-on enamel finish and hardware—ready to install. You merely set the units in place—tighten a few bolts in holes provided—and the job is completed.

No extra millwork is required. Thus installation expense is greatly reduced and painting and hardware cost is saved.

And in the name Sellers you gain a most valuable asset. Millions of dollars judiciously invested in national advertising have made this name a symbol of quality to every housewife.

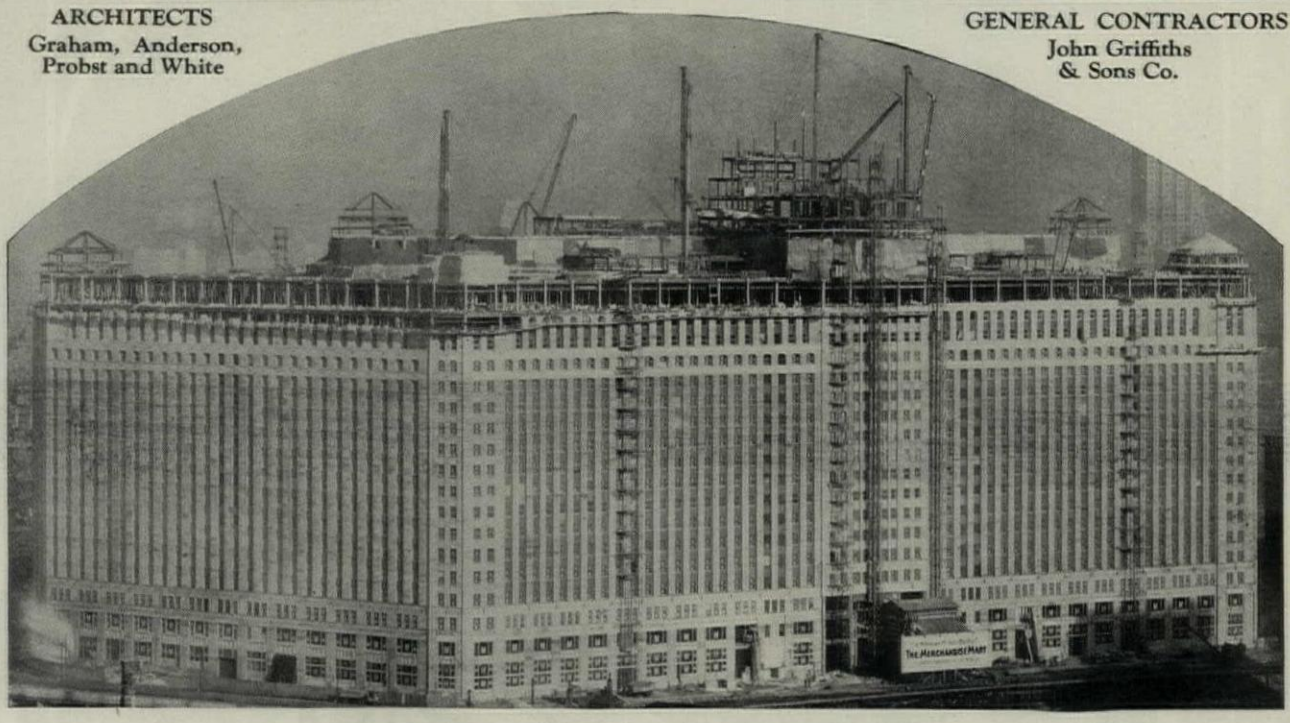
Sellers Kitchen Furniture Units are in step with this new age. They break down sales resistance—increase profits by making it easier to rent or sell any apartment or home. Write today for full particulars on this modern kitchen equipment.

G. I. SELLERS & SONS CO.
Dept. P-2 · · Elwood, Indiana

SELLERS
KITCHEN FURNITURE UNITS

ARCHITECTS
Graham, Anderson, Probst and White

GENERAL CONTRACTORS
John Griffiths & Sons Co.

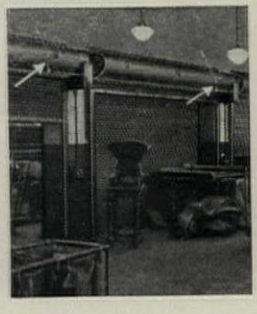


The Merchandise Mart, Chicago, as it appeared on December 31, 1929

KINNEAR LEADS AGAIN!

THE WORLD'S LARGEST BUILDING DEMANDS "KINNEAR DOORS"

A City in Itself; 4,000,000 Square Feet—Nearly 92 Acres of Floor Space; Built Entirely in "AIR RIGHTS"



Fire Openings Protected by Automatic Underwriters' Labeled Type Doors

A MASTERPIECE OF ARCHITECTURAL AND ENGINEERING CREATION

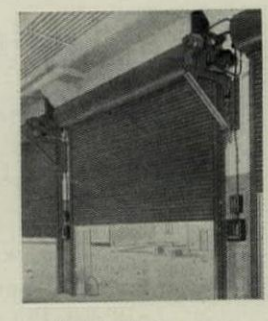
Every Rolling Door a "Kinnear"

100% Efficient Safe Economical

Architects, Contractors and Owners were unanimous in Selecting Kinnear Rolling Doors which provide the last word in

FIRE—PROTECTION—THEFT

Specific Engineering — Positive Action — Simplicity of Control



Electrically Operated Type Doors Used

NEW CATALOG

KINNEAR ROLLING DOORS

There IS No Equal

NOW READY

THE KINNEAR MANUFACTURING COMPANY

380 FIELD AVENUE, COLUMBUS, OHIO, U. S. A.

Boston Chicago Cincinnati New Orleans New York
Philadelphia Pittsburgh Kansas City Cleveland Detroit Washington

TIME—THAT TOUGH OLD TESTER—FINDS A FOE THAT FIGHTS HIM OFF

Many generations ago, Time—That Tough Old Tester—began his fight with genuine puddled wrought iron. Against that sturdy metal of which Reading 5-point pipe is made, Time first used his most potent weapon, corrosion.

Year after year after year, Time poured his corrosive mixtures over and through 5-point pipe trying to set in action the destruction which men call rust. But no loop-holes could Time find—filaments of silicious slag barred the way. Only pipe made of genuine puddled wrought iron has proved that it can thus fight off the test of Time—the only conclusive pipe test known.

Make your first cost of pipe the last cost, avoiding damaging leaks, by insisting on Reading genuine puddled wrought iron pipe.

READING IRON COMPANY, Reading, Pennsylvania

For Your Protection
This Indented Spir
Forever Marks

All

5 POINT PIPE
READING
GENUINE PUDDLED WROUGHT IRON
DEFIES VIBRATION
DEFIES CORROSION
WELDS BETTER
HOLDS CONTENTS
THREADS EASILY

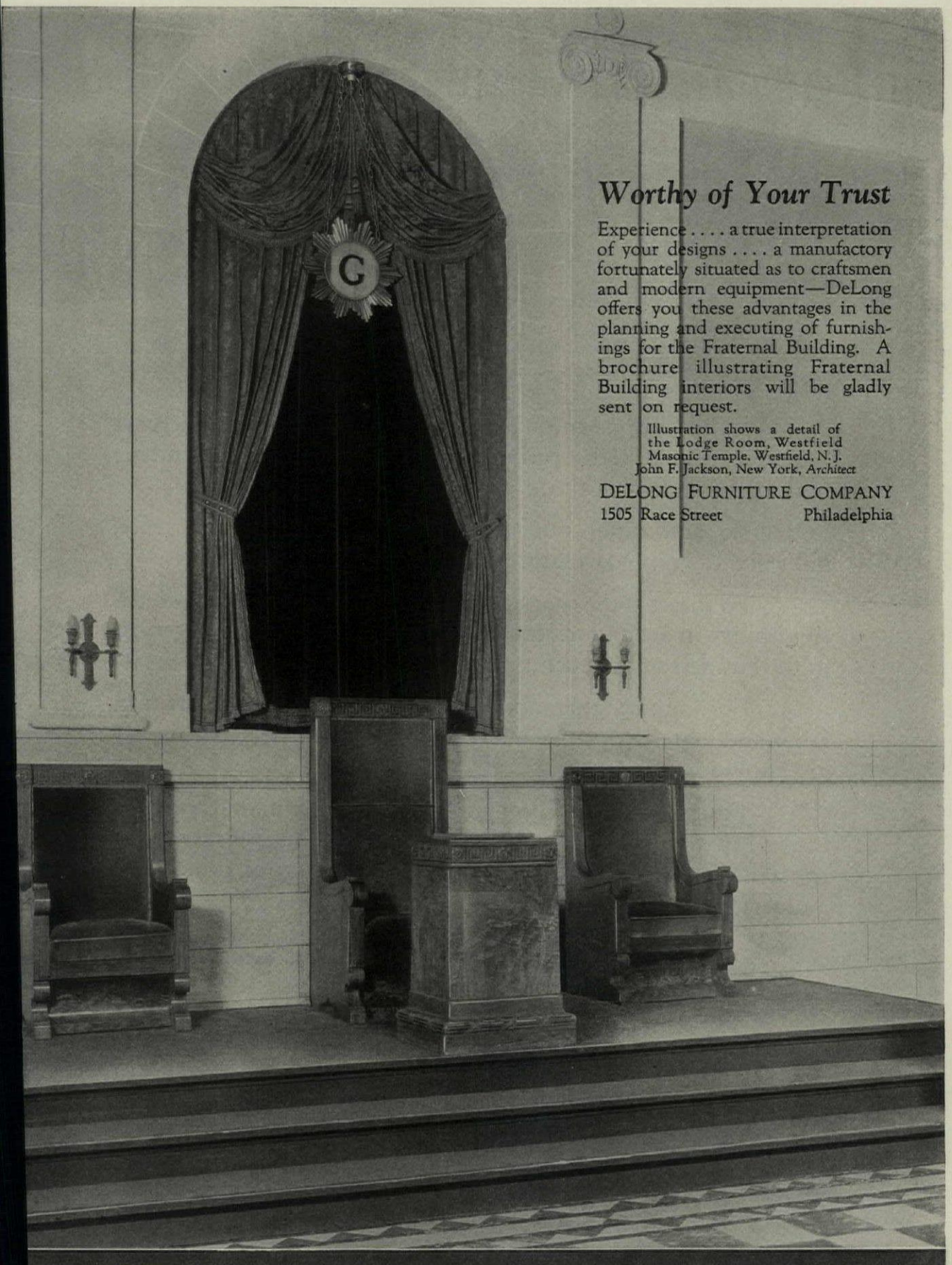
GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM 1/8 TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Ir

CORRECT WATERPROOFING AND DAMP-PROOFING PRACTICE

ARCHITECTS

CHARACTER OF WORK	SUGGESTED "R. I. W." SPECIFICATIONS	DATA
Dampproofing and Plaster-Bond. Interior or Exterior Masonry Walls above grade. Stain-proofing of interior plaster.	"R. I. W." No. 232.	Applied with roofers bristle brush or spray gun. A black, elastic tacky composition which resists dampness and gives perfect bond to hard wall plaster. Two coats should be applied.
Colorless Dampproofing for exterior treatment of Brick, Stone, Concrete, Stucco or other masonry exposed to the elements.	"R. I. W." Toxloxpore.	Will not darken or discolor masonry. Applied in two absorbing coats by brush or spray gun. Open masonry joints or holes should be pointed with "R. I. W." Elastic Caulking Compound. Assists in eliminating efflorescence.
Waterproofing, Integral Method, for Concrete, Stucco and other Portland Cement mixtures.	"R. I. W." Toxement.	A compound in powder or paste form which densifies and brings about the proper hydration of all Portland Cement Mixes. Should be used in proportion of 2% by weight of Portland Cement used. Adds materially to the workability and plasticity.
Waterproofing and Dampproofing for exterior of foundation walls, footings, etc. Also for preservation of wood sleepers laid in concrete.	"R. I. W." Marine Cement.	Applied with roofers brush. A black Dampproof, waterproof and alkali-proof heavy bodied paint which does not require heating. For application in two coats.
Decoration and dampproofing of exposed brick, concrete, stucco, stone and other masonry.	"R. I. W." Liquid Konkerit.	A flat weather resisting cement paint made in white and colors in Priming and finishing coats.
Integral Hardening, densifying and accelerating set of Concrete, Cement Floors, brick mortar, etc.	"R. I. W." Toxmix Clear.	A colorless liquid to be used in proportion of 1 quart to the bag of cement. Increases compressive and tensile strength. Renders concrete or mortar permanently hard, dense and waterproof.



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Experience . . . . a true interpretation of your designs . . . . a manufactory fortunately situated as to craftsmen and modern equipment—DeLong offers you these advantages in the planning and executing of furnishings for the Fraternal Building. A brochure illustrating Fraternal Building interiors will be gladly sent on request.

Illustration shows a detail of the Lodge Room, Westfield Masonic Temple, Westfield, N. J. John F. Jackson, New York, *Architect*

DELONG FURNITURE COMPANY
1505 Race Street Philadelphia

FURNITURE BY DE LONG

FOR CHURCHES~FRATERNAL AND PUBLIC BUILDINGS

PENCIL POINTS

An Illustrated Monthly JOURNAL for the DRAFTING ROOM *Edited by* RUSSELL F. WHITEHEAD KENNETH REID & E. L. CLEAVER *Published by* THE PENCIL POINTS PRESS, INC.
Ralph Reinhold, *President*, L. F. Nellis, *Vice-President*, William V. Montgomery, *Secretary*

A LETTER AND THE RESPONSE

ON JANUARY 6TH we addressed a letter to every architect in the United States and Canada whose names appear on our list, announcing that PENCIL POINTS would undertake this year to start a movement having for its purpose the education of laymen concerning the nature and value of architectural services.

To date (January 17th), about five hundred replies have been received from architects located in all parts of this country and from several Canadian cities, indicating a universal recognition of the fact that the general public is not today informed as it should be, expressing the opinion that something should be done right now to correct this state of affairs, and pledging support, both financial and otherwise, to us in our undertaking.

Replies have been received from large architectural firms and from small ones, from Institute members and from architects not affiliated with the Institute, from the officials of architectural clubs, speaking for their organizations as well as for themselves, and about ninety-eight per cent of all replies received have been favorable, and enthusiastically so.

On the following page the letter referred to is reprinted for the benefit of those who may not have read it. Next month we shall probably publish extracts from many of the replies received. Space does not permit their inclusion in this issue.

Also on pages 144 and 145 of this issue will be found a statement concerning the exact procedure we intend to follow in the early stages of our endeavor. For many reasons it is impossible to present now the full details of some of the subsequent steps. What will be done later will depend upon the size of the fund and upon the measure of success achieved during the first six months. The problem is a complicated and difficult one, but we have every confidence that, with the cooperation of the architects and architectural draftsmen of this country, and possibly the manufacturers, much can be accomplished that will improve conditions so far as the profession is concerned, and also give to those individuals investing money in buildings more in real value and satisfaction for their expenditures than they are getting today.

It has often been pointed out that the best recommendation for an architect is a satisfied client—that the best testimonial for the profession is successful architecture. The campaign we are undertaking will, if it succeeds at all, encourage the public to look to the architect for service such as it can get nowhere else. To keep the public sold will require that each and every architect shall demonstrate, so far as his ability and opportunity permit, that he can design and carry to completion better buildings than could have been constructed without his aid. The responsibility rests upon all of you to give full and honest service, to make each job better than the last. We have faith in your ability—hence our willingness to expend the effort on your behalf.

Contents

PENCIL POINTS—*Yearly subscription, payable in advance, $3.00 to the U. S. A., Insular Possessions, Cuba and Mexico. Foreign subscriptions in the Postal Union, $1.00 additional for postage; Canadian subscriptions, 50 cents additional. Remittances by International or American Express Money Order or by Draft on a bank in the U. S. Payable in United States Funds. Subscribers are requested to state profession or occupation. TO SUBSCRIBERS: Instructions for change of address should reach us before the twentieth of the month to assure delivery of the forthcoming issue. Please give both old and new addresses. TO CONTRIBUTORS: We are always glad to receive manuscripts, drawings, etc. We will use due care with material in our hands, but cannot be responsible for damages.* *EDITORIAL AND BUSINESS OFFICES, 419 FOURTH AVENUE, NEW YORK.*

LETTER SENT TO ARCHITECTS IN THE UNITED STATES AND CANADA

DEAR SIR:

The services rendered by an architect are not understood nor appreciated as they should be by most of those who invest money in buildings. The number of buildings put up without architectural service is surprising and appalling.

This is a situation where everyone concerned loses and nobody gains. The owner who proceeds without an architect pays the price sooner or later (usually both); the architect loses a client; and the country gets another building badly planned, badly designed and often expensively and badly built.

Clearly something should be done about this, and it is our idea that, unlike the weather, something *can* be done about it. Would you be favorable to the idea of contributing $25.00 a year for two years to a fund, every dollar of which would be used to make it clear to those who invest money in buildings just why an architect should be retained for every project and just why the amount of money represented by the architect's fee is a good investment for the owner to make? Would the draftsmen employed in your office be disposed to contribute $5.00 each per annum to such a fund?

Do not send any contribution at this time. We propose to do something about this whether we receive financial cooperation from architects or not. We can't keep quiet any longer. We have set aside ten thousand dollars to make a beginning during 1930. But we would like to know how you regard this matter before proceeding further with our own plans.

It is our idea that the fund should be administered by the publishers of PENCIL POINTS. We would be unwilling to accept any compensation for our services and would prefer that the funds should be deposited with a reputable trust company under an agreement guaranteeing that every cent should be spent for the purpose outlined. Monthly detailed reports of all receipts and expenditures would be published.

We would consult with the architects and groups of architects located in all parts of the country. The movement would be national in scope and would cover every section. We feel that we can say things on your behalf which it would be embarrassing or impossible for you to say for yourself. We would not be talking about ourselves but about the great profession which we strive to serve.

The project would be handled on the highest professional plane but at the same time it would be extremely practical. You can rest assured that nothing would be done to impair the professional standing of the architect but that a great deal would be done to make it easier for architects to secure more work and to maintain a decent and adequate scale of compensation for architectural services.

Are you curious as to why we should bother about this matter at all? The answer is simple. Our prosperity depends upon your prosperity. For various reasons it is difficult for architects and organizations of architects to tell these things that need telling. We as architectural publishers are in a position to interpret your profession to the laymen intending to build. If architects do more work they will employ more draftsmen and specify more materials, and maybe buy more books—and all of that helps us.

We do not want to pose as philanthropists and we hope we are not fool optimists, but here is a job we can do and we are ready to start.

Are you for it or against it?

Cordially yours,

RALPH REINHOLD,

President.

THE PENCIL POINTS PRESS, Inc.

January 6, 1930.

PENCIL POINTS

Volume XI February, 1930 Number 2

DRAFTSMANSHIP AND ARCHITECTURE—6

AS EXEMPLIFIED BY THE WORK OF JOSEPH FREEDLANDER

By Francis S. Swales

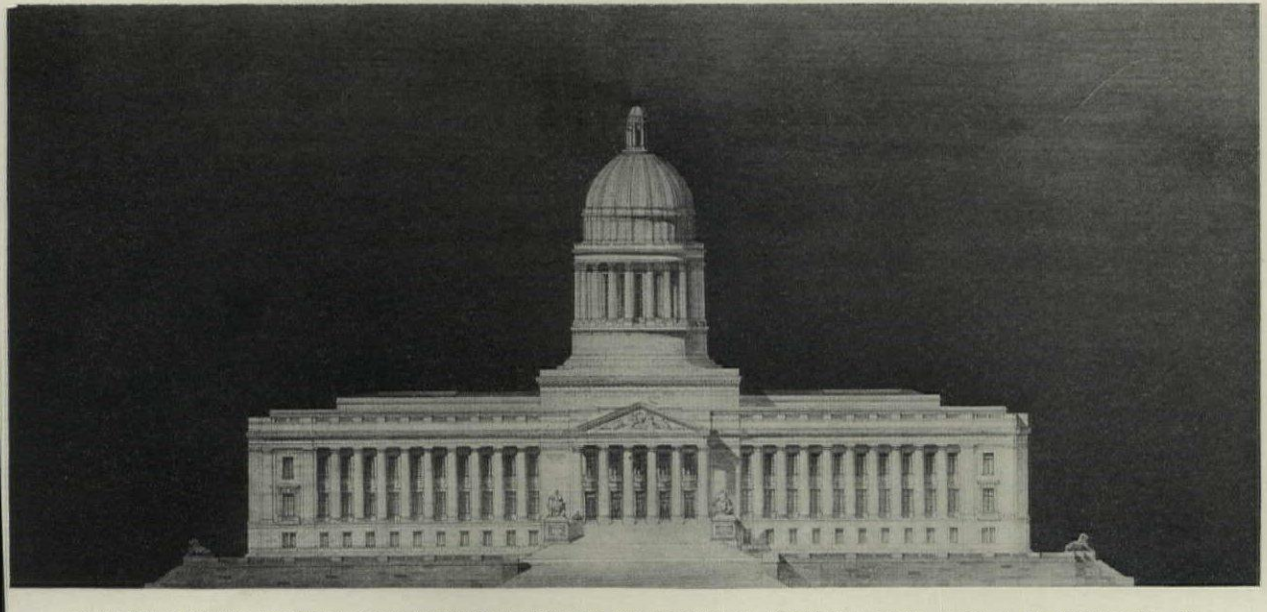
"THE BARON," "J. Henry," "J. H.," and "Freedie" are sobriquets by which he is known among his confrères and camarades, who have broadcast them from Paris and New York.

"Freedie" started student life auspiciously, having but two thoughts as to what he might become: a painter, or, preferably, an architect. Guided by an intelligently interested mother with artistic leanings, he made drawing his hobby during his school days in New York, and entered upon the subject of architecture more seriously by taking the course at the Massachusetts Institute of Technology.

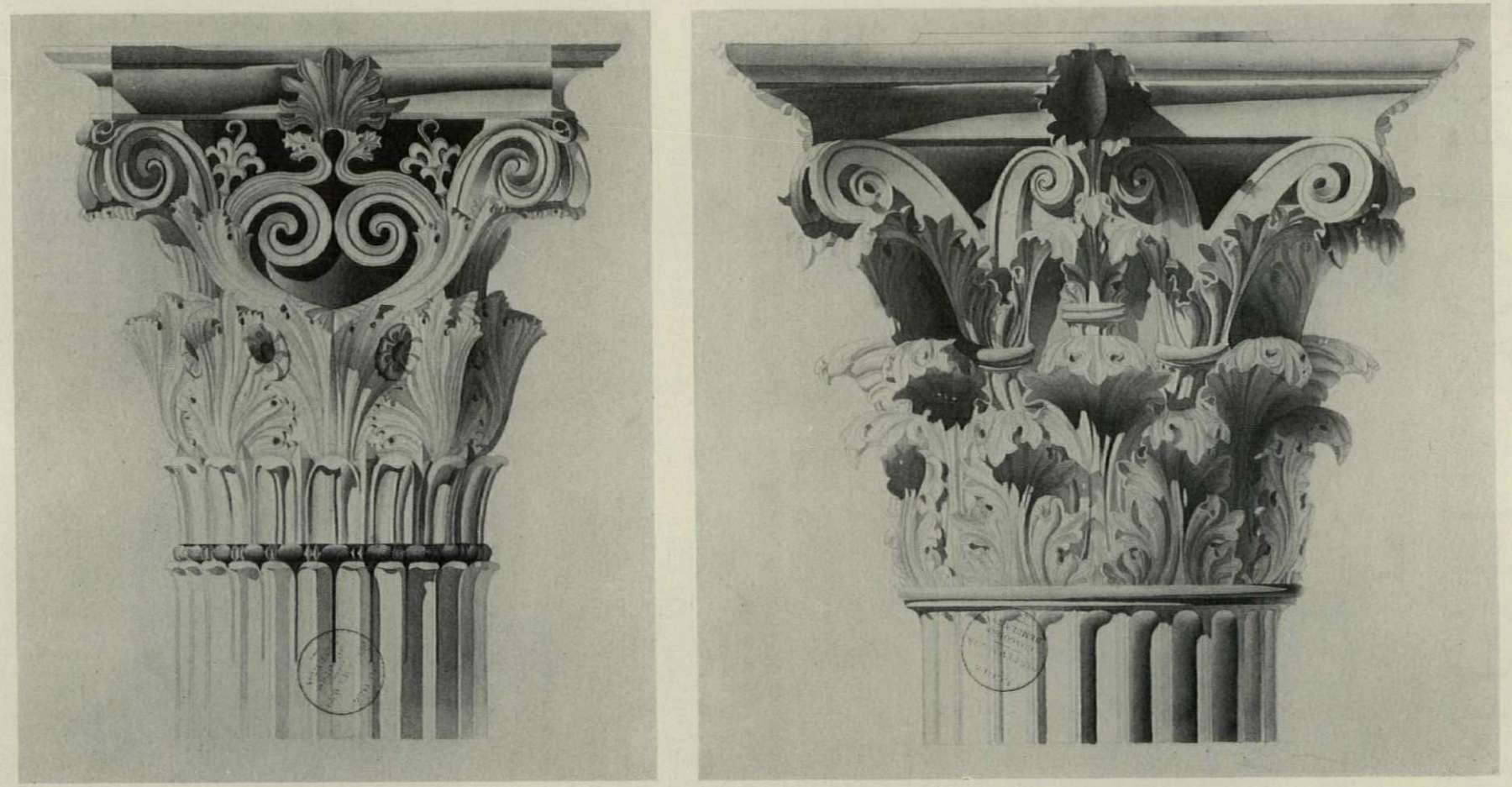
After graduating at "Tech" he followed the usual procedure of the college-course-graduate by obtaining the advice of a good architect in practice as to whether he should enter an office to obtain practical experience or go abroad to continue his studies. He went to Henry Wadsworth ("Waddy") Longfellow, of Boston, for advice and "Waddy" told him to go to Paris and "take the course at the Ecole des Beaux Arts." Up to that time no American had taken "the course." The Ecole des Beaux Arts had been regarded at its face value as the world's foremost school of fine arts; the "liberal arts" or sciences had been considered merely as incidental or collateral subjects. American students had hitherto covered the subjects of mathematics, mechanics, statics, and so on, before going to Paris, and had pursued the practical system of not bothering with the economic side of construction until they entered an office, after obtaining æsthetic training and the philosophic point of view of the great masters in design of architecture of Europe who gave instruction to pupils endeavoring to discover its principles while learning the technique necessary for their expression.

The "course" and diploma at the Ecole seem to have been the outcome of the machinations of those French students, "trying to earn a living" by the practice of architecture or draftsmanship, who sought employment in the Government offices and a means of "proof" of fitness, other than the tangible evidence of their designs, that they were competent to perform at least certain *parts* of the work. It was the invasion by legal establishment of the industrial revolutionists in the field previously held by artists.

For a time, however, perhaps ten to fifteen years, the later effect of this was not apparent. It seemed to create a new stimulus in the students by providing for a preliminary slavish ground work of mathematics and construction, followed by a release to full freedom to pursue design. The display of a galaxy of talent resulted, as evidenced by the designs produced in the



MISSOURI STATE CAPITOL COMPETITION DESIGN BY JOSEPH H. FREEDLANDER AND A. D. SEYMOUR, JR.



TWO GREEK CAPITALS—DRAWN BY JOSEPH FREEDLANDER AS A STUDENT AT THE ECOLE DES BEAUX ARTS
THESE WERE THE FIRST DRAWINGS MADE BY HIM AFTER BEING ADMITTED TO THE ÉCOLE

RENDERING BY J. H. FREEDLANDER
OF HIS DESIGN FOR A SMALL BUSINESS BUILDING

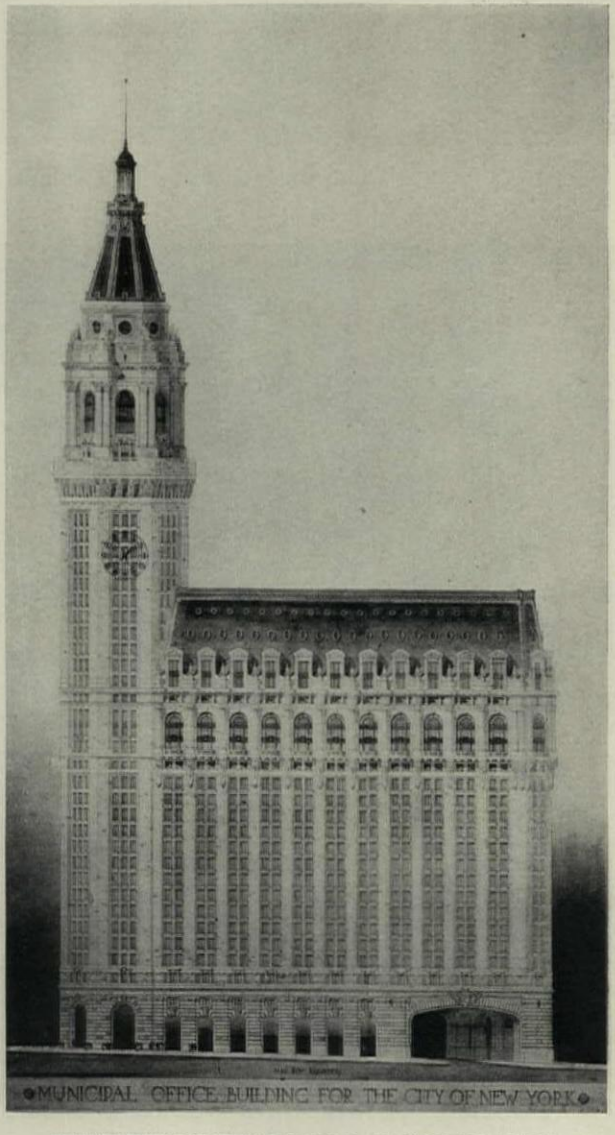
competitions for the *Prix de Rome* during the 'nineties, and some few years afterwards. That period showed remarkable recovery in conception and refinement from the grossness of the preceding period following the régime of Napoleon III, during the 'seventies and 'eighties. More foreign students were attracted to Paris than ever before.

"J. Henry" entered the Ecole on a rising tide of artistic enthusiasm. In the atelier of Daumet-Girault-Esquié he found the brothers Chifflot—the notable Leon Chifflot whose vigor of design and penchant for "log-cabin stonework" interested American students of architecture some time before he won the *Prix de Rome*, and Eugene Chifflot, who later gained second award in the competition for the big prize. Jaussely, another *Prix de Rome* winner, was among the younger students.

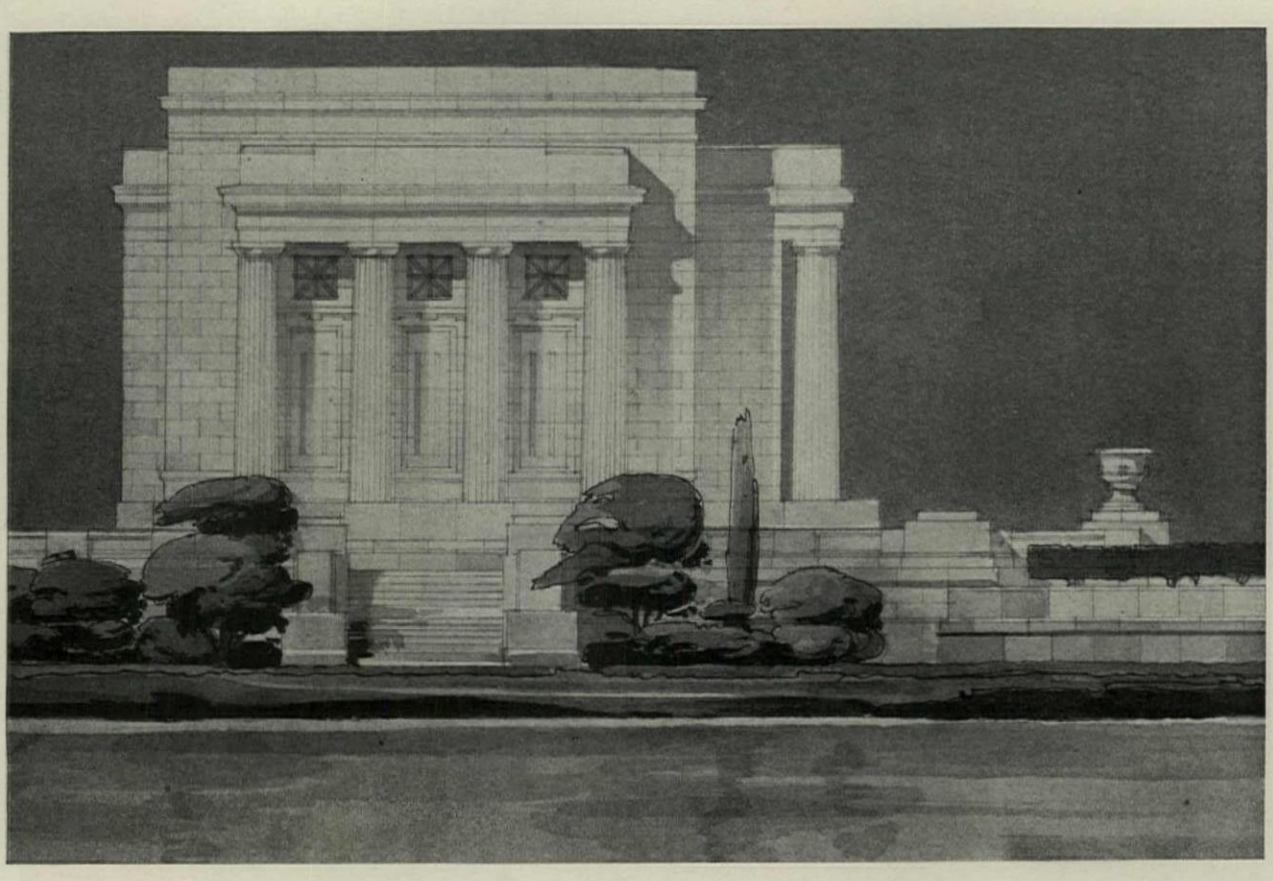
"J. H." went through the course and was one of the three first Americans to receive the *Diplôme*. He, John V. Van Pelt, and Herbert D. Hale all graduated at the same time.

Upon his return to New York young Freedlander spent a few months in an office which was then priding itself upon efficiency, economy, and production. The driving force of the office was a shock to the quietly industrious young man who had been accustomed to the leisurely style of working as a student, with an atelier of his own in Paris. He did not like the rush, so soon established an office of his own on Fifth Avenue, and the Atelier Freedlander for pupils, in East 23rd Street. Among his earliest pupils was George Licht who was the first student to win the Paris Prize founded by the Society of Beaux-Arts Architects.

From his first success, in the competition for the St. Louis Club at St. Louis, Mo., in which he had Mr. Arthur Dillon associated with him, Mr. Freedlander showed an angle of talent which Mr. Egerton Swartwout once remarked upon as an "accurate competition sense." Mr. Freedlander's design was selected in a competition with four well known firms of St. Louis architects. His design appealed immediately to the Jury as well as to the club members. I recall that when I went to St. Louis in 1901 some of the mem-



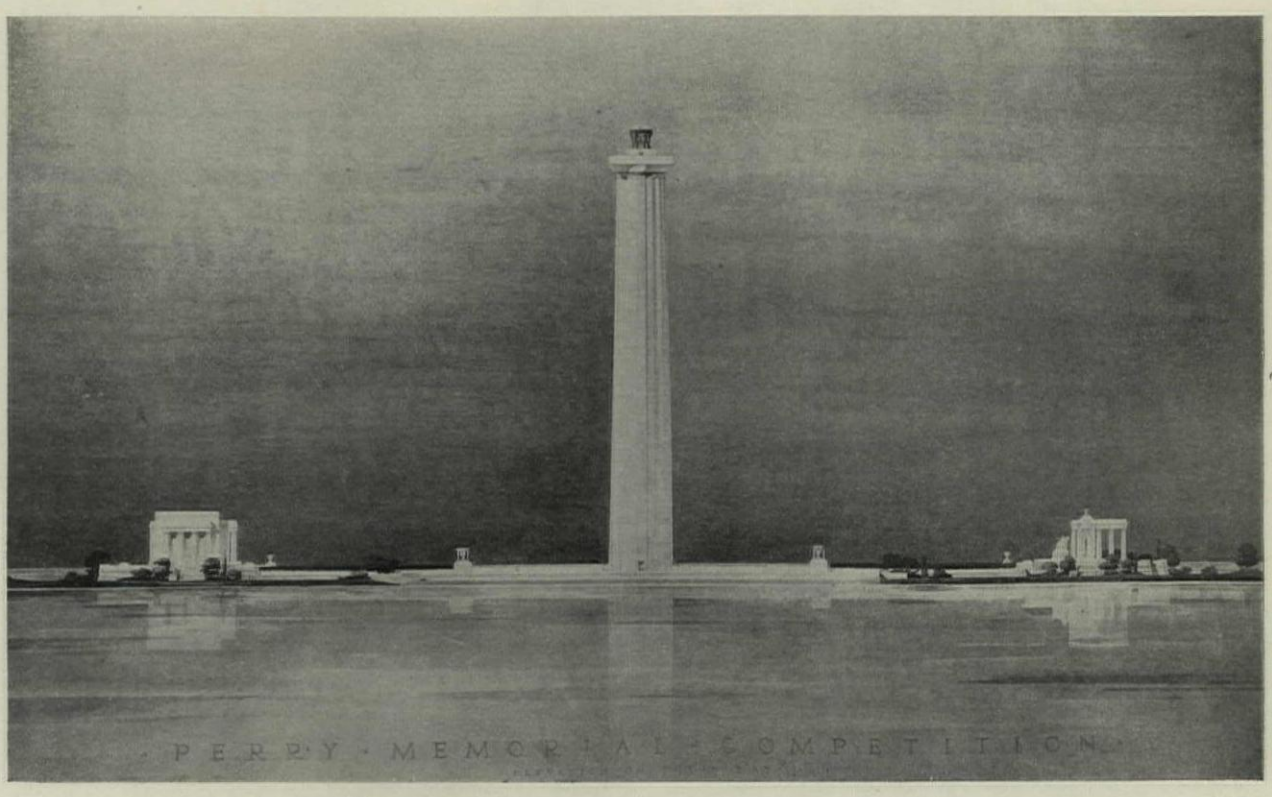
COMPETITION DESIGN BY J. H. FREEDLANDER
MUNICIPAL OFFICE BUILDING FOR THE CITY OF NEW YORK



THE MUSEUM, SHOWN AT THE LEFT IN THE DRAWING OPPOSITE

THE COLONNADE WITH STATUE SYMBOLIC OF DEMOCRACY, SHOWN AT THE RIGHT IN THE DRAWING OPPOSITE

DETAILS REPRODUCED AT THE EXACT SIZE OF THE ORIGINAL DRAWING—
COMPETITION DESIGN FOR PERRY MEMORIAL, BY JOSEPH H. FREEDLANDER AND A. D. SEYMOUR, JR., ARCHITECTS



COMPETITION DESIGN FOR PERRY MEMORIAL—BY JOSEPH H. FREEDLANDER AND A. D. SEYMOUR, JR.

bers of the club were most enthusiastic about the architecture of their new building and I was taken all through it, around it, and across Lindell Boulevard to look at it from every angle. Its many beauties of detail which might have escaped me were energetically pointed out and its architect was lauded after a manner which seemed calculated to make all local architects jealous.

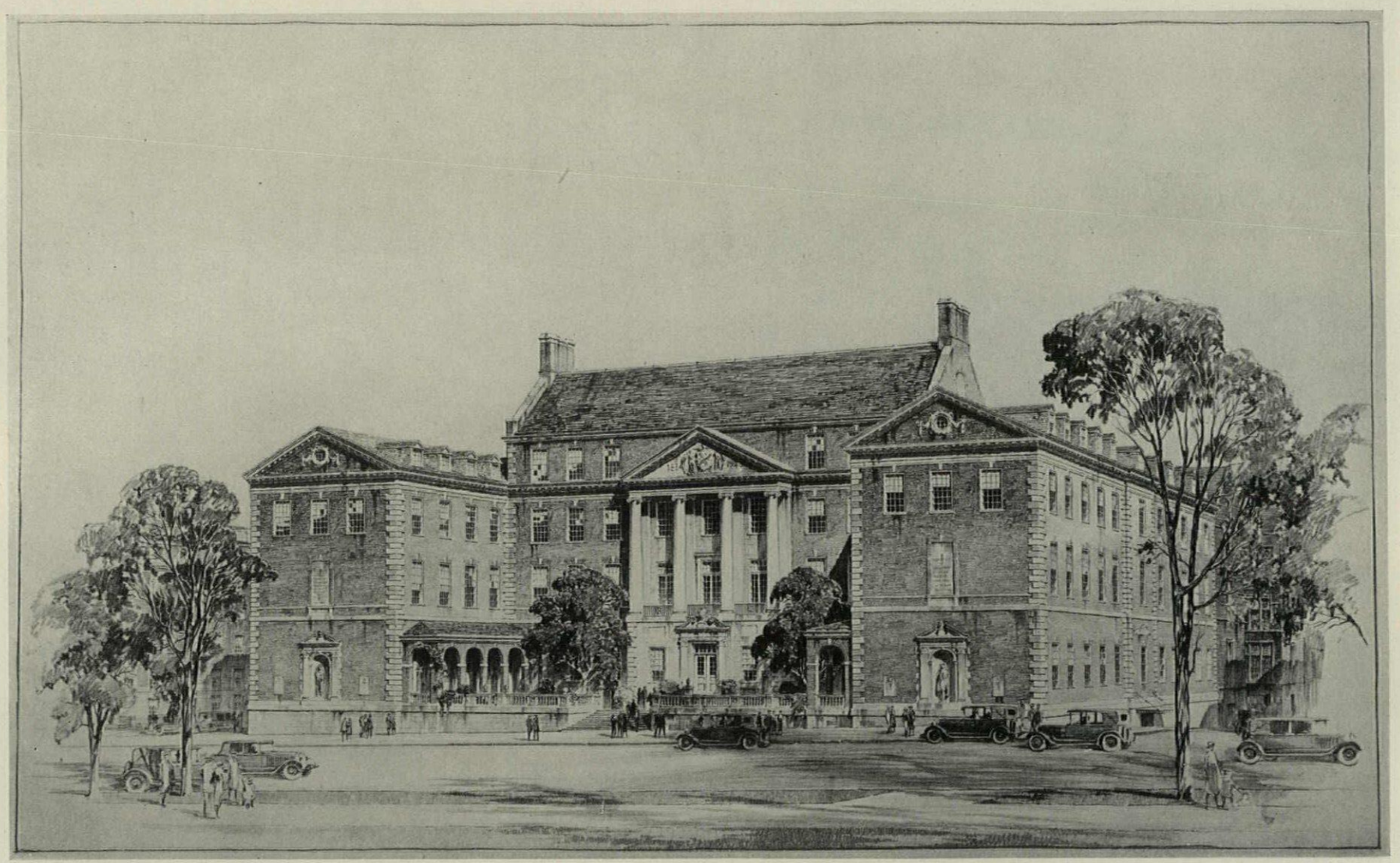
"J. Henry" had previously competed for the University of California and the New York Public Library, making a place in each among those selected in the preliminary "comps" to take part in the final; the design for the library was refined and pleasing. In 1901 he won the competition for the National Soldiers' Home at Johnstown, Tenn., which established his reputation, since from that time on he has had an interesting and varied general practice, mainly in and around New York, including residences, the Harlem Hospital, Importers' and Traders' Bank, and some essays in the competitions for the New Theatre ("Century"), the Municipal Building, and the projected Fulton Memorial on Riverside Park in New York. In 1911 he won the competition for the Auditorium at Portland, Oregon, and the following year, in association with Mr. A. D. Seymour, won the Perry Memorial at Put-in-Bay. It was another instance of that "accurate competition sense."

There were others in and out of the competition who predicted that Freedlander and Seymour would present the winning solution; others as well presented the same idea, but not with the same convincing setting and presentation. Freedlander and Seymour, both in the design of the setting and in the rendering of the drawings, produced an outstanding piece of team work —strong, refined, seriously monumental in quality of design, it was presented in drawings showing a perfect sense of color values.

In the competition for the Missouri State Capitol Building soon afterwards Mr. Freedlander made second place, obtaining special commendation for his elevations; also second honorable mention in the competition for the Department of Commerce at Washington. In 1921 he won the competition of the Fifth Avenue Association for the Signal Towers for regulating traffic on the Avenue, and the next year the competition for the White Plains Municipal Building.

The French Institute in the United States Building, business buildings for the Fairchild Company, and the 340 Madison Avenue Corporation (shown in detail in the September, 1927, issue of PENCIL POINTS) are recent works of excellent design, the two latter being referred to as "modernistic," because—like many of the buildings of the Georgian Period in England!—they are without cornices. They are modern in design in the sense of being fashionable and in good style, but they are free of those contemptible "exterior-inferior-desecrations" which demean nearly all of the buildings dubbed "modernistic." The 340 Madison Avenue Building was given the award of the Gold Medal of the Fifth Avenue Association last year.

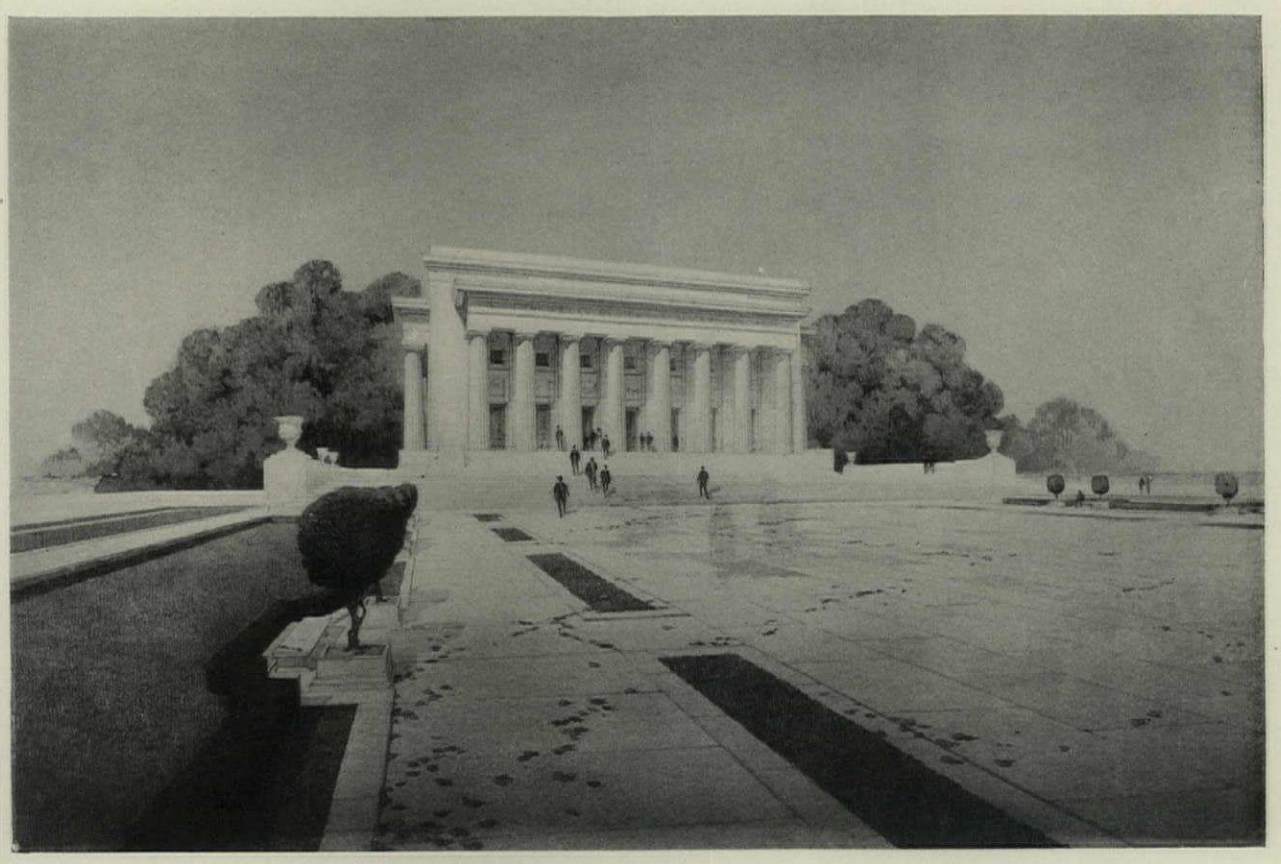
Freedlander's design for the improvement of Bryant Park made last year encourages hope that it may be duly executed, and his civic plans for the improvement of Riverside Park from 88th to 103rd Street and Boating Center at 79th Street, produced this year, and his design which won the competition for the



SUCCESSFUL COMPETITION DESIGN FOR MUSEUM OF THE CITY OF NEW YORK—JOSEPH H. FREEDLANDER, ARCHITECT

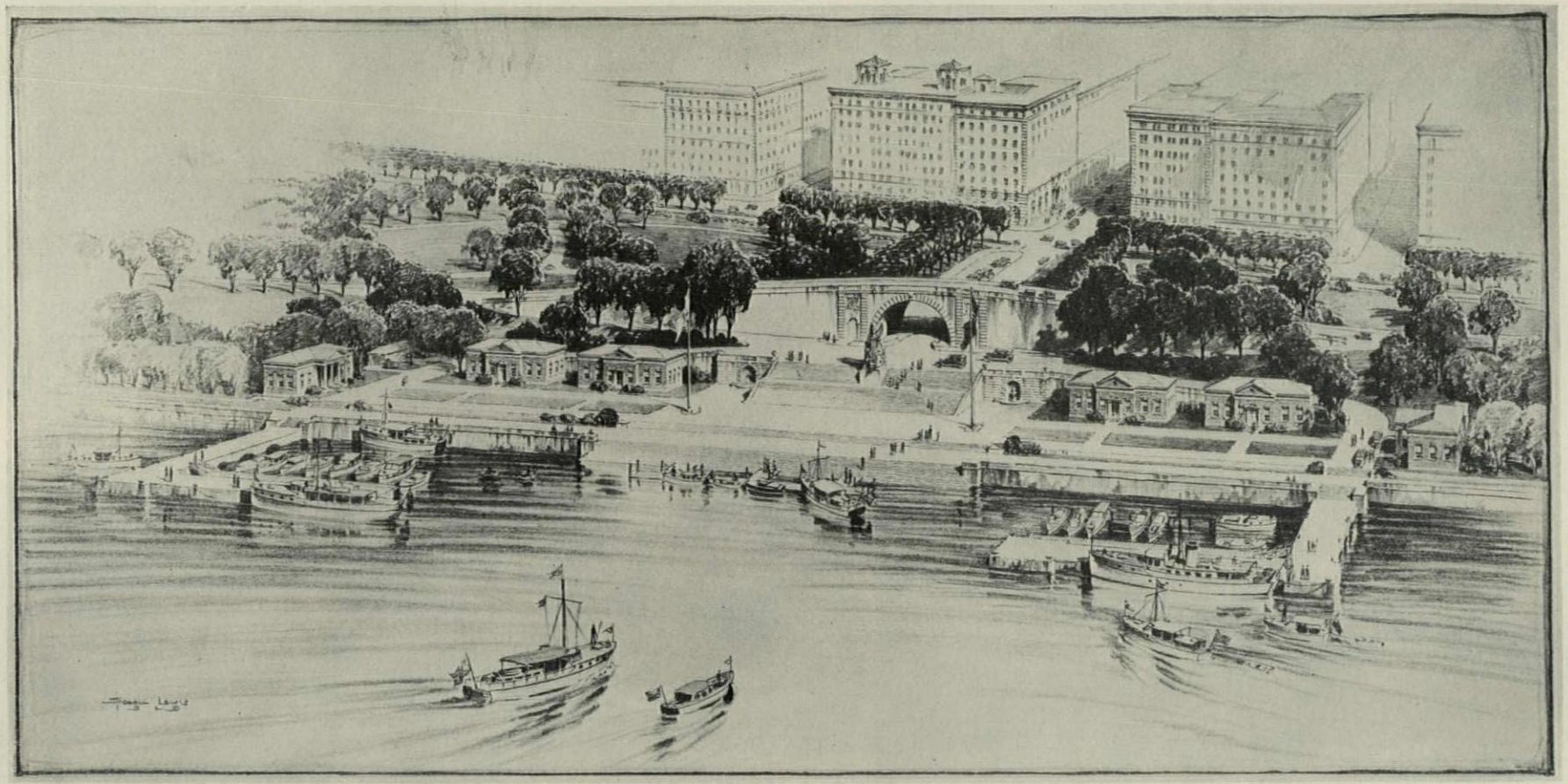
FROM A RENDERING BY SCHELL LEWIS

PERSPECTIVE OF COLONNADE—FROM A COLOR RENDERING BY OTTO R. EGGERS



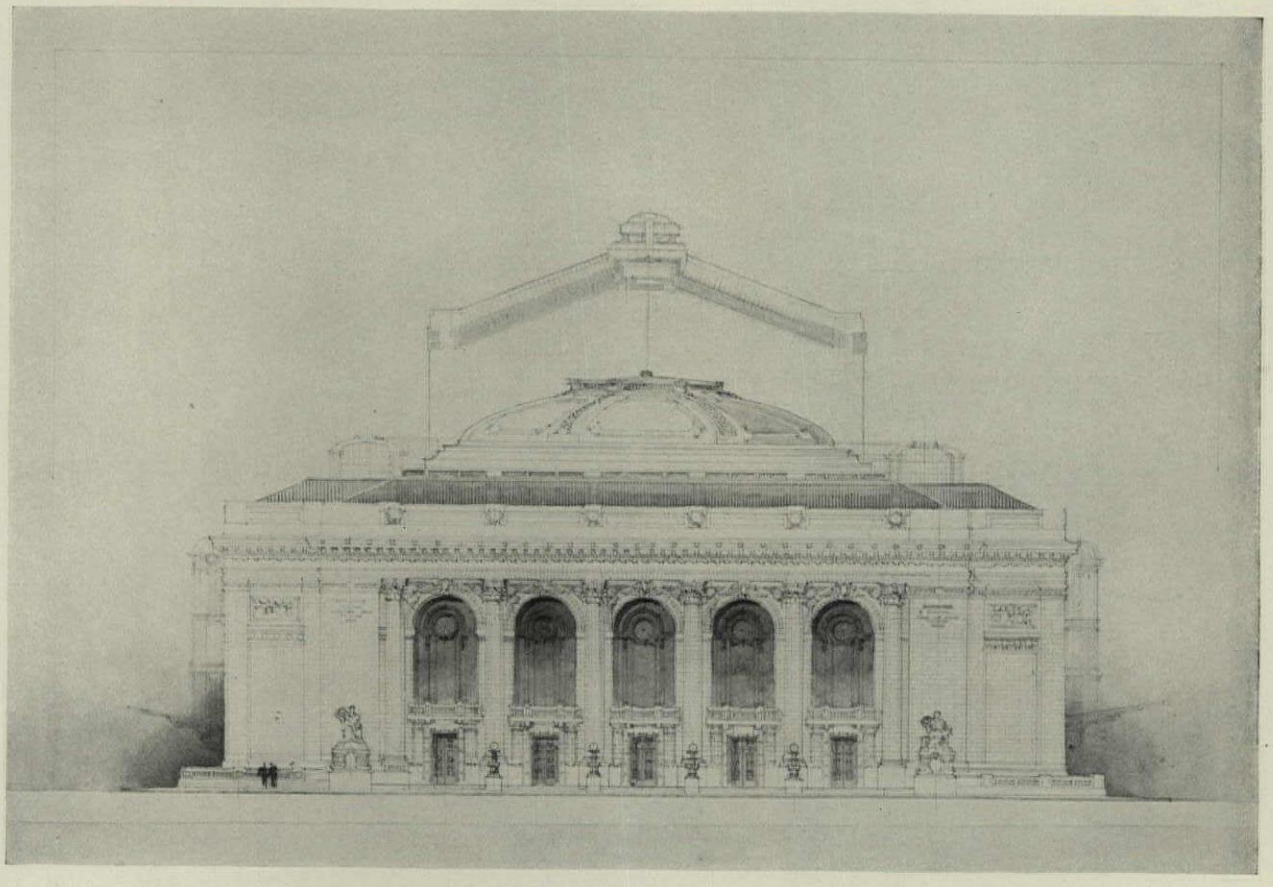
PERSPECTIVE OF THE MUSEUM—FROM A COLOR RENDERING BY OTTO R. EGGERS

DETAILS OF COMPETITION DESIGN FOR PERRY MEMORIAL—
JOSEPH H. FREEDLANDER AND A. D. SEYMOUR, JR., ARCHITECTS



PROPOSED TREATMENT OF BOATING CENTER, RIVERSIDE DRIVE AT SEVENTY-NINTH STREET, NEW YORK

JOSEPH FREEDLANDER, ARCHITECT—RENDERING BY SCHELL LEWIS

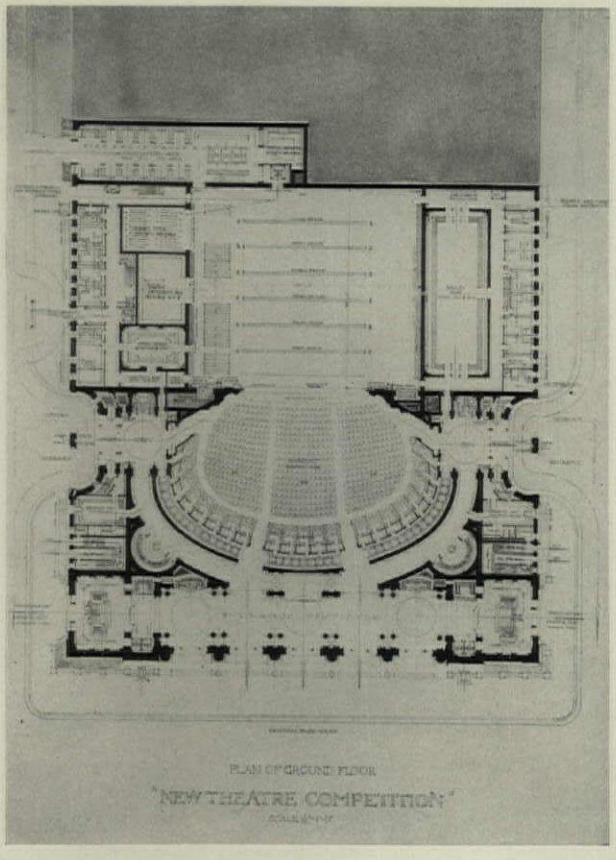


COMPETITION DESIGN FOR NEW THEATRE, NEW YORK—J. H. FREEDLANDER, ARCHITECT

Museum of the City of New York last spring, strike a satisfying note in the thought that this architect with the "accurate competition sense" is probably reflecting the ideas of the people of New York of today. If so, we are finding a safe return to a sound, sensible type of architectural design.

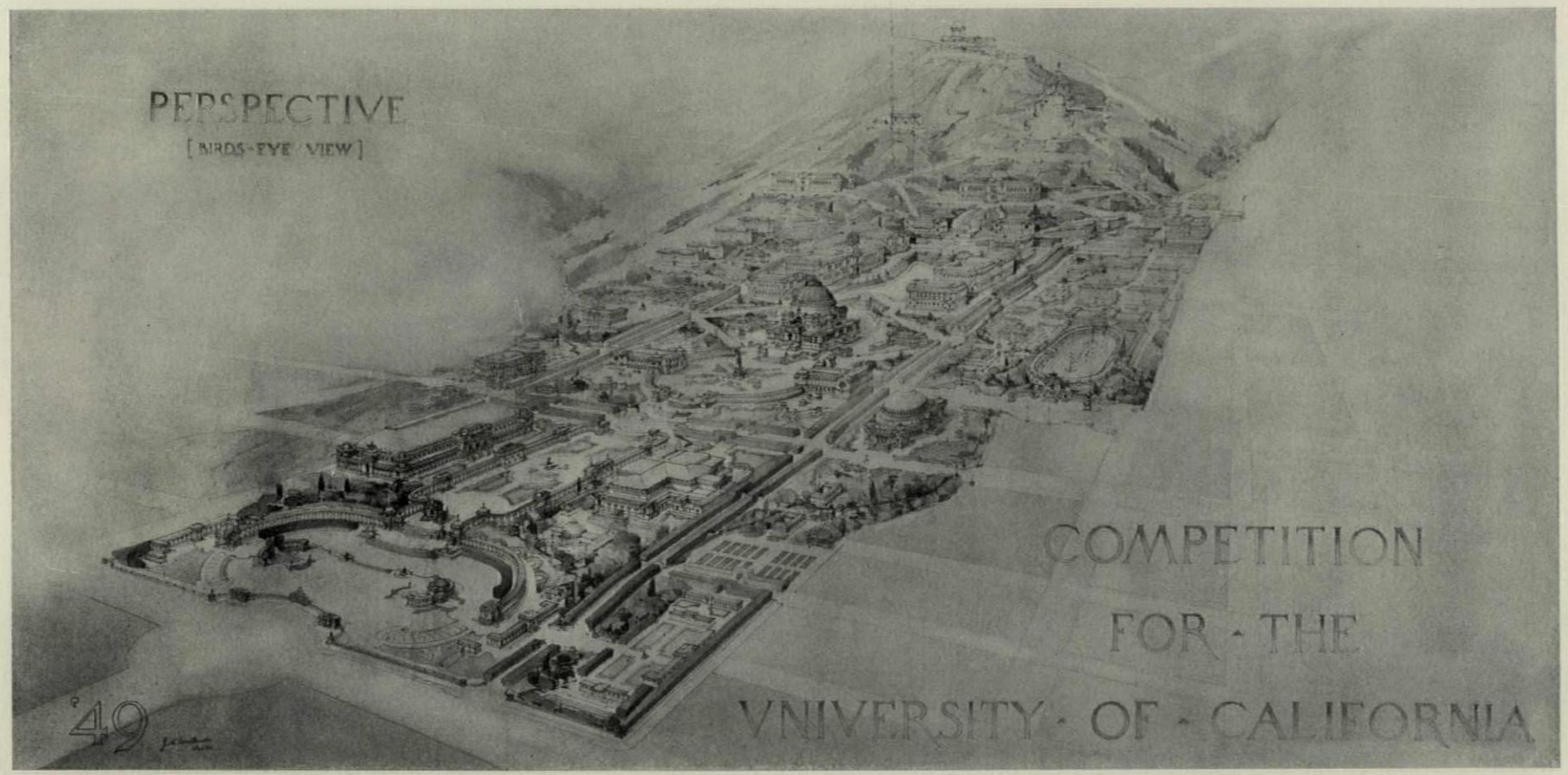
All of Mr. Freedlander's architectural drawings are consistently clear and well made, showing a pronounced preference for transparent shadows in rendering.

He has long taken an active part in the work of societies of architects and other artists, and in the production of the annual Beaux-Arts Ball of the Society of Beaux-Arts Architects, and is a member of most of the well known societies. He is President of the Federation of Fine Arts of the City of New York, Chevalier of the Legion of Honor of France, Vice President of *L'Union des Arts*, Trustee of the Museum of French Art, and former President of the *Société des Architectes Diplômés par le Gouvernement Français*, Member of the Jury of Awards of the Fifth Avenue Association, and so on.



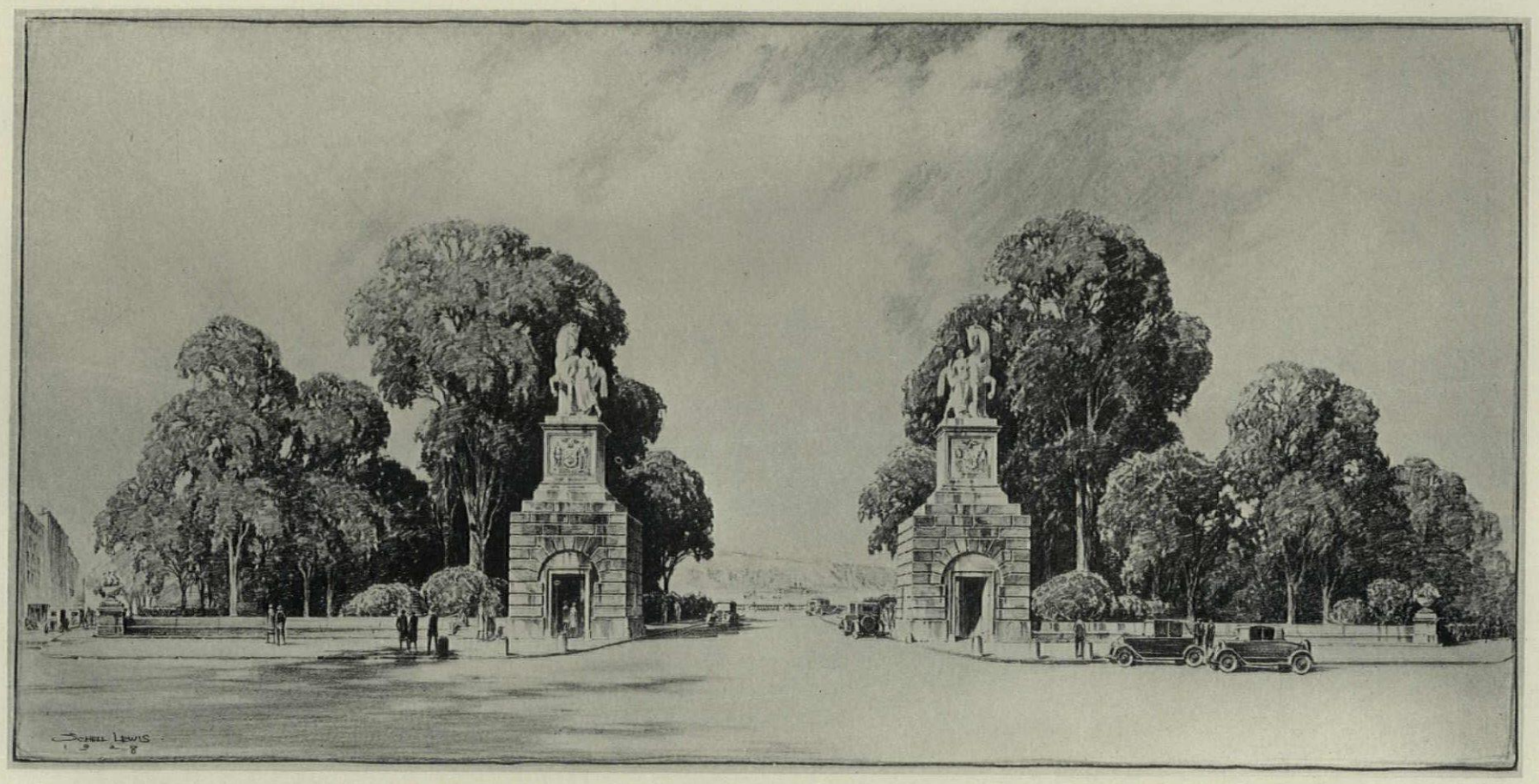
PLAN OF COMPETITION DESIGN FOR NEW THEATRE

Whether he wins, loses, or draws, he loves to enter competitions — perhaps that is one of the most valuable sporting traits developed by the Paris training in design—and since he has won more often than lost, it appears to have been profitable sport. It has also broadened the field of his practice preventing it from



PERSPECTIVE OF DESIGN SUBMITTED BY JOSEPH H. FREEDLANDER IN THE COMPETITION FOR THE UNIVERSITY OF CALIFORNIA

(An international competition was first held and from the designs submitted in this, ten architects were invited to compete in a second competition. Mr. Freedlander was among those selected and this drawing shows his design submitted for the final competition.)

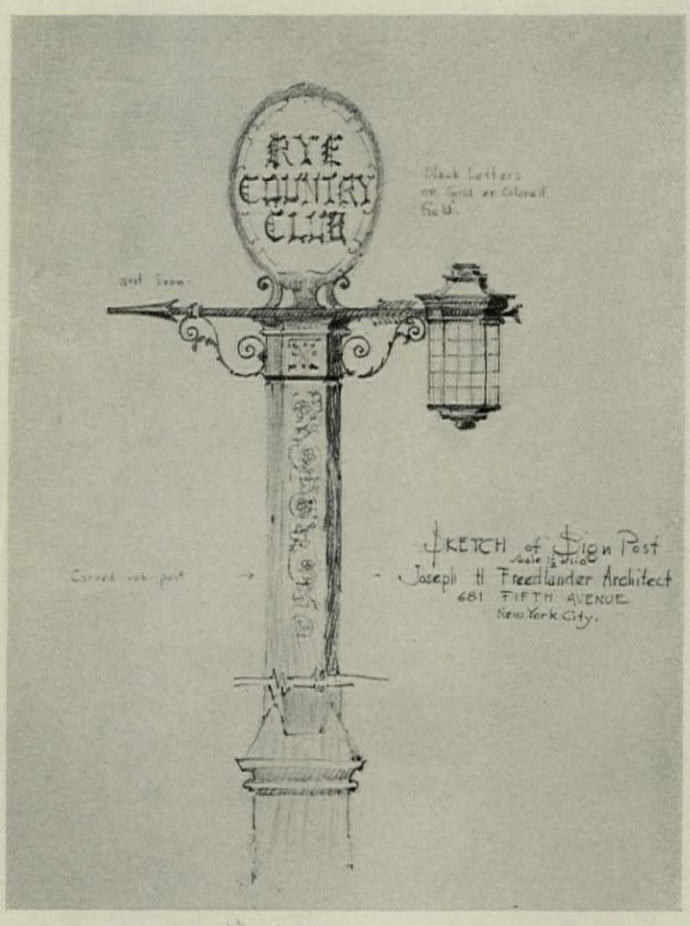


PROPOSED TREATMENT OF THE ENTRANCE TO THE NEW SPEEDWAY—RIVERSIDE DRIVE AT SEVENTY-SECOND STREET, NEW YORK

JOSEPH H. FREEDLANDER, ARCHITECT—FROM A PENCIL RENDERING BY SCHELL LEWIS

getting into any "specialized" rut. Variety of subject which has characterized Freedlander's work is one of the greatest needs in current American architectural practices, in order to prevent the dull mechanical products of "standardization of pattern" from becoming the substitutes of design.

I believe that no really first class architect—which means one who is essentially an artist, and whose other capacities and knowledge are at least equal to those of any of his competitors—would willingly specialize in any particular class of buildings, and that every special class of buildings, such as the factory, monument, public school, hospital, etc., would be better in practical plan, as well as in appearance, if they were designed by architects whose experience is varied and point of view continually refreshed by change of subject, rather than by "specialists" bettered by too much knowledge of rules, and without the force of character necessary to get such rules changed to enable progress. The outstanding qualities of "Freedie's" architecture is its freedom from slavishness and its growth. It seems to me that his "latest" work has nearly always been his best.



DESIGN BY JOSEPH H. FREEDLANDER FOR A SIGN POST
FROM A RENDERING BY ROBERT VON EZDORF

DESIGN IN MODERN ARCHITECTURE

II—THE MODERN PLAN

By John F. Harbeson

"To make a plan is to determine and fix ideas.

"It is to have had ideas.

"It is so to order these ideas that they become intelligible, capable of execution, and communicable. It is essential therefore to exhibit a precise intention, and to have had ideas in order to be able to furnish oneself with an intention. A plan is to some extent a summary, like an analytical contents table. In a form so condensed that it seems as clear as crystal and like a geometrical figure, it contains an enormous quantity of ideas and the impulse of an intention." LE CORBUSIER: *Towards a New Architecture.*

"Pour l'architecte toute construction doit être d'abord un plan. Le profane, lui, y voit surtout une forme, et c'est elle qu'il juge: en effet la construction achevée, c'est la forme extérieure qui s'offre aux regards. Le plan n'intéresse plus alors que les habitants de l'immeuble: eux seuls auront à souffrir de la maladresse de l'architecte ou bénéficieront, au contraire, de son ingéniosité, au lieu que la forme satisfait ou scandalise tout le monde." JEAN PORCHER: *La Forme Architecturale Décorative.*
L'Architecte 1928. p. 57.

With the exception of the few problems that are principally decorative in character, it is in the plan that solution of a program is most clearly shown. The program has been defined as "the sum total of services that are expected from a building, not only in meeting practical demands, but also in satisfying those of taste; for it is by no means sufficient for an architecture to furnish places adapted to their uses (a narrow point of view too often taken by the engineer), but to do this in such wise that these places shall by their appearance produce in the spectator a certain state of mind." * As we have said (PENCIL POINTS, January), the architectural programs of today, corresponding to an advanced civilization, are much more complex than those of the past; the plans of modern architecture, in general, reflect this complication.

While most contemporary programs are those that are new with our own time, such as airports, or are such as are so modified by the time that they may be said to belong to it, such as the railroad terminal, a few represent a normal evolution of old types of edifice not fundamentally changed by modern conditions. This group would include churches and dwellings and, to a lesser extent, theatres, courts, stone bridges, and memorial monuments.

The ritual of the church has not changed greatly with time: the principal requirement is still a large room where many may gather, so devised as to awaken religious ideas in those who do so. But while the program has developed little, the new constructive processes allow of an entirely new conception of religious architecture. Still retaining the vertical lines that have become associated with aspiration, and the relatively great height of room that has come to express the idea of church, the thick walls and heavy buttresses are now replaced by a thin section of reinforced concrete, or made of steel construction with thin spandrel walls. Compare the thin walls of the church of Elisabethville with the heavy stone walls of a medieval church or of a modern church done in the medieval manner. This church is of reinforced concrete (the work of Paul Tournon, who fifteen years ago was one of the brilliant students at the Ecole des Beaux Arts), as is the church at Raincy (page 9, January PENCIL POINTS).

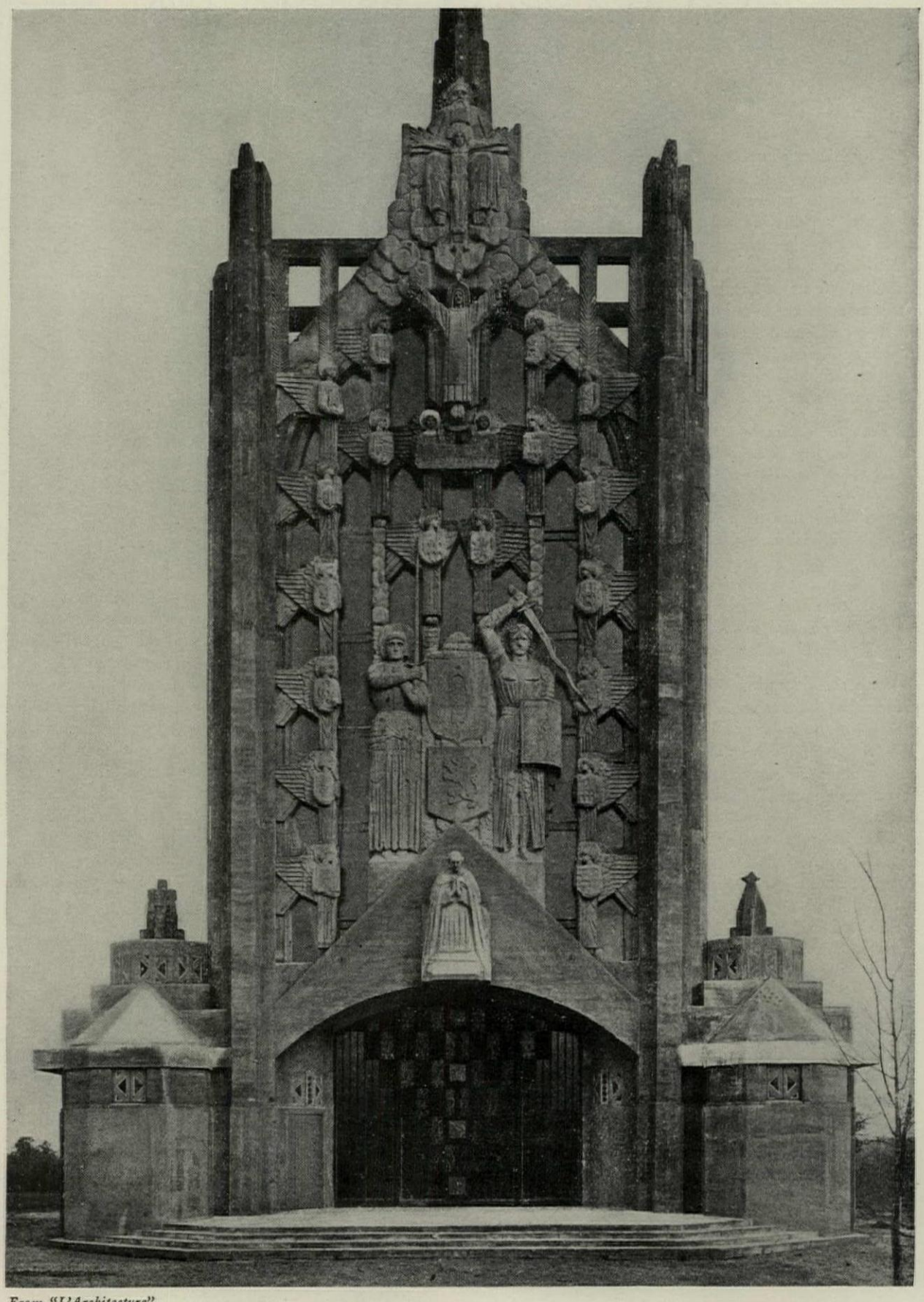
While the change in *poché* is startling, it is not as sudden as one might suppose, and is the result of a rather usual atttitude on the part of builders to take advantage of the development of structural progress.**

But though the church itself has changed little, and the room for worship, except in the matter of comfort, is much as it has been for a hundred years, the church as a seat of learning has been superseded by the schools, as a refuge for the poor and afflicted by the modern hospital, asylum, and orphanage, and as a center of social life by the club and Y. M. C. A. There are attempts to add welfare work and community service to the activities of the church, so that assembly rooms, gymnasia, and game and other social rooms are added to the program; the number of such buildings is small compared to that of the church simply as church. The most startling attempts at a new solution of the church problem are to combine the church with an office building so that it may remain in an old location now become of great commercial value. The two ideas of commerce and religion do not mix easily, however, and it is doubtful if this type will persist.

The home of a hundred years ago in many cases was not only a residence for a family, but was also the place for its recreation, entertainment, and for the care of the sick. These are now almost entirely cared for in specialized buildings. As a residence, the home of the well-to-do has changed only in the attainment today of greater privacy, due to the use of corridors and of individual bathrooms, and in comfort, due to the inventions and improvement in the use of electricity for lighting, refrigerating, cooling,

*"*The program then involves not only a list of the accommodations required, but the sentiment with which their architecture must be studied, the 'character' of this architecture."* PAUL CRET *in "Significance of the Fine Arts." p. 222.*

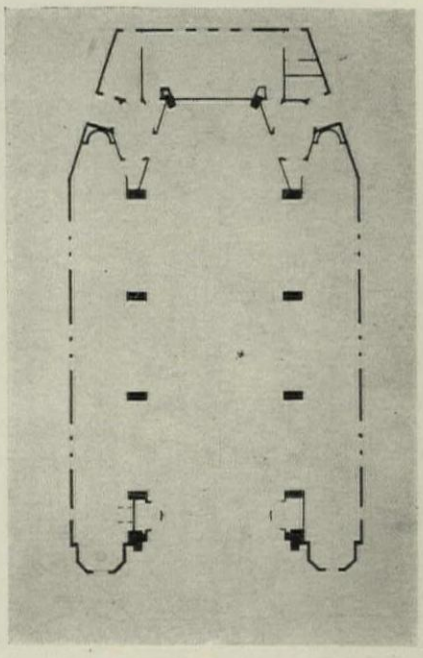
**"*The most remarkable feature about the Pantheon (Paris, 1759-90, Soufflot, Architect) is the boldness of its construction. A comparison of its plan with that of other domed churches shows that the area covered by walls and piers is smaller relatively to the voids than is usual."* W. H. WARD, *the "Architecture of the Renaissance in France."*



From "L'Architecture"

CHURCH AT ELISABETHVILLE, FRANCE—PAUL TOURNON, ARCHITECT, SARRABEZOLLES, SCULPTOR

The success of the general treatment of the upper part of the façade makes the lower portion seem inadequate and crude. The handling of the sculpture, conventionalized in the modern manner, is yet in the spirit of the problem. The piercings in geometrical shapes at the bottom, and the door treatment are not, but seem, utilitarian and unsatisfying.



PLAN OF CHURCH AT ELISABETHVILLE

PAUL TOURNON, ARCHITECT

Note the extremely thin poché of the enveloping walls, the smallness of the piers. Twenty years ago such construction would not have been possible; naturally there are practically no reveals except at the extreme, where the doors are pushed back for other than structural reasons.

and for signal systems, in the use of gas for cooking, and of steam or vapor for heating.

Recreation today is now provided in the theatre, — an old program brought up to date — in the stadium (little changed fundamentally since the days of the Romans), and the athletic field, ball park, the amusement park, and the moving picture house, all essentially programs of today —modern architecture — which at first were clothed in classic forms, but are now more and more frankly modern in expression because steel and concrete lend themselves naturally to this simpler modern expression.

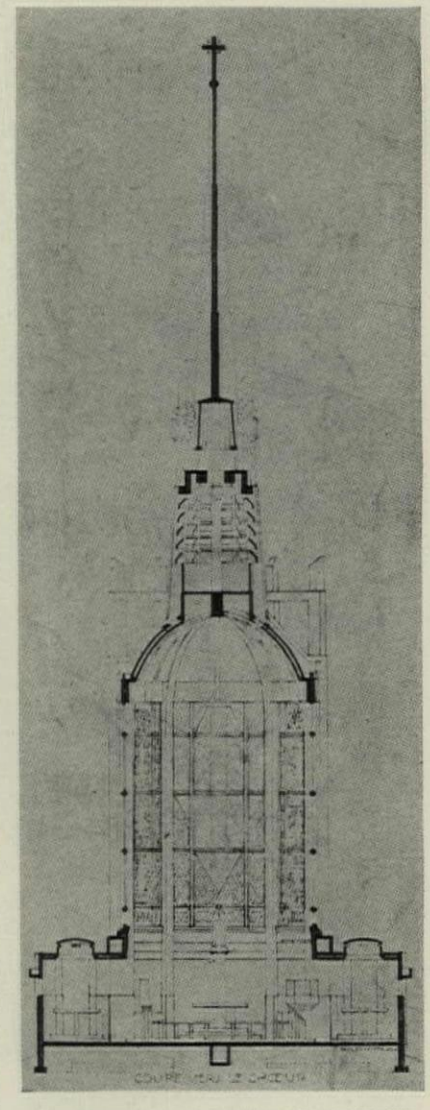
The sick and dependent are seldom left at home, but are sent to hospitals, sanatoria, orphanages. This is true of all classes of society. The modern citizen, poor or wealthy, is born in the maternity ward of a hospital, and goes to the hospital for almost all ills that take him off his feet. Naturally the hospital has had a great deal of attention: it has been standardized and perfected by the collaboration of physicians and architects. Height and air having been found to influence greatly the physical as well as mental state of the patient, the orientation of the rooms is a very important factor. Some of the attempts to make the best possible use of site and exposure have led to new forms in architecture. The projected sanatorium of Plaine-Joux-Mont-Blanc is such a one, with the greater part of the rooms having cross ventilation, and with two sides facing the southern exposure: along the north side of the building are grouped the service and minor rooms.

The façade which results from such an idea in plan is naturally more complex, more restless, than one with a continuous front wall, but need not, for that reason, be less beautiful. It is in this way that the plan—the program—forms what is distinctly "modern" architecture, entirely aside from modern decoration, which we shall look at later. Le Corbusier does not greatly overstate the fact when he says "the plan is what determines everything; it is the decisive moment."

While the individual house has changed little in program, modern society has created new forms of home—the apartment house, and the hotel, quite different from the inn of history, or the hotel of even twenty-five years ago. This is a democratic age, and the contribution of modern architecture to the forms of that art is the building for common use, to live in, to work in, to study in, and to be amused in.

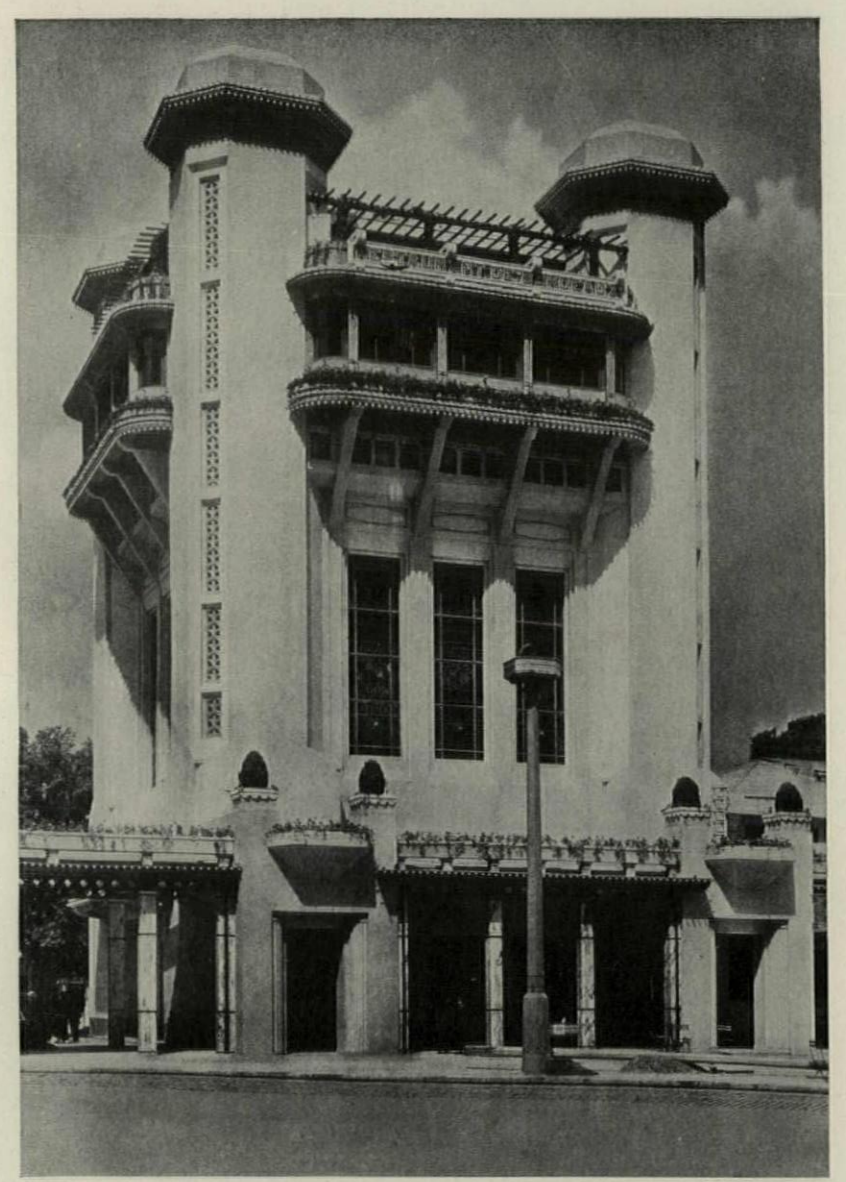
The hotel is a many storied building, as all city buildings must be because of the high cost of land, and its greatest revenue comes from the individual patrons; there must be many rooms—one thousand or more—and these must be comfortable without being large, and each must have its bathroom. The study of a hotel, therefore, starts with the typical bedroom floor, and when that is satisfactory the bottom and top are studied to work with it.

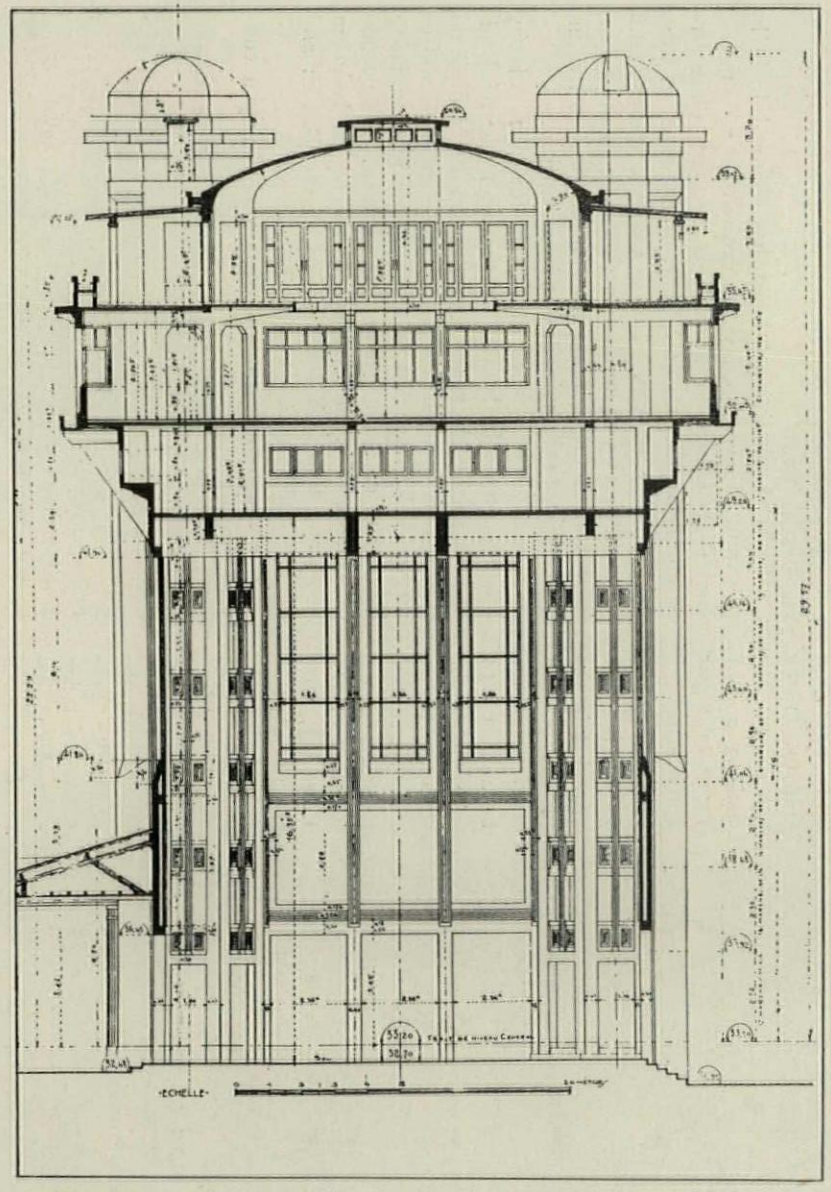
The museum for many years was simply a convenient palace; when the Boston Museum sent its architects to study museums in Europe they reported that the best museums were just such old buildings turned to a new purpose, as the Carnavalet in Paris, and the Pitti in Florence. Perhaps because there works of art had the kind of background they were originally created for. But in this country there were no old palaces. After some attempts to make museums that were storehouses for art objects —the rooms usually gloomy because lighted only from above—modern architects (in this country and Europe), have evolved the modern museum, of which the Cardinal



TRANSVERSE SECTION OF CHURCH AT ELISABETHVILLE

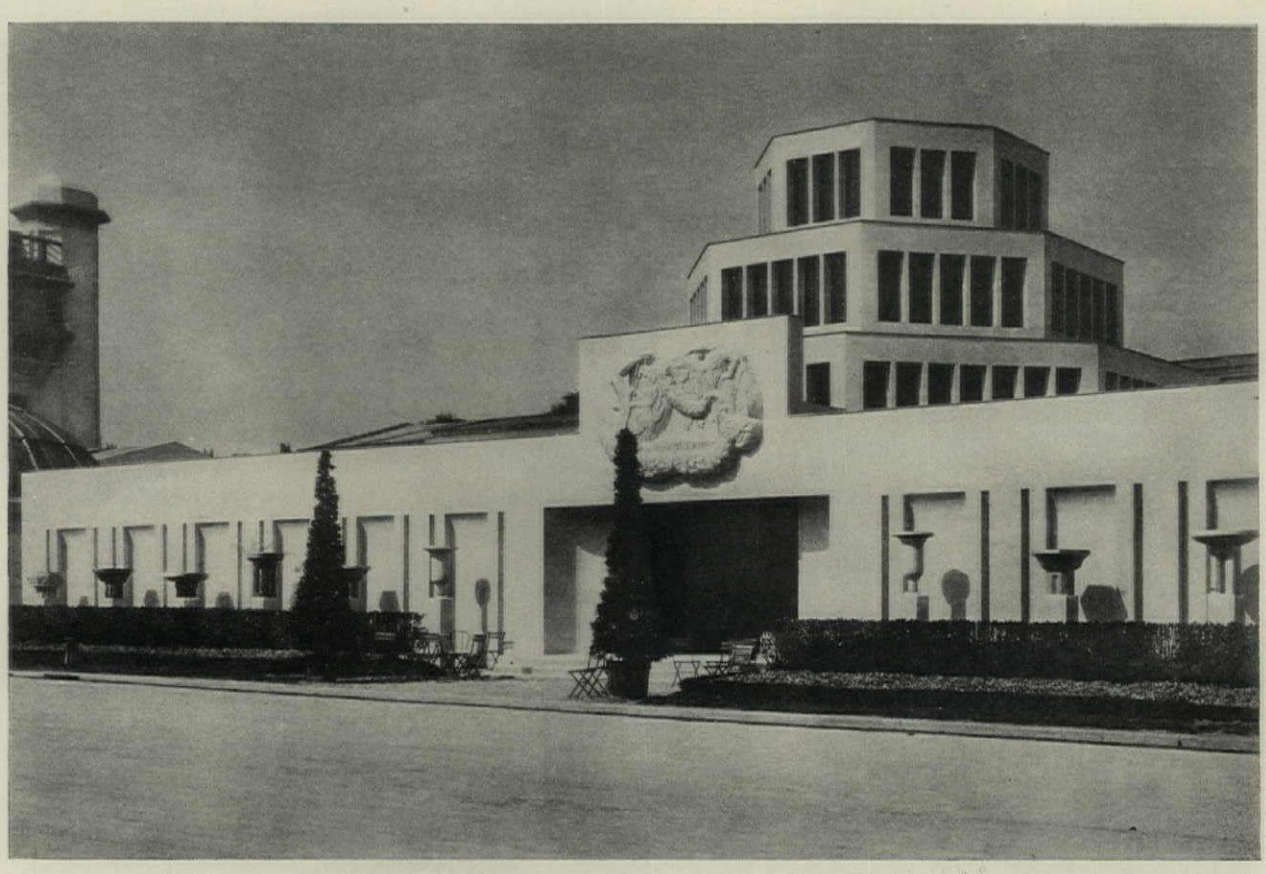
Note the proportion of the nave, high as we are accustomed to expect in a church, but here enveloped in reinforced concrete of minimum section.





TOWER ON THE ESPLANADE DES INVALIDES, EXPOSITION OF DECORATIVE ARTS, PARIS, 1925—CH. PLUMET, ARCHITECT.

A building of very thin reinforced concrete construction which does not show on the exterior, unfortunately, for it is solid-looking and heavy. Here is a "Restaurant in the Air" as called for in a recent Class A program of the Beaux-Arts Institute of Design. The large brackets supporting the restaurant balcony are among the new forms introduced by concrete construction. For in a recent Class A program of the Beaux-Arts Institute of Design. The large brackets supporting the restaurant balcony are among the new forms introduced by concrete construction. So many things that formerly could not have been built are now possible; it is quite likely that



PAVILION OF LYON AND ST. ÉTIENNE, PARIS EXPOSITION, 1925—TONY GARNIER, ARCHITECT

Garnier, one of the forerunners of the French architecture of the new school, uses no "useless" cornices, mouldings, or other projections, and practically no ornament. The lower portion is a quite interesting study in proportion, and the exposition character is obtained with very simple means. The lantern, without the same simplicity of wall surface, is not so pleasing.

principles are: as many side-lighted rooms as possible, a selected showing of exhibits (all others being classified in storage rooms), and where possible, a progressive chronological arrangement of historical exhibits. The museum at Darmstadt is one such; the Art Institute at Detroit another.

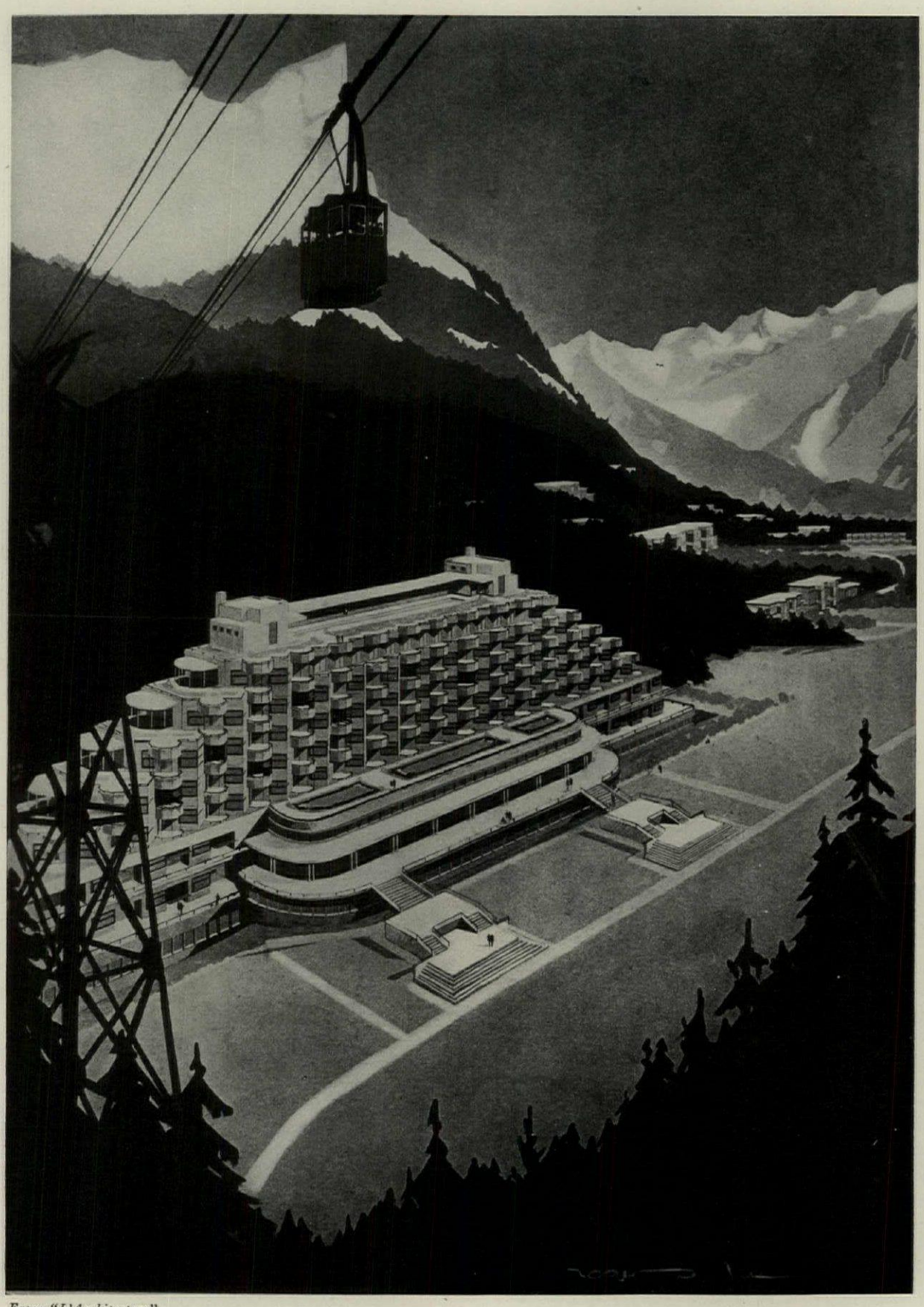
The school is an old problem. The "modern" school is the result of an evolution toward perfection —so many having been built in this age of universal education—with wide corridors, classrooms lighted from one side only, with assembly room, shop, and gymnasium, all with high ceilings to ensure ventilation. The library is another old program, its development being most marked in the stack room for the storage of books.

The railway terminal station, however, is a problem of today, a "real gateway of a modern city," with adequate, well arranged space for the great number of patrons of two kinds, commuters and strangers, to ask for information, buy tickets, check parcels, telephone, and enter or leave train platforms. The Grand Central Station and the Pennsylvania Station in New York are "modern" architecture: such buildings will be referred to in the future as the architecture of today.*

**Harvey Wiley Corbett on Modern Architecture in the "Encyclopedia Britannica," 13th Edition.*

But the most dramatic example of modern building is the office building of many floors, a result of steel construction, of the perfecting of the elevator, of rapid transit. On the too-narrow streets of modern cities, the first requisite is good light and air. Here again the "typical floor" is first studied, to so arrange the offices that the maximum income from rent may be obtained. At first owners of land built without thought of neighbor or public. Today, with zoning laws, buildings are designed partly with an eye to the general good. It is likely that in future there will be greater restrictions to this end.

These zoning laws, to protect the light of neighbors, limited the height of the wall at the building line and required set-backs above that, with the privilege in New York (the pioneer in dealing intelligently with the skyscraper) of building to any height on 25% of the lot. This has resulted in entirely new forms in architecture; these, too, are "modern," whether with or without cornices, with decoration or avoiding it. The set-back building of today is a finished product, often extremely well studied, but is likely to be surpassed by the building of tomorrow, as restrictions are revised, and the building of larger and larger parcels of ground is conceived and planned at one time. Most of this commercial building, even though of steel faced in granite, has a comparatively



From "L'Architecture"

POSTER PERSPECTIVE OF SANATORIUM AT PLAINE-JOUX-MONT-BLANC—
P. ABRAHAM AND H. LE MÊME, ARCHITECTS

A solution of one of the new programs that have developed in very recent times. The denticulation of the façade makes it possible for a great many rooms to have two sides toward the south (see plan opposite), so as to be sunny all day long.

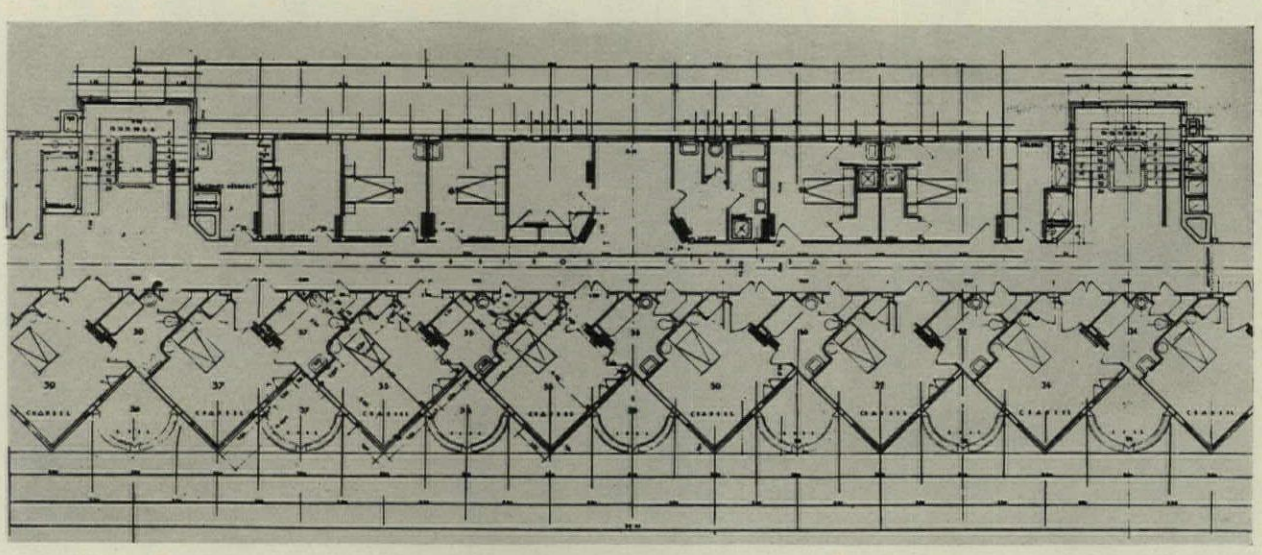
short life, because of the constant improvement in elevator and other mechanical services, just as an automobile—even the expensive one, carefully made, of the best materials,—lasts but a few years.

The modern plan, then, is different in two ways: in program, and in construction. The thin *poché* of a program as simple as Tournon's church can be visible. For a more complex program, with a number of rooms—especially rooms over others—the construction, though thin, can not be visibly thin, because of the great number of mechanical lines going by one room to reach those beyond, ventilating ducts, heat risers and returns, hot and cold water pipes, soil pipes, ice-water lines—an amazing number—and, sometimes especially, air intakes and exhausts of great size.

We no longer permit these lines to be visible; not only because they are and must be unsightly (for they must be designed for efficiency solely), but also because they would be an added care if exposed, more surfaces to be kept clean, to be dusted, painted, and so on, which would require collectively a great amount of labor. Being thus covered—"furred-in"—the construction, though thin, takes on in many cases the reveals of stone construction.

The endeavor is not at all to start with stone construction forms, and run the mechanical lines through the spaces so formed, but to place the service lines so that they interfere least with the proportions of the building, and "fur-in" for them as necessary. There usually results a furring of greater dimension than the designer would use to satisfy his ideas of proportion.

There are thus great differences between the plan of single buildings of today and of a few years ago. The architecture is the expression of a different social outlook—a democratic, a socialistic, point of view. And we see more and more clearly that this idea of regulating building, as well as other things, for the greatest good of the community, is adding a (comparatively) new program—that of the city plan. Here the characteristic is a simplification over present conditions, although a town plan is made up of a number of the very complicated units we have just been discussing. Most of this city planning is still on paper; it is nevertheless the most "modern" of the expressions of modern architecture, as we shall see in March PENCIL POINTS.



PLAN OF CENTRAL PORTION, TYPICAL FLOOR OF SANATORIUM OF PLAINE-JOUX-MONT-BLANC—P. ABRAHAM AND H. LE MÊME, ARCHITECTS

The rooms for consumptives are so arranged as to have two sides facing south, with thorough ventilation. Service and minor rooms are to the north of corridor.

PENCIL STUDIES BY FRANK H. SCHWARZ FOR PAINTINGS SHOWN ON PAGE 117

THESE DRAWINGS WERE MADE ON TRACING VELLUM—THE HIGHLIGHTS WERE BRUSHED IN WITH CHINESE WHITE

ADVENTURES OF AN ARCHITECT

IV—THE EARTH AM SQUARE AND THE SUN DO MOVE!

By Rossel E. Mitchell

"PUT DAT LIGHT OUT!"

The pastor of the First A. M. E. Zion Church looked up from the chancel to the gallery. A sea of sable countenances stared back. He bent to speak again to the notorious negro gambler and ruffian who was kneeling at the rail.

"Put dat light out!"

Again a stentorian voice bawled forth from the gallery. A second time the minister, himself a full-blooded negro, of powerful build and vocal equipment, glanced upwards. The sea of dusky faces in the lower firmament turned curiously toward the lesser sea on high. The preacher paused, and again bent over the penitent.

"Put dat light out!"

The insistent booming from the gallery could no longer be ignored.

"What do you mean, brudder, by callin' out dat-a-way to put out de light?"

"Don't de Good Book say," came back from the heights, "As long as de light hold out to burn, the vilest sinner may return?"

A gale of laughter swept the tense assembly. It was as a cool breeze suddenly dispelling the fervent heat of midsummer. Perhaps it was even as a whiff from the fronded palms of the heavenly isles to a wayfarer standing on the sulphurous brink of the Bottomless Pit, for hell is never far away from the pulpit of a negro evangelist.

But levity and hell fire no more mix than flaming fagots with the contents of a fire extinguisher. A negro preacher's ready wit has saved many a situation from disaster, imminent through the keen sense of humor of his hearers. Without a moment's hesitation the pastor came back:

"Yeh, brother, but de Book also say, 'Excep' yo repent, yo shall all likewise perish'!"

"A-a-a-a-a-a-a-a-a-MEN!" sprang from a thousand throats.

The interlocutor was silenced, the congregation brought back to the smell of brimstone, the sinner was "brought through" and the evening made a great success.

This story was told me by a negro pastor, one of those numberless men of that interesting race, who pass their days in an endless struggle to inculcate morals where none exist, and teach religion suited to the elemental needs of their people. These men as a class are the salt of the earth in their own sphere. They seek neither publicity nor "social equality." Humble, hard working and intensely devout, they have done more to maintain good relationships between the races in the South than all the legislation, social agencies, and uplift work of all the whites put together.

The modernist and the scoffer may scorn their religion, ridicule their faith in the Book, and belittle their influence. The fact remains that they know their own people, teach them incessantly the homely virtues of the Christian faith, inculcate respect for their white employers and counteract the propaganda of disturbers, even of their own color.

The most famous of these men perhaps, throughout the entire South, was John Jasper of Richmond, Virginia. To this day any older or middle-aged resident of the Southern metropolis smiles broadly at the mention of his name.

John Jasper had the negro's gift for fervent oratory. He was a man of one book, that book the Bible. Critics might laugh at his exegesis, but none doubted either his sincerity or his influence for good among his people. Jasper became in time an institution in Richmond. Hotels advertised his church services as one of the unique attractions of the city. Rarely a Sunday night but found a substantial number of whites occupying the gallery of his crowded church, while Jasper fervently portrayed the torments of the damned and the glories of the saved.

But the climacteric of Jasper's forensic efforts came in the sermon that gave him a reputation far and wide, leaping the bounds of both his city and state.

The subject of this sermon echoed in another sphere the resounding theological tilts of the late Nineteenth Century. It epitomized the battles between science and religion. And if, as some cynics would say, Jasper knew nothing of either, it is certain he was no more ignorant of science than some theologians of his day, and probably had more real religion than certain pseudo-scientists who find the pen mightier than the test tube. So when it became known that Rev. John Jasper was to preach the following Sunday on his famous text, white people crowded the compliant colored congregation out of the gallery altogether.

As the hymns and prayers were sung and said, the Scriptures read and the offering taken, the atmosphere became tense with interest. Opening the great volume before him, the famous old negro announced.

"De subject of my sermon today is taken from de Holy Scriptures and is as follows:

"DE 'ARTH AM SQUARE AND DE SUN DO MOVE."

Followed a Biblical proof, illustrated and driven home by numberless texts, purporting to show that "de 'arth am square" because otherwise why would the Bible speak of the "four corners" of it and the ends of it?

"The ends of the earth shall be glad!"

And how could the sun be set still in the heavens

with the four-cornered earth whirling about it, when Joshua told the sun to stand still, and it stood still upon Askelon?

Let us not point the finger of scorn in Jasper's direction. The memory of the persecution of Copernicus is too green, and the learned theologians of a great university of Portugal solemnly declared Columbus to be in error as to his theory about the roundness of the earth. They pointed to the Psalm, "He spreadeth the heavens as a tent!"

It was my lot to be called on several times to build negro churches. Although living in another city I was also asked into consultation about some proposed alterations to the church where John Jasper long held forth.

It was a large brick affair, clean and well kept up. As I went about taking measurements, a quiet young colored man came up and respectfully asked if he could be of help. I thanked him and gave him one end of a steel tape. After a time I asked if he was a member of this church.

"Yessuh," said he, "I'm a figgerhead in this church, sah!" As a matter of fact, this was no new ecclesiastical office to me; having attended church all my life I had observed numbers of such. Here, however, was the first instance I had ever known of the title being acknowledged.

Suppressing a rising tide of hilarity I inquired, "A figurehead? Just what do you have to do?"

"Well, sah, it's like this. You see the pastor has the boa'd of older men that handles the affairs of the church. Then he has another boa'd of young men. So when anything comes up he gives it to us younger fellows to figger on, and we's the figger heads for the whole church!"

Some people think F. W. Woolworth made the greatest discovery of the Nineteenth Century—the value of a nickel. The negro preachers of the South antedated his find by several decades. While white people frequently look to a few wealthy persons to carry the principal load in a church-building enterprise, the negro preachers have had no such source of income. Long ago they learned the Scotch adage, "Many a mickle makes a muckle."

My first negro church building was a revelation to me in church financing, also in patient sacrifice and devotion to a cause.

The church in question was for a Baptist congregation having 2,500 members. Not a rich man, not even a well-to-do person in the lot. The ground had been paid for after several years of effort, and a few thousand dollars put aside in the bank. A first mortgage was finally negotiated from some white "friends" for about one-half the projected cost of $75,000.00. For this kindness their white friends charged ten per cent of the face of the loan, plus six per cent interest per annum. With a large part of the money still unraised they set about building. In two years (for the time was deliberately slowed up) the church was complete, and a grand dedicatory service was held. Leading white ministers spoke. With the help of their bank they squared up with the builder. My own payments had been made with reasonable promptness. In less than seven years the entire indebtedness was wiped out and ground purchased for an addition.

The financial plan was interesting. Nearly every man, woman, and child in the church contributed weekly from five cents up. No one gave more than a dollar per week. The money came in regularly and the total was a substantial sum. During the same period the large, wealthy church of which I was a member, carried a debt uncurtailed, sometimes borrowing from the bank to pay interest.

It is not surprising therefore to one who knows their methods and persistence to be informed that ten per cent of the entire wealth of the negroes of the South is invested in church property—literally the Biblical tithe.

GREEK LANDSCAPE—PENCIL SKETCH BY MISS E. REINHOLD

THE GEOMETRY OF ARCHITECTURAL DRAFTING

7—SOME DETECTIVE WORK

By Ernest Irving Freese

EDITOR'S NOTE:—*This article, which is copyrighted, 1930, by the author, continues the series begun last August.*

THE GEOMETRY of space is an abstract science. The geometry of drafting is an applied art.

In space, a point is that which has no material extent. The only thing which has no material extent is an idea. Theoretically, then, a point is an idea. A line is a long idea. A long idea moved sidewise, or revolved, generates an ideal surface; and such surfaces, enclosing nothing, form the idea of a solid. These ideas are symbolized by algebraic equations.

On the drafting board, points and lines are *material* things: marks, made with sharpened instruments. In the *art* of geometry, then, points and lines not only possess magnitude, but magnitude in two directions—in fact they possess magnitude in *three* directions. Just try to erase some of the "ornery" ones and you'll speedily discover the third dimension—perpendicular to the plane of the paper! Intersecting lines create an area at their crossing—an area common to both and contained within them. This *area* is their *point* of intersection. Some of these interesting points are shown in Figure 59—through a magnifying glass. If the intersecting lines be inclined to one another, then the "points" of intersection—the filled-in *areas* of Figure 59—will be longer than they are wide. And the length increases much faster than the acuteness of the angle between the crossed lines. Moreover, in the *art* of geometry—which is *practical drafting*—a tangent to a curve, instead of just "touching" it, *intersects* it to the extent of the thickness of the line used to represent said tangent. And, as Figure 59 shows, the "point" of tangency possesses a length that virtually makes it another line—a line often so long that its geometric identity as a point is utterly lost and must be detected by yet another line crossing the center of the intersection area in a direction perpendicular to that of the tangent—that is, normal to the curve. In other words, in all cases where points are to be located by one line crossing another, the angle of crossing should—by another geometric operation if necessary—be made great enough to cause such resultant points to approach in length the thickness of the line used. And the nearer such points come to the square of the thickness of this line, then just that much nearer will the *art* of geometry materialize the mathematical conceptions of the unhampered science that underlies it and is, in *fact*, the foundation of all drafting.

Space is infinite. The drafting board, in comparison, is minutely finite.

If two lines of space come together at some point, say, in the Milky Way, then it is a simple matter to idealize a third line that would intersect the other two at that precise point in the Milky Way. In other words, in the *science* of geometry, no point is inaccessible. But, in the application of this science to the finite problems of drafting, such required points are often "off the board" or, to use a phrase coined in the drafting room, "over in the next county." Yet, somehow or other, a third line must be directed to that out-of-town point regardless! Well, the same science that gets us into this predicament shall get us out of it!

Points located by direct measurement are subject only to the possible error of measuring. But points located by one line crossing another — as practically all points in geometric constructions *are* located — are subject to the widely-variable error of obscured intersections *plus* the possible error of accumulation. Figures 59 and 60 graphically substantiate the latter facts. In both these

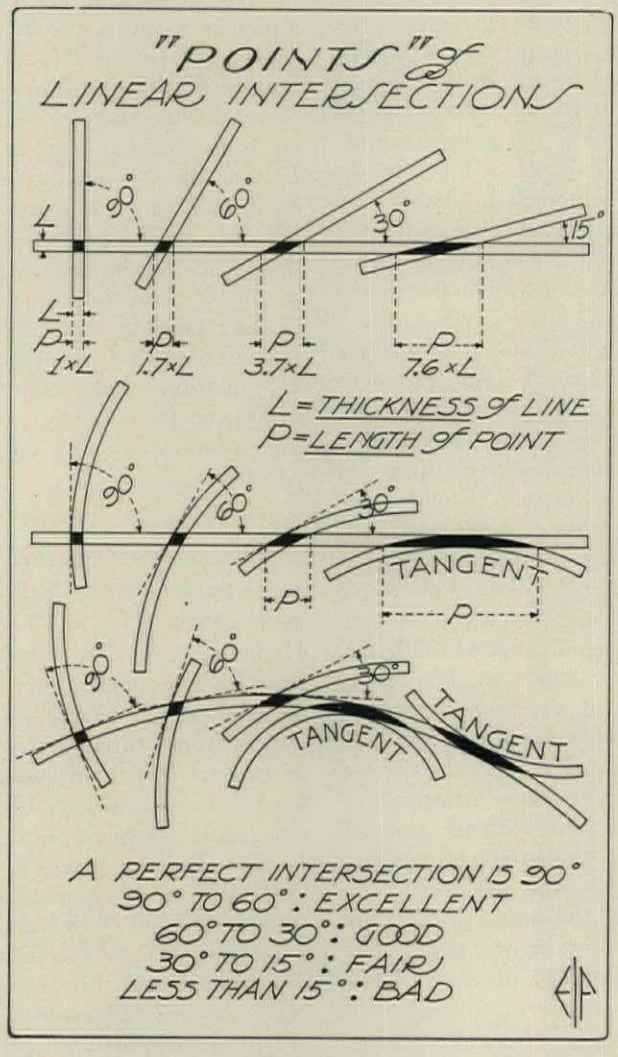


FIGURE 59

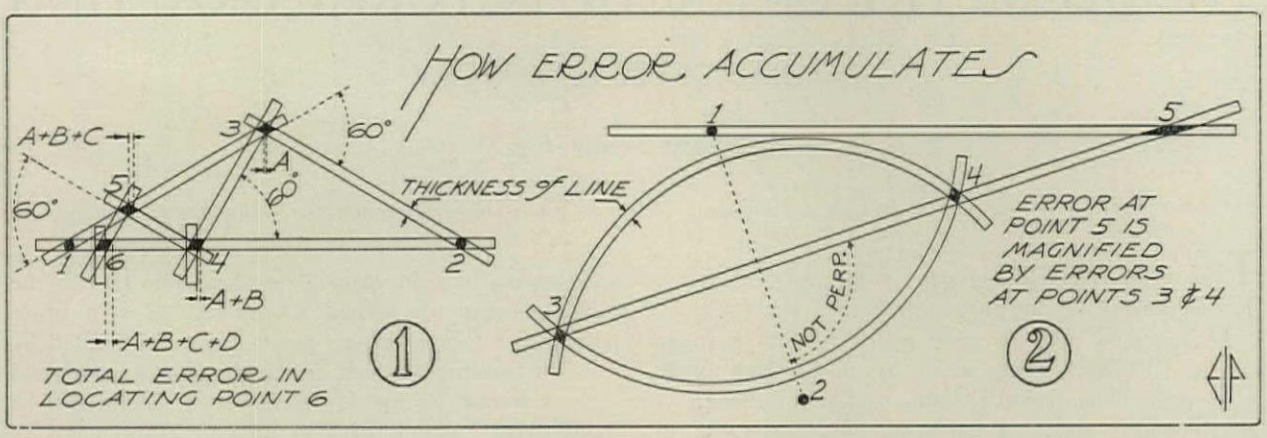


FIGURE 60

Figures the thickness of the line is used as the gauge of the possible error. For example, in Figure 59, a "point" located by one line crossing another at an angle of 15 degrees, would have a "length" nearly eight times the thickness of the line: that is to say, at least seven other lines could, without touching each other, be drawn *in another direction* through a point so located and yet remain within the shaded *area* of the intersection. However, Figure 61 — the "Cross Patch"—serves to indicate that another condition operates to make this condition not quite so bad as the emphatic representation of it appears in Figure 59; namely, that the *cross* formed by the intersection of two acutely converging lines is always *thinnest* where the *point* is *thickest*—that is, at the center of the crossing. Possibly, then, *in a crossing of not less than 15 degrees,* close scrutiny and indenting will "detect" the required "point." Possibly not. Most assuredly not in case the intersection angle is still more acute, as, for examples, the commonly occurring "bad" ones of the Cross Patch. In any case, however, regardless of the angle of crossing, a point so located should, if another line is to be projected therefrom, or a measurement made thereto or therefrom, be fixed by the same close scrutinizing and indenting. The ensuing line can then be drawn by first placing the conical-point of the pencil in the indent—thus avoiding a further possible error of drawing a line *from* an indefinite point. Any line can, in this manner, be accurately projected *from* a point occurring on another line *regardless of the angle of projection.* Remember: the angle at which one line *leaves* another from an already fixed point on the latter, is *not* an angle of *intersection:* hence, in these cases, the operation is merely that of drawing a required line from or through a *definitely fixed point.* So no "detective work" is here required other than that of fixing the given point in the most precise manner possible, that is, by indenting it slightly with the point of the dividers. For this purpose—indentation—you can dismantle your "spring" dividers and use one of the legs. It's more "handy"—and the spring dividers are of no other use as an instrument of precision. The bow spacers and compass fulfill all such latter demands.

In Figure 60, the diagrams suggest but two instances of the errors of accumulation. There are many others. The construction shown at Diagram "1," if accurately performed, will result in the distance *1-6* being exactly one ninth of the distance *1-2*. Try it. But first fix the points *1* and *2* by indenting, or you may possibly commit an *initial* error in getting away to point *3*. In the case here shown, all angles of intersection are 60 degrees. Hence, since this classifies as "good," the probability of error is here very slight: the maximum accumulation at point *6* could only be about one half the thickness of the line used, *provided* the lines "hit" somewhere within the *area* of the shaded intersection points, and provided further that your 30-60 triangle is correct. At Diagram "2," in the same Figure, the perpendicular bisector, *3-5,* "hits" the points *3* and *4* all right—but at opposite extremes of these points. Hence, the "perpendicular bisector" is not perpendicular and is not a bisector! This condition of things not only throws point *5* farther from point *1* than it should be, but, by thereby lessening the angle of intersection, it renders an appreciable accumulated error in locating point *5* very probable—unavoidable, in fact. If point *5* were the required center of a circle, of radius *5-1,* that must come tangent either to another circle or to a given straight line—well, there'd be a "holiday" somewhere that you "couldn't account for." Now you *know.*

I: In the Cross Patch

Now cast your apprehensive optics down the devious and interesting paths of the "Cross Patch" mapped out in Diagrams "1" to "11," inclusive, of Figure 61. Hesitate at each sign-posted crossing, and there cogitate upon the designated probability of a well-sharpened six-aitch pencil "hitting"—without a detour—the next point enroute through this mystic but profitable maze of geometric fructification. Then—whether you've located the dictionary, or not— reach for your T-square and triangles. Go to work on the Cross Patch. Locate, as best you can without recourse to the "detective work" hereinafter shown, the linear intersections marked "bad" and "fair." The ones designated as "good," "excellent," and "perfect" are sufficiently precise in themselves, yet, in case extreme precision is called for, even the good ones can be made to classify as excellent or perfect—as will hereafter be shown. Then, after having traversed the Cross Patch

—no, not alone: I'll accompany you shortly—check the results with what thereafter will follow. You will then learn not only the value of your own optical detective ability, but also the relative value of the precise geometric detective methods in this Part presented.

However—as a preliminary preparation for the above-suggested personally-conducted tour of the Cross Patch—you should first master the straight manipulative method of perpendicular-bisector projection made easy in Figure 62. It has been used and indicated in all of the Cross-Patch problems where such a line is required. This original, precise and speedy manipulation with the T-square and 45-degree triangle obviates the use of the compass in locating point *e* equidistant from the two given points *a* and *b*, or, which is the same thing, equidistant from the ends of the given line or chord *ab*—real or imaginary. After this one point, *e*, is fixed as shown at Diagram "A," then slide the 45-degree triangle along the obliquely-held T-square to the required position, *4*; remove the T-square if it's in the way (as has been done at Diagram "B"), hold the 45-degree triangle firm, and project the required perpendicular through *e* to the required point *f* with another triangle operating at right angles to the first—the net result being as shown at "C." It's easy—and fast, once you get the "idea" —and, moreover, *this* perpendicular bisector is bound to be *perpendicular*, and it does not, therefore, carry forward any "accumulation of error." (Figure 60 shows how *not* to do it.) The point *e*, of Figure 62, is identical with point *1* of Diagrams "1," "2," "3," "7," and "11" of the Cross Patch, and with point *4*, Diagram "4," same Patch. Since it forms a 90-degree cross, it classifies as "perfect." This point, however, as well as the given points, should first be indented before projecting the ensuing points or lines therefrom. Now for that personally-conducted trip through the Cross Patch:

PROBLEM 1: (Diagram "1" of Figure 61) *To locate the two centers of the segmental Gothic arch;* given one spring point *a*, the crown point *b*, and the vertical jamb lines *af* and *dc*.

Solution: Cross *dc* with the perpendicular bisector, *1-2*, of *ab*. Point *2* is one of the required centers. Cross *af* with a horizontal, *2-3*, from *2*. Point *3* is the other required center.

In an arch of this type, with centers on the *jamb* lines, the chord *ab* is *always less* than the span *ae*. When the chord *equals* the span, so do the radii, and the arch thereby becomes "equilateral" with centers at the crossing of the jamb lines and spring line. Hence no construction is then required.

PROBLEM 2: (Diagram "2" of Figure 61) *To locate the two centers of the lancet Gothic arch;* given the spring points *a* and *e*, the crown point *b*, and the projected spring line *cd*.

Solution: Cross *cd* with the perpendicular bisector, *1-2*, of *ab*. Point *2* is one center. Make *a3* equal *e2*. Point *3* is the other center.

In an arch of this type, with centers on the *spring* line, the chord *ab* is *always greater* than the span *ae*. It is thus seen that the "equilateral" Gothic arch is the ultimate coincidence of the "segmental" and "lancet."

PROBLEM 3: (Diagram "3" of Figure 61) *To locate the two centers of the Moorish arch;* given one spring point *a*, the crown point *b*, and the projected vertical jamb line *cd*.

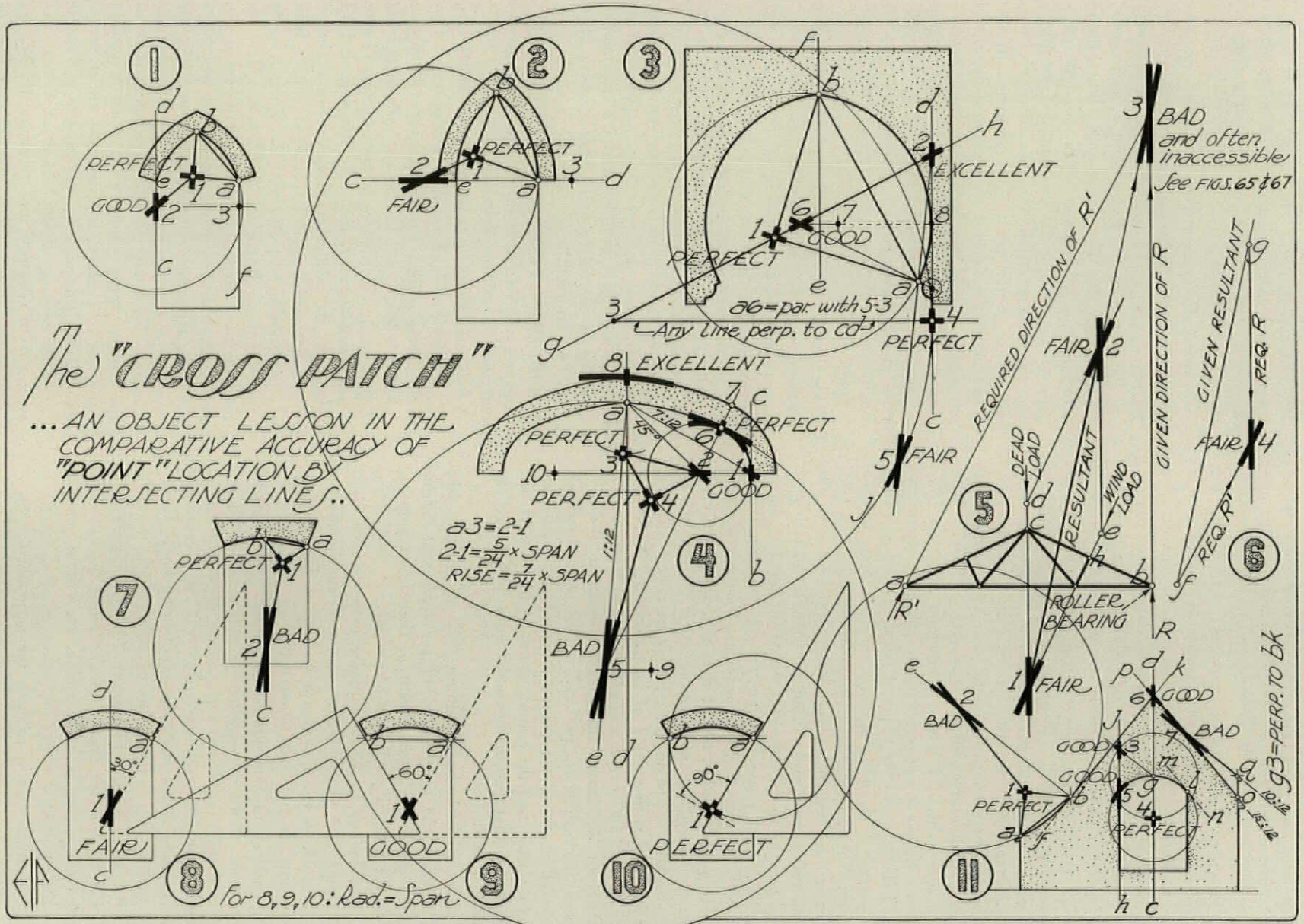
Solution: Cross *cd* at point *2* with the perpendicular bisector, *gh*, of *ab*. From any point on *gh*, say *3*, project a horizontal to cross the vertical jamb at point *4*. From point *3*, as a center, swing the arc *4j*. From *2* project a line through *a* to cross this arc at point *5*. From point *a*, in a direction paralleling the direction *5-3*, project a line to cross *gh* at point *6*, which is one center. The other center, point *7*, is symmetrically disposed about the vertical *ef*, and on a horizontal through *6*. And this horizontal, being perpendicular to *cd*, will cross the latter at the tangent point *8*. The two equal arcs of the arch will cross at the crown point *b* because said point lies on the perpendicular bisector *ef* of their "line of centers" *6-7*.

For the benefit of the "mathematical hounds," it is here mentioned that this construction is based on the fact that point *2* is the *center of similitude* of all circles drawn tangent to *cd* from centers on *gh*. Moreover, if the given or assumed conditions should cause point *6* to fall to the right of *ef*, the arch will lose its point and, instead, become cusped at the crown. If *6* falls exactly on *ef*, the arch becomes one-centered, hence, a "major segmental" or "horseshoe." This is an interesting one to "play with." And it's educational as well. But be careful of that "fair" crossing at point *5*. It's "not so good."

PROBLEM 4: (Diagram "4" of Figure 61) *To locate the four centers of the Tudor arch;* given the crown point *a*, and the jamb line *bc*.

Solution: From *a* project an extraneous line, *a1*, at a slope of 7:12, to cross *bc* at point *1*. This is the spring point. From *a* project a 45-degree inherent oblique, *a2*, to cross a horizontal from *1* at point *2*. This is one haunch center. From *a* project the extraneous line *ae*, at a slope of 1:12 relative to the vertical. Make *a3*, on *ae*, equal the haunch radius *2-1*. Cross *ae*, at point *5*, with the perpendicular bisector of *3-2*. Point *5* is one crown center. But it's a "bad" one! The remaining two required centers, points *9* and *10*, are symmetrically disposed, in respect to centers *5* and *2*, about the vertical center line *8d* of the opening, and on horizontals through these other centers. To detect the obscure tangent point of the haunch and crown arcs at point *6*, project their line of centers, *5-2*, to cross either arc at that point. The crown points *a* and *8* will define the acute crossing of the two equal crown arcs swung from centers *5* and *9* because the line *8d* —the center line of the opening—is the perpendicular bisector of their line of centers *5-9*.

PROBLEM 5: (Diagram "5" of Figure 61) *To determine the direction of the reaction, R', at the fixed*


The "CROSS PATCH"
... AN OBJECT LESSON IN THE COMPARATIVE ACCURACY OF "POINT" LOCATION BY INTERSECTING LINES..
1
PERFECT
GOOD
2
FAIR
3
PERFECT
EXCELLENT
a6=par. with 5-3
Any line perp. to cd
PERFECT
4
EXCELLENT
PERFECT
PERFECT
GOOD
a3=2-1
2-1=5/24 x SPAN
RISE=7/24 x SPAN
BAD
5
9
7
PERFECT
BAD
8
FAIR
30°
9
60°
GOOD
10
90°
PERFECT
For 8, 9, 10: Rad.=Span
11
BAD and often inaccessible
See FIGS. 65 & 67
REQUIRED DIRECTION OF R'
GIVEN DIRECTION OF R
GIVEN RESULTANT
REQ. R
FAIR
2
FAIR
5
FAIR
4
REQ. R'
6
DEAD LOAD
WIND LOAD
RESULTANT
ROLLER BEARING
R'
R
FAIR
1
BAD
2
BAD
GOOD
GOOD
GOOD
PERFECT
PERFECT
g3=PERP. TO bk
10:12
15:12

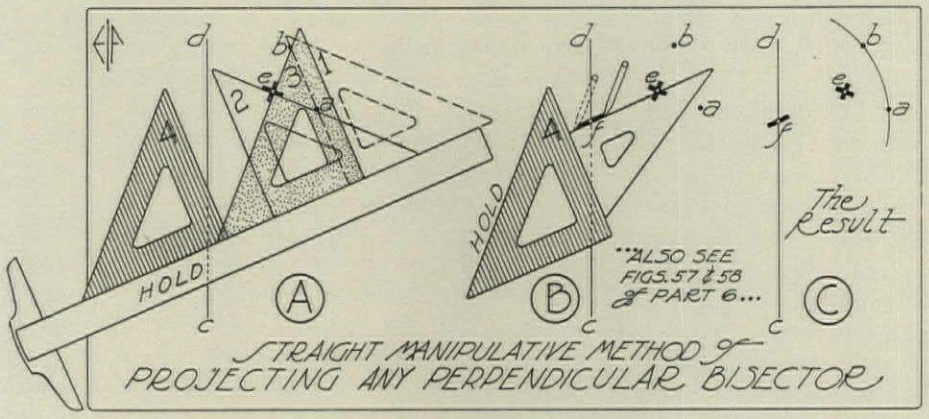


FIGURE 62

end of the truss; given the lines of action, *dc* and *eh*, of the total dead load and wind load, respectively, and the magnitude of each.

Solution: Project *dc* and *eh* to cross at point *1* —which yields just a "fair" intersection. Lay off *1d*, to any scale, equal to the total dead load. Lay off *1e*, to the same scale, equal to the total wind load. From *d* and *e* project lines parallel with *1e* and *1d*, respectively, to cross at point *2* —which is one way of "fairly" locating point *2*. A better way, provided point *1* is made "good," is to make *d2* equal *1e* directly, which can be accurately done by indenting a strip of tracing cloth or paper placed *over* the points, and then transferring this distance in a similar manner—that is, by indenting *2* through the indent made in the tracing cloth or paper. Well, in any case, the line *1-2* represents not only the magnitude but also the resultant *direction* of the combined dead load and wind load. Hence, since the reaction *R*, at the roller-bearing end of the truss, can be in no direction other than vertical, and since, for equilibrium, the resultant's line of action, *1-2*, must tend to the same point as its resolved components, it follows that the required component direction of *R′* will be established by a line directed to the point where the projected line *1-2* would cross a vertical from *b*—which is point *3*, and another "bad" one. Nevertheless, the line *a3* represents the required *direction* of *R′*.

Although, in the above problem, I have assumed that point *3* is "on the board," this is one of the many cases occurring in graphic statics where this required point is more apt to be "over in the next county." But I'll attend to that presently. Meanwhile:—

PROBLEM 6: (Diagram "6" of Figure 61) *To determine the magnitude of the truss reactions R and R′;* given their respective *directions* (*b3* and *a3* of Diagram "5") and the *magnitude and direction*, *fg*, of their resultant (which is *1-2* of Diagram "5").

Solution: From *g* project a line paralleling *b3* of Diagram "5." From *f* project a line paralleling *a3* of Diagram "5." They will cross at point *4*, which limits the magnitude of the reactions *R* and *R′* when measured to the same scale as *fg*.

The crossing at point *4* here classifies as "fair." But often it's exceedingly "bad"—so much so, in fact, that, unless you know the "trick" of making it "good" or "excellent," you'll waste a lot of valuable time with the "slip stick" trying to *figure* those reactions instead of just *measuring* them! Of which —more later.

PROBLEM 7: (Diagram "7" of Figure 61) *To locate the center of a segmental circular arch;* given one spring point *a*, the crown point *b*, and the projected center line *bc*.

Solution: Cross *bc* with the perpendicular bisector, *1-2*, of *ab*. Point *2* is the required center —if you can find it!

PROBLEM 8: (Diagram "8" of Figure 61) *To locate the center of a 60-degree segmental arch;* given one spring point *a*, and the center line *cd*.

Solution: From *a* project a 60-degree inherent oblique to cross *cd* at the required center *1*. Sure —"every draftsman in the country knows how to do it." In fact it represents the sum total of the geometric "knowledge" of some draftsmen! And it's not even "good"—just "fair." Read on. It can be done just as quick, *better*.

PROBLEM 9: (Diagrams "9" and "10" of Figure 61) *To locate the center of a 60-degree segmental arch;* given the spring points *a* and *b*, but NOT THE CENTER LINE.

Solution 1: (Diagram "9") Cross 60-degree converging lines from *a* and *b*. "Good."

Solution 2: (Diagram "10") Cross a 60-degree oblique from *a*, with an arc from center *a*, radius *ab*. "Perfect." And the compass is all set for the arch. Now take your choice. But possibly you want to draw only *half* an arch—in which case, the center line *is* given, and only *one* spring point. See Figure 66, Diagram "3" if you can't wait 'til we get there. Or you can set the compass to the known radius of the arch and cut the center line with it from the one spring point as a center. This'll classify as "good" also.

PROBLEM 10: (Diagram "11" of Figure 61) *To locate the center for the roof sweep;* given the points *a* and *b*, and the extraneous raking line *bk*.

Solution: From *b*, project *be* perpendicular to *bk*. Cross *be* with the perpendicular bisector, *1-2*, of *ab*. Point *2* is the required center.

The sweep will come tangent to the main roof slope at *b*—which is quite the proper thing for it to do. That's why it's sometimes called an *easement*. Not abrupt. But you may have to do some "detective work" on that bad crossing at *2*, if you want to get the radius *exact*—although, in this case, as in all cases where points are determined by "looks," the point *a* is not necessarily immobile! And it's easy enough to set the compass to *some* radius on the right-angular line

be—and let *a* go hang, for an inch or so. (Notation: See Figure 3, Part 1, and Figure 50, Part 5, for *gambrel* roof sweeps.)

PROBLEM 11: (Diagram "11" of Figure 61) Here we take another sally into the field of *design*. A segmental arch in a gable end appears the most pleasing when an imaginary tangent, *mn*, at either spring point, parallels the corresponding rake. Hence: *To locate the center of the arch;* given the center line *cd*, the *crown* point *g*, a jamb line *hj*, and the direction, say *bk*, of the spring-point tangent on that side of the center line. (Note that the crown point is given, *not* the spring points—for the height of the arch is limited by the ceiling line of the room.)

Solution: Easy! From *g* project a line perpendicular to *bk* and crossing *hj* at point *3*. Then *g3* is the radius of the arch. Hence, from *g* as a center, revolve point *3* to the center line at point *4* and draw the arch.

Now, assuming the points *o* and *q*, as fixed, see how precisely you can locate the intersection point, *7*, of that dormer roof and main roof. Not *very*—if you had to tell a carpenter just *where* to place that "header" instead of leaving it for him to *guess at*.

Well—our chanceful little game of "Cross Patch *draw* the latch" has "come eleven"—which is lucky, for the double-six calls for the detectives!

II: Anywhere on the Board

PROBLEM 12: (Figure 63) *To double the angle, A, between the line a-c and the imaginary perpendicular bisector of the chord a-b.*

Solution 1: (Diagram "A") From *a* and *b* as centers, with a radius about three fourths of *ab*, cross arcs at *1*, and cross *ac* at *e*. Make *1f* equal *1e*. Then *bf* makes twice the angle with *ac* as *g1* does. Observe that this construction does not require that the perpendicular bisector *g1* be drawn—nor should it be, since the object of this construction is to *detect*, rather than obscure, the point *2* where said bisector would cross *ac*. The dotted lines in the Diagram merely indicate the unrequired portion of the usual Euclidean construction for perpendicularly bisecting a straight line, which latter is here the chord *ab*.

Solution 2: (Diagram "B") From *a* as a center, any radius, cross the two given lines at *e* and *h*. From *b* as a center, same radius, draw the arc *jfk*, and make *jf* and *fk* equal *eh*. Then a line perpendicular to *jk*, projected through *f*, will cross *ac* at point *2*, which is the same point at which the perpendicular bisector of *ab* would cross at *half* of the angle *f2a*. The instrumental manipulation for projecting *f2* is indicated in this Diagram by the dotted lines.

Now—take note—by either of the above simple operations, the "fair" intersection at point *2*, in Diagram "2" of the Cross Patch, could be made *good*. This limited *special method* is not, however, to be confused with the *general detective methods* illustrated in Figure 65, which latter will presently come under consideration. Meanwhile consider Figure 64.

PROBLEM 13: (Diagram "1" of Figure 64) *To detect the points, C, where two equal circles, A and B, cross;* the centers of the given circles, points *6* and *7*, being so close together as to render such crossings indefinite.

Solution: Project the perpendicular bisector, *ef*, of the line of centers, *6-7*, to cross either of the circles. The points of crossing will then define the otherwise exceedingly indefinite points *C*.

This detective resource has been utilized in Diagrams "3" and "4" of the Cross Patch where, in each case, it is readily seen that the center line of the opening is the perpendicular bisector of the "line of centers" of the crown arcs. Figure 64 carries the reference letters of Diagram "3," Figure 61.

PROBLEM 14: (Diagram "2" of Figure 64) *To detect the points, C, where a straight line, B, crosses a circle, A;* the line being so far removed from the center of the circle as to render such crossings indefinite.

Solution: Do not intersect the circle with the line. Instead, "jump" the curve so as to leave it clear for the ensuing operation of detecting the point of crossing. Then, from the center of the circle, point *3*, project a "line of centers" perpendicular to *B*, and crossing *B* at point *l*. Make *lk* equal *l3*, and from *k* as a center swing an arc of a radius equal to that of the given circle. This arc

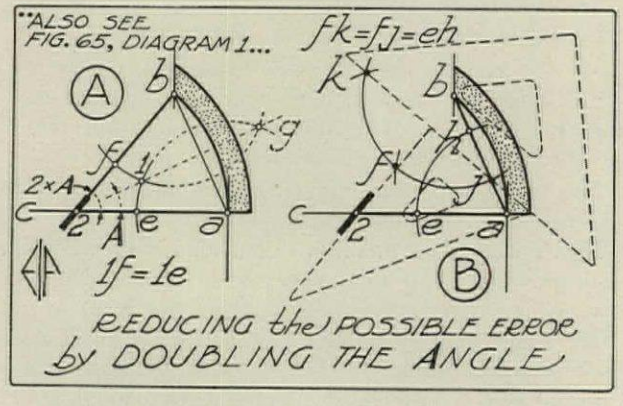


FIGURE 63

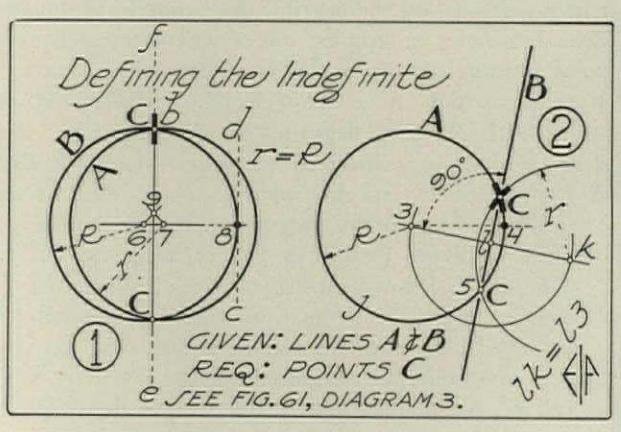


FIGURE 64

will cross the circle at points *C*, which are the *definite* points at which the given line *B* should cross it.

Observe that point 5, in Diagram "3" of the Cross Patch, is an instance where the above recourse would have rendered that intersection "good" instead of being merely "fair."

PROBLEM 15: (Figure 65) *To detect the point where two acutely converging lines would meet or cross;* the required point being "on the board."

General solution: Diagrams "1" to "5," inclusive, cover all possible given conditions. Let *A* and *B*, of any Diagram, represent any two given lines which, if they actually crossed, would be productive of an obscure or indefinite intersection point. All right, then *do not cross them!* Either stop one short of the other or "jump" the intersection as shown. This leaves one of the lines clear—it matters not *which* one—for exact definition of the required "point." Now then, pay attention to every detail: Indent any two points, *L* and *l*, on *one* of the lines, say on *A*. Place the pencil at indent *L* and move a two-instrument sliding combination into touch, bringing the ruling edge of the projecting triangle to cross the *other* line *B* at approximately a right angle—or exactly so if you wish. Theoretically, the angle makes no difference. But, practically, the nearer it approaches a right angle, the more precisely will the next point *M* be located and, hence, the accuracy of the method appreciated. Now *draw* the line *LN*, crossing *B* at *M*. Then, manipulating the sliding combination, produce the other *paralleling* line *ln*, crossing *B* at *m*, in the same precise manner. Next place the bow-spacers precisely at the well-defined point *M*—no, *not* at the indented point *L*—first making their spread *almost* the distance *ML*. Then, by use of the thumb-screw, and meanwhile swaying them slightly back and forth in light touch with the paper, make the free point register exactly with, and *in*, the *indent* previously made at *L*. Now step off this distance *ML* any number of times to *N*, depending on the degree of definition desired or required at point *C*. Identify the divider-indented point *N* with a penciled ring. In exactly the same manner, step off *ml*, on the *other* line, the same number of times, to *n*. Then project *Nn* to cross the one clear given line at point *C*, which is the *definite* point at which the *two* given lines should meet. (See Part 6, Figure 53, Diagram "A," and pertinent text, for the precise technique of projecting an extraneous line through two given points.) In the above construction, the spaced-off distances *MN* and *mn* can also be accurately obtained by indenting and multiplication of the unit distances on a separate strip of tracing cloth or paper, as has hereinbefore been intimated. In fact, there is no more accurate method of transferring given distances. In no case should the dividers be used. If the given distance exceeds the spread of the bow-spacers—use a transfer strip—or the compass. If the latter method is adopted, see to it that the legs are first adjusted *perpendicular to the paper.*

Note that all Diagrams of Figure 65, except Dia-

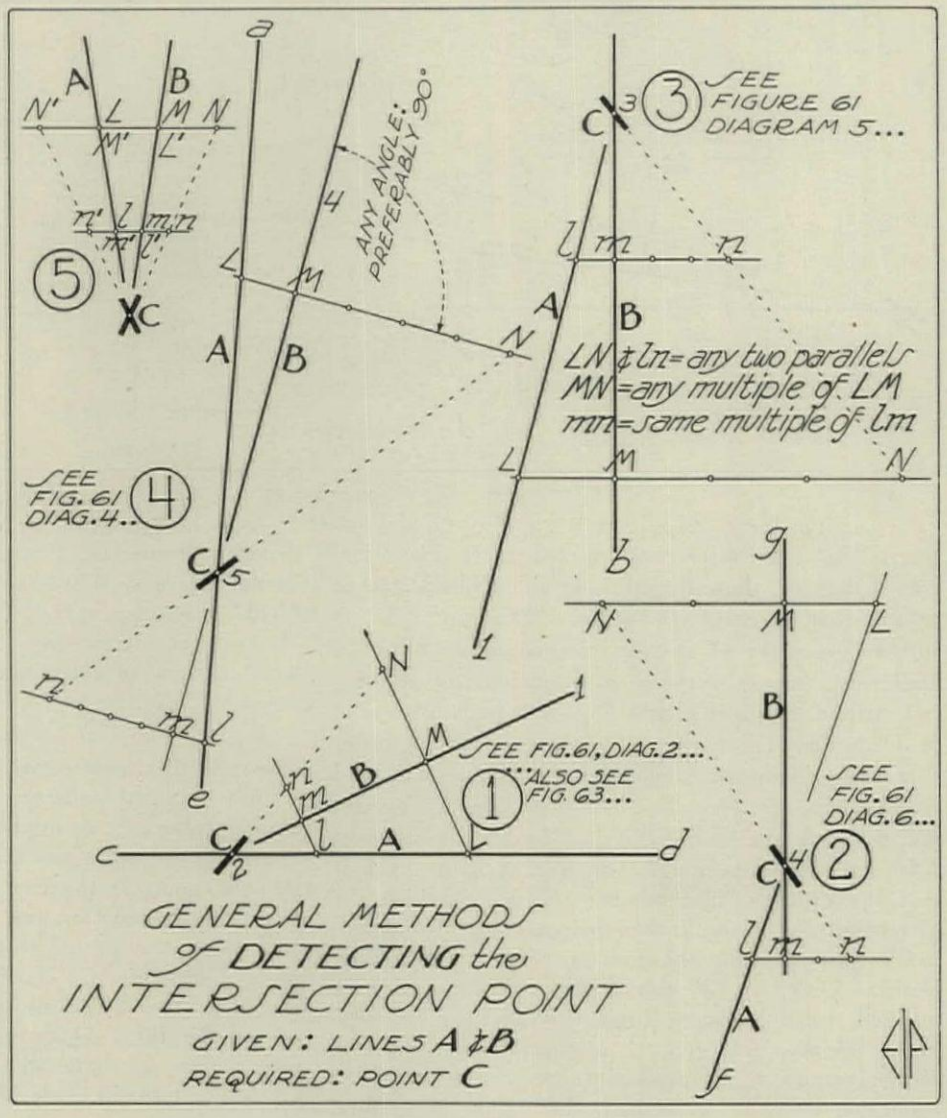


FIGURE 65

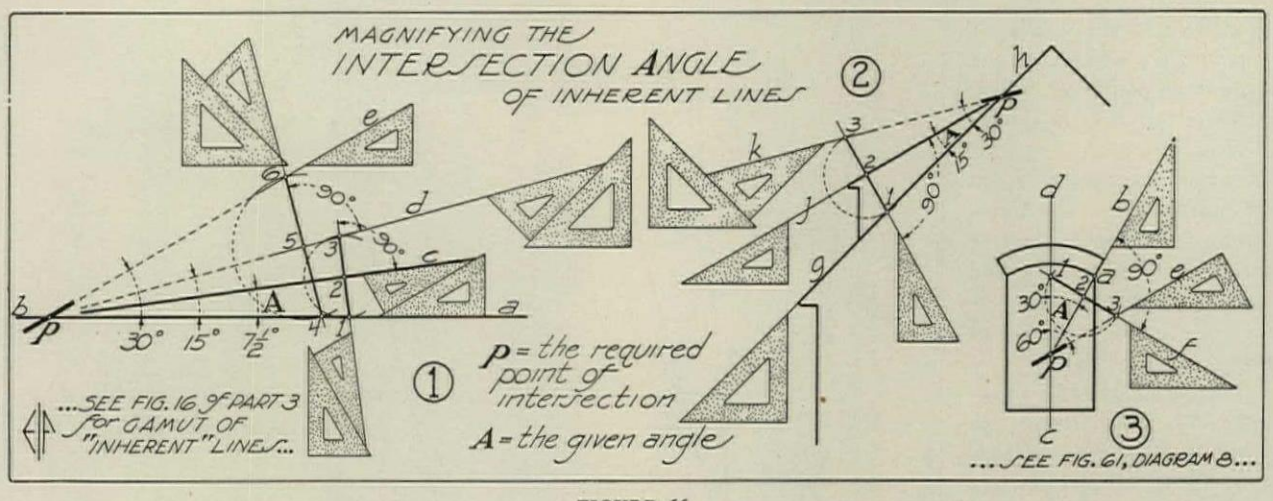


FIGURE 66

gram "5," bear references to, and carry the reference letters of, those diagrams of the Cross Patch to which they particularly apply. Diagram "1" is further indicative of another method of doubling an angle—a *general* method, in distinction to the special method shown at Figure 63. The general method of Diagram "1," Figure 65, requires that, in order to *exactly* double the angle *1-2-d*, the lines *LN* and *ln* must cross the *given* line *1-2* at *exactly* 90 degrees, and that *LN* and *ln* must be just double the distances *LM* and *lm*, respectively. It is thus made evident that the crossing lines become chords of which the given line *1-2* is the known perpendicular bisector—hence, just reversing the problem of bisecting a given chord. Diagram "2" shows that two lines *obtusely* inclined, form an acute angle beyond their intersection. Hence, the general method here applies as shown, and it is especially—and welcomely!—applicable to many problems occurring in the graphic determination of stresses in structural members. In Diagrams "2" and "4," note that point *C* is an intermediate point on the defining projector *Nn*, whereas, in the other diagrams, this point is on the prolongation of the projecting line. The former method is, therefore, productive of the greater precision in locating *C*, since any error of projection would thereby be *mitigated* rather than *magnified*. A reference to Figure 60, Diagram "2" will render this contention obvious. Diagram "5," of Figure 65, shows how the required point *C* can also be detected by two independent projectors *Nn* and *N'n'*—the Diagram there shown rendering the method clear without other explanation.

You are now fully prepared to make good all those "bad" crossings of the Cross Patch. Well—do it! And see how close they check with the usual "eyeball" methods of detection. Then test the "fair" ones the same way.

Figure 66 indicates the application of the above principles to the detection of the intersection point of acutely inclined *inherent* lines. In this case it is merely necessary to establish *one* chord of *twice* the angle (or of four times the angle) and then, through the *one* point at the free end of this chord, to project another *inherent* line of *twice* the angle (or of four times the angle) to the required point of crossing. Diagram "1" clarifies the simple process, and the other two diagrams suggest practical applications of it—the third Diagram showing how the "fair" intersection so designated at Diagram "8" of the Cross Patch could easily be made "good" if necessary.

III: Over in the Next County

Take another look at the Cross Patch. Up there in the far northeast corner is a "bad" crossing that is also sign-posted "often inaccessible." This means that the two given lines, *b3* and *1-3*, directed thereto, may be so slightly inclined, one to the other, as to throw this point off the board—maybe "over in the next county." Oh well—point *3* is a bad one anyhow, so let's forget it entirely and determine the direction of the required line *a3*—which direction *must* be "as is"—by another simple application of the properties of similar triangles. The method is of general application. So, calling the two given lines *A* and *B*—any two converging lines whatsoever—and calling the required line *D*, cogitate upon the marvels of the abstract science which yields such a practical and easy solution of this oft-occurring problem—which same is:—

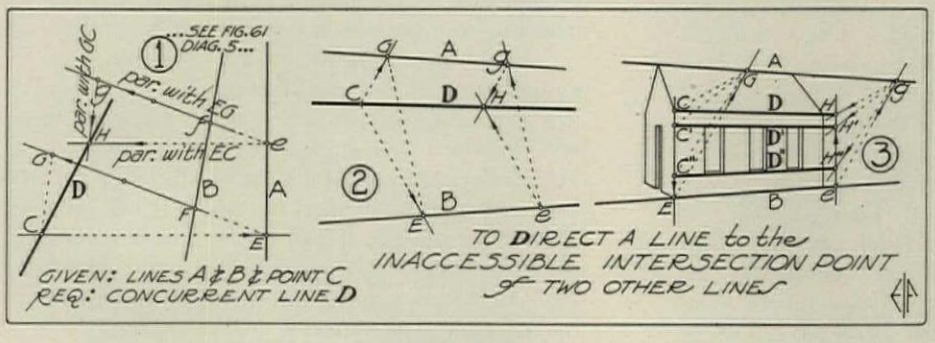


FIGURE 67

PROBLEM 16: (Figure 67) *To direct a required line, D, through a given point, C, to the inaccessible or unavailable intersection point of two given lines, A and B.*

Solution 1: In this case the given point does not occur between the given lines. Cross *A* at approximately a right angle—or exactly so if convenient—with a line projected from *C*. Indent the resultant point *E*. Project a line *EG* at any angle that will yield a definite intersection at *F* where it crosses *B*. Multiply the distance *FE* a sufficient number of times to point *G* that will make the imaginary line *GC* lie approximately perpendicular to *EC*. Now indent any *other* point *e*, on *A*. From this point as a starter, construct a triangle *egH* with sides paralleling those of the triangle *EGC*, multiplying *fe*, to make *fg*, the same number of times that *FE* was multiplied to make *FG*. Then *H* is a point collinear with *C* and the inaccessible meeting point of *A* and *B*. In other words, *CH* is the required line *D*. And the direction of this line would be the required direction of the reaction, *R'*, of the truss shown at Diagram "5" of the Cross Patch, provided the given conditions were the same.

Solution 2: (Diagram "2" of Figure 67) In this case the given point, *C*, occurs between the given lines *A* and *B*, but the alternate construction there shown makes the process self-explanatory. Just bear in mind the one prime essential to accurate results: project the similar-triangle lines at such an angle as to render every resultant crossing *definite*. This can always be managed. Note that in *Solution 2* no "stepping off" or multiplication of distances is required. The triangles are formed directly from the conditions given.

The remaining Diagram of Figure 67 suggests a useful application of the above principle to the establishment of any number of *perspectively parallel* lines, when any two such lines are given, and when the so-called "vanishing" point is out-of-town. In the case shown, which is more or less typical, the point HAS vanished—completely—no tellin' where it is! Well—suppose you just want to make a "sketch"—not a perspective accurately projected from the finished working drawings, but just a study or preliminary design. All you have to do, then, is to get any *two* of your perspective lines, that run in the same direction, to "look right," and then place the others by some such method as indicated in the final Diagram of Figure 67. Then they'll *all* "look right." If they don't—there's something wrong with your "design"—not your geometry! The entire process of projecting perspectives *from working drawings* is presented in the author's work entitled "PERSPECTIVE PROJECTION." You can learn it therefrom in a few hours. Now let's go on with *this* geometry:—

PROBLEM 17: (Figure 68) *To bisect the angle between any two converging lines, a and c, when the vertex is "nowhere in sight."*

Solution 1: (Diagram "1") Vertex just off the board. Project any two lines, *be* and *b'e'*, respectively perpendicular to *a* and *c*. Space off, on each, the same two equal distances as shown. Through the resultant points draw lines paralleling the lines from which the respective perpendiculars were projected. The crossing of these two sets of parallels will form a parallelogram of which the diagonal *DE* is the required bisector *B*.

Solution 2: (Diagram "2") Vertex across the room. From any point *b* on either given line, swing the arc *fg*, and cross this at *e* and *d* with projectors from *b* perpendicular to *a* and *c*. With the compass set to any distance, say *dg*, and with the compass legs adjusted *perpendicular* to the paper, mark off the equal distances *dg* and *ef*. Indent *g* and *f*. Cross *a* at *h* with a line from *b* projected perpendicular to *fg*. Then, since *bh* is the chord of an imaginary arc swung from the inaccessible vertex of the angle, the required bisector *B* of this angle is bound to be the *perpendicular bisector* of *bh*—which is easy! Even so, the given lines may be so slightly inclined to one another as to render this method dubious. Then use *number-three-method*, which'll bisect an angle of no degrees at all:—

Solution 3: (Diagram "3") Vertex over in the next county! Indent any two points the same distance apart on *each* leg of the angle. Call these points *b* and *d*, and *e* and *f*, respectively. Now then—the perpendicular bisectors of the diagonals between these two sets of points will cross at *g*. And *g* is one point on the required bisector *B*. But you need another. Well—either repeat the performance at the other extremity of the given lines—or do this: Swing

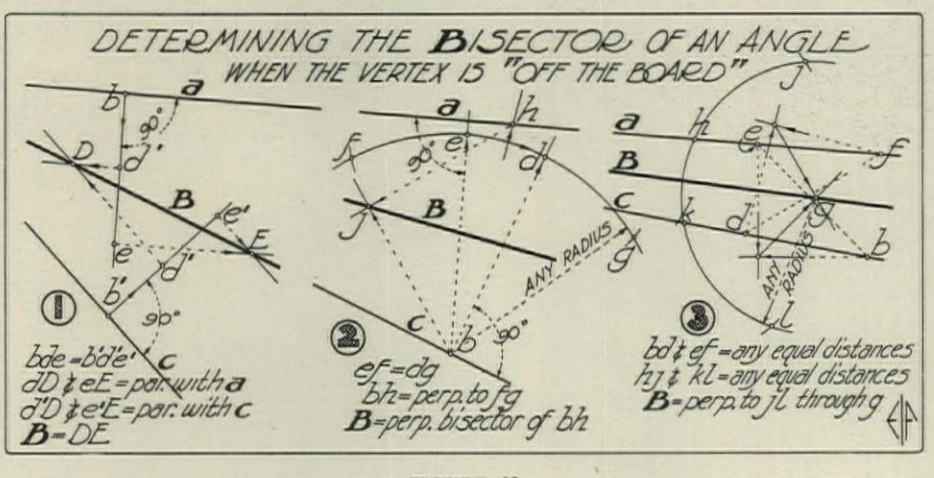


FIGURE 68

a large-radius arc from *g* as a center. Mark off with the compass any two equal distances *hj* and *kl*, as shown. Then project the required bisector *B* through *g* and perpendicular to *jl*—which operation can, as you must now well know, be done with exactitude and dispatch with the "sliding triangles."

But I've saved the "simplest" problem of this bunch of inaccessibility for the finish—for the simple reason that its very simplicity seems to render it simply and completely forgettable. Plenty of cases occur in actual drafting-room practice where arcs of large radius must be drawn from centers off the board. Of course, there's a fairly satisfactory way of drawing circular arcs *without* the center point—I'll show that later on—but, in any case, assume that the center has been "lost." The arc has been drawn, all right, but you now need some radial lines that you didn't think about when your paper was down on the floor. Now the paper is back on the board but the center of that arc is—still down on the floor! Listen hard: *The perpendicular bisector of any chord of a circular arc tends unerringly to the center*—it's a *radial*. Is *that* hard to remember? Well—here goes:

"PROBLEM" 18: (Figure 69) *Through any given point to direct a line to the "lost" or inaccessible center of a given circular arc.*

Solution: I just can't say it—read the drawing. All three cases are shown! However, if the given point occurs at or near either *end* of the arc, this solution is inapplicable—for only one chord point could then be found in the manner indicated. In this extreme case, draw any other *two* radials and then utilize these to materialize the required one by solving Problem 16 heretofore given.

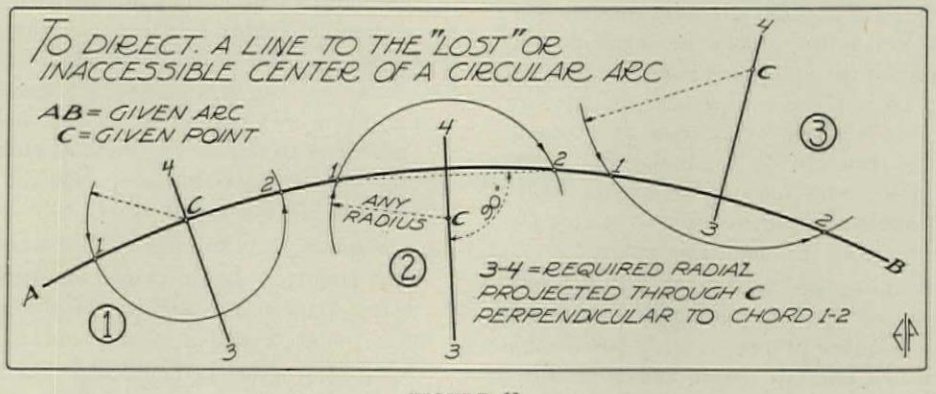


FIGURE 69

PENCIL POINTS FOR FEBRUARY, 1930
VOLUME XI NUMBER 2

This lithograph, measuring 12¼" x 18½" in the original, was drawn during the artist's travels as holder of the Rotch Travelling Scholarship. It is a powerful subject, simply presented, and expresses something of the colossal dignity of Egyptian architecture.

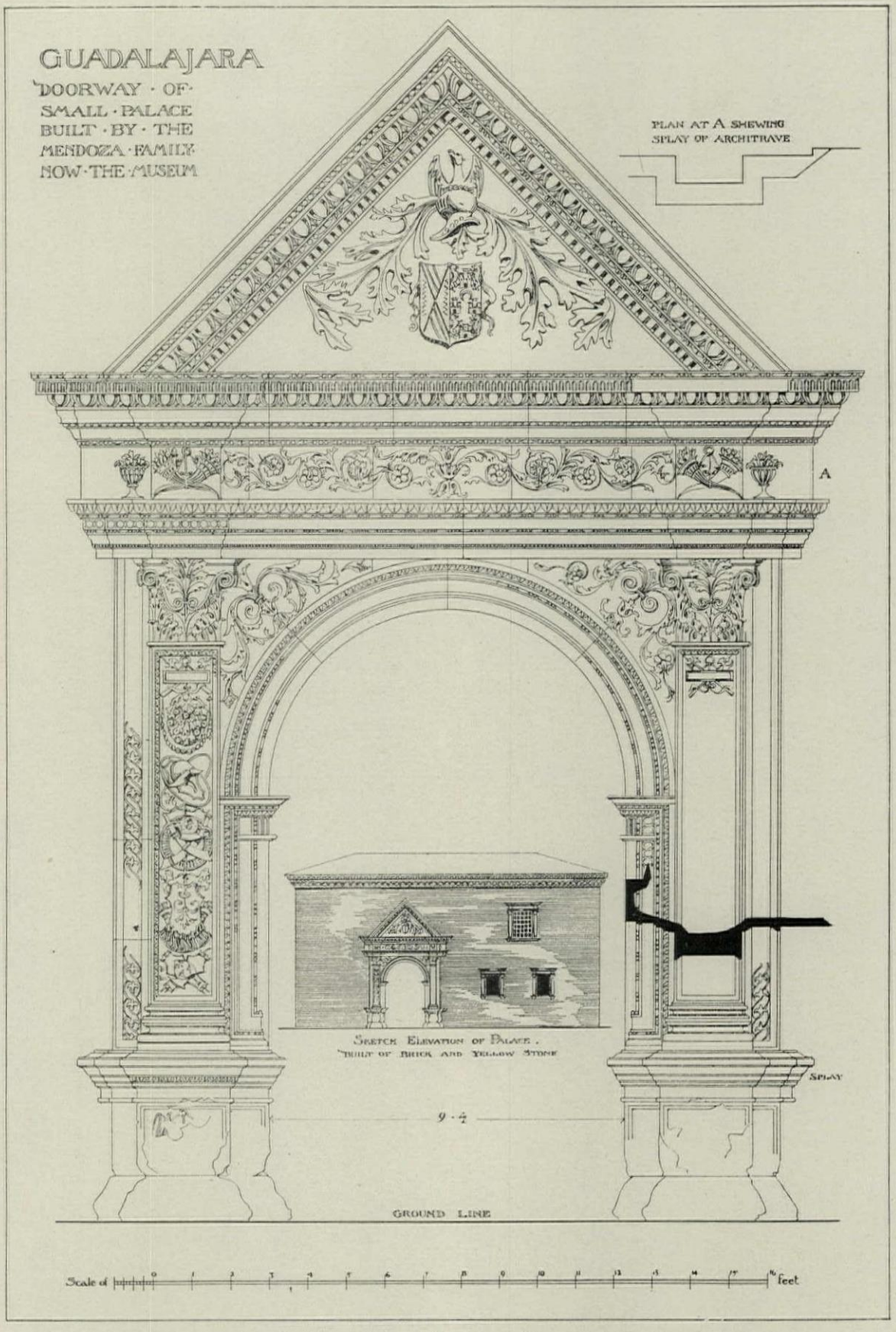
FROM A LITHOGRAPH BY LOUIS SKIDMORE

THE PORTAL AT EDFU

PENCIL POINTS FOR FEBRUARY, 1930
VOLUME XI NUMBER 2

"Although situated in the center of the city, this palace seems to be little known. The doorway given on this plate is to be found in a disused courtyard, and must originally have formed the principal entrance to the palace."

A. N. PRENTICE.



RENAISSANCE ARCHITECTURE AND ORNAMENT IN SPAIN

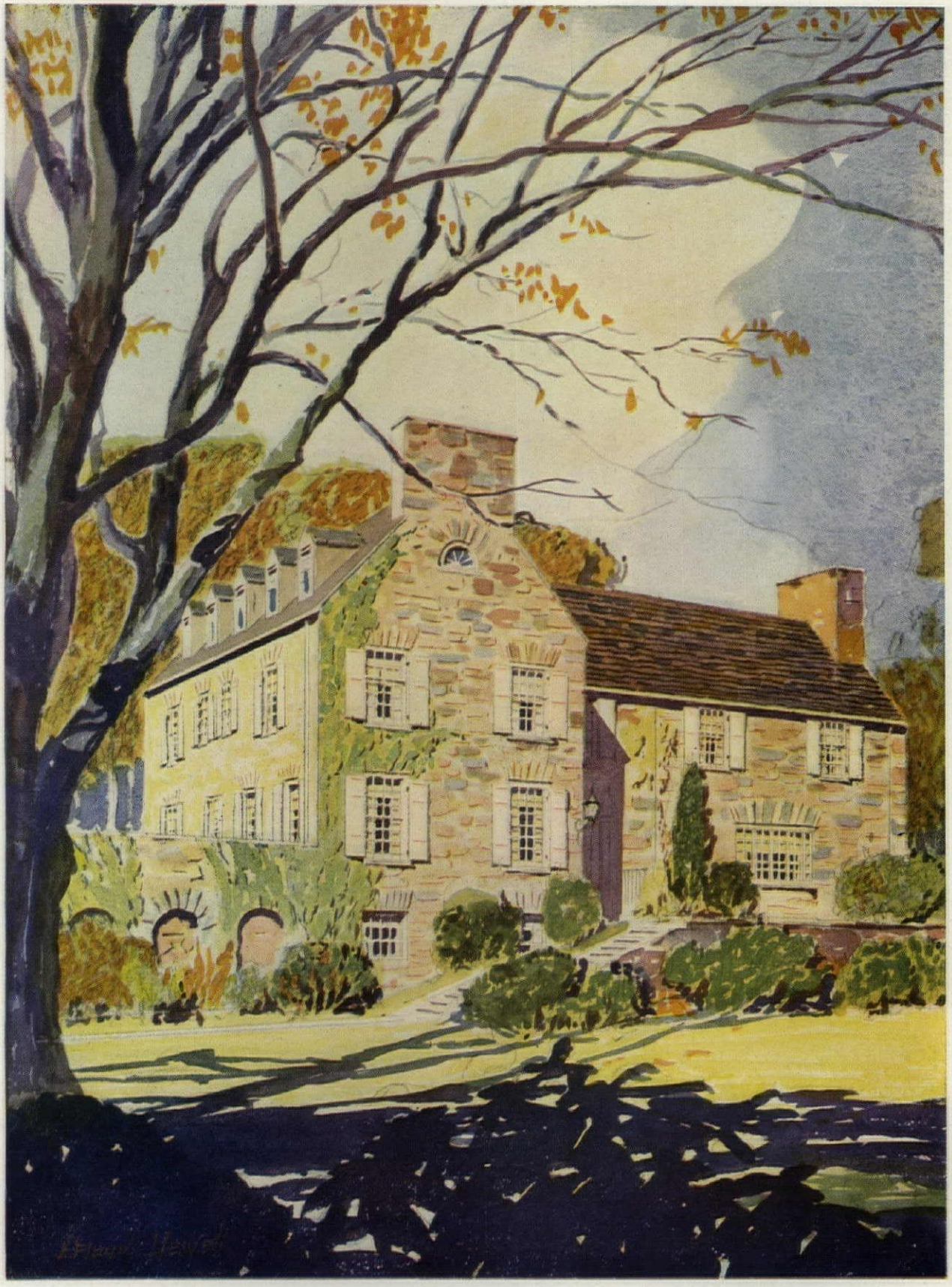
A PLATE FROM THE WORK BY ANDREW N. PRENTICE

PENCIL POINTS SERIES
of
COLOR PLATES

This water-color sketch was made direct from nature with a combination of transparent and tempera colors. The subject is on the Jersey meadows on the way from New York to Newark and in the words of the artist this territory is a rich field for a painter who is looking for scenes of human industry in the rough. There are undoubtedly such subjects to be found near any one of our American industrial cities. The use of chrome orange and vermilion in the sky is unusual but it seems in tune with the rest of the composition. The original drawing measured 10½" x 13¾".

"THE STEEL BRIDGE"

FROM A WATER COLOR SKETCH BY CHARLES A. BRADBURY



RESIDENCE OF HERMAN VAN FLEET, ESQ., SCARSDALE, NEW YORK—EUGENE J. LANG, ARCHITECT

FROM A WATER COLOR RENDERING BY J. FLOYD YEWELL

PENCIL POINTS SERIES
of
COLOR PLATES

Mr. Yewell's familiar, clean-cut, and direct style of rendering in transparent water color is clearly shown by this subject which presents an extremely successful stone residence designed by Eugene J. Lang. The tree and the foreground shadows in cool tones are admirably arranged to enframe the house and its immediate surroundings which are expressed in bright sunny colors. The original, which measured 12" x 16", was made on Canson and Montgolfier's "Lavis" paper. The principal colors used were Raw Sienna, French Blue, Aureolin, Antwerp Blue, Burnt Sienna, and Rose Madder.

Courtesy Goodspeed's, Boston

FROM A DRYPOINT BY SAMUEL CHAMBERLAIN

BOSTON FISH PIER

PENCIL POINTS FOR FEBRUARY, 1930

VOLUME XI NUMBER 2

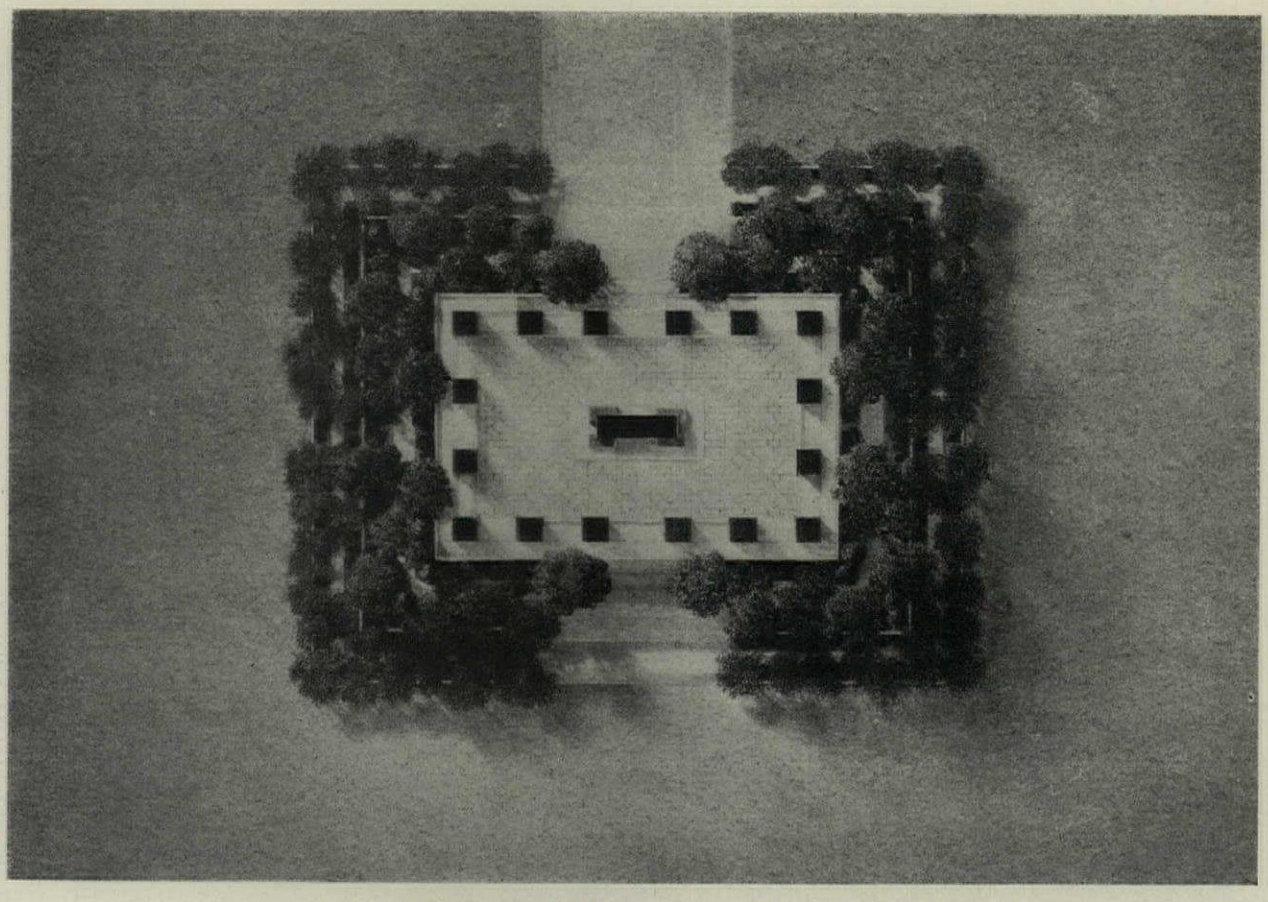
On the other side of this sheet we have reproduced another Boston drypoint by Samuel Chamberlain. It is shown at the exact size of the original print. The subject calls to mind that the waterfront districts of our coastal cities afford a rich field for the sketcher—one which architects and architectural draftsmen would do well to investigate.

FROM PAINTINGS BY FRANK H. SCHWARZ FOR MAGINNIS AND WALSH, ARCHITECTS

SAINTS FOR RIGHT WING OF REREDOS, CHURCH OF THE ASCENSION, WESTMONT, CANADA

PENCIL POINTS FOR FEBRUARY, 1930
VOLUME XI NUMBER 2

These paintings were done in egg tempera with a background of burnished gold with engraved ornament. The colors are pure and high in key. The robe of St. John the Baptist is rose madder and that of St. Andrew is deep blue on the original paintings. St. Theresa's costume is brown and cream with a black veil. The figures are about five feet high. The artist's admirable pencil studies for these figures are shown elsewhere in this issue.



PLAN OF FIRST PRIZE DESIGN BY ERIC GUGLER AND ROGER BAILEY

CHICAGO WAR MEMORIAL COMPETITION

THE WAR MEMORIAL COMMITTEE of the City of Chicago proposes to erect a memorial dedicated to those who served in the great World War. It will occupy a most important position on the shore of Lake Michigan and at the termination of Congress Street, the principal axis of the city of the future. It is the desire of the Committee to obtain a design which, when built, will adequately memorialize the sacrifices and services of all who served in the war and in a manner relating not inharmoniously to the adjacent architectural and landscape elements of Grant Park and the Yacht Harbor.

The Committee desires to erect a memorial of superlative significance and beauty, fully expressive of the City's gratitude to those who served in the great war and of a size and impressiveness appropriate to its site, which is of major importance. With this objective in mind, no cubic limit was laid down in the program. Attention was called, however, to the fact that there are practical limits to the amount of money which can be devoted to a war memorial and each competitor was asked, therefore, to bear in mind the relation of the probable final cost of his design with those of the war memorials in other great American cities.

The competitors were referred to a plat which indicated the development of Grant Park, present and future, and to which the war memorial will be related. Necessary grades, heights, and information concerning the present physical appearance of the site and its surroundings were furnished the competitor.

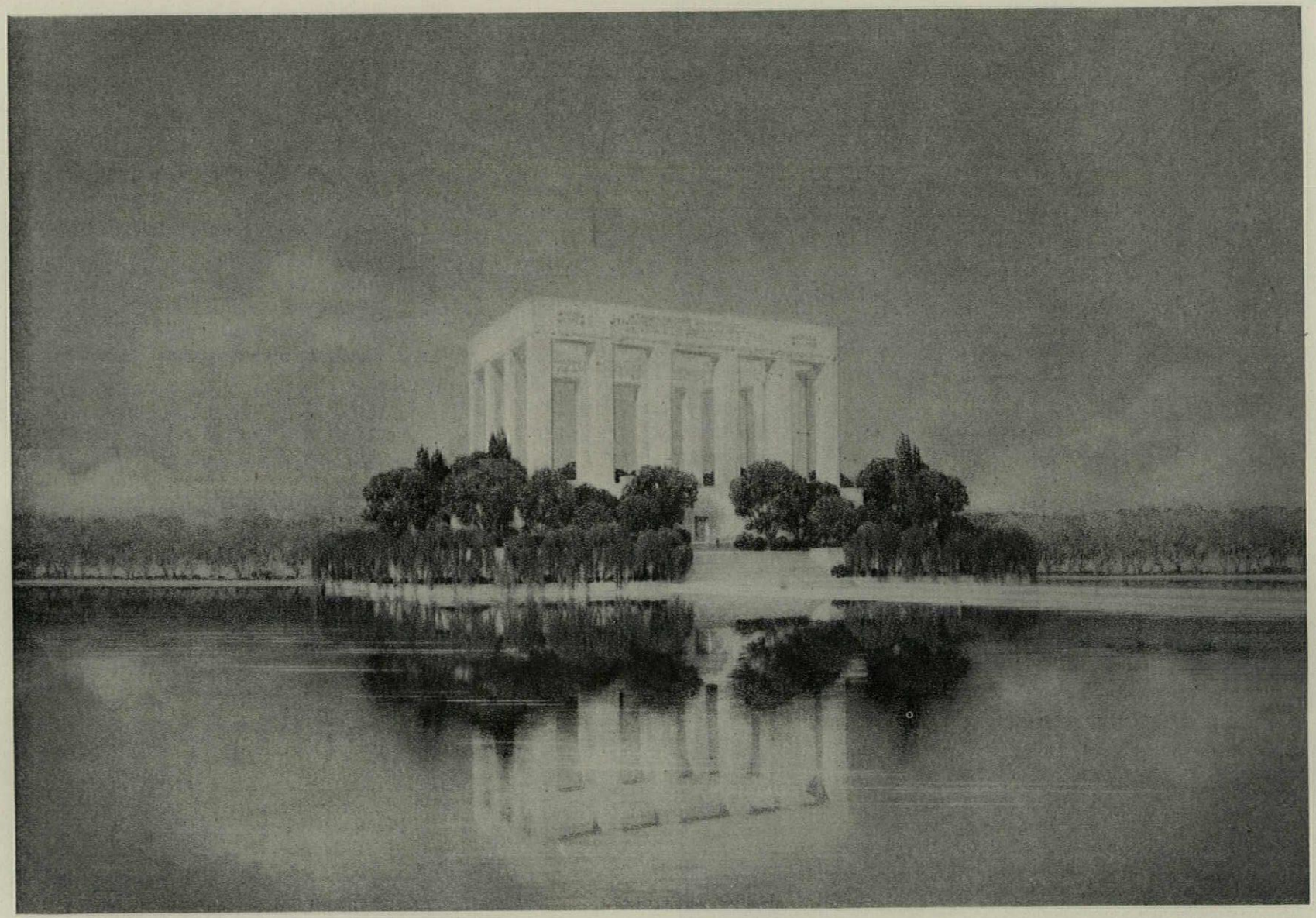
Competitors were informed of the fact that numerous injunctions had been issued in the past preventing the erection of buildings in Grant Park intended for various purposes, but that several decorative structures, such as the Buckingham Fountain, Entrance Pylons, and so on, had been permitted. Nothing in the program was to be interpreted as indicating a preference for any particular scheme. On the contrary the Committee wished that the Jury be given opportunity of the broadest possible choice.

The Jury of Award consisted of the following lay members: W. Rufus Abbott, Col. Robert R. McCormick, Col. Howard P. Savage, James Simpson, and Col. Albert A. Sprague; and the following architects: Harvey W. Corbett, Ernest R. Graham, John Mead Howells, and Dean Everett V. Meeks.

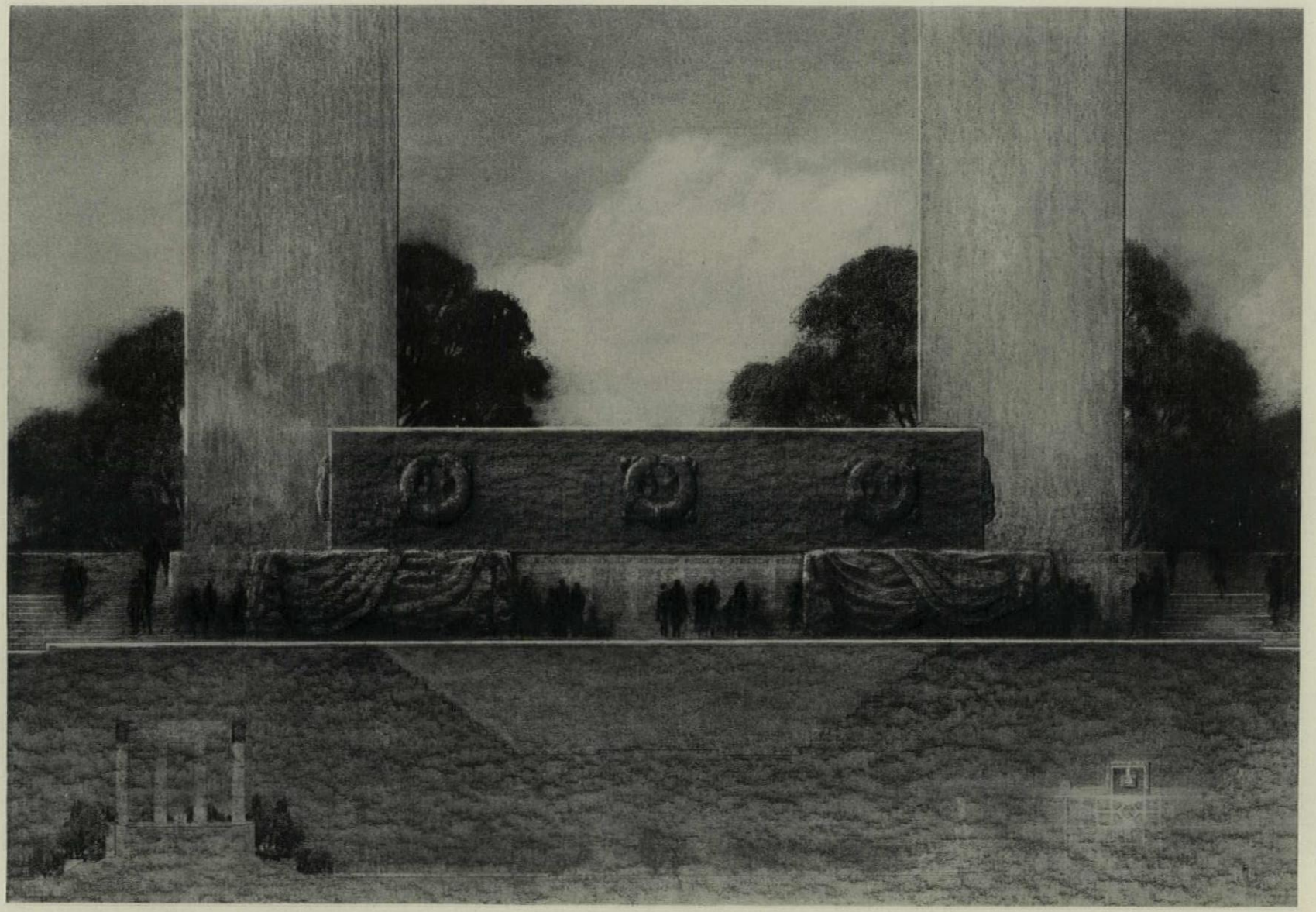
A prize of $20,000 will be paid the winner of the competition; for the second prize design a cash prize of $5,000 will be paid.

The winning design is shown above and on the following pages, as well as some of the other designs submitted in the competition.

A complete report of the Jury of Award was published on page 45 of the January PENCIL POINTS.

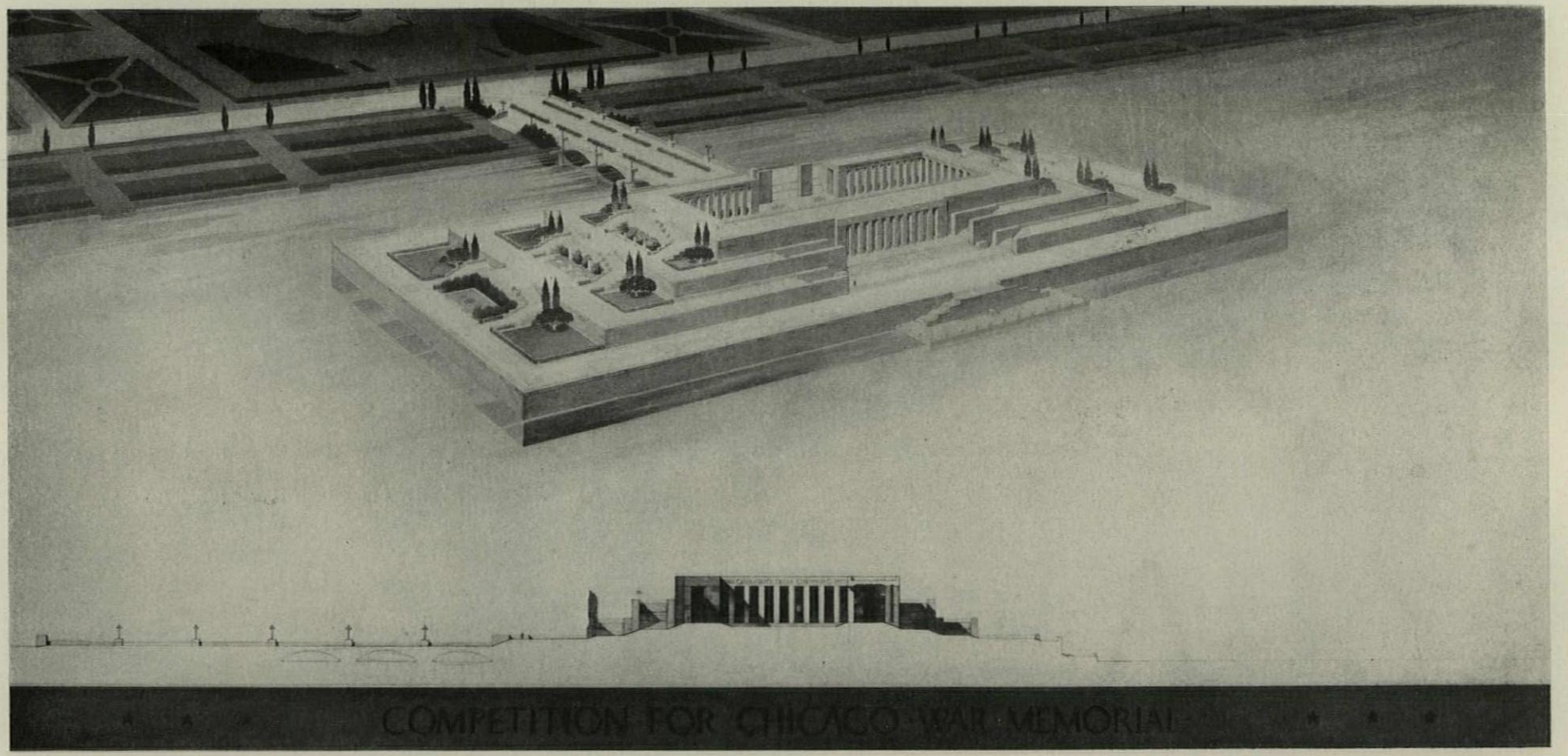


PERSPECTIVE OF FIRST PRIZE DESIGN BY ERIC GUGLER AND ROGER BAILEY
WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO



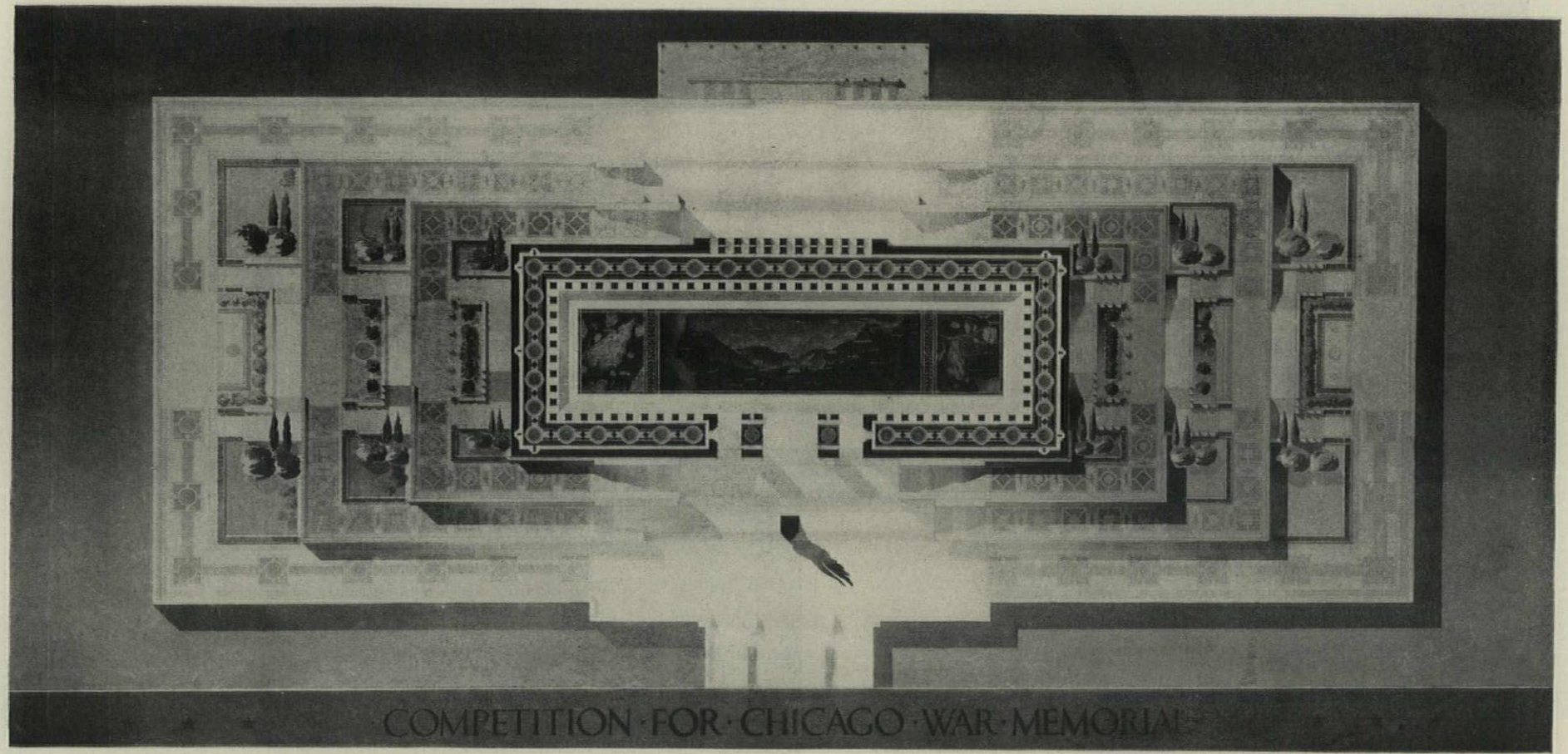
DETAIL OF SARCOPHAGUS, FIRST PRIZE DESIGN BY ERIC GUGLER AND ROGER BAILEY

WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO



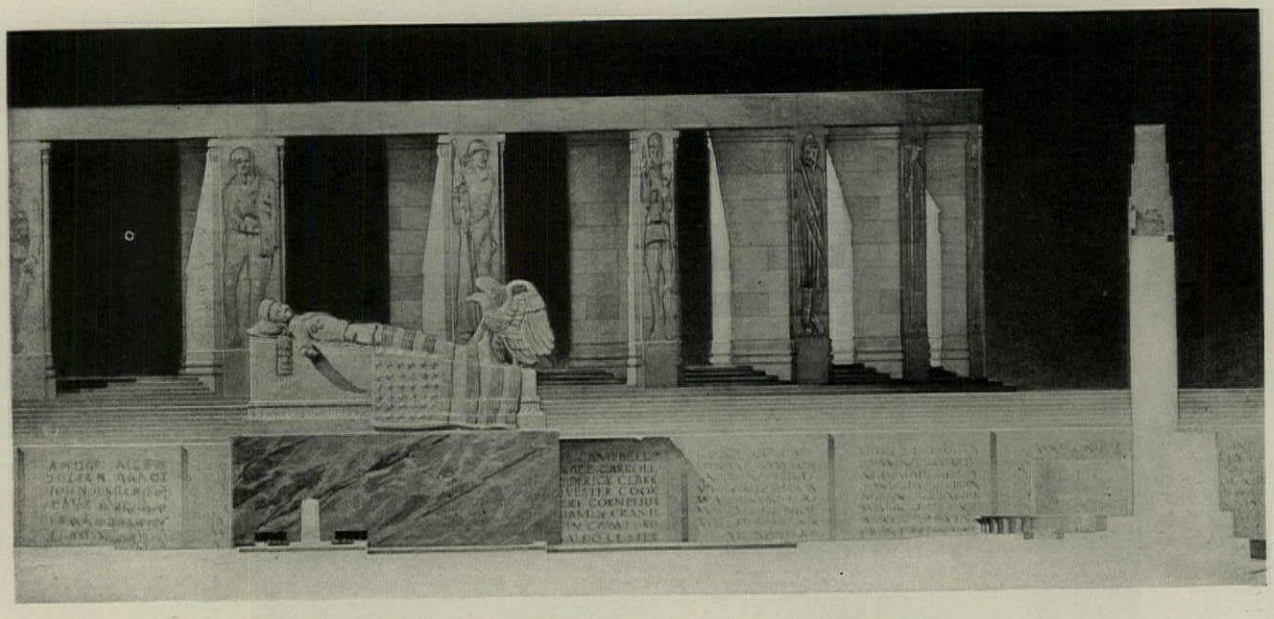
PERSPECTIVE OF SECOND PRIZE DESIGN BY BENJAMIN H. MARSHALL

WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO

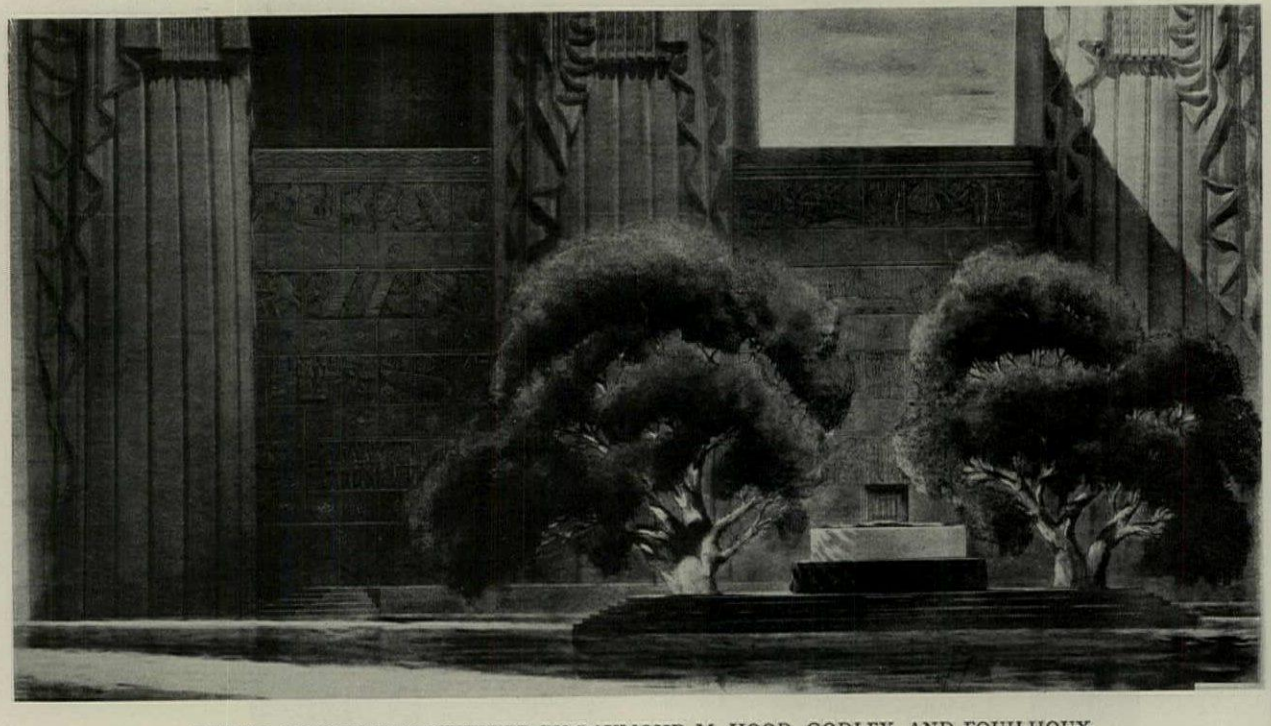


PLAN OF SECOND PRIZE DESIGN BY BENJAMIN H. MARSHALL

WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO

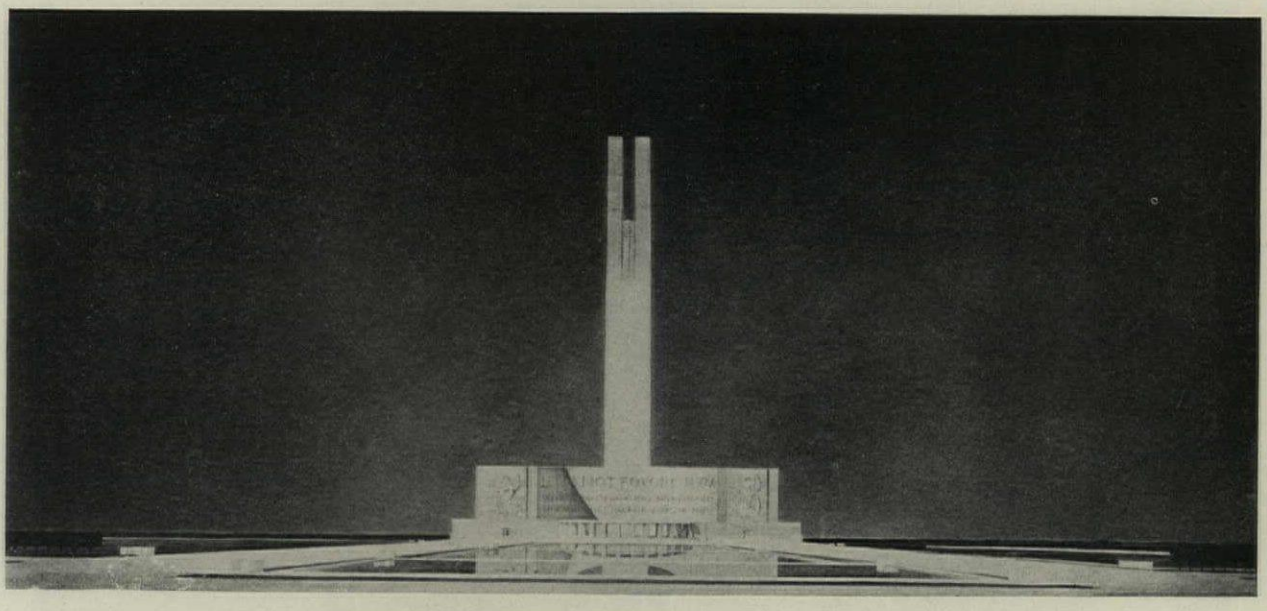


DETAIL OF DESIGN SUBMITTED BY LIONEL H. PRIES



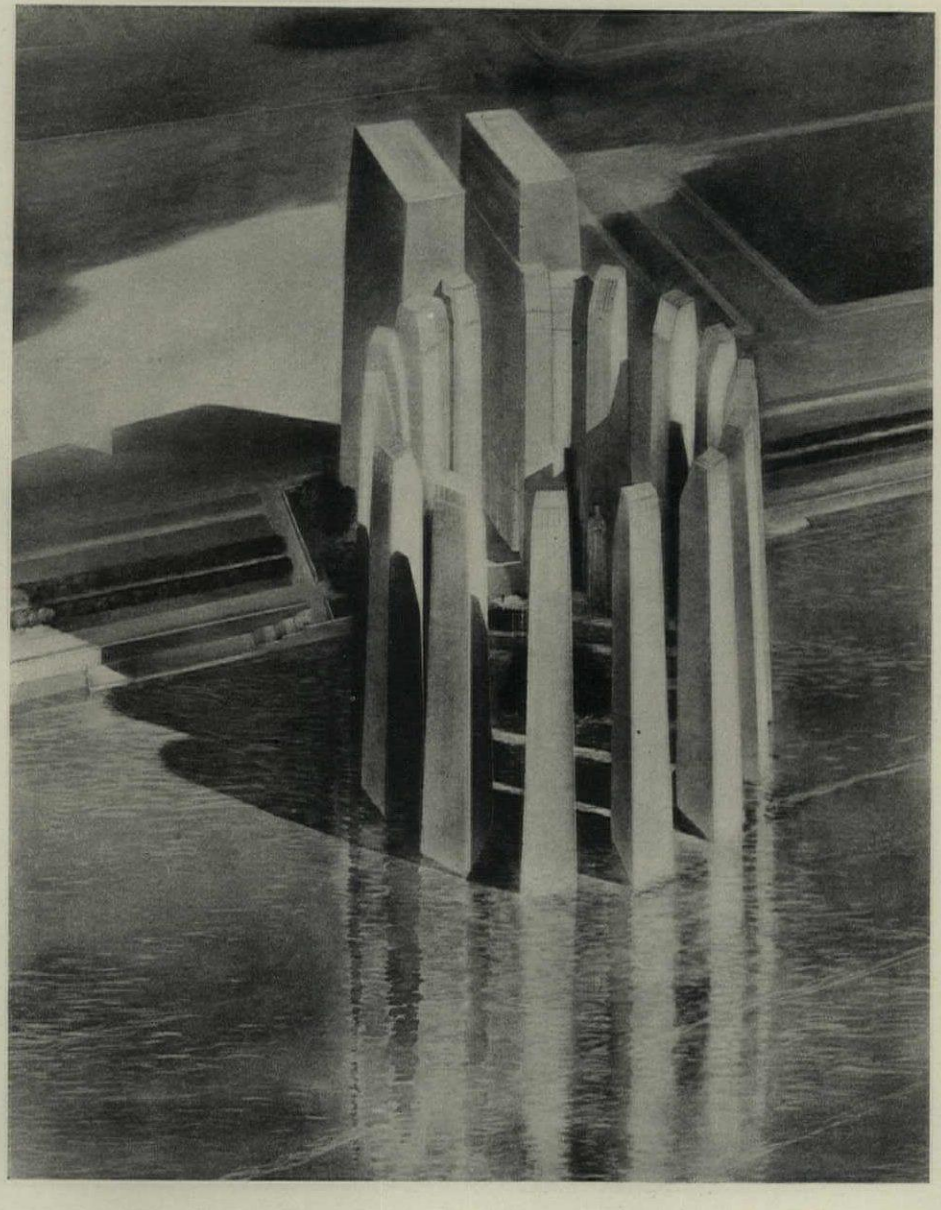
DETAIL OF DESIGN SUBMITTED BY RAYMOND M. HOOD, GODLEY, AND FOUILHOUX

WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO

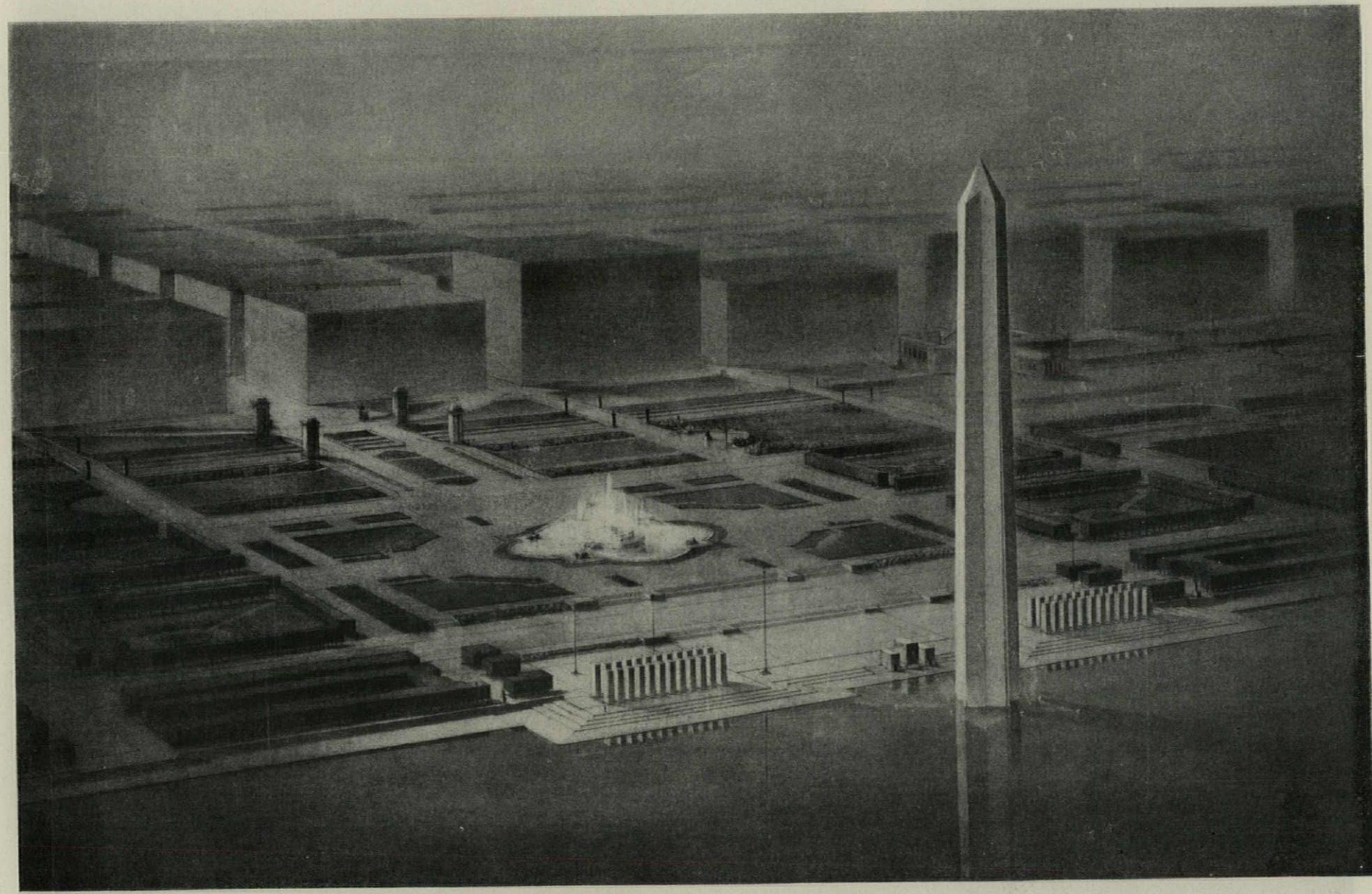


ELEVATION OF DESIGN SUBMITTED BY LIONEL H. PRIES

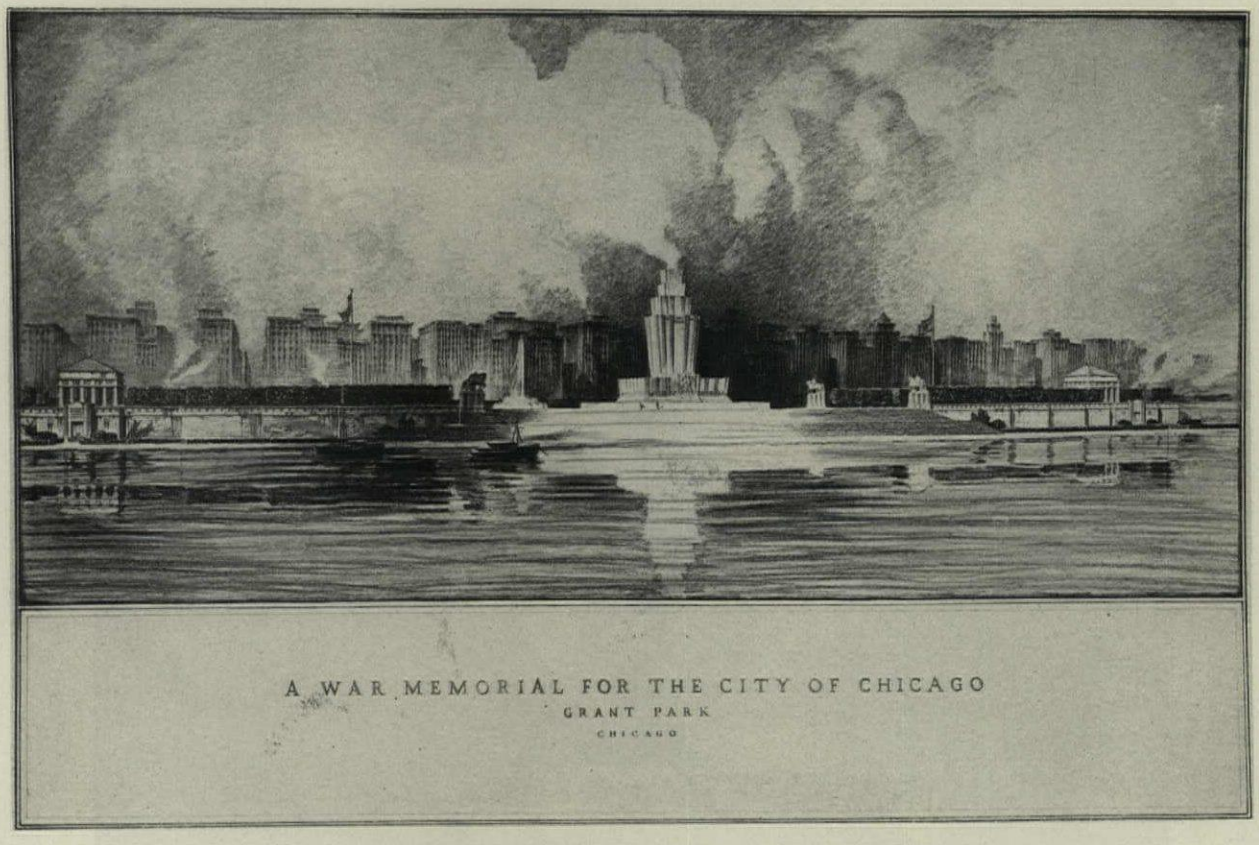
PERSPECTIVE OF DESIGN SUBMITTED BY RAYMOND M. HOOD, GODLEY, AND FOUILHOUX



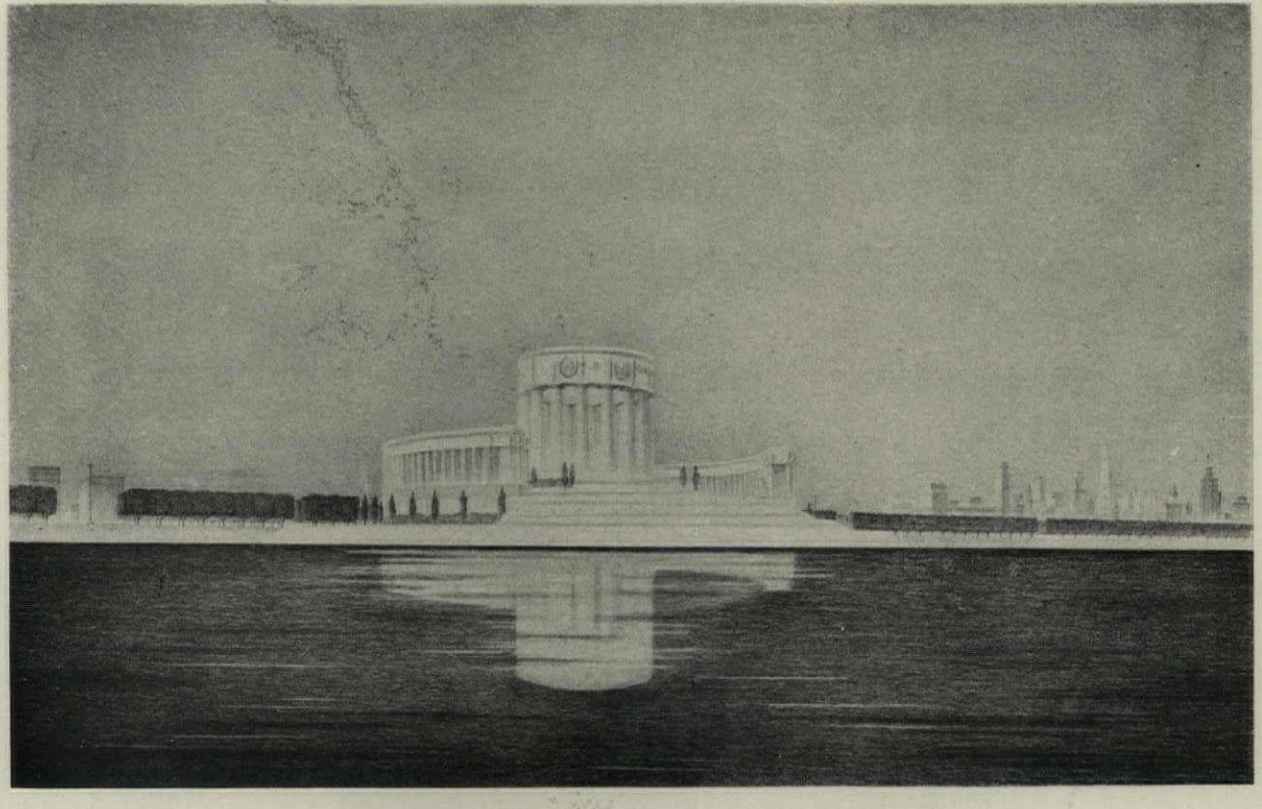
WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO



PERSPECTIVE OF DESIGN SUBMITTED BY HAMILTON, FELLOWS, AND NEDVED

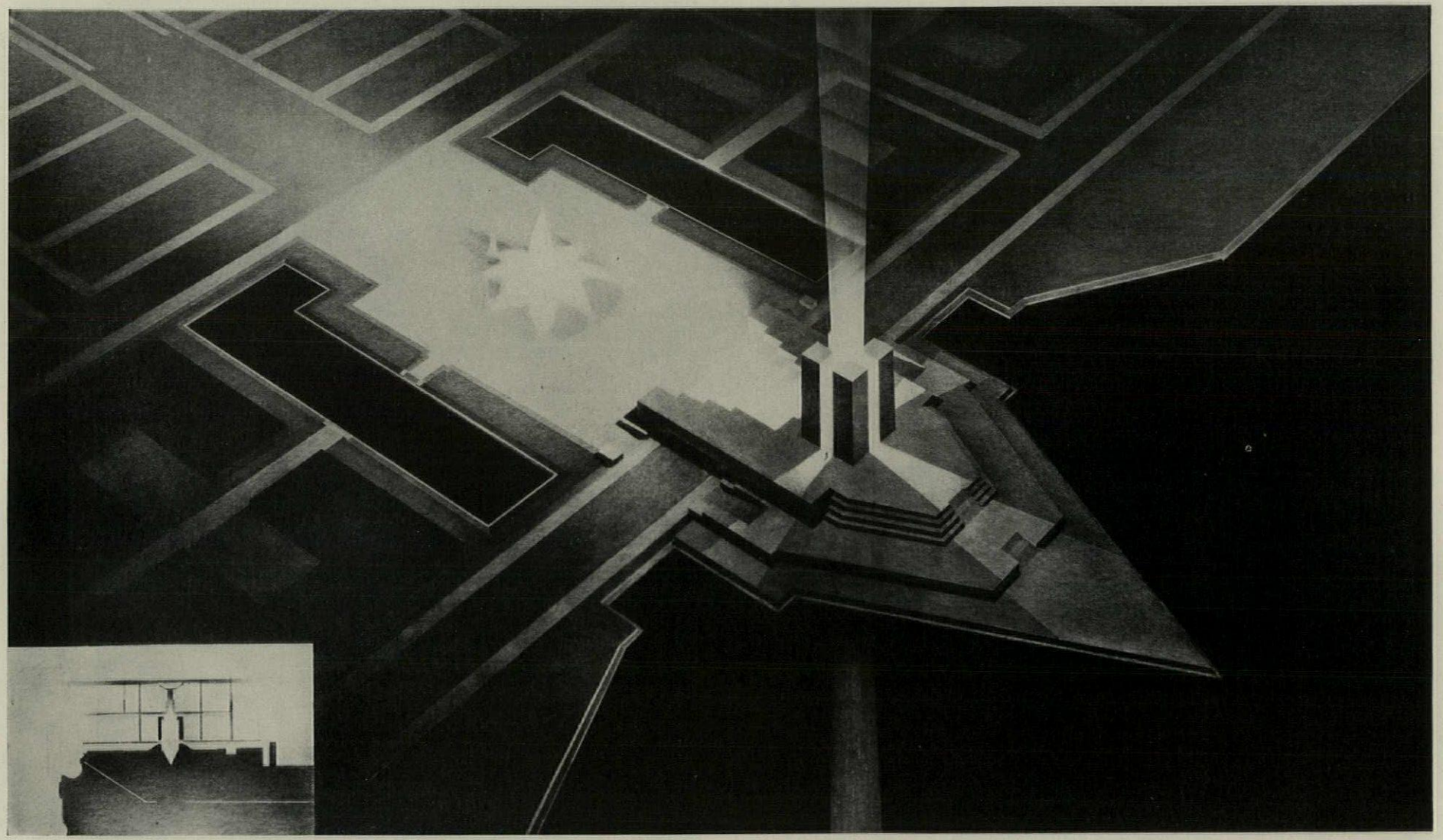


PERSPECTIVE OF DESIGN SUBMITTED BY LORIMER RICH



PERSPECTIVE OF DESIGN SUBMITTED BY SYLVESTER MAR

WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO

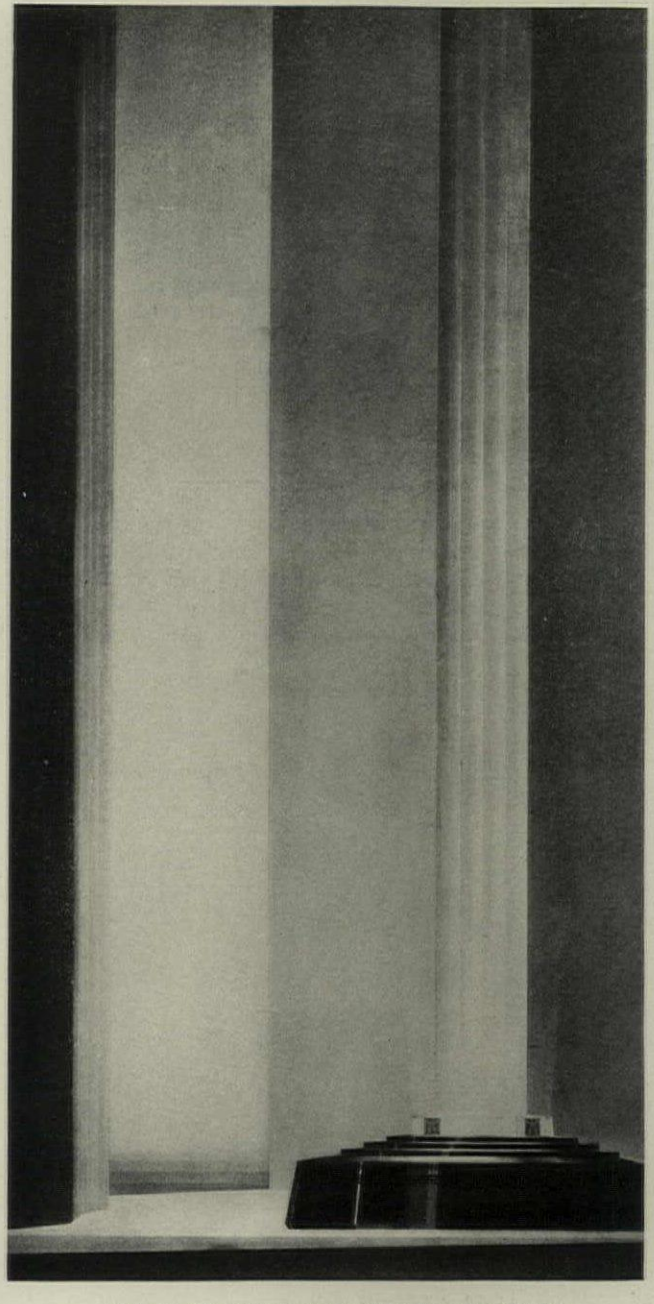


PERSPECTIVE OF DESIGN SUBMITTED BY HOLABIRD AND ROOT

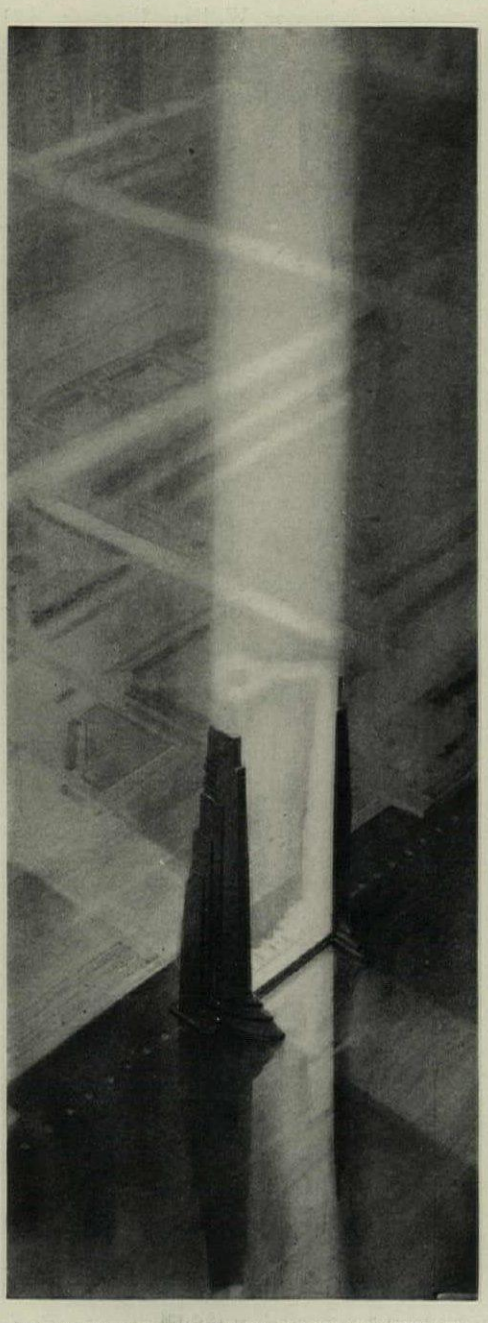
WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO

DETAIL OF DESIGN BY BENNETT, PARSONS, AND FROST—DONALD NELSON AND EDGAR LYNCH, ASSOCIATES

(See perspective below)



DETAIL OF DESIGN BY HOLABIRD AND ROOT



PERSPECTIVE, DESIGN BY ABOVE ARCHITECTS

WAR MEMORIAL COMPETITION FOR THE CITY OF CHICAGO

COMPETITION FOR TWO SCHOLARSHIPS

Two SCHOLARSHIPS of four hundred dollars each are offered in the academic year 1930-31 for *special students* in the third or the fourth year of the course in Architecture at the Massachusetts Institute of Technology. They will be awarded as the result of a competition in design under the direction of the Committee on Design in the Department of Architecture.

The competition is open to citizens of the United States of good character, who are between twenty-one and twenty-eight years of age, and who have had at least three years of office experience.

The competition will be held from May 17 to May 26.

Competitors are allowed to prepare their drawings wherever conditions conform to the requirements of the Committee, but these drawings must be sent to Boston for judgment.

Applications should be received on or before April 14, addressed to Professor William Emerson, 491 Boylston Street, Boston, Mass.

THE JAMES TEMPLETON KELLEY FELLOWSHIP IN ARCHITECTURE

A FELLOWSHIP WITH an income of $2,500 for one full year has been established by Mrs. James Templeton Kelley in memory of her husband. The Fellowship is to be administered by the Boston Society of Architects (a Chapter of the American Institute of Architects) and is to be assigned to an individual of proved ability, whether a student, an instructor, a draftsman, or a practicing architect, for foreign travel for the pursuit of advanced studies in architecture. It is open to any American man or woman residing within the area under the jurisdiction of the Boston Society of Architects (Maine, New Hampshire, Vermont, and Massachusetts) and is to be awarded annually on the basis of evidence submitted by the applicant, and otherwise secured by the Committee on Education of the Boston Society of Architects. The Executive Committee of the Boston Society of Architects makes the award on the recommendation of the Committee on Education of the Society. The holder is eligible for re-appointment. If, in any year, no suitable candidate appears, the sum available is to be set aside as a separate fund which may be used to defray expenses incurred in publishing the results of the work produced by any of the James Templeton Kelley fellows, or for other purposes connected with the Fellowship. In any year, the Committee may reserve a part of the income, not exceeding $500, to defray expenses incurred in the administration of the Fellowship.

Applications for the year 1930 should be in the hands of J. Lovell Little, Chairman of the Committee on Education of the Boston Society of Architects, 20 Newbury Street, Boston, on or before January 20, 1930.

COMPETITION FOR THE A. W. BROWN TRAVELLING SCHOLARSHIP

ANNOUNCEMENT IS MADE of the third competition for the selection of a beneficiary for the A. W. Brown Travelling Scholarship, this competition to be held under the direction of a committee of the American Institute of Architects. Programs will be mailed to approved applicants about March 14th, 1930, drawings to be delivered on or about April 14th, 1930.

This Scholarship is the gift of Ludowici-Celadon Company and is a memorial to the late A. W. Brown, who was for many years president of that company.

The value of the scholarship is Two Thousand Dollars, to be used towards defraying expenses of a year of travel and study in Europe by a worthy and deserving architect or architectural draftsman. Travelling expenses between the winner's place of residence and the port of New York will be paid in addition to this amount.

An award of Two Hundred and Fifty Dollars will be made to the person whose design is placed second in the competiton; One Hundred and Fifty Dollars to the person whose design is placed third; and One Hundred Dollars to the person whose design is placed fourth.

Under the terms of the gift the selection of the beneficiary of this scholarship is to be made by means of a competition to be held under the direction of a committee of the American Institute of Architects, the drawings to be judged by a jury of from three to five practicing architects chosen by that committee. The general requirements of the problem given for the competition will be similar to those of the Class A problems issued by the Beaux-Arts Institute of Design. In making the award of the scholarship the committee will give due consideration to the personal qualifications of the competitors as well as the excellence of the designs as judged by the jury.

It is also stipulated by the donors that the competition shall be open to any architect or architectural draftsman who is a citizen and resident of the United States; who has never been the beneficiary of any other European scholarship; who has passed his twenty-second but has not passed his thirty-second birthday on May 1st, 1930; and who has been in active practice or employed in the offices of practicing architects for at least six years, or, if a graduate of an architectural school, at least two years since graduation.

Those wishing to compete should write for application blanks to the secretary of the committee, Wm. Dewey Foster, 25 West 45th Street, New York.

NOTES FROM DETROIT

FEW CHANGES IN position of teams have been made since we last heard from the Detroit Architectural Bowling League. If the boys continue to roll as consistently during the second half of the season, no doubt the lineup at the finish will be very similar to that given below.

We have heard nothing from New York or Cleveland this year. Where, oh, where are those wandering boys tonight?

The team standings on Jan. 10th follow:

	W.	L.
McGrath & Dohmen	34	14
Robert O. Derrick, Inc.	31	17
Albert Kahn	30	18
Mueller & Krecke	27	21
Smith, Hinchman & Grylls	24	24
Weston & Ellington	22	26
Donaldson & Meier	21	27
Malcomson & Higginbotham	19	29
Van Leyen, Schilling & Keough	18	30
Louis Kamper	14	34

High Individual Score—1 game — Thompson (A. K.)	267
High Individual Score—3 games— Stegkamper (L. K.)	657
High Team Score—1 game — Albert Kahn	1052
High Team Score—3 games— McGrath & Dohmen	2864

THE COLORED LIGHTING OF THE BARCELONA EXPOSITION

By C. J. Stahl
Member of the Illuminating Engineering Society

THE COLORED FLOODLIGHTING of the International Exposition at Barcelona, Spain, is notable as viewed in its co-ordinated qualities, or in *parti*. The art of painting with light is far from being fully cultivated and applied. However, a sensitive appreciation of its potentialities is growing, and apparently on sound judgment.

Fortunately, those specializing in artificial illumination often perform their duties in collaboration with architects and artists and few, if any, glaring misapplications of colored lighting on a large scale are to be found. Architects in general may be said to be somewhat reticent on the use of artificial colors in the floodlighting of buildings. This disposition is natural and not difficult to understand.

Traditions and established custom must not be encroached. Without restraint, the enthusiasm engendered as one becomes intimate with the subject, easily flames into over-enthusiasm, prolific of blunders. On the whole, moderate restraint is respectfully accepted by the experienced illuminating specialist, who realizes that it tends to a healthy condition in the long run.

The artist who treats with more abstract forms and less with structural composition, on the other hand, is usually quite ready to apply colored light generously and apparently finds no great need for caution or great conservatism to keep within the bounds of æsthetic propriety.

Whatever may be the true use of colored light to building exteriors, it is certain that building owners are becoming enthusiastic and easily convinced on the relatively meagre evidence already extant in most of our large cities. And whatever the architect's viewpoint may be, it is assured that an opportunity to view the lighting of the Barcelona Exposition proves a gratifying experience. This is true with regard to the colored lighting of façades, as well as the beautiful mobile colors of the cascades, fountains, and many of the other decorative elements.

The International Exposition at Barcelona, Spain, features mobile color lighting on a scale several times larger than any similar display hitherto produced. This is true both as to the quantity of colored light employed and the extent of the area over which co-ordinated sequence in the color changes is maintained. Those who visit the Barcelona Exposition see an exceedingly beautiful spectacle of outdoor color lighting never before approached from the standpoint of widespread synchronized mobility both as to colors and intensities.

The exhibition site is on the gently sloping side of Montjuich immediately on the outskirts of the city of Barcelona. It is on the side towards the city and at an elevation considerably higher than most of the area within the city limits, so from almost any position within this large city of 1,000,000 population the beauty of the exhibition's lighting may be seen each night. The opposite side of the mountain falls off rather precipitously into the blue expanse of the Mediterranean.

A bird's-eye view of approximately one-fourth of the Exposition grounds is seen in Figure 1, which is here included to show only the central area or main avenue of the Exposition, since in this central area the major color effects are found. From the entrance to the National Palace is a distance of 600 meters and in width the avenue varies from 65 meters to 300 meters at the point where it widens out into a colorful plaza.

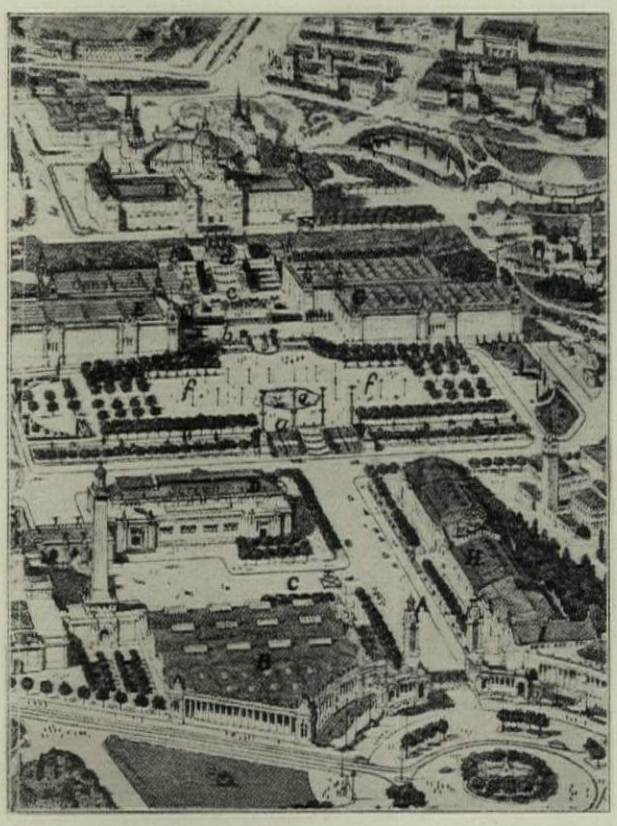


FIGURE 1—BIRD'S-EYE VIEW OF ABOUT ONE-FOURTH OF THE EXPOSITION GROUNDS

At the bottom of Figure 1 is the Plaza Espagne, where for one peseta — about fifteen cents at present exchange —one enters through the massive stone gateway and proceeds up the Avenida de Americas which is flanked with palatial structures housing exhibits. There are in all fourteen palatial buildings on the Exposition grounds. At the upper end of the Avenida de Americas is Cascade No. 1. Ascending the stairs at either side

FIGURE 2—DAY VIEW OF CASCADE NUMBER ONE

we reach the extensive Plaza de Bellas Artes with the Great Fountain at *e*. At points *ff* are two secondary fountains. Next we come to Cascade No. 2 at *b*. Ascending the stairs here we reach a terraced space in two levels with the Palace of Alfonso XIII on the left and the Palace of Queen Victoria on the right. Farther on is Cascade No. 3 at *c* and Cascade No. 4 at *d*. Between the two is a space of 40 meters with esplanades to right and left. Overtowering all this central area is the beautiful National Palace.

This central area presents a colorful panorama consisting of cascades, fountains, glass ornaments, transilluminated. There are also many luminous urns as well as flower and incense pots.

The composite effect cannot be comprehended in a word picture but in its essential parts it consists of the following:

1. There is an aurora of searchlight beams from twenty-four 36″ 150-ampere searchlights placed back of the dome of the National Palace.

2. There are four cascades which are illuminated in mobile colors so that the color seems to flow down like the water that carries it but slower.

3. There are more than fifty fountains all fully illuminated and controlled so that color changes may be synchronized with the changing colors of the cascades.

4. There are approximately two hundred glass columns of various shapes and in addition many urns, flower pots and fire pots most of which can be synchronized in like manner.

5. The façades skirting the area are illuminated in white light or colors, at choice.

6. In the top of the tower *A* at the entrance is the central control station for all mobile lighting. This is the nerve center from which through three underground substations all control circuits radiate. Substation No. I is to the left of the center of the Avenida de Americas. Substation No. II is to the left between the second and third cascades and Substation No. III is under the right front corner of the National Palace.

Spain's greatest architects, engineers, and landscape gardeners joined hands in transforming the sloping exposition area into a series of terraced gardens where luxuriant trees, beautiful flower beds, fountains and statuary adorn the grounds on which are fourteen spacious structures to house the exhibits. Because of the inadequacy of words to describe the complete picture let us take an imaginary stroll from the front of the National Palace at the summit of the central area toward the Avenida de Americas.

Upon leaving the Palace entrance it is observed that the whole exterior of this imposing edifice is bathed in soft colors originating from sources not readily discovered. Being more than normally inquisitive, we find that about the Palace are standards, each bearing three banners. These banners are of luminous painted fabric and hung so that six floodlighting projectors, each with a 1000-watt lamp, are concealed, being shielded from view on three sides. These projectors furnish either blue, red, or white light, there

being two for each of these colors. This light is supplemented by light from many floodlights mounted in recesses and concealed by decorative stone work over the façades, the dome, and towers.

Assuming that at the moment the whole palace is flooded with blue light it soon becomes apparent that some change is taking place. The blue dawns into a lighter blue and gradually it becomes a delicate blue tint followed by a daylight blue effect as the white units reach "full bright." The bluish tint then completely disappears and a little later a pink suggestive of the evening sky creeps into the white and this slowly deepens as the red units are brought to full brightness and the white units are dimmed.

The floodlighting of façades, domes, and minarets is accomplished mostly by light directed upward. This creates shadows, and these, as well as small arches, niches and other architectural indentures are lighted from concealed sources, in soft contrasting colors to accentuate the architectural embellishments both by depth and color contrasts. Yellow, red, and light green are used most for this purpose.

Suddenly from back of the great central dome of the National Palace an aurora of colored searchlight beams fans out over the heavens. Twenty-four 36-inch, 150-ampere arc searchlights have come into action. These were specially designed to produce a far-flung canopy of colored light over the gorgeous lighting display confronting the observer when looking from the Palace in the direction of the Avenida de Americas. The aurora, of course, is seen to best advantage when viewed from the foot of this avenue. As the aurora radiates upward into the heavens, the ground display is a great stream of color consisting of the cascades, fountains, crystal columns, and the various other ornamental shapes constructed of paneled glass with lamps within. All are aglow with colored light, which progresses through consecutive dimming and brightening so that it seems to flow down the inclined central area. The effect is that of a mammoth staircase almost a half mile long illuminated with slowly moving waves of color. Blue, for example, starts from the National Palace at the top and moves slowly down. When the blue has gone 200 meters the effect of a mixture of red appears which gradually changes to pure red. Green follows and then white which holds until the advancing colors have reached the lower end of the Avenida de Americas, the time consumed being twelve minutes. By pressing a button at the central control station, the entire cycle is repeated. At this station one or more artists will supervise the composition of the almost endless variety of color combinations of which twenty may be set up in advance. Recalling that the color panorama of the central area takes in four cascades, three large fountains and more than fifty small ones as well as some two hundred or more glass ornaments, a most beautiful effect in mobile colors is produced. In addition, from the colored lighting of façades bounding the central area which can be carried forward in steps to co-ordinate with the mobile progression and from the changing aspects of the fountains due to great flexibility in hydraulic controls, we begin to picture a spectacle of supereminent beauty.

FIGURE 3—20 SCENE MULTI-PRESET SWITCHBOARD

Here are the artist's brushes, each for a given color, and applied to predetermined areas, but the stroke varies the color intensity by dimming or brightening the lamps.

In the preliminary studies leading to these extraordinary effects, it was recognized that no commonplace display could greatly impress the enlightened public of this day. It is becoming increasingly more difficult to create a thrill. Beautiful effects are seen in theatres, the movies, in electric advertising signs, at pageants, expositions, etc., until we seem surfeited almost to the deadening of our sensibilities. To this indifferent public it is necessary to present a phenomenon to break the hard shell of indifference. To do this the following fundamental qualities must be emphasized:

1. Harmony in proportions and colors.
2. Colossalism.
3. Mystery.
4. Novelty.

Particular care has been exercised in the first quality. A liberal budget and eight years in building made possible a full measure of the second quality but the third and fourth offered serious difficulties. Due to the topography of the grounds, it was very difficult to hide light sources completely. From the National Palace one looks down on the Great Fountain in Figure 1, so there is a tendency to exposed light sources from this viewpoint. The same is more or less true of many of the other light sources. This condition made necessary many preliminary tests which were made in an improvised laboratory in the cellars of the Palace of Alfonso XIII and afterwards confirmed by trials on a small scale at the points of actual emplacement.

Continuing the imaginary stroll, numerous glass columns are seen in the space fronting the National Palace. From this level there are two wide stone stairways with substantial stone balustrades on the pillars of which are approximately sixty large urns filled to overflowing with fruits and flowers of glass in their natural colors made luminous from light within the urns. The soft

CASCADE NUMBER ONE AT NIGHT

CASCADE NUMBER TWO AT NIGHT

CASCADE NUMBER THREE AT NIGHT

CASCADE NUMBER FOUR AT NIGHT

ILLUMINATED CRYSTAL ELEMENT

random light from these adequately illuminates the stairs. Between the stairs a river of water appears and breaks forming Cascade No. 4, then disappears for a space of 40 meters and breaks forth again in Cascade No. 3. In the intervening space are four very large columns of paneled glass made luminous. There are, also, through the esplanades to both sides various other large ornaments. Some are in the shape of artichokes, others suggest stalagmites, but most of them consist of flat glass panels in modernistic mode.

Cascade No. 3, of beautiful contours, falls to the level *c*, Figure 1. The lighting of this cascade differs from that of Cascade No. 4, the former having separate units for each color while the latter has one set of clear units with color screens which are driven by motors remotely controlled in synchronism with the color progression. The position of each color screen is indicated at the central control station.

At the foot of Cascade No. 3 is a terraced space in two levels. On the upper level are found two large paneled glass ornaments shaped like pineapples. These are illuminated from projectors within, directed upwards. Seven circular bands of color may be had or the entire ornament may be one color at the will of the operators. There are also in this space four clusters of glass spikes, Figure 9, suggesting giant castuses in modernistic fashion. The last six ornaments described require a total of 40 kw. capacity in reactors. The façades to both sides of this plaza are softly illuminated in either white, red or blue. The lower level of this plaza is in a similar manner beautifully ornamented.

Between Cascades 1 and 2, the space *f-f* in Figure 1, is the Plaza de Bellas Artes. Here are six large columns and a great variety of ornamental forms fabricated of paneled glass aggregating a total connected load of 700 kw.

In the center of this space is the Great Fountain which is especially noteworthy because of its size, the volume of water and light employed and its great flexibility both as to hydraulic and lighting effects. Its basin measures 64 by 48 meters. The flow of water is 2600 liters per second (42,000 gals. per minute) actuated by five pumps driven by 1100 hp. of motors. The center jet having a 13-centimeter (5-inch) orifice spurts a shaft of water more than 30 meters into the air which is illuminated by a battery of twenty-four incandescent searchlights aggregating a load of 36 kw. About this, in three concentric rings, are many other jets which spurt to successive levels and in various directions so that this fountain presents an almost endless change in form and color. The basin of this fountain is in reality the roof of a complete electric plant, with its turbines, pumps, valves, governors, motors, switches, lighting units, etc. The surface of the basin is formed of glass plates through which the light from more than 1000 lamps is projected from waterproof units.

After passing Cascade No. 1 one enters upon the Avenida de Americas skirted with floodlighted façades and having a row of glass columns on either side. Back of each row of glass columns is a row of small fountains; all these are links in the mobile color chain.

Where façades are illuminated in order to give the impression of interior life, the windows, doors and porticos are illuminated from the back, all in soft tones harmonizing with the lighting of the façades.

Stone incense pots showing colored vapors are also employed at certain locations but in moderation. In general, green and light blue colors for static effects of considerable duration are preferred to deep reds; orange and gold, however, are not lacking. All elements are softly illuminated with diffused light, avoiding disagreeable glare. The qualities of comfort, mystery, elusiveness, and colossalism are outstanding.

When a sheet of water falls unbroken, the light sources back of it may be seen as through glass. In the cascades there are several falls more than 10 feet in height and since a great volume of water is utilized, it is not immediately broken in its fall. The light sources in general are well up under the ledge from which the water falls so it was necessary to provide for mist, and this was accomplished by placing back of the falls a transverse pipe having many small spray nozzles pointing upward, from which small streams impinge somewhat at random causing the space between the sheet of water and the stone structure to be filled with a fine mist. This greatly improves the luminous qualities, having an effect very similar to that of adding a slight diffusing pigment to clear glass.

FOUNTAINS AT NIGHT

The Sequence of the Color Cycle Performance

After the foregoing cursory description it is interesting to view the entire vista as seen from the end of the Avenida de Americas. From here the terrain slopes upward and, assuming for the moment that the floodlighting of the Palace is turned off, there descends from a considerable height out of a dark background the river of colored water in the form of cascades which, arriving at the third square (*ff* Fig. 1), opens into different branches, and due to the illuminated fountains at the side of the first and second squares supplemented by the different crystal elements in which the color change is co-ordinated, these two lines of water and light are continued throughout the sloping central area.

From top to bottom of this river of water and light different colors proceed in successive waves which gradually reach their crest and fade on the dimming cycle without sudden changes, showing different tones of color and giving the distinct impression that these waves flow downward the same as the water which carries them.

The top of this long band of light being open the aurora of soft color beams seems to spring from a point of common origin with the stream. Over the luminous background formed by the aurora is outlined very darkly a silhouette of the National Palace. This aspect, according to the standard program, will last 20 minutes.

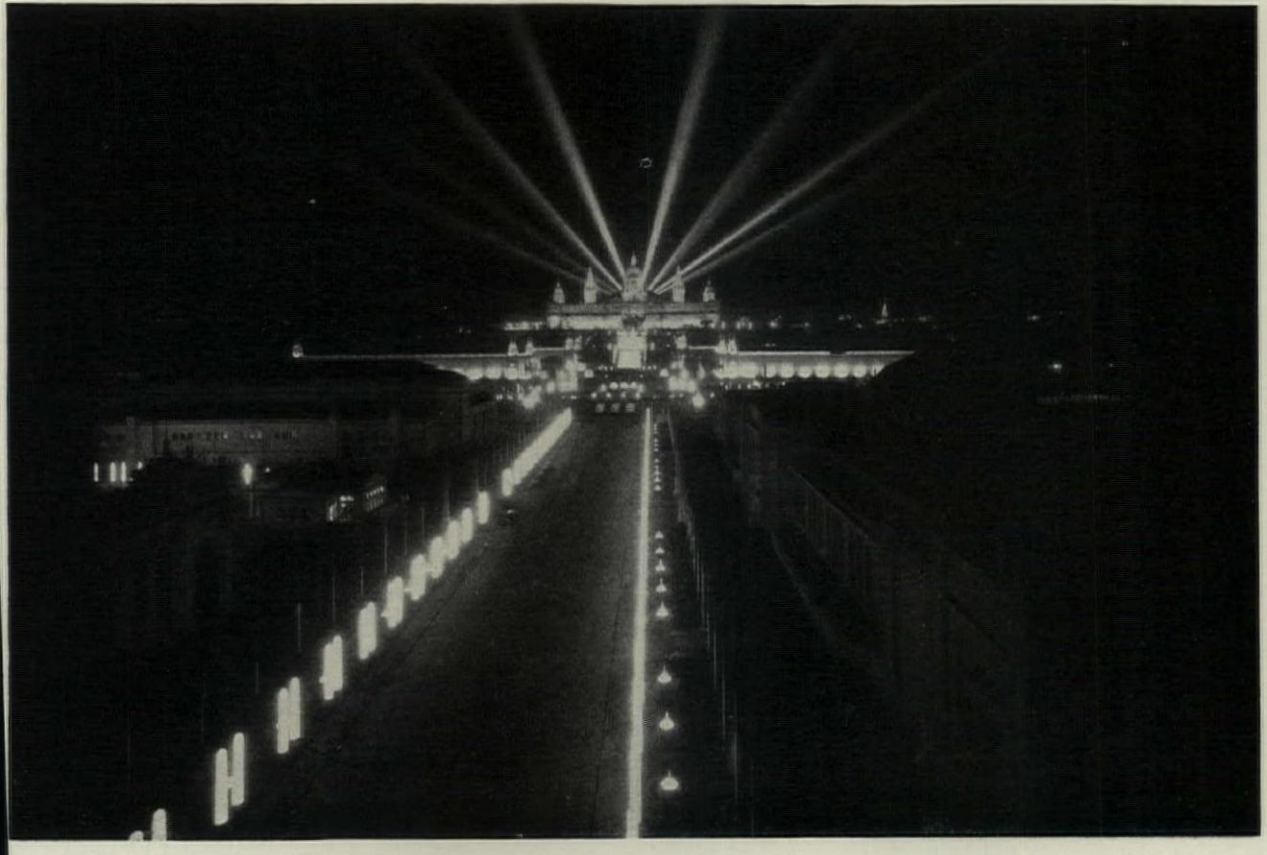
Then, while the lights of the cascades and fountains of Square No. 2 and the crystal pedestals of the Avenida de Americas become dark, there suddenly emerges in the center of this entire scene in relative darkness, the great fountain's central jet which, with its height and brightness, provides adequate illumination for the whole of Squares 1 and 2. The attention is then concentrated for some time on the most impressive spectacle of the greatest fountain the world has ever seen.

Following this there is a period during which the Great Fountain continually changes both in its hydraulic and lighting aspects, and then it gradually fades out, after which the façades of abutting palaces, and particularly of the National Palace, becomes strikingly illuminated with full white light outlining the buildings against the dark sky. Simultaneously the cascades, fountains, trees, stone urns, and crystal elements contribute to the outstanding aspect of the whole.

This great vision of magnificence and splendor, with an absence of change, is a striking contrast with the previous sights. Next, the cascades are animated again with lively changing and moving colors of ever-changing hues and enchanting mystery. Other elements introduce variation with lights pale and soft in slow progression continuing into a most fantastic and imposing vista from the center of which bursts the Great Fountain again with its constantly changing emotions.

The foregoing act extends over a period of twenty minutes. Now there is suddenly an abrupt change. The façades, cascades, trees, elements, fountains, and all become red.

After all the preceding rhythmic motion this unex-



GENERAL VIEW OF THE DECORATIVE AREA AT NIGHT

pected abrupt change is very impressionable. The entire central area including people and all objects are now illuminated red and above is the aurora all red, which at another time changes momentarily to other hues for contrast with the monochromatic field below.

After five minutes, the red illumination is changed for green throughout the entire zone. The effect is strange and weird, particularly as one observes the different appearance of people and objects as contrasted to their appearance under the red light.

After five minutes, Act I is repeated, and so on through the program again. However, the Great Fountain will continue to present different aspects to those exhibited in the first session, and it will also continue different to those exhibited in the successive sessions during three or four days because of the great number of combinations possible of the different movements of the water which permit six hours of operation, changing each two minutes, without repeating the same combination of movement. It is possible to visit the Exhibition repeatedly at night and discover in the decorative illumination and in the luminous fountain new and different aspects.

**By communicating with the Illuminating Engineering Society, 29 West 39th Street, New York, N. Y., a somewhat more detailed description of the apparatus employed may be found in a paper presented by Mr. Stahl before the twenty-third annual convention of this society at Philadelphia, Pennsylvania, September 24-27, 1929.*

COLUMBIA-PRINCETON-YALE COMPETITION

THE SUBJECT OF the program for the Columbia-Princeton-Yale Competition in Advanced Design was *An Athletic Club*. The *esquisse* was issued 9 a. m., Monday, November 4, 1929; due 6 p. m., Tuesday, November 5, 1929; Rendu—12 p. m., Saturday, December 7, 1929; Judgment—December 13, 1929, at Princeton University.

The program was as follows:

An Athletic Club

The site of this club is on the edge of a city, similar to Hartford, Connecticut. On the North side of a wide straight boulevard is the club property and on the South side an extensive public park.

The membership of the club is limited to two thousand (2000) and for this number there must be provided the accommodations and facilities usual in such a club. These may be divided into three general groups, as follows: A—the social needs; B—the athletic activities; C—the residential accommodations.

These various parts are to be connected and related to each other so that the regular flow of club life will not be disturbed by the necessary noise of strenuous activities, nor should constraint be placed on the freedom of the latter by the presence of those who are engaged in quiet pursuits.

The problem is a modern one, conforming to the life of prosperous men of affairs. The building should be elegant and even sumptuous.

The principal requirements of the plan are given below. Stated areas are approximate only, and may be increased or decreased within reasonable limits.

REQUIREMENTS OF THE FIRST FLOOR PLAN: *Group A, the social needs:*

A vestibule and coatroom, 1000 sq. ft.

A reception hall, used as a general lounge, from which one reaches the office, and one or two strangers' rooms of 200 to 400 sq. ft. each—totaling 3000 to 4000 sq. ft.

A billiard room, 2000 to 3000 sq. ft.

A combined library, reading and writing room, 800 to 1200 sq. ft.

A bar and private locker room, 600 to 1000 sq. ft.

Three card rooms, totaling 1200 sq. ft.

A ladies' reception room, dressing room and toilet, and separate outside entrance, 500 to 700 sq. ft.

Elevators, stairs, service rooms, etc.

Group B, the athletic activities: A gymnasium, 4000 to 5000 sq. ft., with observation corridor or gallery.

Two offices for instructors; a storeroom for properties. Stairs, service rooms, etc.

Optional: Two or more rooms for minor athletic activities and instruction may be placed on the first floor. If not so placed, arrangements should be made for them on other floors.

REQUIREMENTS OF OTHER PARTS OF THE BUILDING: The residential accommodations, *Group C*, are to be on the upper floors. There will be 100 to 125 comfortable private bedrooms; each with closet and bath. The baths may have outside windows, or may be placed inside and ventilated by shafts. Stairways, elevators, storerooms, valet rooms, toilets, etc.

Other accommodations to be included, but not shown on the floor plans are:

A reception room, ballroom, restaurant, private dining room, and kitchen, with usual dependencies.

A swimming pool, locker rooms and special activity rooms.

A heating and lighting plant is not to be included. It is to be assumed as in a separate building, entirely outside of the ground area involved in this problem.

The building may be varied in outline to make part of it many stories, or it may have one main cornice line for the greater mass, or it may take any form between these two. There may be porches, loggias, arcades and terraces at suitable positions. Any style may be used. It is important that the interior functions of the building and the positions of the various units within the building be expressed on the exterior. This is especially true of the second story, since no plan of this floor is required.

The general study of the problem should include a treatment of the grounds around the building. The property slopes away to the North from the Boulevard, with a fall of 5′ to 7′ per hundred, and stretches away to the golf links on rolling ground.

REQUIRED: *For the preliminary sketch:* Plan of first story, front elevation and section; all at the scale of 1/32″ equals 1′. This is to be submitted on a sheet of tracing paper 11″ x 19″.

It is suggested that the student make a small scale study of the final sheet, before handing in his esquisse, in order to determine whether or not his building exceeds any of the natural limits of size established by the scales of the final drawings and the size of the final sheet.

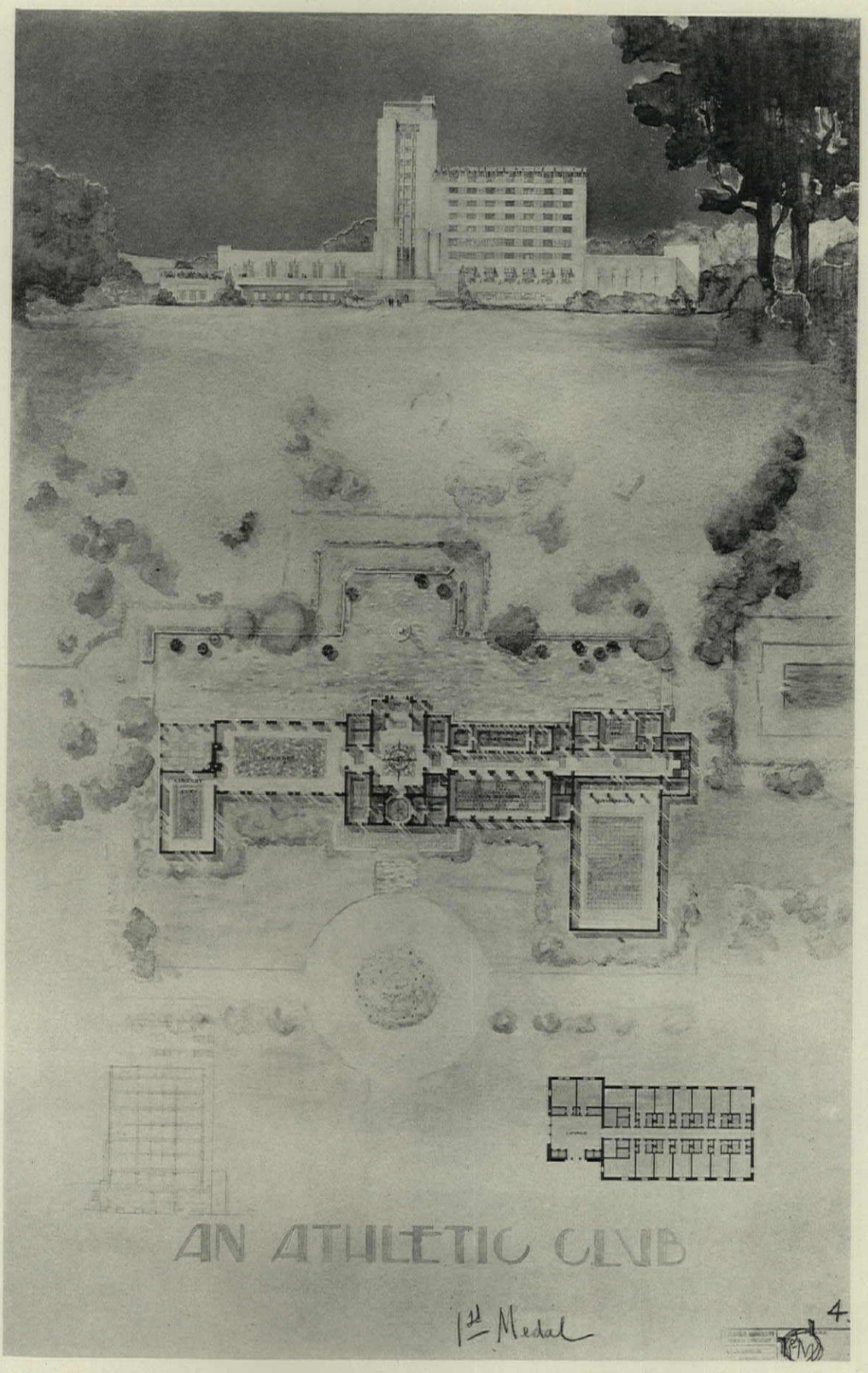
For the final drawings: Front elevation at the scale of 1/8″ equals 1′.

First floor plan at the scale of 1/16″ equals 1′.

Typical bedroom floor plan at the scale of 1/16″ equals 1′.

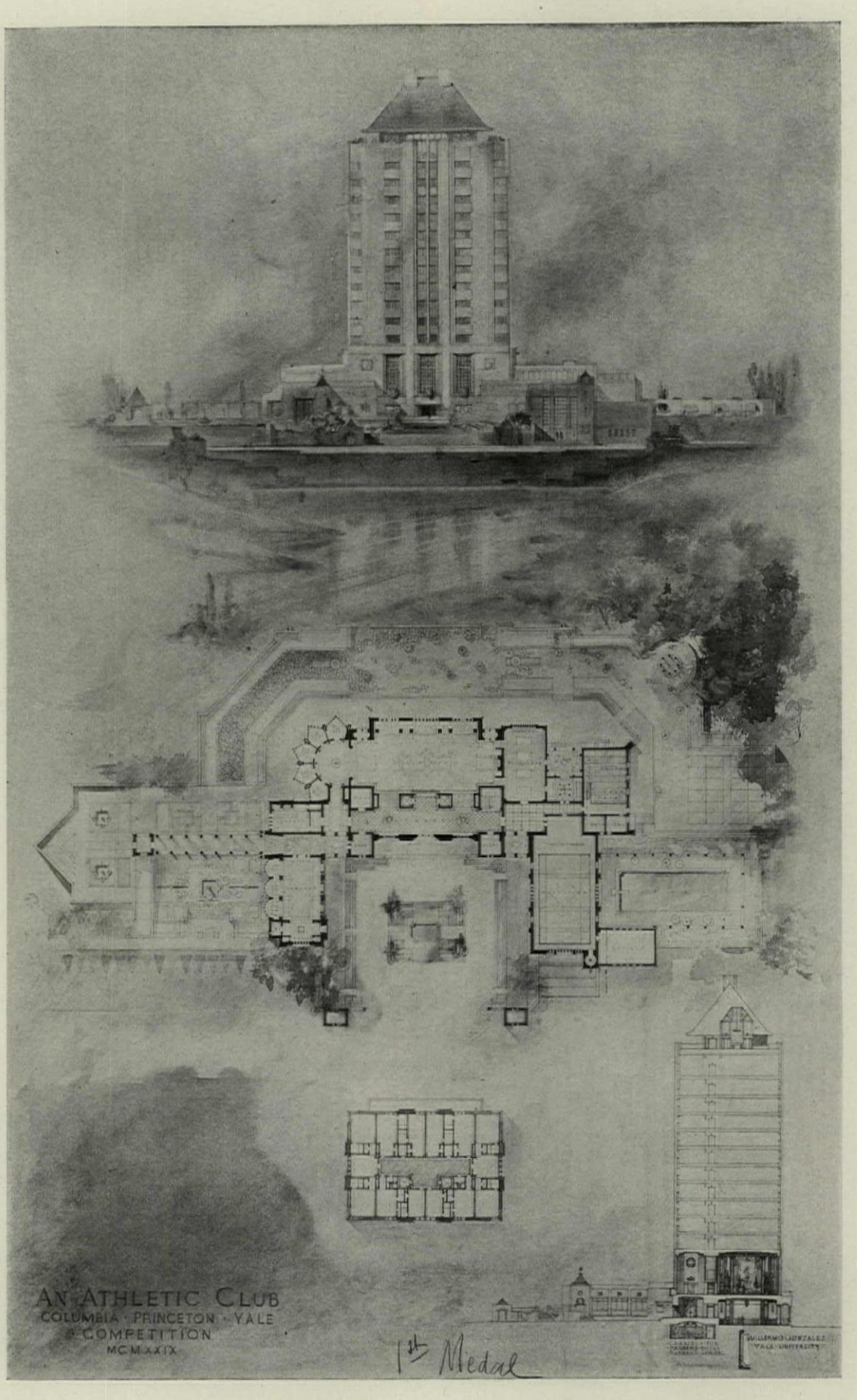
Section, at right angles to the Boulevard, at the scale of 1/16″ equals 1′.

Each school submitted ten problems for judgment. Th four first medal drawings are reproduced on the followin pages.



1ST MEDAL—DESIGN FOR AN ATHLETIC CLUB BY W. H. JACKSON, JR., COLUMBIA UNIVERSITY
COLUMBIA-PRINCETON-YALE COMPETITION IN ADVANCED DESIGN

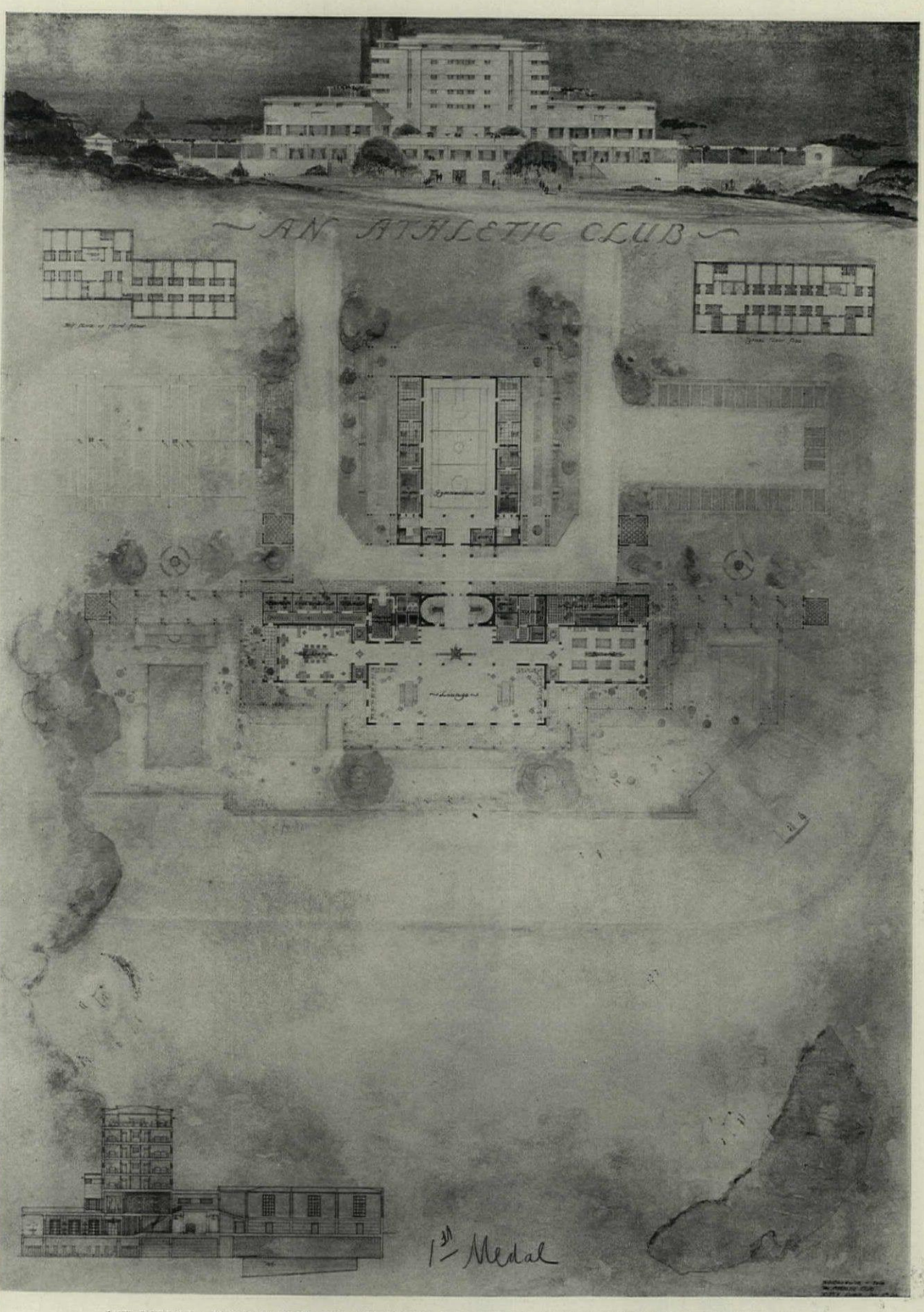
(See text on page 138)



1ST MEDAL—DESIGN FOR AN ATHLETIC CLUB BY GUILLERMO GONZALEZ, YALE UNIVERSTIY

COLUMBIA-PRINCETON-YALE COMPETITION IN ADVANCED DESIGN

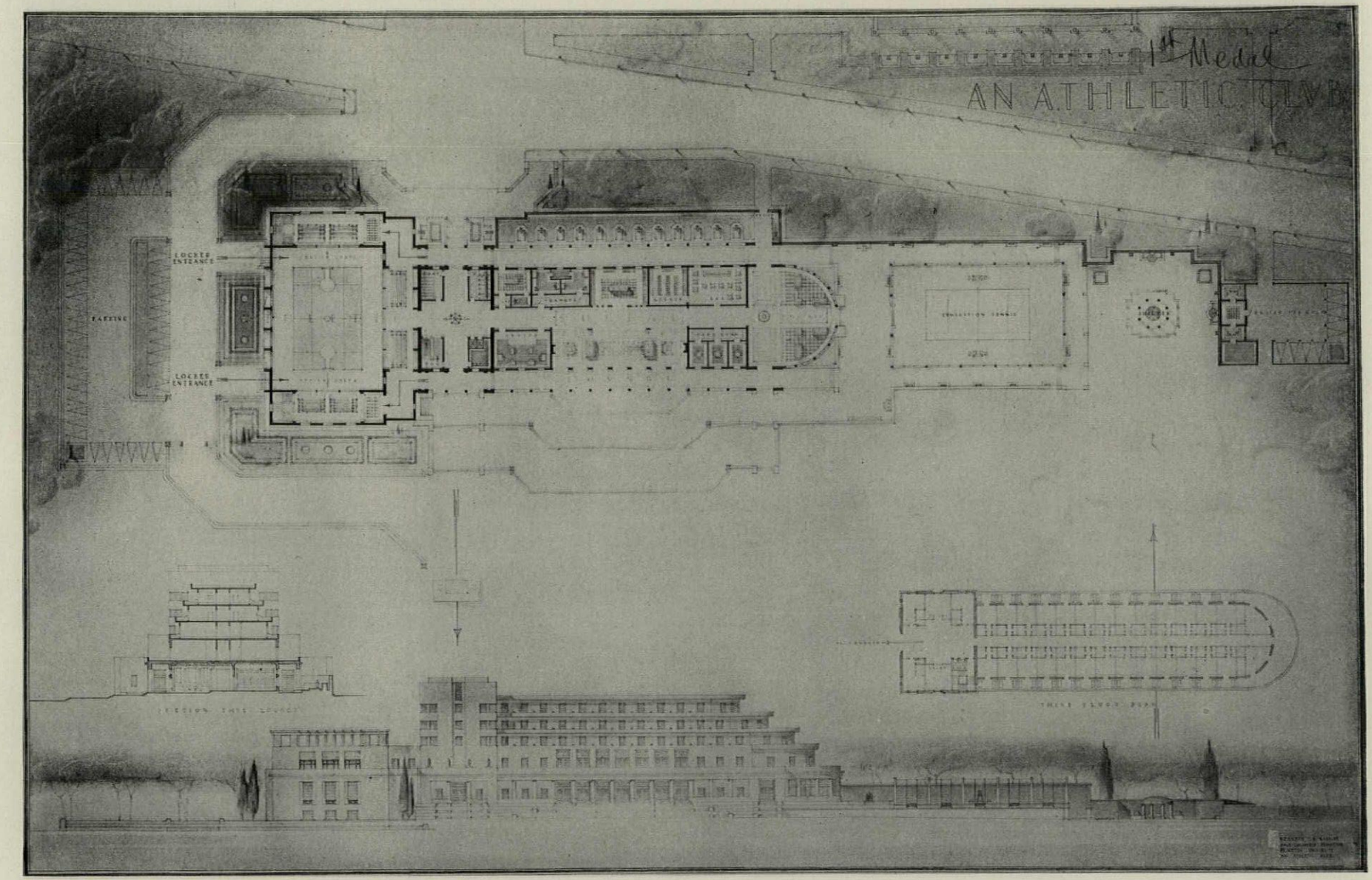
(See text on page 138)



1ST MEDAL—DESIGN FOR AN ATHLETIC CLUB BY H. S. GOODWIN, YALE UNIVERSITY

COLUMBIA-PRINCETON-YALE COMPETITION IN ADVANCED DESIGN

(See text on page 138)



1ST MEDAL—DESIGN FOR AN ATHLETIC CLUB BY KENNETH S. KASSLER, PRINCETON UNIVERSITY

ALPHA RHO CHI CONVENTION

THE FIFTEENTH ANNUAL CONVENTION OF ALPHA RHO CHI, national social architectural fraternity, was held Dec. 30th and 31st, 1929, at the University of Illinois. In the late afternoon of Dec. 31st the entire convention journeyed to Chicago, where a formal dinner dance was held at the Architects' Club there. On New Year's Day an inspection trip of Chicago followed. The dinner dance and inspection trip were sponsored by the Chicago Alumni Chapter.

The Alpha Rho Chi Travelling Exhibit, sponsored by the New York Alumni Chapter, was displayed in the exhibition gallery of the Architectural League of New York City from Dec. 23rd to Jan. 4th. Included in this exhibit were several water color sketches by Mr. Cass Gilbert, who holds one of the highest honorary memberships in this fraternity.

SOUTHERN STATES ART LEAGUE

FROM THE HEADQUARTERS of the Southern States Art League in New Orleans, La., President Ellsworth Woodward issues a call to all active members of the League to prepare for the Tenth Annual Exhibition, to take place April 2-30 in the Isaac Delgado Museum of Art in New Orleans; and to both active and sustaining members to be represented in the Tenth Annual Convention, April 2, 3, and 4, 1930. He emphasized the policy already declared, that the League does not enter into competition with local organizations, but that it exists for the purpose of widening opportunity for artists of a degree of maturity beyond the amateur and student class. This annual exhibition should be an outstanding event, exhibiting only the best which the South can produce.

THIRD ANNUAL SMALL HOUSE COMPETITION

Prizes Awarded in The House Beautiful Competition

THIS YEAR THE first prizes were carried off by Eastern architects, although California again contributed nearly twice as many designs as any other one state.

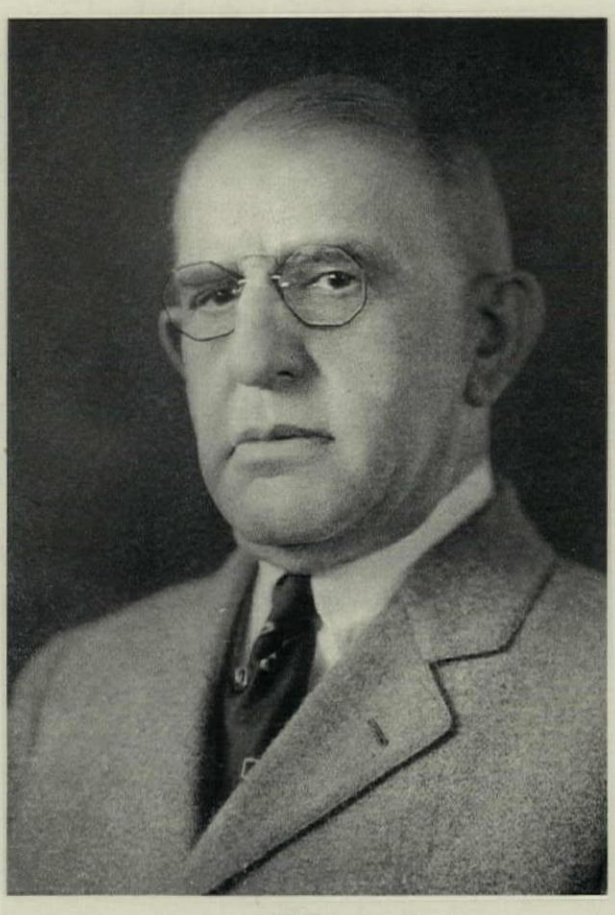
The judges included Roger H. Bullard, of New York, and Robert P. Bellows, President of the Boston Society of Architects, both of whom were selected from a number chosen by the Chairman of the Committee on Competitions of the American Institute of Architects. The third judge was Miss Ethel B. Power, Editor of *The House Beautiful*.

The jury unanimously awarded the two first prizes of $1,000 each to S. Arthur Love, Jr., of Philadelphia, Pa., for the best eight to twelve room house, and to R. J. Percival of Hartford, Conn., for best five to seven room house.

Houses submitted by the following architects received *High Commendation:* Marston and Maybury (2 houses), Pasadena; Wesley Sherwood Bessell, New York; Gordon B. Kaufmann, Los Angeles; Mrs. James Osborne Craig, Santa Barbara; Mary Elizabeth Winsor, Boston; Roger D. MacPherson and William McL. Dunbar, Rochester.

Houses entered by the following architects were accorded *Honorable Mention:* John Upton Clowdsley, Stockton, California; Soule, Murphy and Hastings, Santa Barbara; Wesley Sherwood Bessell, New York; Waldron Faulkner, New York; Gordon B. Kaufmann, Heth Wharton, H. Roy Kelley, D. J. Witmer, and L. F. Watson, all of Los Angeles; Kirtland Cutter, Long Beach, California; Miles B. Dechant, Reading, Pennsylvania; W. H. Emory, Jr., Baltimore.

In addition to these designs, twenty-nine others have been selected to form an exhibit which will be shown in the principal cities of the country.



LEO REMY HAMMOND

LEO REMY HAMMOND, secretary of The Connecticut Architectural League, Inc., died November 29, 1929. At a meeting of the League on December 23rd, the following resolutions on Mr. Hammond's death were adopted:

"To our Honor Roll of former departed associates, we record with profound sorrow the cherished name of Leo Remy Hammond who died on November 29, 1929.

"He was a master of his profession and gained a wide reputation as a writer of architectural subjects. He was elected secretary of the Architectural Club of New Haven in 1913 and assisted in the organization of the club. He was the leading factor during the past ten years in holding the annual architectural exhibition and published each year a comprehensive catalogue in connection with the exhibition.

"In 1928 he conceived the idea of extending the club's activities throughout the state of Connecticut and after a reorganization the name was changed to the Connecticut Architectural League, Inc.

"He endeared himself to all the members of the club and to the architects of the state by his unfailing loyalty to the club and to the architectural profession. Due to his efforts we feel that the architectural profession at large has been placed on a higher plane and feel especially grateful because of the fact that he gave the best years of his life to the uplifting of a profession of which he was not a member. We sincerely regret that he did not live long enough to see his greatest desire fulfilled, that of obtaining Registration for Architects in the state of Connecticut."—Walter R. Shiner, President, for the Board of Directors of The Connecticut Architectural League, Incorporated.

A PLAN TO INFORM LAYME
AND VALUE OF TH

FOR MANY YEARS PAST it has been evident to us, and to everyone connected with the profession of architecture, that a great many people who spend annually a large sum of money for buildings of various kinds do not understand the value to them of expert architectural services in connection with their building projects.

In order to make at least a beginning to correct this state of affairs we propose to take certain steps as follows: We are preparing a document which will be published by us with the title "The Value of the Architect's Services." This document will set forth clearly the advantages of employing an architect. We shall assume that the person for whom this brochure is being written knows nothing about an architect or what he can do for a client. We shall assume that the reader is definitely interested in a building of some kind and wants to get the greatest possible return for his money. We shall hope before the last page is reached to meet and answer every question pertaining to the services of an architect that can occur to the mind of any person intending to build.

The subject of architects' fees will be considered carefully with the purpose of making it plain that such fees constitute a wise expenditure of the investor's money and not merely an additional expense bringing no proper and adequate return. Unfortunately a great many people now feel that when they proceed without architectural services they are actually saving the sum represented by the architect's fee and are therefore that much ahead of the game.

There will be a discussion in considerable detail, with illustrations where necessary, of the functions of the architect. We believe that better public understanding of what the architect does and why he does it will help to make him more generally appreciated.

Believing that this document can be of immediate use we shall send a copy to every architect. Additional copies may be secured by any architect at actual cost, in such quantities as desired for distribution to potential clients and to others who would benefit by its study. In this way many copies will reach the hands of people intending to build and those whose influence will be important.

In periodicals of national circulation, reaching diverse groups of people likely to invest money in all classes of buildings—in the smaller centers as well as the large cities—we will buy advertising space in which we will suggest the advantages of employing an architect. Some of the important points in our document will be stressed and the offer will be made to send free copies to those who apply for them. In this way a large circulation among people immediately interested in building can be secured within a short space of time.

ONCERNING THE NATURE RCHITECT'S SERVICES

Copies of the document will be mailed to the editors of newspapers covering all sections of the country with an explanatory letter to each suggesting that the topics covered might be of vital interest to their readers. We plan to furnish copies of our document in response to inquiries received as a result of this publicity.

This much we propose to do from our own funds and quite apart from any contribution from architects and others who may decide to participate in the movement.

Our tentative plan for raising a larger fund which would make possible an extension of the preliminary activities indicated above is as follows: Any architect may contribute $25.00 a year for the period of two years. Any draftsman may contribute $5.00 a year for the same period. Any manufacturer of building materials who desires to do so may join with the architects and draftsmen. No one will be urged to contribute unless he believes in the underlying idea and in the ability of the publishers of PENCIL POINTS to carry the campaign to a successful conclusion.

Should the architects, draftsmen, and manufacturers of the country place in our hands a fund of sufficient size, the program will be extended in various ways, depending upon the size of the fund and the situation as it is found to be after the preliminary steps have been taken. We are now in consultation with the Institute authorities, with many other groups of architects, and with publicity experts in order to formulate more definite plans for the later stages of the campaign. When final conclusions have been reached definite announcements will be made.

Do not make any contributions to this fund now. The box office is not yet open. Hundreds of pledges of financial support have already been received from individuals, Institute Chapters, and other groups, and it is probable that within thirty days definite arrangements for starting the fund will be announced.

We wish to make it perfectly plain that it is not our purpose to attempt to accomplish anything with the general public through the publication of material in PENCIL POINTS. PENCIL POINTS does *not* reach the people we want to reach and would therefore be of no service for the purpose in mind. The only way PENCIL POINTS will be employed at all will be to acquaint the profession with the progress of the campaign.

It is our belief that right now, while building is comparatively slack, is the time to inform people who are going to spend money for buildings concerning the great benefits they can derive from the employment of an architect. What we do now will have a great bearing on this whole matter during the rest of this year, next year, and in the years to come.

HERE & THERE AND THIS & THAT

CONDUCTED BY E·L·C

This department conducts four competitions each month. A prize of $10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Good Wrinkle Section: a prize of $10.00 is awarded for any suggestions as to how work in the drafting room may be facilitated. No matter how simple the scheme, if you have found it of help in making your work easier, send it in. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the twelfth of the month preceding the publication date in order to be eligible for that month's competition. Material received after the closing date is entered in the following month's competition.
The publishers reserve the right to publish any of the material, other than the prize winners, at any time, unless specifically requested not to do so by the contributor.

THIS MONTH'S HEADING is by Elliott L. Chisling of New York, the winner of the second prize in our recent competition. Very nice, isn't it?

Next thing on the program is the Christmas Card Competition. The judgment of this lasted over a period of ten days and our office looked more like a Christmas card shop than anything else we can think of. The Jury found it absolutely impossible to select any one card as *the winner* and finally, upon unanimous vote, two first prizes were selected: the design by Zay Smith, of San Antonio, shown on page 148, was selected by the Jury for its beauty; and that by Roger M. Rittase, of Philadelphia, shown opposite, for its originality. These gentlemen will each receive a ten dollar prize.

The cards submitted by Gordon Lorimer of New York, Herbert S. Rosenberg of New York, and A. Broun of New York, all received honorable mentions and a prize of five dollars each. We want to thank our many readers who submitted cards in this competition and to express our appreciation for the many personal cards sent to E. L. C. by contributors to Here and There.

The prizes in the regular monthly competitions are:
Class I—George Nelson, of New Haven, Conn.
Class II—Richard Wright, of Los Angeles.
Class III—No award.
Class IV—W. F. Schaphorst, of Newark, N. J.

At the last minute the editors took one of our pages away from us for "more important material." We fail to understand this, but that's how it goes! As a result we're very crowded for space and cannot present the second drawing in our Highlights of Architecture series. However, we've put in a reservation for an extra page in March and there'll be trouble if we don't get it.

What about our old friends the cartoonists? We haven't seen anything at all this month, and the poets are not working too hard either. Let's hear from you!

CONTÉ CRAYON DRAWING BY GEORGE NELSON
(PRIZE—*Class One—January Competition*)

CHRISTMAS TREE MADE OF T-SQUARES BY SOPHOMORES AT THE UNIVERSITY OF TEXAS

AN UNUSUALLY CLEVER GREETING SENT OUT IN THE FORM OF A PRINTER'S PROOF BY ROGER RITTASE

THE BUSY ARCHITECT'S DAY (AND NIGHT)

By Richard Wright, of Los Angeles, Calif.

(PRIZE—*Class Two—January Competition*)

The postman brings the morning's mail,
A mass that swamps the decks,
An overwhelming avalanche
Of everything but checks.

And presently our callers come,
Solicitors and peddlers
And contumacious canvassers
And other intermeddlers;

High pressure agents clamoring
En masse from every side,
With raps and substitutions for
The things we've specified.

And artisans from foreign climes
Who model things in clay
Descend upon our necks and while
Our precious hours away;

And traffickers in rare antiques
Steal in upon our lairs
And seem to think our business is
To help them sell their wares.

A surging host, a milling throng,
Of salesmen bold and brash
And mendicants, and everything
But customers with cash.

The rush at last subsides: we've failed
We find out to our sorrow
To finish up those details that
Were promised for the morrow!

The sun descends, the shadows fall,
The night lights pierce the murk;
The day has gone to naught and so
Tonight we'll do our work!

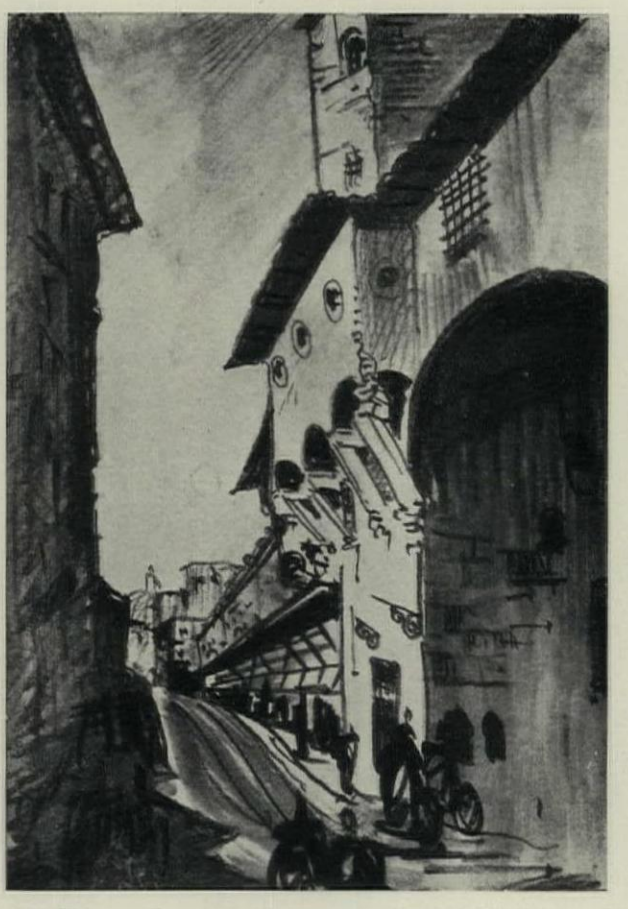
HE HAS HIS TROUBLES TOO

(PRIZE—*Class Four—January Competition*)

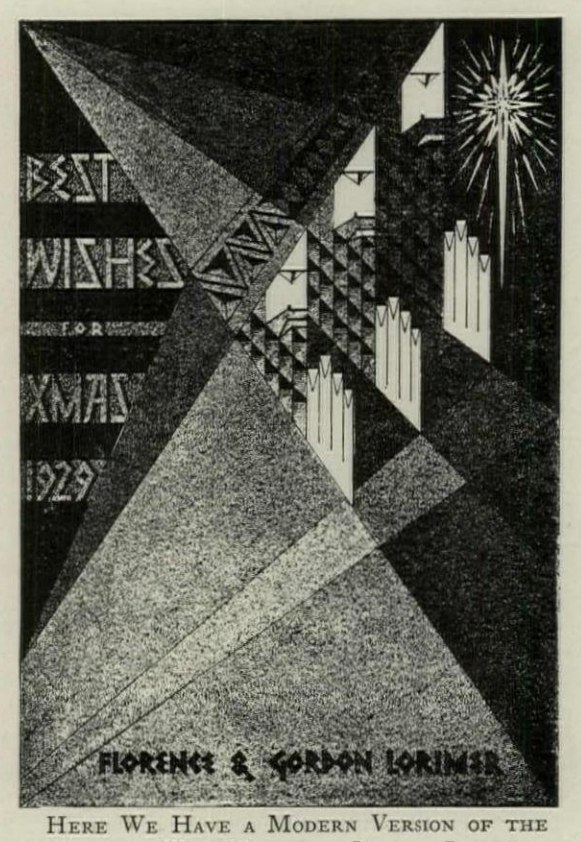
HERE IS AN interesting portion of a letter received by W. F. Schaphorst, M. E., of Newark, N. J., from a young man who is trying hard to make his way in the world. He aspires to be a technical writer and wrote to Mr. Schaphorst for advice because he had seen his name in print in a number of the engineering journals:

"I have written a good many short mechanical articles for a number of publications, but I am technically ignorant, and most of my work has been the mere writing up of handy devices for the "Wrinkle" pages of these magazines, and most of my ideas have come to my mind by seeing them in practice and making a photograph of the device itself to accompany my article, or a rough pen and ink drawing. I make all of my drawings free-hand. (The following, I think, is particularly good. W. F. S.)

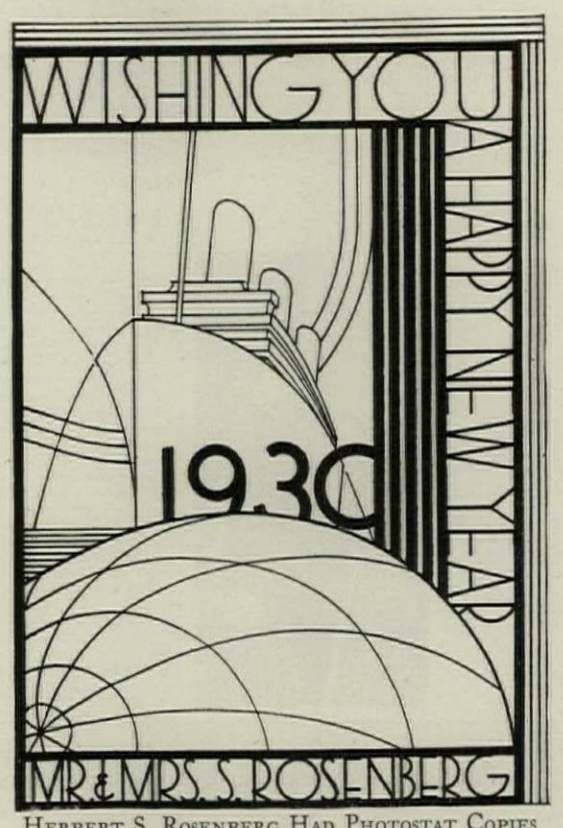
"I recently bought a drawing outfit of tools, and I don't see how on earth a man can make anything with that stuff. Maybe it is because I don't understand how to use them. There is a tool for making straight lines that has a point that resembles a bird's bill, two points formed by a curve of the two members that come together at the extreme end of the tool. I was told it was for making ink lines. When I dipped that thing in ink and tried to make a line it would either make no line at all or would smear the ink in a conglomerate mass across the sheet. That's all I could ever do with it. Wonder what is the matter?"



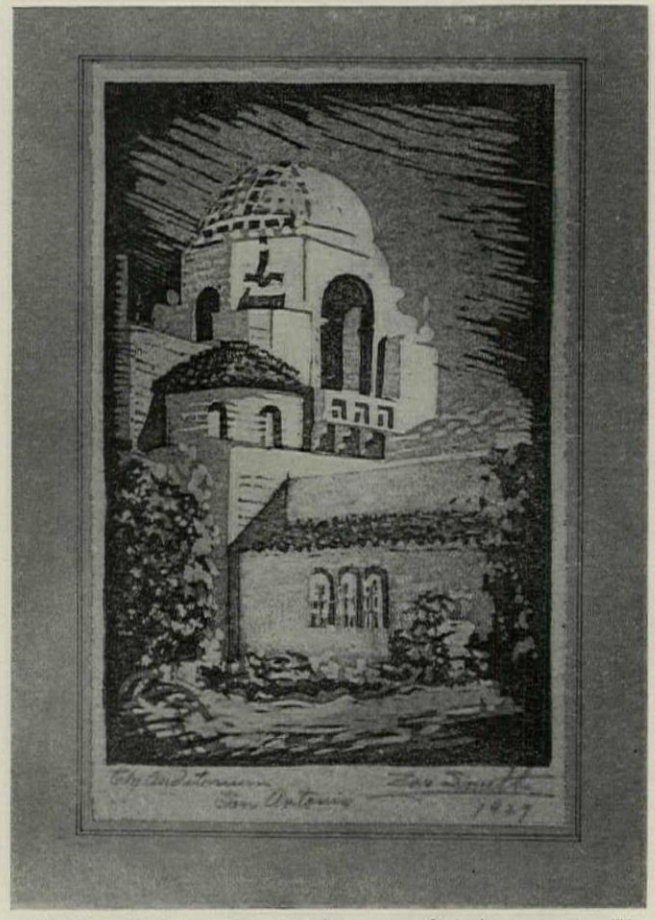
FROM A SKETCH BY EVERETT SMITH COFRAN
Student at Massachusetts Institute of Technology



HERE WE HAVE A MODERN VERSION OF THE FAMILIAR WISE MEN—BY GORDON LORIMER



HERBERT S. ROSENBERG HAD PHOTOSTAT COPIES MADE OF THIS LINE DRAWING



A linoleum block printed in dark brown on a light brown paper. The highlights of the tower are touched up with Chinese White and the dark portions of the print are stippled with gold water color.

MADE BY ZAY SMITH

A linoleum block printed in bright blue on white paper. The leaves are vivid green; the pipes and hair of the figure are gold. The print is mounted on an orange paper.

FROM A. BROUN OF NEW YORK

HERE ARE THE WINNING DESIGNS IN OUR CHRISTMAS CARD COMPETITION.

THE SPECIFICATION DESK

A Department for the Specification Writer

THE GROWTH OF THE SPECIFICATION

By David B. Emerson

JUST WHERE AND WHEN the written specification had its origin is unknown, so far as I have any knowledge. Probably the earliest document of that nature which I remember seeing was the copy of the specification for the jail at Madison County, Mississippi, designed by John Lawrence, State Architect, dated December 29, 1834, which was published in PENCIL POINTS, for January, 1927. This particular specification was more in the nature of a descriptive text than a specification, and so brief that it might easily have been written on a single page of foolscap paper. There is every reason to believe that no written form of instructions which could really be classed as a specification was in use by the architects of the early Eighteenth Century, or before that time, as the architect of that period still continued to function more or less as the master builder, after medieval custom. In more modern times the specification grew up out of the changing business conditions and the wider separation of the duties of the architect and the duties of the builder—they were not called "contractors" in the early days. The early specifications were undoubtedly very brief, and not very specific, as business methods were rather lax in the building trades in the middle of the Nineteenth Century. I very well remember an old Boston builder telling me that when he was a young man working at his trade (between 1850 and 1855) the builders never had a regular pay day, but if a mechanic wanted any money, he asked "the boss," and he got five, ten, or if he needed as much, twenty dollars. Each man kept an account book in which he recorded the days he worked and the money he received, and the boss kept one also. At the end of the year, each man went over the record of the entire year with the boss and had a final settlement.

Now it certainly stands to reason, that if the relations between employers and employees were like that, the relations between the architect and the builder, and the builder and the owner, were liable to be rather flexible, or at least one might believe so. Under such conditions verbal instructions were probably more in vogue than written specifications. It has been frequently stated in the past, that the first really specific specification ever written in this country was written by John Stearns, of Peabody and Stearns of Boston, sometime in the '70s, and as no one has ever disputed it, it must be so. My own memories go pretty far back into the past, but not to those early days; they are history to me. When I first started as a student in an architect's office, specifications were always written by "the boss," as the professional specification writer was yet to make his appearance, and no architect was so visionary as to think that a draftsman could be trusted to do that part of the work; the majority could not, "the boss was right."

I have been told by one of the older men in the profession, that Carl Pfeiffer, one of New York's famous old architects of half a century or more ago, used to write the specifications for a good sized building over the week-end. Quite a number of the older architects in Boston were still writing their specifications longhand in those days, as only the largest and most progressive offices kept a stenographer and had their specifications typewritten. Most of those old-time specifications, in addition to being written in longhand, had free-hand sketches in the margins illustrating the various methods of construction which were described. If for any reason an extra copy or two of the specifications was wanted, a young draftsman or student was put to work making the copies longhand. I well remember having done it myself when I was a student in an office. Specifications did not mean so much in those days; the buildings were very much simpler; and big business had not as yet gotten into architecture.

The tallest building in the City of Boston in my early days in an architect's office was only seven stories high, and "fireproof": that is the floors had iron beams (not steel, but wrought iron) with brick arches and wooden floors. It was a wall bearing job, and the interior columns were cast iron and unprotected.

Building has changed since those days and it is hardly necessary to say the specification has changed with it. The advent of the high building, followed with the disastrous results of the fire in the building adjoining the Home Life Insurance Company Building in New York City in 1899, and the Baltimore fire in 1904, which showed up the vulnerable points in that form of construction, hastened the bringing out of several new materials which have added three new divisions to the specification, namely "metal windows," "metal covered work," and "hollow metal work," all of which have been perfected in the past thirty years.

Now that we have considered the beginnings of the specification and have placed the period of expansion at about 1888, we will take up its growth from that time until the present. Perhaps the best way to follow that growth is through various trades and divisions of the specification as it now stands. The first division, *General Conditions*, although it is a standard item has gone through some changes and has grown.

In the old specifications they were quite brief. I remember very well that about thirty-five years ago one of the largest offices in New York was content with one page foolscap size printed in small type. Until about 1915 *General Conditions* were a hodgepodge; some were good, some were bad and some were just mediocre, but at that time the American Institute of Architects brought out their standard form, which consists of forty-four articles, and is used by the majority of the architects in this country at the present time. It is a splendid working document,

but needs revising and enlarging to bring it up to date, as I have found that it is necessary to add from eight to ten supplementary conditions which are not contained in the standard form. One of the leading architect's offices in New York City has a set of *General Conditions* which consists of fifty-four articles filling eighteen typewritten pages.

Quite naturally, excavation is not very different today from what it was forty years ago, so far as the specification is concerned, although the methods used by the contractors have improved greatly. The steam shovel and the gasoline shovel (the last word in excavating machinery), and the pneumatic drills speed up the work wonderfully and help to offset the high wages of the laborers. Starting at the very lowest level in the building, the first item, if soil conditions are bad, is piles. Until recent years wood piles were universally used and had been for centuries. Vitruvius discusses them, the Venetians used them extensively, and I heard it said when I was a boy "half the City of Boston is built on piles." The first concrete piles were driven in 1901, and today we have the choice of the "cast in place," "pre-cast," "composite" (a wood pile with a "cast in place" or a pre-cast concrete pile follower) and the pipe pile, which is a steel pipe, driven to rock and then filled with concrete.

Foundations have been subject to quite a number of changes in the past forty-odd years. In those early days concrete played a very small part in building, the cement which was generally used and most commonly known was Rosendale cement which is no longer manufactured; all Portland cement was imported and commanded a high price. Machine mixers were unknown, so that all concrete was mixed by hand, and the old-time specifications called for it "to be turned over twice." Under those conditions it was never used except in exceptional conditions, such as the encountering of quicksand in an excavation. Reinforced concrete was in its formative state, and absolutely unknown in this country, except by reports of experiments which were being made in Europe by Considere and others.

Footings on the better class of work were formed of large blocks of granite, roughly squared and frequently stepped with one or two courses of granite blocks of smaller sizes. The wood piles of which I made mention were capped with granite blocks resting on the tops of the piles and depending mostly on their weight to keep them in place. Foundation walls were generally built up of rubble stone, except in high class work where bricks were used. Today our specification calls for concrete footings, very frequently reinforced, concrete foundations, with the concrete mixed by machine, using Portland cement with definite standards for cement and for coarse and fine aggregates which were not even dreamed of a few years ago, and even the water content of the mixture is regulated.

Back in the late '80s, waterproofing was not much used and none too well understood. The only system which was known at that time being the "membrane" waterproofing which is still with us and bids fair to stay for some time. In addition to the "membrane" system, we now have the "integral" method, the "waterproofed cement" (commonly called "Hydrolithic" waterproofing, as the first of the kind was Winslow's Hydrolithic Waterproofing, which came out about thirty years ago), and the iron oxide forms of waterproofing, all of which enter into the specification either as the basic bid or as alternative estimates.

Dampproofing is a comparatively new development in building, dating back not much more than thirty years, and in the past few years a large number of asphaltic mastics and elaterite dampproofings have been put on the market, and the specification writer must be familiar with as many of these as is possible. The most recent development in the waterproofing group, and the direct outcome of modern construction, is "spandrel waterproofing," something that was not required in the specifications of former days, as they did not have any spandrel beams; but it has come to be recognized as an absolute necessity today in our present type of steel frame construction.

Even brickwork has had a few additions in my time. The sand lime brick has come into the field, but so far it does not seem to have displaced the burnt clay product to any appreciable extent, but it is generally specified as an alternative.

In the face brick industry the additions are legion. In my youth about the only choice in face brick was the Philadelphia pressed brick, and the so-called Perth Amboy brick, which was a dark buff brick, first used about 1884, in Boston, by McKim, Mead, and White on the John F. Andrew house. Today we have colors and textures galore and new ones are coming out regularly.

In the early days of fireproof construction there was no great worry about floor arches, as in those days two ring brick rowlock arches were sprung between the beams, the skewbacks being generally cut from brick on the job and occasionally they were specially moulded. The beams were never fireproofed; one can go into any of these buildings and see the exposed lower flanges and the arches plastered between the beams. Now we have the reinforced cinder concrete flat slab, the reinforced stone concrete flat slab for long spans, the one-way reinforced concrete joist with hollow terra cotta blocks or hollow gypsum block fillers, the two-way reinforced concrete joist and hollow terra cotta block fillers, the poured-in-place reinforced gypsum flat slab, the pre-cast reinforced gypsum slab, and some other lesser known systems of floor construction, all of which the specification writer should know fairly well. In addition to various floor systems mentioned, there are several different types of mesh reinforcement which may be used in flat concrete slab construction: woven, electrically welded, expanded metal, ribbed lath, and others. Another comparatively new development in fireproof materials is the gypsum block for partitions, furring, and similar purposes, which helps to swell the volume of the specification. In fact the growth of the gypsum industry in the past forty years has added quite a number of new materials to the building trades, notable among which are the so-called "patent plasters," a gypsum product—and the plaster wall boards, of which there are a number of types on the market at the present time.

The widespread practice of plastering directly on the under side of concrete floor slabs and on concrete walls, with the frequent failures in bond, has brought out a new line of materials in the form of "plaster bonds" of a bituminous nature, and "bond plasters," another gypsum product.

With the rapid increase in the use of cement floors, due to modern fire resistive construction, it was found that cement floors abraded easily and dusted badly and also that they disintegrated under certain conditions. The result of these troubles was the introduction of a number of types of floor hardeners, both integral and surface applications, all of which at one time or another enter into the specifications. Also, as a direct result of the increasing use of cement finished floors, special paints and enamels for cement floors have been developed, as lead and oil paint was found to be unfit for that purpose.

In addition to the many changes and improvements in old materials and methods, and the ever widening of the scope of these materials and methods, certain absolutely new and original developments have come out in building construction which had no counterparts in former times. One of the most notable of these new developments is acoustical treatments. Until comparatively few years ago, acoustics were something more or less mystifying. Of course the architects knew that certain conditions produced good acoustical results, and others did not, but it was more or less of a "rule of thumbs" proposition, but the work of Prof. Sabine reduced it to an exact science. As a direct result of the work of Prof. Sabine and others, a number of different acoustical treatments are being used, several sound absorbing wall plasters, an acoustical tile, and several ceiling treatments which are applied to the finished plaster. Now that we have acoustical plasters, another new material follows in its wake; that is an acoustical paint which does not destroy the sound absorbing quality of the plaster.

Probably no one of the various groups of materials entering into building construction has been subject to a greater amount of expansion than have metals. Not so many years ago practically all the metals and alloys which entered into the construction of a building were cast and wrought iron, copper, lead, brass, bronze, roofing tin, and galvanized iron. At the present time we use Monel metal—which for quite a little time was a rolled metal but can now be cast and extruded like bronze: aluminum—which is now being used quite successfully for ornamental purposes, and rolled sections for casement sash have been successfully made and used: and hard lead, an alloy which will not creep and twist like sheet lead, and the abrasive metals which are extensively used for safety stair treads, door saddles, and other similar uses. The latest and most remarkable development in metals is a non-corrosive steel which offers great possibilities, if it does what is expected of it, and it looks very much as if it would.

For plating purposes in addition to nickel and electro bronze plate, we now have chromium and cadmium plates, the former used principally on brass and the latter on iron. The gradual elimination of wood in the construction of tall buildings has brought about the development of a number of different types of flooring which can be applied directly to the surface of the cement finish. The first of these flooring materials was to the best of my knowledge the rubber tile, followed by the cork tile, and the magnesite plastic floorings, and later the elaterite compositions and asphalt and asbestos compositions, which are among the latest additions to the long list of floorings which we now have to choose from.

While the other portions of the building have been going through the various stages of change and improvement, the door has had its share of attention. It is quite safe to say that up to about forty or fifty years ago, doors were very little different from what they were ten centuries ago, except for the sliding door which came out sometime in the first half of the Nineteenth Century. About thirty-five years ago the revolving door was put on the market; then came the accordion door and the sliding and folding door for interior use; and with the advent of the garage came the right angle door and other types of doors to turn corners and take up very little room. Finally we have the overhead door which takes up no floor space at all. Practically the entire evolution of the modern elevator door, with its track, hangers, opening and closing devices, and interlocking systems has been the work of the past thirty-five years.

Glass has also gone through a number of changes, along with the other materials. I can remember when practically all of our plate glass was imported from France, and I remember very well the old specifications which called for "double thick German glass" for ordinary glazing. Two new items in the glass market are "wire glass," which came into prominence a little less than thirty years ago, and "ultra violet ray glass," which was first introduced into this country from England some seven or eight years ago, and is now being extensively used in hospitals, solaria, and for living rooms in residences and apartments. There have been a number of new types of obscured glass put on the market in the past twenty-five years, all of which gives a wider selection for the architect.

During the past forty years the addition of new materials for painting and wood finishing have been something to marvel at. At that time white lead and linseed oil, mixed with tinting colors, oil stains and varnishes left in the gloss or rubbed down, distemper colors and calcimine were practically about all the choice the architect had. Since that time, enamels, gloss, eggshell and flat, enamel undercoaters, dull varnishes, nitro-cellulose lacquers, lithophone wall paints, aniline stains, water, acid and alkali-proof spar varnishes, and a legion of technical paints for iron, steel, and concrete, are some of the different materials which have been brought out and are in common use at the present time.

In the growth of the specification, nothing perhaps has been more pronounced in its development than the hospital specification. The entire technique of hospital construction has been developed within the memory of men who are not yet old. Not so very many years ago a hospital was just a building, built just like any other building, and divided up into wards, private rooms, operating rooms, and utility rooms; some of them are left and are glowing examples of what a hospital should not be. Today we are specifying special hardware, flush doors, special plumbing, tiled walls and floors in operating rooms and utility rooms, sheet steel equipment and other improved construction. One of the most prominent features in a present-day hospital is the X-ray room, something to which our predecessors never had to give a thought. Roentgen did not make known the results of his discovery until about 1893, and it was not until the ray had been used for some time that its penetration through walls, floors, doors, and windows, with the attendant serious results to those in range, were discovered. As a result the lead lined walls, doors, door frames and window shutters were introduced, and now a new material, barium sulphate plaster, is being specified for walls and ceilings.

During these past forty years about which I have been writing, plumbing has been practically revolutionized, and about all that remains of what was in the plumbing of that day is cast iron soil pipe with caulked joints and wrought iron pipe with screw joints. Lead pipe which was extensively used for supply and waste piping has been entirely done away with, and is now only used for short and irregular branches in waste lines, and for closet bends. Plumbing fixtures have undergone a wonderful change. The boxed-in tin bathtub (it was really copper, but we always speak of it as "tin"), the boxed-in hopper closets have long since become matters of history. In a fairly brief way I have tried to tell something of the growth of the specification from the days when I was a student in an architect's office, up to the present time, and I believe that most readers will agree with me that it was a much simpler task to write a specification in 1889, than it is in 1929. In following up the progress of the building trades

(Concluded on page 82, Advertising Section)

SERVICE DEPARTMENTS

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

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

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

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions. Such notices will also be posted on the job bulletin board at our main office, which is accessible to all.

SPECIAL NOTICE TO ARCHITECTS LOCATED OUTSIDE OF THE UNITED STATES: Should you be interested in any building material or equipment manufactured in America, we will gladly procure and send, without charge, any information you may desire concerning it.

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

THE MART

M. A. Cawl, 117 Albion Place, Passaic, N. J., wishes to buy the February, March, and May, 1929, issues of PENCIL POINTS.

Fred Lange, 10 So. 18th Street, Philadelphia, Pa., has the following books for sale: *The Smaller Houses and Gardens of Versailles, Masterpieces of Spanish Architecture, Architecture Toscane, Details of the Architecture of Tuscany, French Gothic Architecture, Small House Designs, Community Arts Association of Santa Barbara, California, Terra Cotta of the Italian Renaissance, Romanesque Architecture of Western Europe, Northern Italian Details, Philip Hooker, The Treatment of Interiors, Encyclopaedia of Iron Works,* and *American Country Houses of Today, 1922.*

Guy E. Steller, 1818 Miramar Street, Los Angeles, California, has for sale the following copies of PENCIL POINTS: December, 1925; January, March, April, May, July, August, September, October, November, and December, 1928; January to October, 1929, inclusive. Price, 20¢ per copy for the lot, or 25¢ per copy if sold singly, purchaser to pay the shipping charges.

Herbert C. Millkey, 119 Huntington Place, Cincinnati, Ohio, wishes to purchase the January, February, and March, 1929, issues of PENCIL POINTS. He is willing to pay $1.00 per copy.

Clarence M. Kratzer, 339 N. 6th Street, Allentown, Pa., would like to have the December, 1928, issue of PENCIL POINTS.

The Architectural Department of the University of Virginia, Charlottesville, Va., will pay fifty cents a copy for the following B.A.I.D. Bulletins: February, 1925; February, March, June, July, August, and September, 1926; December, 1927. In exchange or for sale, the department has November, 1925; October, 1927; September, November, and December, 1928; January, 1929. Also White Pine Series, Vol. 10, Nos. 5 and 6; Vol. 11, No. 5.

Robert H. Orr, 724 So. Spring Street, Rooms 1300-09, Los Angeles, Calif., will pay a liberal price for the first six volumes of PENCIL POINTS, namely 1920, 1921, 1922, 1923, 1924, and 1925, complete.

L. Perth, General Delivery, Manhattan Beach, Calif., wishes to procure the January, February, March, May, and July, 1929, issues of PENCIL POINTS.

J. H. Ferber, 1317 Russell Blvd., St. Louis, Mo., has for sale all PENCIL POINTS complete for the years 1925, 1926, and 1927 in A-1 condition. Price, $6.00 F. O. B. for the lot.

John P. Turner, Jr., 757 Mulberry Street, Macon, Ga., desires to obtain the following copies of PENCIL POINTS: July and August, 1925; April, May, and July, 1926.

Kirchhoff & Rose, 1300 Empire Bldg., Milwaukee, Wisconsin, wishes to sell the following White Pine Series: Volume XI, No. 6; Volumes XII and XIII complete; Volume XIV, Nos. 1, 2, and 3; Volume XV, Nos. 1, 2, 3, and 4. Price 25¢ per copy.

Library of Architecture and Allied Arts, 453 S. Spring St., Los Angeles, Calif., has for sale a new copy of D'Espouy's *Fragments d'Architecture Antique,* Volume 2. Submit offer.

J. C. Dressel, 1019 Elm St., Birmingham, Ala., has for sale copies of PENCIL POINTS from February, 1921, to September, 1929, inclusive, except January, 1923. Unbound, in good condition. Price $35.00 the lot, F. O. B.

W. E. Needham, 156 East 46th Street, New York, N. Y., would like to purchase a copy of *The Architectural Review,* Boston, August, 1913, No. 8, Vol. II (Old Series Vol. XIX).

PERSONALS

JOSEPH H. ROBERTS has moved from 311-312 Marine Bank Bldg. to temporary quarters at 616 Pacific-Southwest Bldg., Long Beach, California.

(Continued on page 86, Advertising Section)

FREE EMPLOYMENT SERVICE ITEMS WILL BE FOUND ON PAGES 86, 90 AND 91 IN THE ADVERTISING SECTION

RCH *Pencil Points* each month for the
orado Texture reproductions by Ernest
Watson. Send for samples of Eldorado,
e Master Drawing Pencil," to Joseph
on Crucible Co., Pencil Dept. 167-J,
ey City, New Jersey.

CODE FOR THE RATING OF LOW PRESSURE HEATING BOILERS

Adopted by the Steel Heating Boiler Institute, December 10, 1929

1. The purpose of this code is to provide a uniform method of rating Low Pressure Heating Boilers.
2. The rating of a boiler shall be expressed as square feet of steam or water radiation or as B.T.U. per hour.
3. For purposes of this Code, boilers are divided into two general classes as follows:
   - A. Steam and Water Boilers in which solid fuel, hand fired, is used as the heat generating medium.
   - B. Steam and Water Boilers in which solid fuel, mechanically fired, oil or gas is used as the heat generating medium.
4. The rating of a boiler in Class A, expressed in square feet of steam radiation, shall be not more than fourteen times the heating surface of that boiler in square feet.
5. The grate area of a boiler for the rating as determined by Section 4 shall be not less than that determined by the following formulae:

   For boilers with ratings 300 sq. ft. to 4,000 sq. ft. of steam radiation;

$$\text{Grate Area} = \sqrt{\frac{\text{Catalogue Rating (in sq. ft. Steam Radiation)} - 200}{25.5}}$$

   For boilers with ratings of 4,000 sq. ft. of steam radiation and larger;

$$\text{Grate Area} = \sqrt{\frac{\text{Catalogue Rating (in sq. ft. Steam Radiation)} - 1500}{16.8}}$$

6. The rating of a boiler in Class B, expressed in square feet of steam radiation, shall be not more than seventeen times the heating surface of that boiler in square feet.
7. The furnace volume of a boiler (as defined in Section 10) for the rating (as determined by Section 6) shall be not less than one cubic foot for every one hundred and forty square feet of steam rating.
8. Boilers selected on the basis of this Code shall be connected to stack and breeching in accordance with the manufacturer's specifications.
9. The rating as defined above for purposes of selection is intended to correspond to the estimated design load, which is to be the sum of items A, B and C.
   - A. The estimated normal heat emission of the connected radiation required to heat the building as determined by accepted practice, expressed in square feet of radiation or in B.T.U. per hour.
   - B. The estimated maximum heat required by water heaters or other apparatus connected to the boiler, expressed in square feet of radiation or in B.T.U. per hour.
   - C. The estimated heat emission of piping connecting radiation and other apparatus to the boiler, expressed in square feet of radiation or in B.T.U. per hour.
10. Definitions:

    For purposes of this Code the following definitions will be used:
    - A. One square foot of steam radiation shall be considered equal to the emission of 240 B.T.U. per hour and one square foot of water radiation shall be considered equal to the emission of 150 B.T.U. per hour.
    - B. Heating surface shall be expressed in square feet and include those surfaces in the boiler which are exposed to products of combustion on one side and water on the other. The outer surface of tubes shall be used.
    - C. Grate area shall be considered as the area of the grate surface expressed in square feet and measured in the plane of the top surface of the grate. For double grate boilers the grate area shall be considered as the area of the upper grate plus ¼ of the area of the lower grate.
    - D. Furnace volume shall be considered as the cubical content of the furnace between the top of the base or the normal grate line and the plane of entry into or between the tubes plus the net base volume under the firebox. The net base volume shall be determined by deducting the volume of the refractory lining from the gross base volume under the firebox.

THE GROWTH OF THE SPECIFICATION

(Continued from page 151, Editorial Section)

and the development of new materials it is not hard for the most casual observer to recognize the debt we owe to the chemist in the development of what today are absolute essentials to good building, notably waterproofings, cement hardeners, floorings, paints, varnishes, stains, and an innumerable list of other materials.

The latest and one of the most important developments in the specification is the new standard specification of the New York Building Congress which has recently been issued to the architectural profession, after several years of most careful preparation. It is as yet a new idea and not thoroughly understood, but in my opinion it is eventually going to be universally adopted by the architects. But like every new idea it will take a little time for it to sink in.

PERSONALS

(Continued from page 152, Editorial Section)

CLARK J. LAWRENCE has moved from Palm Beach, Florida, to 11 East Huron Street, Chicago, Ill.

VICTOR MAYPER has moved his offices from 15 East 40th Street to 110 West 40th Street, New York, N. Y.

SAMUEL NAPP, formerly located at 15 East 40th Street, has moved to 110 West 40th Street, New York, N. Y.

ABNER E. FOSTER, ARCHITECT, formerly associated with Bernard Pepinsky in the Enquirer Bldg., has opened an office at 605 Provident Bank Bldg., Cincinnati, Ohio.

ROBERT J. TORRENS, consulting engineer, has opened an office in the Shubert Bldg., St. Paul, Minnesota, for the practice of engineering.

PUBLICATIONS

OF INTEREST TO THE SPECIFICATION WRITER

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

A Portfolio of Interiors.—A.I.A. File No. 19-e-33. A collection of 16 photographic illustrations showing the Driwood line of mantels and a series of charming rooms in which Driwood period mouldings have been used in various ways. On the reverse side of each plate is given the source of inspiration of each room together with historical notes. Standard filing size. Henry Klein and Company, Inc., 40 W. 23rd St., New York, N. Y.

Lupton Residence Casements.—A.I.A. File No. 16-e-1. Catalog C-217. Attractive publication on the subject of residence casement windows of steel. Full size vertical and horizontal sections, types and sizes, specifications, hardware, installation details, etc. Also features casement screens, casement doors and basement windows. 28 pp. Standard filing size. David Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia, Pa.

Old American Buildings.—Booklet containing reprints of advertisements in which are shown a series of historic structures illustrating the varied ways in which marble has contributed to the development of American architecture. 14 pp. Standard filing size. Vermont Marble Co., Proctor, Vermont.

The Red Book of Building Materials—(Contracting Division).—Valuable new document for architects and engineers on the subject of fireproof gypsum roofs and floors, partitions, furring, beam and column covering, sound insulation system and acoustical materials. Many detail drawings and complete specifications for gypsum roofs, both poured in place and precast, and gypsum tile for partitions and furring, and beam and girder fireproofing. 32 pp. Standard filing size. United States Gypsum Co., Contracting Division, 300 W. Adams St., Chicago, Ill.

Emergency Lighting and Emergency Power Data.—A.I.A. File No. 31-f-29. Looseleaf folder with three new bulletins showing the main needs and uses of Exide batteries for emergency lighting and power for theatres, hospitals, banks, churches, department stores, apartment houses, etc. Also includes general information on emergency lighting equipment and batteries. Specifications, tables, illustrations. 28 pp. Standard filing size. The Electric Storage Battery Co., Allegheny Ave. and 19th St., Philadelphia, Pa.

Cemulsion Process.—New publication with detailed description and specifications of this new method of dampproofing interior surfaces of exterior walls above grade. Also describes the Spandrel-Tite method for spandrel beam waterproofing together with full specifications. Detail drawings, illustrations. 12 pp. 8½ x 11. Structural Waterproofing Co., 285 Madison Ave., New York, N. Y.

Wood Roof Trusses.—A.I.A. File No. 19-b-3. New folder illustrating numerous installations of this type of wood roof truss in churches and clubs. Standard filing size. McKeown Bros. Co., 5235 South Keeler Ave., Chicago, Ill.

Newmanco Grilles.—A.I.A. File No. 30-e. New catalog shows many designs of this line of perforated and cast metal grilles. Descriptive notes, dimension schedules. 40 pp. 10¾ x 7¾. The Newman Manufacturing Co., 416 Elm Street, Cincinnati, Ohio.

Published by the same firm, "Newmanco Bronze Storefronts." A.I.A. File No. 15-a. New booklet with descriptive data and many detail drawings covering this line of bronze storefronts and awning bars. 16 pp. Standard filing size.

"Bronze Windows." A.I.A. File No. 15-a. Booklet dealing with the subject of double-hung, casement, pivoted and fixed windows. Detail drawings. 12 pp. 8½ x 11.

"Bronze Doors." A.I.A. File No. 15-a. Brief descriptive data and details of this type of extruded and hollow bronze door, sections, standard styles, etc. 8 pp. Standard filing size.

Hitchings Super-Frame Greenhouse.—New catalog illustrates and describes in detail the design and construction of this type of greenhouse. Detail drawings, tables. 20 pp. 8½ x 11. Hitchings and Co., Elizabeth, N. J.

Turbo Air Washer.—A.I.A. File No. 30-d. Bulletin No. 29-a is devoted to subject of air conditioning with complete engineering and descriptive data covering the design and construction of this type of equipment. Illustrations, details, tables, charts, etc. 28 pp. Standard filing size. Bayley Blower Co., 732 Greenbush St., Milwaukee, Wis.

Published by the same firm, "Bayley Type 'B' Fans." A.I.A. File No. 30-d-1. Catalog No. 29B. Complete information and engineering data covering this type of exhaust fan used in shops, factories, etc. Dimension drawings, capacity tables, etc. 32 pp. 8½ x 11.

Heintz Cabinet Radiator.—A.I.A. File No. 30-c-4. Illustrated bulletin with brief description of this new kind of cabinet radiator for use on all types of heating systems. 8½ x 11. Heintz Manufacturing Co., 1332 Arch St., Philadelphia, Pa.

Architects' Specification Manual.—A.I.A. File No. 19-a-22. Standard filing size folder contains specifications for apartment and school buildings, medium and high-class residences, store buildings and light factories, heavy factories and warehouses, construction specifications, descriptions of grade and general information on lumber of interest to the architect and specification writer. 16 pp. Southern Pine Association, New Orleans, La.

Rolscreens.—A.I.A. File No. 35-p-1. Attractive brochure on the subject of window screening with complete information covering the construction and installation of this type of rolling screen. Illustrations, specifications, sizes, full size installation details, etc. 24 pp. Standard filing size. Rolscreen Co., Pella, Iowa.

Aserco Sound Controlling Panels.—A.I.A. File No. 39. Architects' filing folder with details and specifications covering this type of acoustic material for walls and ceiling surfaces. 8½ x 11. Acoustic Service Corporation, 1505 Race Street, Philadelphia, Pa.

Faience Tile Bathrooms.—A.I.A. File No. 23-a. Illustrated bulletin in colors discusses the adaptability of this tile for bathroom walls and floors. Series of eight color combinations are reproduced. 8½ x 11. Flint Faience and Tile Co., Flint, Mich.

Published by the same firm, "Faience Tile Floors." A.I.A. File No. 23-a. Bulletin with color plates showing various combinations of pattern and color of this line of Faience and Vitrocraft unglazed tiles for use in residences, entrances, vestibules, lobbies, waiting rooms, large display rooms, etc. Standard filing size.

Architectural Review of Gaseous Tube Lighting.—New booklet setting forth the wide variety of lighting possibilities with luminescent tubes. It also shows the various ways in which this type of decorative lighting is being utilized in many cities for different purposes. 12 pp. 8½ x 11. Claude Neon Lights, Inc., 41 East 42nd St., New York, N. Y.

Standard Open Web Steel Joist Loading Table.—Convenient filing size card for architects and engineers contains reprint of the standard loading table recently adopted by the Steel Joist Institute. Explanatory notes accompany table. Steel Joist Institute, 1736 Dime Bank Bldg., Detroit, Mich.

Shaw-Perkins High Convection Radiators.—Catalog No. 30 illustrates and describes the design and construction of this type of radiator suitable for steam and hot water heating, many cooling and drying operations and various industrial uses. Dimension drawings, tables, etc. 32 pp. Shaw-Perkins Mfg. Co., Oliver Bldg., Pittsburgh, Pa.

Rubber Tile Flooring.—A.I.A. File No. 23-c. New bulletin showing in colors various designs of square and interlocking tile for office and public buildings, clubs, churches, theatres, residences, etc. 8½ x 11. New York Belting and Packing Co., 91 Chambers St., New York, N. Y.

Sedgwick Freight Elevators.—A.I.A. File No. 33-c-4. New bulletin with general information, blue print layouts, dimensions and specifications covering this line of hand power freight elevators. Standard filing size. Sedgwick Machine Works, 150 W. 15th St., New York, N. Y.

Non-Clogging Sewage Ejectors.—Bulletin 412, just issued, covers this type of pump designed for draining all kinds of sump, refuse pits, etc. Details of construction, tables. 8 pp. Standard filing size. Economy Pumping Machinery Co., 3431 W. 48th Place, Chicago, Ill.

Published by the same firm, "Open Shaft Vertical and Horizontal Non-Clogging Pumps." Bulletin 413. Complete descriptive and engineering data, tables and outline dimensions covering this line of pumps. 12 pp. 8½ x 11.

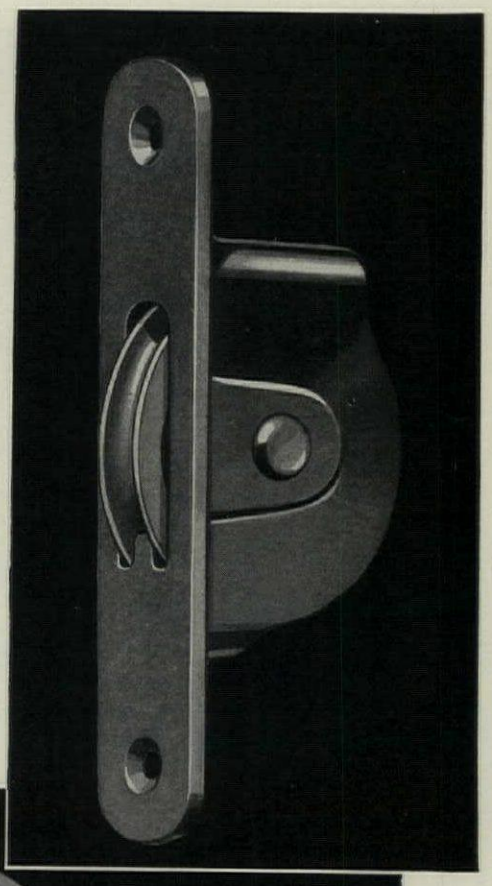
"Split Case Multi-Stage Centrifugal Pumps." Bulletin 414 gives complete information on this type of high-pressure pump for use in the building and industrial field. Construction details, capacity tables, etc. 12 pp. Standard filing size.

The Ventador.—A.I.A. File No. 19-e-17. Illustrated bulletin with complete information, specifications and detail drawings covering this type of ventilating panel for doors for use in hotels, hospitals, homes, clubs, theatres, schools, office buildings, etc. 8 pp. Standard filing size. Van Zile Ventilating Corporation, 155 E. 42nd St., New York, N. Y.

Published by the same firm, "The Sound-Proof Ventador." A.I.A. File No. 19-e-17. Standard filing size folder devoted to this door panel that excludes sound, light and vision from the corridor. Specifications, detail drawings.

Mueller Tile.—Illustrated catalog showing this line of architectural faience, polychrome panels, emblems, Flemish hand-made tile, Norman and Roman mosaic, intarsio for stucco inserts, etc. Series of color plates. 60 pp. Mueller Mosaic Co., Trenton, N. J.

Guaranteed
NOISELESS *and* WEARPROOF



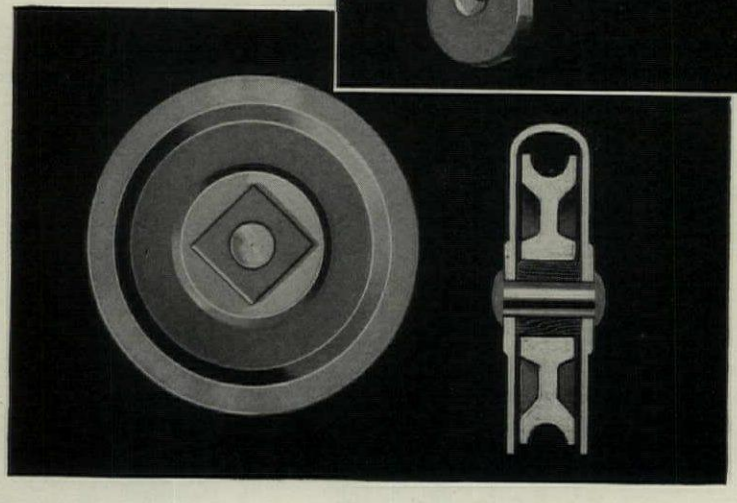
Why risk the chance of wobbling, *noisy* pulleys when you can specify the Andersen Sash Pulley—*guaranteed* noiseless and wearproof for an unlimited period?

Andersen Noiseless Sash Pulleys are made of cast grey iron, lacquered, with turned wheel and polished face. In addition, they have other features which recommend them to exacting architects, and they are made in four sizes and nine finishes. (See explanation of features under illustrations.)

ANDERSEN FOUNDRY COMPANY
Sash Pulley Division, ANDERSEN FRAME CORPORATION, Bayport, Minn.

See Sweet's Architectural Catalog . . . Page B2916 for complete specifications, sizes and finishes.

TEST—Andersen Noiseless Sash Pulleys have been tested for wearing quality and quiet operation by a disinterested engineer at the Engineering Laboratories of the University of Minnesota. Copies of this test will be furnished gladly on request.



Upper illustration shows tongue on face of pulley which reduces air leakage under wheel to a minimum. The special design of the housing prevents sash cord or chain from slipping off wheel or catching.

Pulley wheel shows hard white maple bushing which is permanently impregnated with a non-drying lubricant. Cross section shows wheel in housing. Wheel turns on wood bushing. No metal touches metal, which accounts for the absolutely noiseless operation. (Patent No. RE 16594.)

(At Left)—Lake Shore Apartment Hotel, Cleveland, Ohio. Andersen Noiseless Sash Pulleys used throughout. Frank W. Bail, Architect.

Andersen Sash Pulleys
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Architectural Draftsmen and Designers write us for experience card so we can refer you to positions. No advance charge of any kind. Thirty-seven years' experience serving technical men. Address Architectural Department, The Engineering Agency, Inc., 53 West Jackson Blvd., Chicago, Illinois. *(Adv.)*

Position Wanted: Architect, young, energetic man with broad architectural experience desires to connect with an established office in a small city where the ability to produce high class work and to command new business will lead to part interest. Box No. 100, care of PENCIL POINTS.

Position Wanted: Young man desires position with architect, builder or chain store corporation as draftsman and superintendent. Conversant in every phase of the building line. Registered architect in New York State. Salary moderate. Box No. 101, care of PENCIL POINTS.

Position Wanted: Architectural draftsman wants position with reliable concern, ten years' experience on all types buildings—industrial, lofts, office, apartment houses and also have extensive knowledge of alterations. Can handle all work from sketches to completion. Box No. 102, care of PENCIL POINTS.

Position Wanted: Young man desires a position in architect's office; three months' experience as letterer and tracer. Neat and ambitious worker. Attending evening school at present. Box No. 103, care of PENCIL POINTS.

Position Wanted: Office Manager and Accountant, thoroughly experienced in architect's office, desires position with Architectural firm. Box No. 104, care of PENCIL POINTS.

Position Wanted: Residential Specialist, architectural draftsman. University training, 5 years' experience in designing, details, construction, perspectives and rendering, desires position in architect's or builder's office. Part or whole time. Box No. 105, care of PENCIL POINTS.

Position Wanted: Architectural draftsman and superintendent of construction. College graduate. Twenty years' experience on all types of construction. Squad boss. Can handle complete work. Also chain store experience. Best references. Registered New York and New Jersey. Can do designing, specifications, steel and general work of the better class. Good offices only. Box No. 106, care of PENCIL POINTS.

Position Wanted: Senior draftsman, 18 years' experience. All-round draftsman, superintendent and specification writer. Prefer location South or Central. Age 35, married. Accustomed to responsibility and hard work. Box No. 107, care of PENCIL POINTS.

Part Time Position Wanted: Draftsman wishes work that can be done at home. Ten years' experience in the Architectural Bronze business and a student of architecture. Capable of making details and working drawings from sketches. Box No. 108, care of PENCIL POINTS.

Position Wanted: Experienced draftsman on high class residence work—preferably design though able to carry forward the usual plans and details. Best technical school, varied experience, references. Shortly available. Box No. 109, care of PENCIL POINTS.

Wanted: Factory representation; by young man of neat appearance, 30 years of age, married, an architect and salesman; acquainted with 90% of the architects and contractors as well as half of the electricians and plumbers over Louisville and Kentucky. Would like one full time connection or several part time selling building equipment, specialties or materials. Box No. 110, care of PENCIL POINTS.

Position Wanted: Estimator, young man 34 years old, 10 years' experience as estimator for building material manufacturer. Has been in charge of estimating force of fourteen men and can handle small office. With present employer twenty years. Full particulars on request. Interview at your convenience. Box No. 111, care of PENCIL POINTS.

Position Wanted: Young man with four years' experience in architect's office wishes position in vicinity of New York City. Four years Columbia University. Salary $40. Box No. 112, care of PENCIL POINTS.

Position Wanted: Secretary. Young lady with four years' experience in architect's office wishes permanent position. Salary $35. Box No. 113, care of PENCIL POINTS.

Wanted: Good all-round architectural draftsman; general knowledge of specifications; small Western New York office. Box No. 121, care of PENCIL POINTS.

Position Wanted: Architect's or Owner's Representative. Thoroughly qualified to carry on field supervision and inspection from blue prints to occupancy. Years of experience on high class dwellings, schools, club buildings, apartments, factories, and commercial plants. Permanent connection desired. Will travel. Box No. 114, care of PENCIL POINTS.

Position Wanted: Registered architect, designer of fourteen years' practical experience, college graduate wishes to form partnership with business getter or one with established office. Box No. 115, care of PENCIL POINTS.

Position Wanted: Specification Writer—architectural, desires position with established architect. Eight years' experience architectural and construction work. Theatres, office buildings, apartments and commercial buildings. Familiar with office routine, capable to serve in executive capacity. Clean business record. Best references. Married. Salary desired $65. Box No. 116, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, graduate of college of Architecture with Class A Beaux Arts training. Two and one-half years of practical experience as draftsman doing work of a general character in small architect's office and construction office. Location preferred New York or vicinity. Salary secondary. Can do perspectives. Box No. 117, care of PENCIL POINTS.

Position Wanted: Young man 21 years old desires position with a St. Louis architect. Have had about a year's experience. Willing to do anything. Box No. 118, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, 14 years' varied European experience, 8 years' American, especially New York experience, desires permanent position. Experience in New York City on office and loft buildings, apartment houses, hotels, schoolhouses and bank buildings (plans, interior and exterior work). Especially well versed in working drawings, ¾ etc. and F.S. details (architectural and structural details), perspectives. Can handle work from start to completion. Box No. 119, care of PENCIL POINTS.

Position Wanted: Architectural designer, thoroughly experienced in high grade country house work. Capable of producing job-getting sketches and handling completely, entire projects. Desirous of connecting with first class country house office on whole or part time. Box No. 120, care of PENCIL POINTS.

Position Wanted: Architectural draftsman, 37 years old, 15 years' experience. Capable of preparing working drawings from sketches; also scale and full-size details. Experienced in supervising. Box No. 122, care of PENCIL POINTS.

Wanted: Landscape Salesman. Must be an unusually high grade man, capable of selling a complete landscape contracting service to the highest class Philadelphia clientele. Give full information in your first letter. Box No. 123, care of PENCIL POINTS.

Position Wanted: Capable and industrious young man, 21, wishes to locate in Architectural or other drafting office as Junior Draftsman. I.C.S. Graduate. Salary secondary. Box No. 124, care of PENCIL POINTS.

Position Wanted: Designer, draftsman, renderer, 7 years' experience and degree in Architecture, certified, wishes position. At present in New York City. Box No. 125, care of PENCIL POINTS.

Position Wanted: Young architectural draftsman and surveyor, 5 years' experience, wishes employment with an architect or construction organization anywhere. Box No. 126, care of PENCIL POINTS.

Position Wanted: High school graduate, architectural student desires work in architect's office in vicinity of Cleveland. Box No. 127, care of PENCIL POINTS.

Position Wanted: Architectural draftsman and designer with seven years' office training, University graduate, registered in Pennsylvania, wishes to connect with architect in smaller town. Can take charge of complete drafting. Location immaterial. Box No. 128, care of PENCIL POINTS.

Position Wanted: Architectural draftsman desires position with contractor or builder as checker or follow-up man. No experience. Salary secondary. Box No. 134, care of PENCIL POINTS.

(Other items on pages 90 and 91, Advertising Section)

● Ida Noyes Hall for Women . . . an achievement of the architectural firm of Coolidge and Hodgdon, Chicago . . . is only one of nine important structures at the University of Chicago which are covered with IMPERIAL Roofing Tiles. More than 1,100 squares of these tiles, principally flat shingles, have been laid on that institution's buildings since the year 1914. A warm red tone has been chosen as standard, thus happily averting the monotonous effect which would have resulted had drab, cold roofs been combined with somber gray walls.

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(Other items on pages 86 and 91, Advertising Section)

Position Wanted: Architectural draftsman with 15 years' practical all-round experience on buildings of all types, including designing, working up drawings, detailing, etc. Can work up a complete set of plans from beginning to completion. Box No. 129, care of PENCIL POINTS.

Position Wanted: Modern designer; 10 years' experience in excellent offices. References. Ability to do creative original work of fine character. Office buildings, hotels, residences, apartments, stores, etc. Can show drawings, photographs of executed work. Master's degree in architecture. New York City location. Box No. 130, care of PENCIL POINTS.

Position Wanted: Draftsman, good residential work. New York Office. Can take job through from sketches to finish, including ¾" scale, F.S. details and necessary beam and lintel computation. Good knowledge of construction and design. Eight years' experience. Box No. 131, care of PENCIL POINTS.

Position Wanted: Ambitious young man, 19 years of age, desires position as a beginner. Can do tracing and some drafting. Samples and references furnished on request. Box No. 132, care of PENCIL POINTS.

Position Wanted: Designer, draftsman. Seven years' experience. Plans and elevations and renderings. Beaux Arts Student. Will consider only a permanent position. Box No. 133, care of PENCIL POINTS.

Position Wanted: Architectural draftsman desires position with architects. Five years' experience on hospitals, hotels, office buildings, apartment houses and residence buildings. Salary $40.-$50. Box No. 135, care of PENCIL POINTS.

Part Time Position Wanted: Senior architectural student at Columbia University and practical draftsman desires spare time employment at architectural drafting. Box No. 136, care of PENCIL POINTS.

Position Wanted: Young man desires position in architect's office. Has good knowledge of principles of architectural drawing. Box No. 137, care of PENCIL POINTS.

Position Wanted: Architectural draftsman desires position. Nine years' experience. Hospitals, hotels, apartment houses, etc. References. Salary $65. Box No. 138, care of PENCIL POINTS.

Position Wanted: Designer, draftsman with 9 years' experience on high class school, residence and commercial work. College engineering and design training. Age 36, married. Prefer permanent position in smaller office. References furnished. Will consider any location. Box No. 139, care of PENCIL POINTS.

Position Wanted: Woman draftsman, ten years' experience designing houses, small churches, office layouts, experienced stenographer, specifications, quantitative analysis, office routine. Salary $30. Box No. 140, care of PENCIL POINTS.

Position Wanted: Architect-superintendent, sixteen years' experience with leading architects in the construction of hotels, banks, theatres and commercial buildings of all kinds. Box No. 141, care of PENCIL POINTS.

Position Wanted: Secretarial or stenographic position desired in office of Pittsburgh architect or building contractor by young lady with 5 years' experience in architectural office. High school graduate with some college training. Thorough knowledge of office management. Box No. 142, care of PENCIL POINTS.

Position Wanted: Architectural student, 18 years old would like position in architect's office. Two years' experience, second year at Pratt Institute. Box No. 143 care of PENCIL POINTS.

Position Wanted: Practicing architect and construction manager wishes position as manager of construction or construction department of building concern. Married 39 years of age. High School and College education in Architecture. Have list of clients and completed jobs as references. Box No. 144, care of PENCIL POINTS.

Position Wanted: Graduate of 4-year High School Architectural course wishes position as a beginner in office of architect in Chicago or suburbs. Age 18. Reference submitted. Box No. 145, care of PENCIL POINTS.

Position Wanted: Junior draftsman attending Cooper Union for the fourth year (nights) desires position in architect's or contractor's office. Box No. 146, care of PENCIL POINTS.

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(Other items on pages 86 and 90, Advertising Section)

Wanted: Perspectives and renderings by free lance draftsman. Box No. 147, care of PENCIL POINTS.

Position Wanted: Draftsman, 4 years' experience in architect's office on apartments and country houses. Three years' Mechanics Institute, 4 years' Columbia University Extension. Salary $40. Box No. 148, care of PENCIL POINTS.

Position Wanted: Young architect, 29, Master's Degree, 6 years' practical experience abroad and in New York with best firms. Specialized in modern interior and exterior architectural composition from sketches to work, would like to work with private architect or firm on high class buildings. Salary $75. Box No. 149, care of PENCIL POINTS.

Position Wanted: Registered architect, twelve years' private practice and office manager New York City and middle west, wishes to make connection with reputable architectural office as office manager or in executive capacity. University graduate, extensively travelled, A.I.A., thoroughly versed in all phases of architectural practice. Box No. 150, care of PENCIL POINTS.

Architect Desires to Connect with Manufacturer: Man experienced in educational and institutional buildings with broad knowledge of planning and design desires position with manufacturer who could use his services as draftsman, architectural adviser and to interview architects. Salary of secondary importance. Box No. 151, care of PENCIL POINTS.

Wanted: Field representative to do Appalachian Hardwood trade promotion work in eastern territory. State age, nationality, education, experience, family if married, salary expected and references. Send photograph. Appalachian Hardwood Club, Southern Railway Building, Cincinnati, Ohio.

Position Wanted: Architect seeks partnership—registered in New York State. Twenty years' experience and capable of handling an office in an efficient and profitable manner. Box No. 152, care of PENCIL POINTS.

Position Wanted: Architectural designer and draftsman, detailing, perspectives and renderings. All types of architecture, old and modern. Eight years' actual office experience. Five years in New York City and three years abroad. Box No. 153, care of PENCIL POINTS.

Position Wanted: Specification writer and office manager, with broad experience in supervision and construction, desires a position preferably in the east or south. Box No. 154, care of PENCIL POINTS.

Wanted: Summer School teaching, sales position, drafting or rendering for the summer, with permanent connection in view. Am teaching architecture in one of the leading technical colleges of the U. S. Eighteen years' experience, practical and teaching. Box No. 155, care of PENCIL POINTS.

Position Wanted: College graduate, 27 years of age, five years' experience in ecclesiastical work, desires connection where ability in interviewing clients and potential clients would be advantageous. Thoroughly familiar with office routine and management. Eastern location preferred. Box No. 156, care of PENCIL POINTS.

Wanted: Monument concern wants draftsman. Must be good on perspective and water-color sketches. New York City. Apply by letter only and mention training and salary required. Box No. 157, care of PENCIL POINTS.

Position Wanted: Stenographer-secretary desires position in New York. Has had good architectural and other experience. References. Telephone, Monument 2721.

Part Time Position Wanted: Young man desires position as beginner in drafting room of architect or construction engineer. New York City. Salary of no consequence, but is anxious to get experience. Could only work three or four hours a day. If necessary would work for experience alone. Joseph F. Lee, 2509 Clarendon Road, Brooklyn, N. Y.

Position Wanted: Young lady would like position in the capacity of secretary in small architect's office in New York where the office routine would permit of a few hours drafting each day. Box No. 158, care of PENCIL POINTS.

Position Wanted: Young lady designer and illustrator desires position with commercial artist, advertising agency handling commercial work, or newspaper. Has ability to create original and modern illustrations and layouts. New York City location. Box No. 159, care of PENCIL POINTS.

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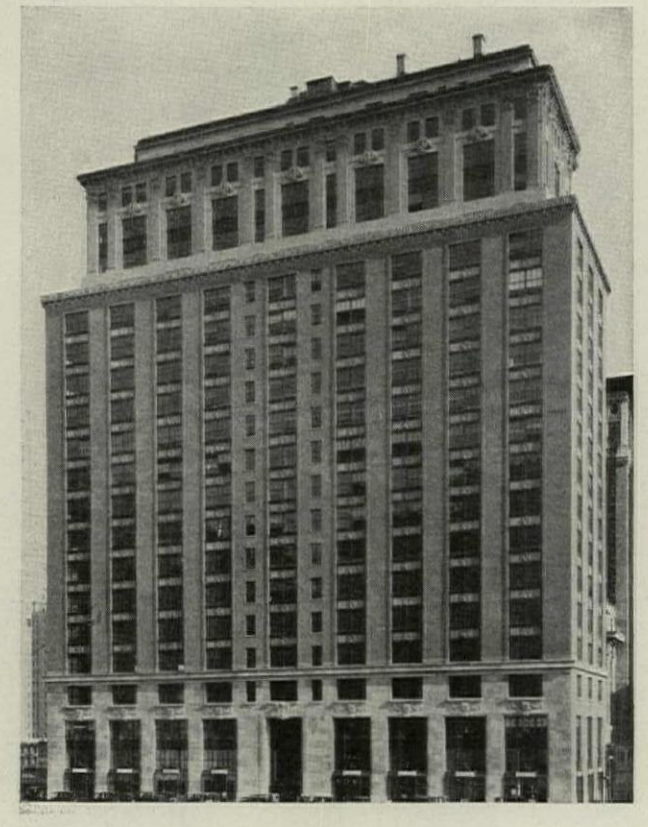

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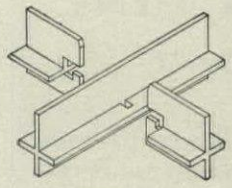

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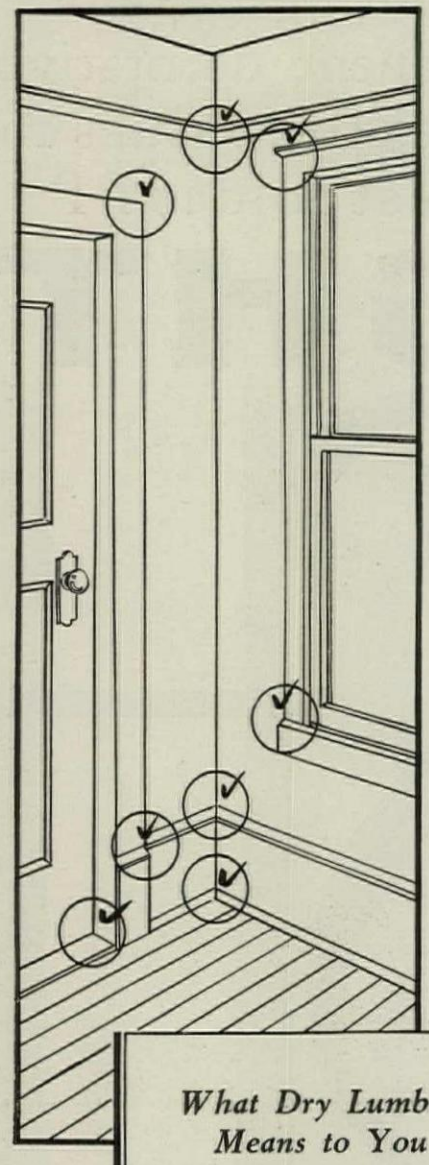

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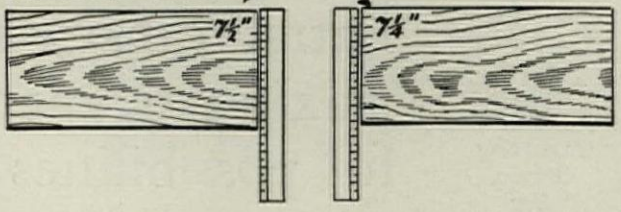
This Board Dressed to 7¼" when not Dried *See what Shrinkage makes you Lose.*



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SPA lumber is *dry*. It will not warp nor cup, nor will it become crooked when placed in use. When it is used for sills, joists, plates or studs, there need be no fear of the misalignment of doors or windows or cracks in the corners of a room. The squeaking of floors may be silenced through the use of dry lumber—squeaks being caused, not by the flooring, but by the movement of nails in joists that shrink when green lumber is used.

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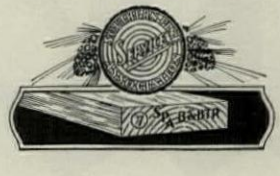
*Write for the Moisture Content booklet—"AND NOW, DRY LUMBER," based upon the "Bible of the Lumber Industry," Booklet 556

Southern Pine Association
NEW ORLEANS



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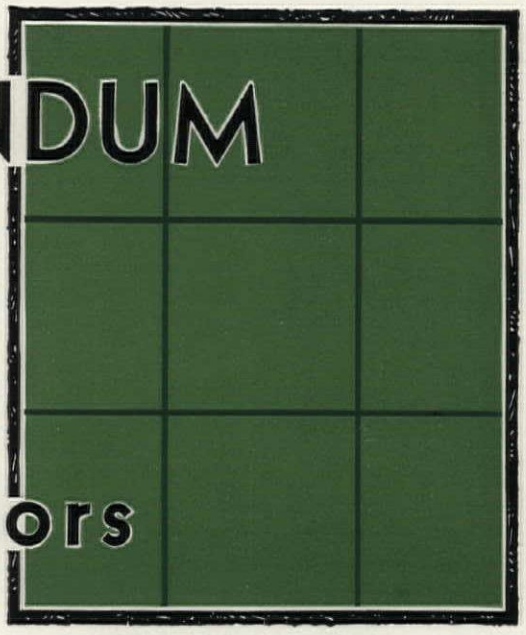

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The finished surface looks glass-smooth. But try and slide on it and see how you are brought up short.

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Our rubber-carborundum wheel on a power hand saw will quickly score the floor to give a joint effect of tile.

Do you know about Differential Heating?

This is the method of steam heating that provides the uniform, maximum-comfort service that is the ideal of building occupants, owners and managers alike; that is flexible enough to meet maximum and minimum weather variations and maintain room temperatures constant; and by avoiding overheating saves from 25% to 40% in fuel.

Proved by owners' own records Dunham Differential Heating is an improved method of steam heating under complete control; unlike any other heating system, yet backed by the 26 years of experience and reputation of this company; different, yet proved by more than 700 installations all across the United States, in Canada, and abroad.

Design — Based on Scientific Principles The temperature at which water boils varies with the pressure. Under atmospheric pressure (at sea level) the boiling point is 212°F and at 25 inches of vacuum it is 133°. Dunham Differential System makes practical an operating range from 25 inches of vacuum up to several pounds pressure in that way controlling building temperatures. "Cool" steam (133°) is generated and circulated under high vacuum. This meets heat requirements for mild weather.

No Overheating Steam at temperatures corresponding to pressures up to one pound should be ample for severe weather conditions, but is far too hot for the mild weather that makes up 95% of the average heating season. In such weather cool steam should be circulated. Only Dunham Differential Heating utilizes "cool" steam.

Comfort Comfort requirements are usually set at 70°F. Discomfort comes in both above and below the correct temperature. Waste starts a few degrees above the comfort line. Dunham Differential Heating maintains even temperatures, so uniform, so comfortable that occupants are seldom conscious of the heating system.

Works with any boiler — any radiation There are no complications to the installation of a Dunham Differential System. Boiler, radiators, piping, may be selected on the same basis of sound engineering practice as for other systems of heating. Existing installations of vacuum return line heating can often be readily adapted to Dunham Differential operation.

Economy Discomfort through overheating leads occupants to open the windows. Heat waste is then greatly increased. Direct comparisons in change-over installations from ordinary heating systems to Differential operation show that Dunham Differential Heating saves from 25% to 40% in fuel costs by the elimination of overheating. Similar fuel economy is obtained in new buildings.

Look for the name DUNHAM. This nameplate identifies a genuine Dunham Thermostatic Radiator Trap.

Costs First cost is not necessarily the determining factor in any equipment. When operating costs of Dunham Differential Heating are examined, the initial cost becomes insignificant when related to the returns on the investment in fuel savings of 25% to 40%, to say nothing of the health, comfort and efficiency values enjoyed.

Buildings heated by Dunham Differential vacuum systems have a heating service which **tenants like** and **owners know** saves money.

The Dunham Differential Vacuum Heating System and individual parts of the apparatus used in that system are fully protected by United States Patents Nos. 1,644,114, 1,706,401 and 1,727,965 and Canadian Patents Nos. 282,193, 282,194, and 282,195. Additional patents in the United States, Canada and foreign countries are now pending.

C. A. DUNHAM CO.

Dunham Building

450 East Ohio Street Chicago, Illinois

Over 80 branch offices in the United States, Canada and the United Kingdom bring Dunham Service as close to you as your telephone. Consult th 58-page Dunham Architectural Handbook in Sweets—Volume D. Dunham engineers are at your service with complete and authoritative data on improved heating practice.

An important new advance in house insulation

Balsam-Wool

A Full Inch Thick

One-inch Balsam-Wool comes 17 inches wide . . . fits snugly between studding, rafters or joists. It is also made 25 and 33 inches wide

IN one-inch Balsam-Wool, a new degree of efficiency in true house insulation has been attained.

It makes possible a more *adequate* job of true insulation than has ever before been possible in a single application.

Its cost, in relation to its insulation value, is considerably reduced. It represents no increase in application time or cost.

In addition to these new advantages of increased thickness, one-inch Balsam-Wool retains unimpaired the highly important advantage of *flexibility*.

It fits snugly between the framing members of walls and roof. It *tucks into* cracks and crevices, around doors and windows, back of pipes. It does a thorough job of true insulation.

Architects can specify one-inch Balsam-Wool with the assurance that their clients are receiving the most thorough insulation job in a single application that money can buy.

Many architects are now specifying one-inch Balsam-Wool for the *entire* insulation job. In other instances they are using the one-inch thickness in combination with the half-inch Balsam-Wool. The availability of two different thicknesses of Balsam-Wool is a distinct convenience on many jobs.

Note the new creped Kraft liners, tough, heavy, flexible. They are waterproof, wind-proof and practically puncture-proof. Balsam-Wool itself is fire-resistant, vermin-proof and permanent

If you have not had an opportunity to examine the new one-inch Balsam-Wool, we shall be pleased to send you a sample, together with complete data file, including specification material. You will also find full descriptive matter and specifications in Sweet's Architectural Catalogue.

WOOD CONVERSION COMPANY
Cloquet, Minnesota

Also makers of Nu-Wood—the All Wood Insulating Wall Board and Lath. Sold only through retail lumber dealers

Branch Offices: New York, 3107 Chanin Bldg.—Detroit, 515 Stephenson Bldg.—Chicago, 360 N. Michigan—Kansas City, 231 W. 47th St.—Minneapolis, 414 Baker Bldg.—Seattle, 616 Liggett Bldg.

IT TUCKS IN! *Balsam-Wool combines the highest insulating efficiency ever attained in practical house insulation with the important advantage of* flexibility

A guaranteed Weyerhaeuser product

Balsam-Wool Blanket

THICK... FLEXIBLE INSULATION... EFFICIENT

Speaking of Remodeling is This ECONOMY?

Spending $1,528.00
Saving $6,155.38

THE NIXON BUILDING is one of downtown Chicago's well known office buildings, owned by the Loop Building Corporation.

It was decided to overhaul the existing heating system and change over to an ILLINOIS System. The Illinois Engineering Company made no extravagant selling claims as to what savings could be effected, but knew that the specialties used would produce the maximum saving possible.

The following figures furnished by Mr. E. L. Ladenburger, Superintendent of Building, are accurate, as all steam is supplied by the Illinois Maintenance Co. and is accurately metered. These figures prove conclusively that no owner can afford to overlook the economies and satisfaction obtained with ILLINOIS specialties.

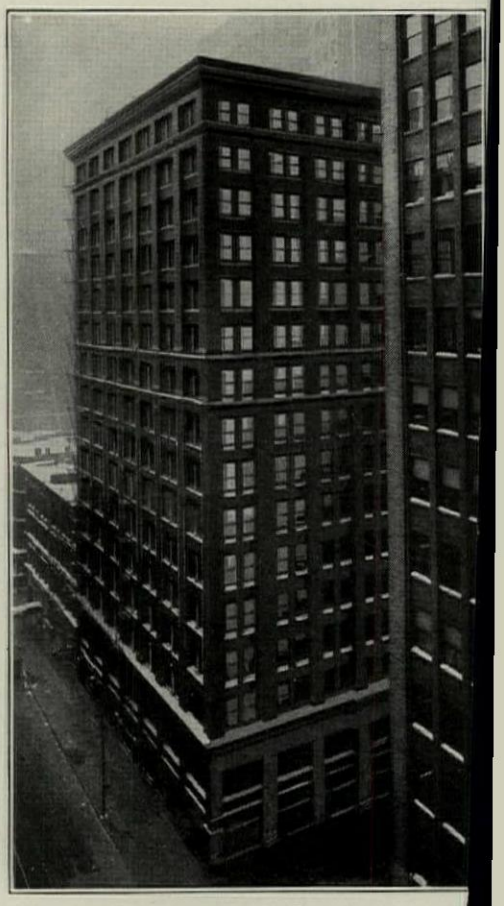
Prior to the installation of our system from October, 1927 to June, 1928
Pounds of Steam used 15,978,000
Cost $15,724.50

New ILLINOIS System from October, 1928 to June, 1929
Pounds of Steam used 10,080,000
Cost $9,569.12

Total Saving—
Steam 5,898,000
Money $6,155.38

The cost of the ILLINOIS Specialties, $1528.00 was saved during the first two months of operation. Installation or change-over was made during spare time without addional expense.

The mean average temperatures for 1927-28 and 1928-29 were practically the same—the difference being 0.3°.



Nixon Building, Chicago

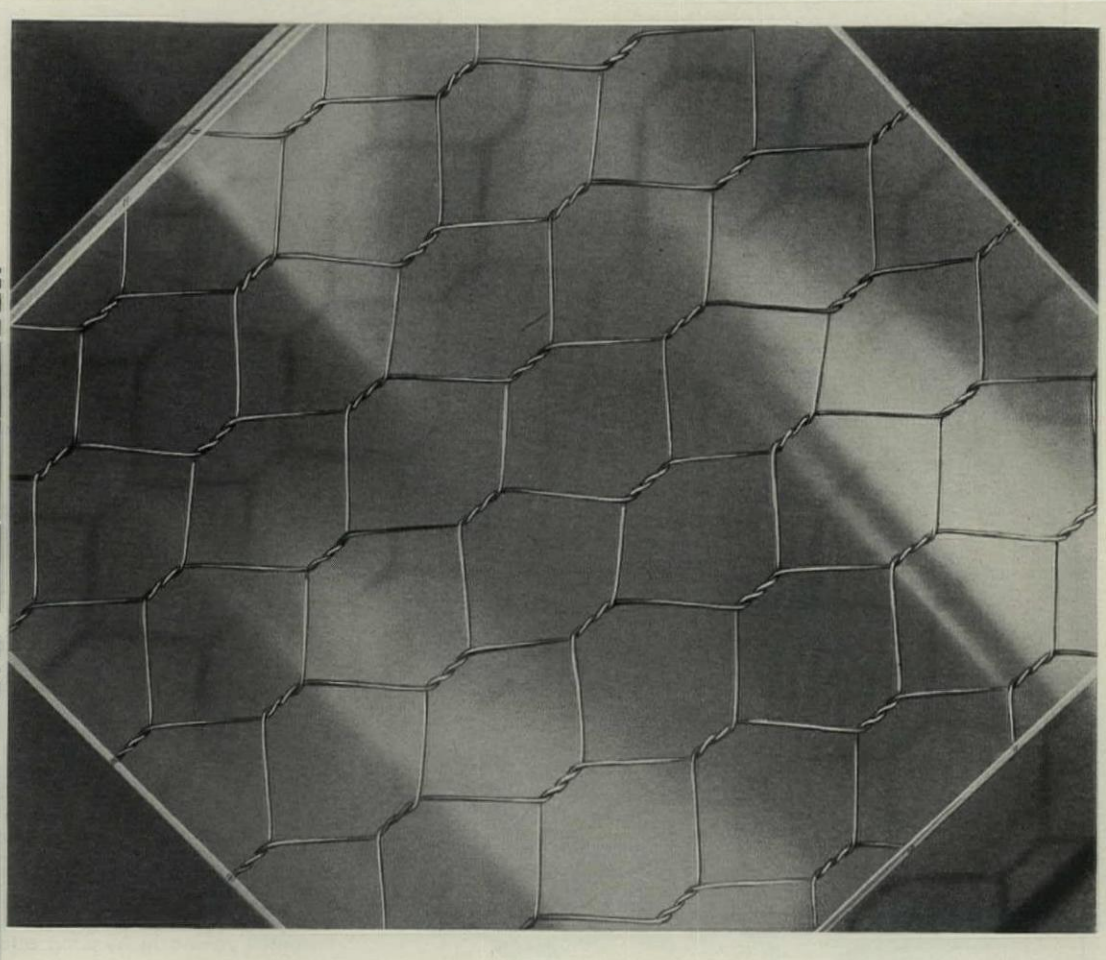
Write for Bulletins Nos. 22, 14 and 60

REPRESENTATIVES IN 40 CITIES OF U.S.A.

ILLINOIS ENGINEERING COMPANY

ROBT. L. GIFFORD President INCORPORATED 1900

CHICAGO



ALL BLUE RIDGE glass is made from plate glass batch. You can assure the use of figured and wire glass of uniform plate glass quality by specifying Blue Ridge glass throughout the building.

SPECIFY . . .

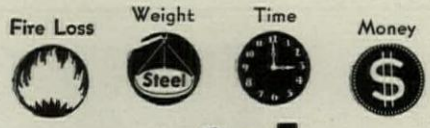
Polished wire glass of high transparency free from bubble clusters on the wire, as manufactured by the Blue Ridge Glass Corp.

BLUE RIDGE GLASS CORP.

Kingsport, Tennessee

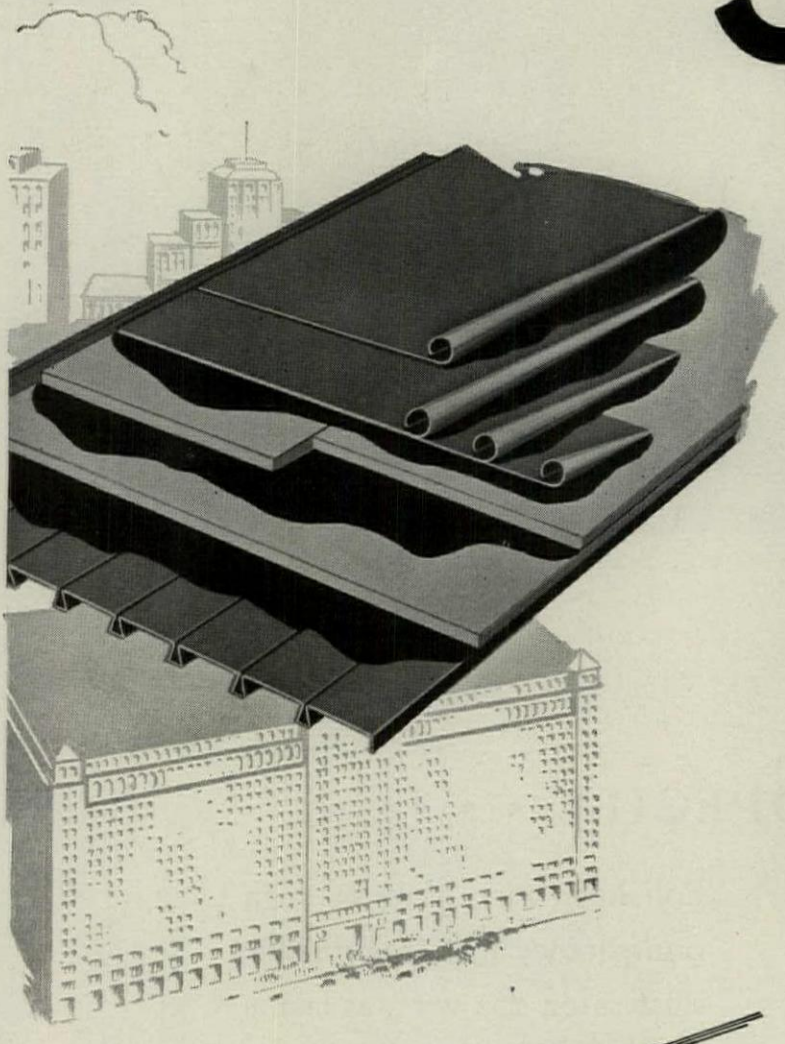
CHICAGO
E. Washington Street

NEW YORK
1 Madison Avenue



Save with Steel

ROOF DECKS



STEEL roof decks, from the day they are specified, start rolling up genuine savings. Their light weight permits the use of correspondingly light supporting members such as roof purlins, trusses and columns.

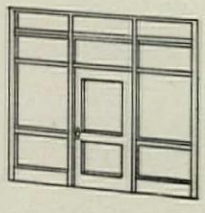
Coupled to this initial saving, is the fact that properly insulated steel roof decking prevents heat loss under extreme temperature changes, thus saving in heating equipment costs.

The savings do not stop here, however. The amount saved in fuel consumption alone, in cold climates, over the first year period, is almost enough to pay for the cost of the steel decking.

Further, when insulated, and waterproofed with non-combustible materials, this type of roof deck enables owners to obtain lower insurance rates. Steel decking remains a constant protection against fire and the other destructive elements.

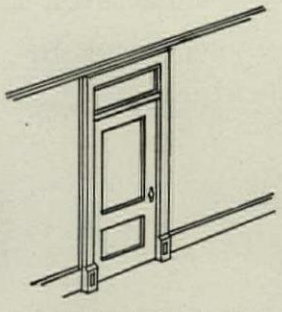
STEEL SAVES IN MANY PLACES

Architects, engineers and construction men are more and more, advocating the use of steel to promote greater savings. Steel lath, steel floor forms, steel trim and doors; in literally a thousand and one places steel is being specified to save in initial cost and to guard against deterioration from fire and high maintenance cost. You can obtain information on any of the many steel products by writing to Trade Research Division, National Association of Flat Rolled Steel Manufacturers, Terminal Tower Building, Cleveland,

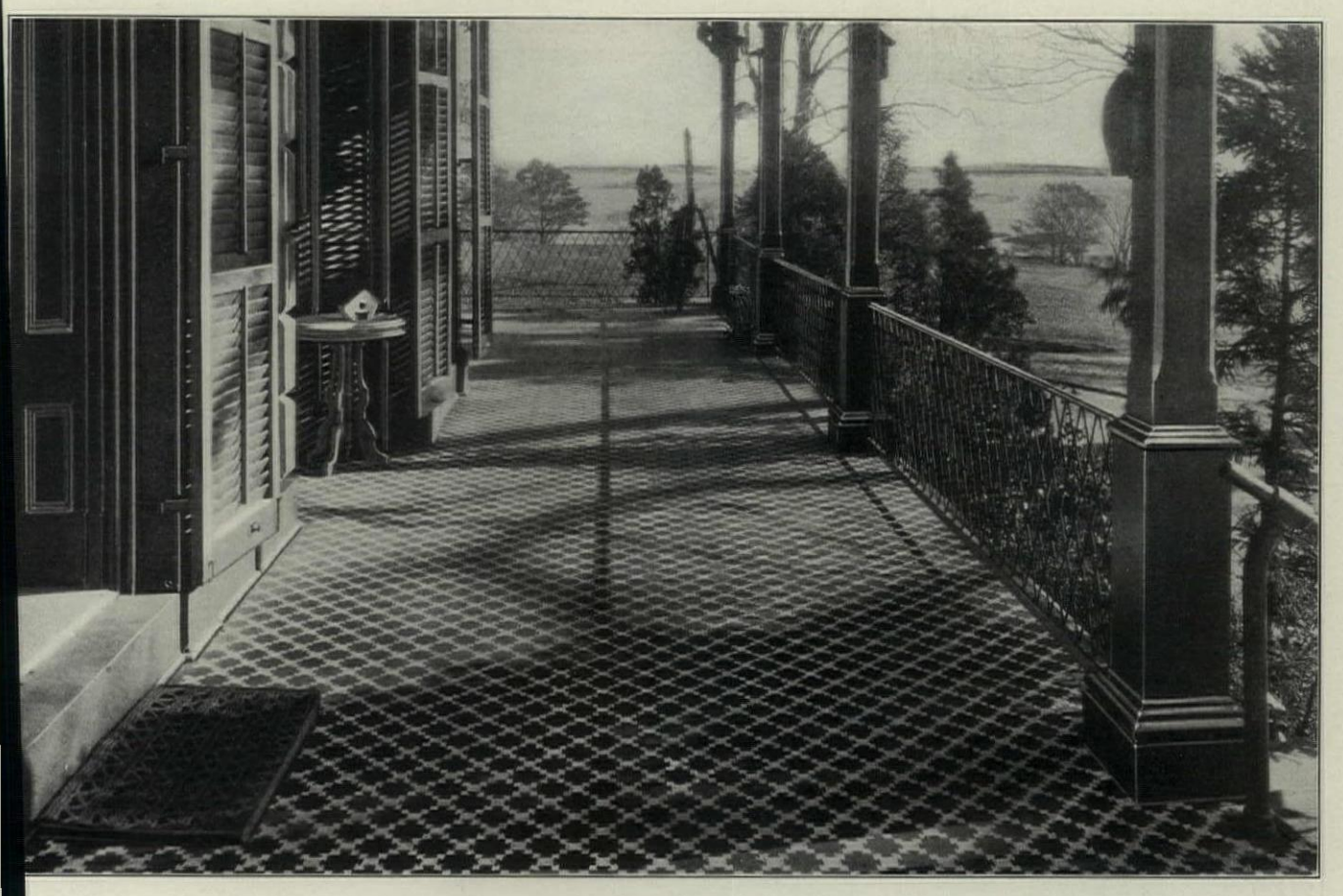


STEEL PARTITIONS
Steel partitions save floor space and permit rearrangement of office at little expense

STEEL LATH
Steel lath saves plaster cracks and expensive redecoration; saves loss of life and property from fire



HOLLOW METAL DOORS AND TRIM
Hollow metal doors and trim are not only beautiful but make a building fire-resistant



Rubber Tile Flooring Withstands Twenty-six Years' Exposure to Elements

FOR twenty-six years the Interlocking Rubber Tile flooring on the open porch of the Iselin residence, New Rochelle, N. Y. has been subjected to the severest atmospheric conditions—storms and sunshine, heat and cold, but has survived with but little trace of this exposure. It has likewise withstood the wear that is typical of such an installation.

Three-eighths-inch thick Interlocking Rubber Tiling, as made and installed by the New York Belting & Packing Co., will not separate at the joints nor buckle up. It offers a lasting and noiseless floor due to its extraordinary thickness, firmness and weight and is therefore especially suitable for all spaces exposed to heavy foot traffic; elevator lobbies, vestibules, stairways, bank lobbies, vaults, elevator cars, etc.

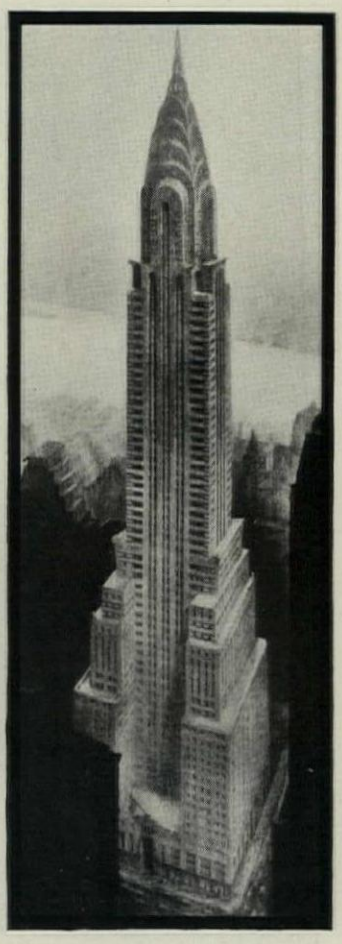
Manufactured in two well-designed shapes accurately molded to size. Colors are permanent and a variety of harmonious shades are offered.

NEW YORK BELTING & PACKING CO.
Original Manufacturers Interlocking Rubber Tiling
91-93 Chambers Street, New York

Boston Chicago Philadelphia Pittsburgh St. Louis San Francisco

New York Belting & Packing Co.
Rubber Tile Flooring

AVERILL TILDEN RESIDENCE
Winnetka, Ill.
MAYO & MAYO, Inc., *Architects*
C. A. HEMPHILL, *Contractor*
Lupton Steel Casements used throughout



The new
CHRYSLER BUILDING
New York City
WM. VAN ALLEN, *Architect*
Lupton Stainless Steel Windows are used for the lower floors and the tower

FOR INSTANT REFERENCE—

LUPTON HAS 85 PAGES IN YOUR 1930 EDITION OF "SWEET'S CATALOGUES"

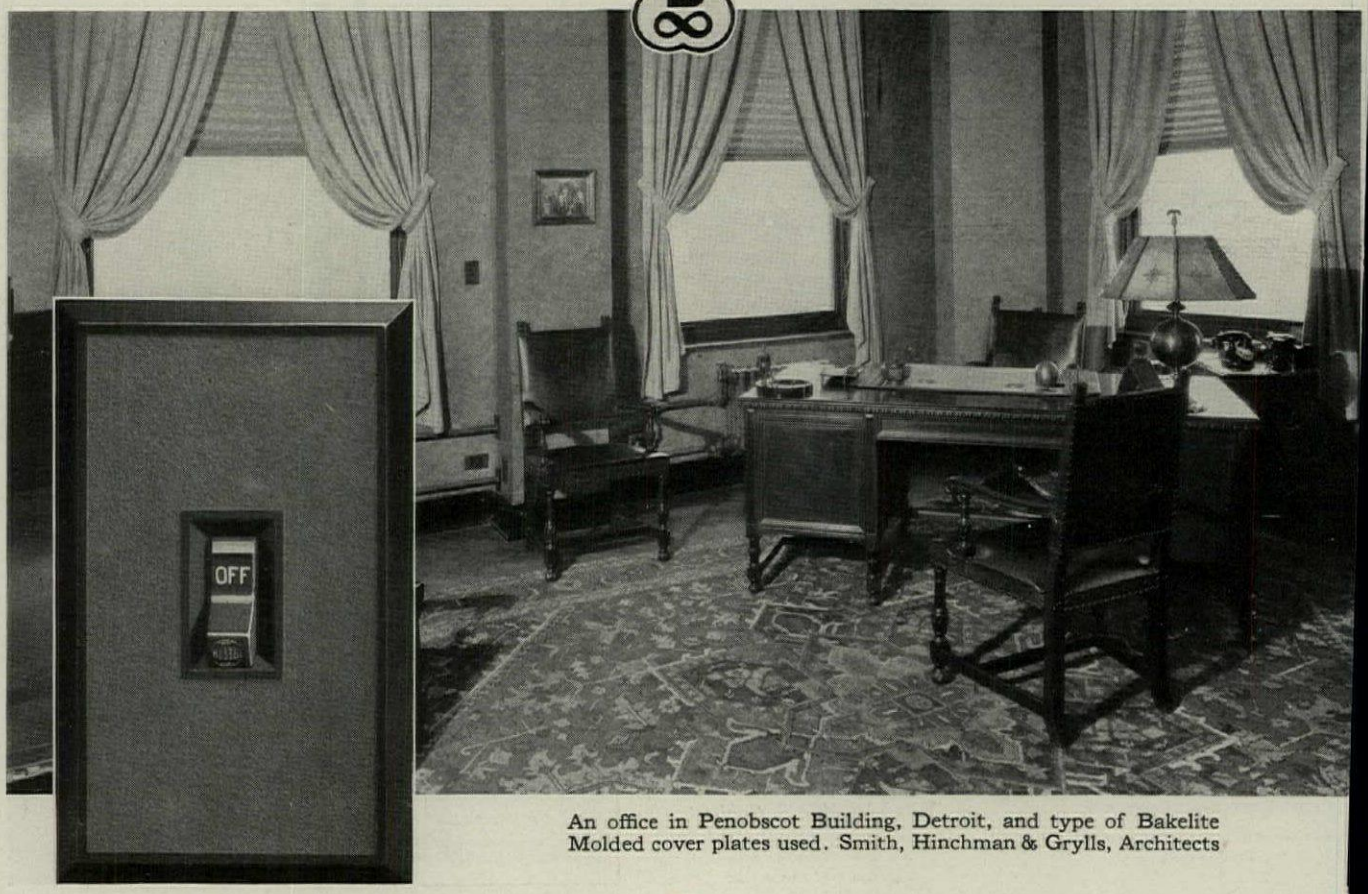
THE FACTS about Lupton Steel Windows can be found in your current edition of Sweet's Architectural Catalogues. Lupton manufactures windows for all types of industrial buildings, for the finest commercial buildings, as well as for homes. Today, you can obtain, also, Lupton Steel Equipment for use in modern airplane hangars.

Bound reprints of these pages can be obtained in the quantity desired for your various draftsmen, so that every one in your office may have the story of Lupton Steel Products at his elbow. Separate sheets of details and full-size sections are available also for your tracings. Have your secretary write for these reprints. We will be glad to send you, in addition, copies of the new folder, "Aluminum Windows by Lupton."

Turn to page A1366 of your 1930 Sweet's Catalogues and review the Lupton line. Your clients associate the Lupton name with the highest quality in steel products. David Lupton's Sons Company, 2229 East Allegheny Avenue, Philadelphia, Pa.

LUPTON

Where steel is fused with sincerity



An office in Penobscot Building, Detroit, and type of Bakelite Molded cover plates used. Smith, Hinchman & Grylls, Architects

Bakelite Molded plates are "*more than satisfactory*" in the new Penobscot Building

THROUGHOUT the forty-seven floors of the Penobscot Building, Detroit, thousands of screwless type Bakelite Molded switch and outlet plates have been installed. They were selected after an exhaustive investigation convinced the owners of their advantages. Experience has proven the wisdom of the choice, and the building manager writes that Bakelite Molded plates "are more than satisfactory."

The advantages of Bakelite Molded cover plates for switches and outlets are many. They provide an additional measure of safety as they are made of a material possessing high insulation value. The color and finish are lasting, and polishing or refinishing is never required. They cannot corrode or stain under any conditions or in any climate.

Bakelite Molded cover plates are made by all the leading wiring device manufacturers in standard brown, and black and special finishes are also available. Write to us for a list of the makers of these and other articles of building equipment, formed of Bakelite Molded.

BAKELITE CORPORATION

247 Park Ave., New York, N. Y. Chicago Office: 635 W. 22nd St.

BAKELITE CORPORATION OF CANADA, LTD., 163 Dufferin St., Toronto, Ont.

BAKELITE

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Notice the "Movement" created by this modern floor

THE SOFT STRIATED EFFECT OF ARMSTRONG'S BROWN JASPÉ IS ADAPTABLE TO MANY DIFFERENT TYPES OF ROOMS.

IN this room the mantel is the center of interest. Notice how nicely the floor guides the eye toward the mantel, how well the horizontal movement of the floor balances the vertical effect of the upright boards that compose the paneling. Notice, too, how clearly the interior effect and color scheme of the room are reflected by the floor of modern Armstrong's Linoleum.

This effect of movement, this fine matching of color and subtle reflection of spirit, are but an example of the architectural versatility of Armstrong Floors. Do you need a floor which will echo the latest note of decorative motifs? A tile effect for a Spanish room? An Old World handcraft design? An Early American Oak Plank Floor? You'll find all of them and more in this most modern of all floors. Your choice will be practical, too, for the new Accolac Process surface makes Armstrong Floors easy to clean—always fresh and bright.

"The effect of 'movement' is only one of scores of interesting possibilities suggested by modern floor materials."
I. HAGOPIAN, *Architect*

Let us tell you the rest of this interesting floor story. We'll send you samples and colorplates, too, if you like—and a copy of our new file-size architect's specification book. You'll also find us represented in Sweet's Architectural Catalog. For information just address the Armstrong Cork Company, Floor Division, Lancaster, Pennsylvania.

Look for the CIRCLE, A trade-mark on the burlap back

Armstrong's Linoleum Floors
for every room in the house

LAIN · · JASPÉ · · INLAID *and* EMBOSSED · · *also* ARMSTRONG'S LINOTILE AND CORK TILE

Keep Dr. Jekyll *and* Mr. Hyde out of the blackboard picture!

IS the "sample" of blackboard you examine Dr. Jekyll . . . and the finally delivered product Mr. Hyde? Are you sold through a sample that merits your consideration only to find that the finally delivered product somehow has changed?

Every sample of Sterling Lifelong Blackboard is a *stock* sample . . . and behind every foot a pledge of satisfaction made by this reliable 47 year old concern.

Sterling is a better blackboard . . . a quality product scientifically produced to perform exactly as the educator expects and desires. Investigate its advantages over *any other blackboard*. Address Department S 251 for 15 pages of plans, elevations, and detailed specifications for installations of *any* blackboard — A. I. A. File No. 35-b-12. Prepared for you by architects. Free for the asking—with a sample of Sterling, too.

Sterling Lifelong Blackboard

WEBER COSTELLO COMPANY

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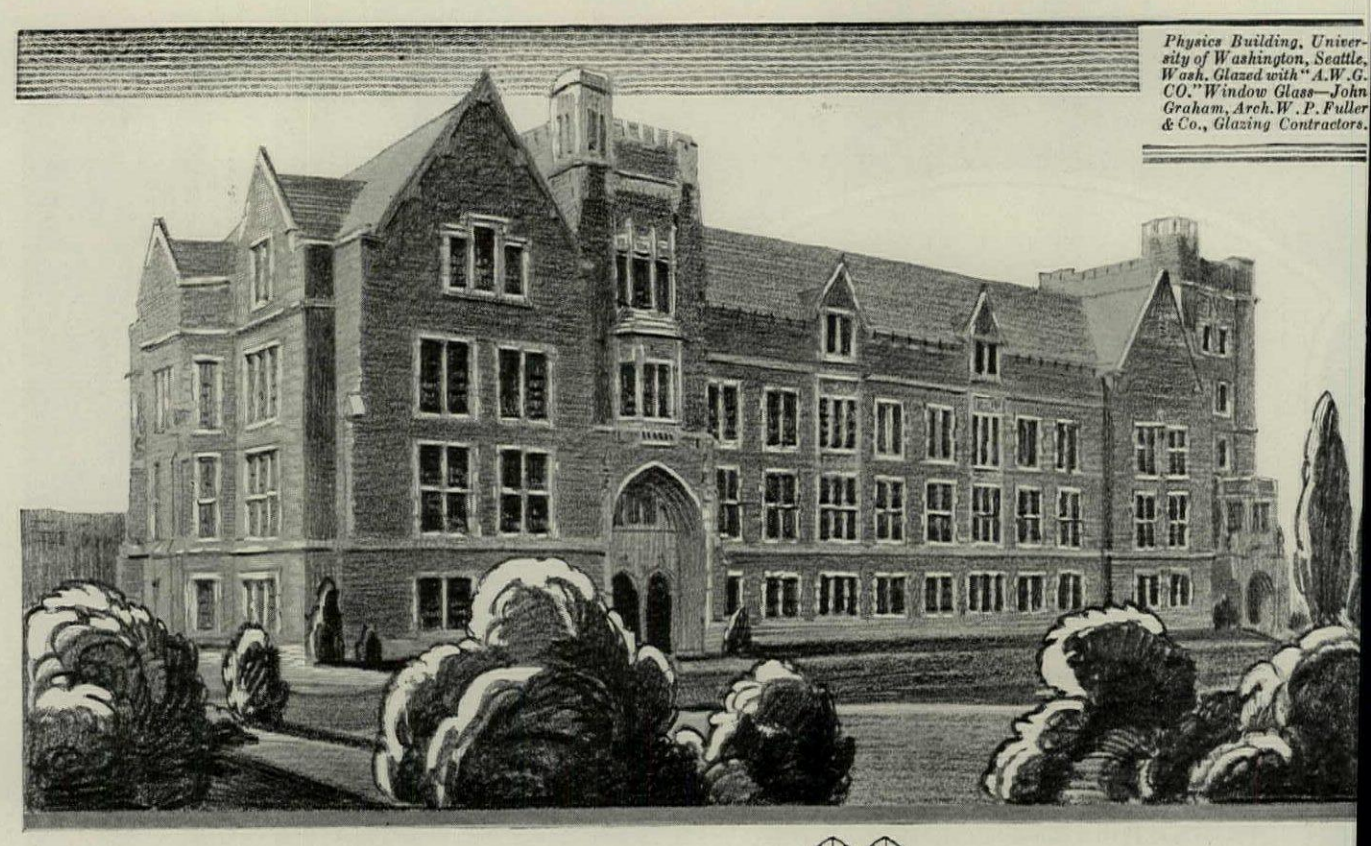
TIME TESTED W.C. SCHOOL SUPPLIES

Old Reliable Hyloplate—Erasers Maps—Crayon

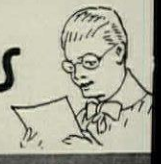
55 Distributor Warehouses Assure You Immediate Service



Physics Building, University of Washington, Seattle, Wash. Glazed with "A.W.G. CO." Window Glass—John Graham, Arch. W. P. Fuller & Co., Glazing Contractors.

MORE GLASS FOR WINDOWS

MEANS LESS FOR SPECTACLES



MORE and larger windows glazed with better glass reduces eye strain for those who read indoors.

In schools and office buildings especially, be sure to specify plenty of "A.W.G. CO." Window Glass. This is an important step in improving the beauty, comfort and value of any building.

Uniformly high quality has made "A. W. G. CO." the preference of architects for more than a quarter of a century . . . Write for our new literature.

A·W·G
REG. TRADE MARK

AMERICAN WINDOW GLASS CO

Farmers Bank Building, PITTSBURGH, PENNA.

2928

GEORGIA MARBLE

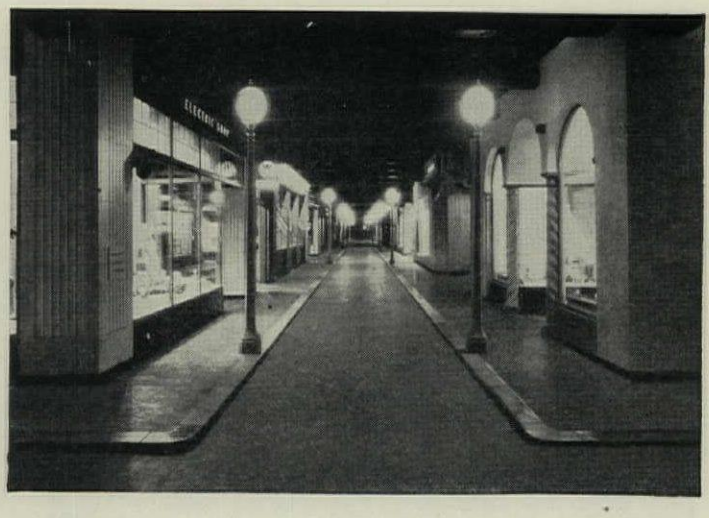
MAIN DOORWAY—HOLMESBURG TRUST CO., HOLMESBURG, PA.
DAVIS, DUNLAP & BARNEY, ARCHITECTS

GLISTENING WHITE TRIM

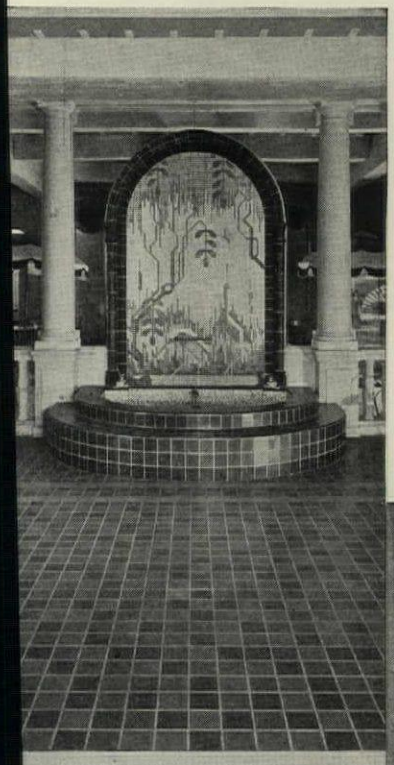
The white crystalline texture of Georgia Marble has no superior as an architectural trim with brick . . . Just a touch, as used in this ably designed structure adds dignity and character at a minimum of expense.

THE GEORGIA MARBLE COMPANY · TATE · GEORGIA

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



In the "City of Light" even the streets are paved with SEALEX LINOLEUM



LOGGIA

The floor of Sealex Embossed Linoleum ("Evergreen" pattern) gives the pleasing shadings, texture and color-variation of hand-laid tiles—plus the advantages of quiet resilience and economy.

THE well-known architects, F. P. Platt & Bro., recently laid out a model city (with streets and store, school, bank, home, theatre, factory and office-building interiors, all on a single floor of a New York skyscraper). In constructing this comprehensive exhibit of scientifically correct lighting, they have produced also an effective demonstration of the remarkable range and scope of Sealex materials.

For, in designing the "City of Light" for the Westinghouse Lamp Company, the architects have used Sealex Linoleums and Sealex Treadlite Tiles in a wide variety of designs and patterns. Each of the different types of interiors is floored—as well as lighted—modernly, attractively and appropriately. Even the "streets" are of Sealex materials.

Here is a variety of model interiors covering the entire scope of business and social activity. Each complete in every detail of equipment, each made conspicuously desirable by its handsome, up-to-date floor—a Sealex floor . . . quiet . . . . comfortable . . . . economical . . . . easy to keep clean.

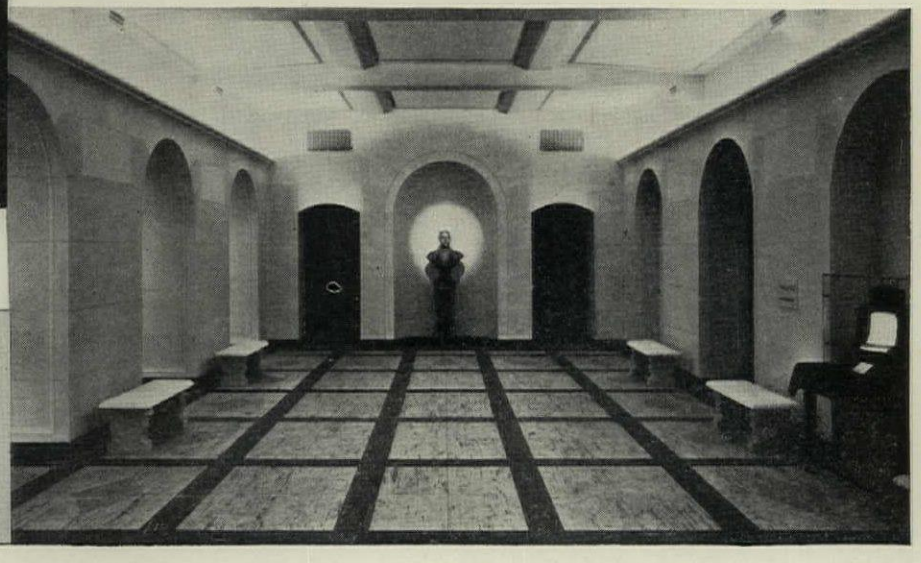
The very reasons which made Sealex materials the choice for this model "city" make Sealex the ideal floors for business and residential buildings. May we tell you about the Guaranty Bond which goes with BONDED FLOORS of Sealex Linoleum and Sealex Treadlite Tile?

SEALEX LINOLEUM

CONGOLEUM-NAIRN INC.

General Office: Kearny, N. J.

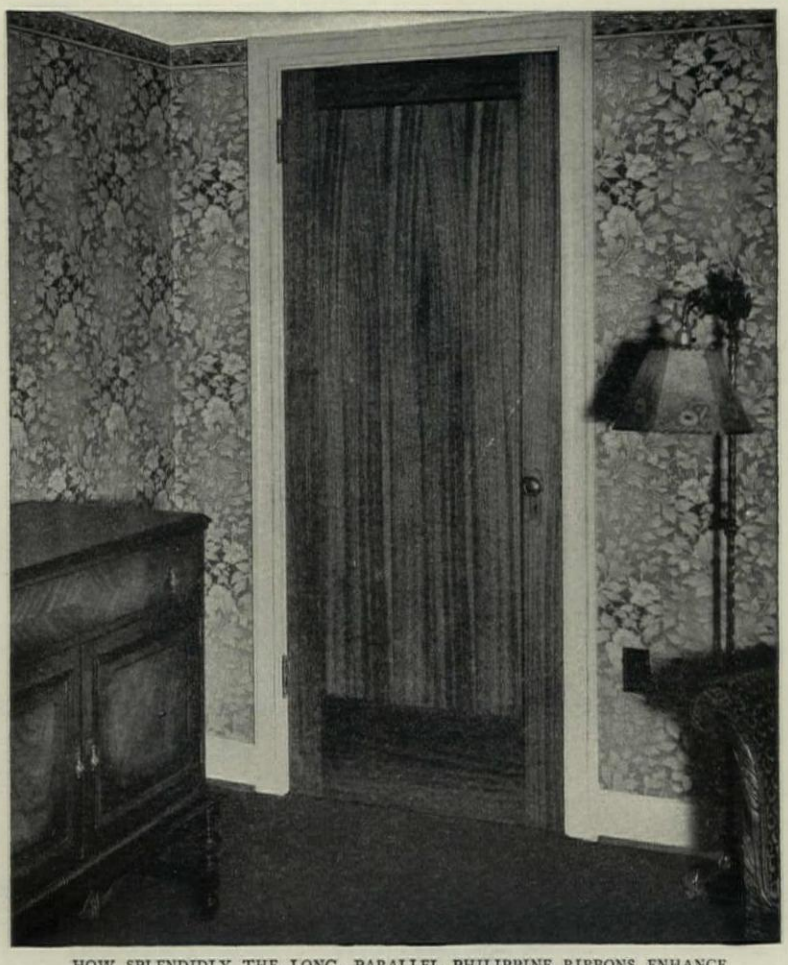
Authorized Contractors for Bonded Floors are located in principal cities



PUBLIC HALL

A handsome floor of Sealex Treadlite Tile, in black and white marble effects, is the principal decorative unit in this dignified interior. This floor was constructed tile-by-tile to a design by the architects.

LAMINEX DOORS "DON'T SWELL, DON'T WARP"



HOW SPLENDIDLY THE LONG, PARALLEL PHILIPPINE RIBBONS ENHANCE THE FINE SIMPLICITY OF THE STOCK 1 PANEL

PHILIPPINE LAMINEX DOOR, BENJAMIN FRANKLIN HOTEL

SEATTLE, WASHINGTON . . . EARL A. ROBERTS, ARCHITECT

To utilize the beauty of Philippine Laminex, you aren't restricted to stock doors; we frequently build them to specifications, and at quite moderate cost. Nevertheless, in many notable instances architects have successfully employed the stock Laminex designs. Some twenty-three of them are pictured in the Philippine Laminex Manual. This interesting book, which also explains how Laminex construction overcomes the swelling and warping tendencies of ordinary doors, will be mailed to you if you'll send the coupon in. Write us in detail, however, if you've a personal design in mind.

THE WHEELER, OSGOOD COMPANY, DEPT. P-140, TACOMA, WASHINGTON: KINDLY SEND ME A MANUAL.

NAME_____ FIRM_____

ADDRESS_____

895 Park Ave., New York
Sloan and Robertson, Architects
Thomas O'Reilly & Son, Inc., Builders
Lange & Noska, Engineers

Sloan & Robertson Design New Park Avenue Apartment with Gypsteel Pre-Cast Floors and Ceilings

AT 895 Park Avenue, New York City, is rising a magnificent apartment building, embodying in its design and appointments a new conception of luxurious living. Sloan and Robertson, Architects, designed this structure to include the most desirable features of comfort and convenience available today. Including sound-resisting Gypsteel Pre-Cast Floors and Ceilings throughout.

Exhaustive tests of structural materials have proved the efficiency of Gypsum as a sound-resistant. The Gypsteel Pre-Cast Floor Construction gives two layers of gypsum slabs with a dead air space between.

Other important reasons for the use of Gypsteel Floors and Ceilings at 895 Park Avenue are its greater fire-resistance and protection of the steel work from the effects of heat, the unusual speed of erection and the ability to install floors in winter weather.

No forms are used. Practically no water. There's no waiting for floors to set. All this naturally means time and expense saved in construction.

But these points are only some of the advantages of Gypsteel Pre-cast Floor Construction. Glad to send you our Floor catalog, telling about all of them.

GYPSTEEL

Pre-Cast Fireproof Floors and Ceilings are made only by this company

General Offices: Linden, N. J.

STRUCTURAL GYPSUM CORPORATION

Sales Offices in Principal Cities

MODERN

Modern heating for modern homes. An attractive grille at the floor-line, a second one above it, both obscured — under a window, or by decorative wall effects. That's all that pertains to heating in the Modine equipped room.

It's only natural that every one should want Modine Concealed Radiation with the better heating and the better room appearance it brings. The ordinary limitations in arrangement are gone. All floor and wall area is available for decorative treatment. There is no "hot spot" from which furnishings must be kept. A few minutes with our newest catalog will settle the question of trouble-free home heating.

Send for it today.

MODINE MANUFACTURING CO.

Manufacturers of
Unit Heaters — Domestic Copper Radiation
— Automobile Radiators

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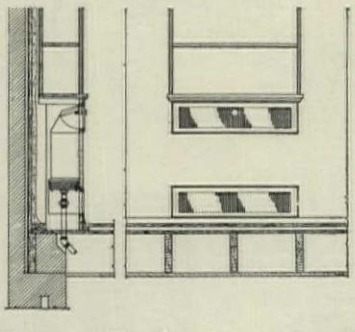


MODINE

COPPER A MODINE Product RADIATION

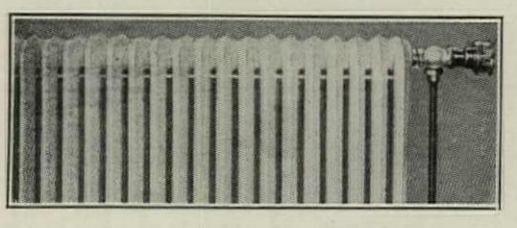
Throw Away your RADIATOR valves!

This advice may sound foolish, but it is the smart thing to do since our new thermostatically operated valve has been placed on the market.

Nobody is conscious of gradual temperature changes until the extremes are reached — very hot or very cold. Rooms left to manual control of its radiators rarely stay at the best temperature to insure health, comfort and fuel economy because of the wide temperature fluctuations.

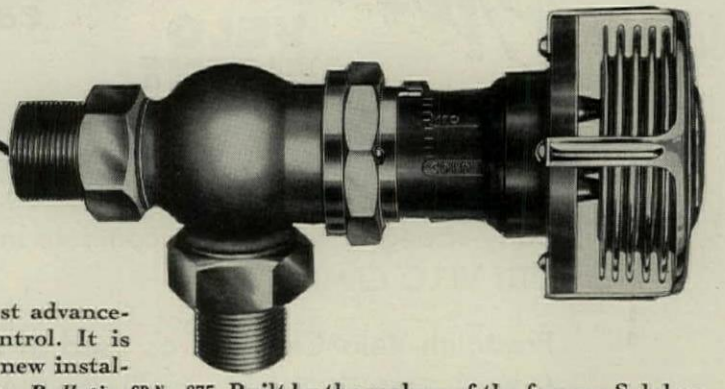
The new Sylphon Automatic Radiator Valve will keep your room at the desired temperature. You simply turn the head of the valve to the temperature you want and your room remains constant. The saving in heat radiation will more than pay for the small valve cost. Can be used on either old or new installations. Easily installed by any plumber.

Sylphon TRADE MARK AUTOMATIC Radiator Valves



The Sylphon Automatic Radiator Valve is a self-contained, packless, temperature regulator that does not require compressed air apparatus, electrical conditions to operate it. It is attached to a radiator just like an ordinary radiator valve. To keep down fuel cost by reducing the flow of steam when the desired room temperature has been reached.

New



This Automatic Valve is the newest advancement in the science of heat control. It is simple to install, either on old or new installations. *Write for detailed literature, Bulletin* CP-No. 875. Built by the makers of the famous Sylphon Bellows, largest exclusive manufacturers of temperature control regulators in the world.

FULTON SYLPHON Co.

KNOXVILLE TENNESSEE, U. S. A.

European Representatives, Crosby Valve & Eng. Company, Ltd., 41-2 Foley St., London, W. I., England.

Representatives in all Principal Cities in U. S. A.

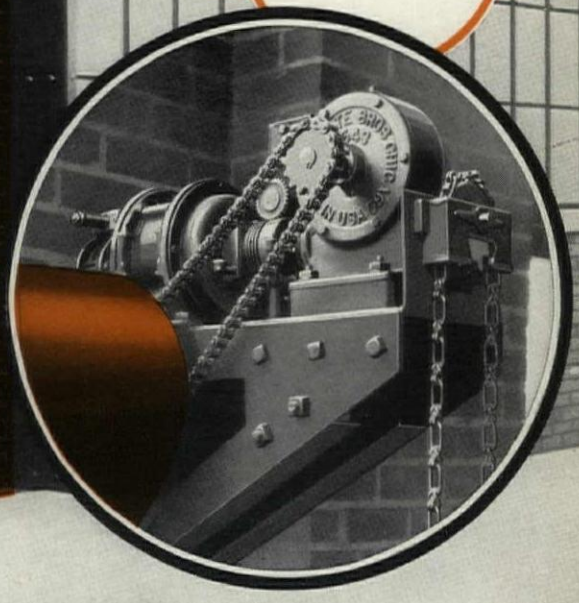
SEE OUR CATALOGUE IN SWEETS

Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Canada.

MAHON

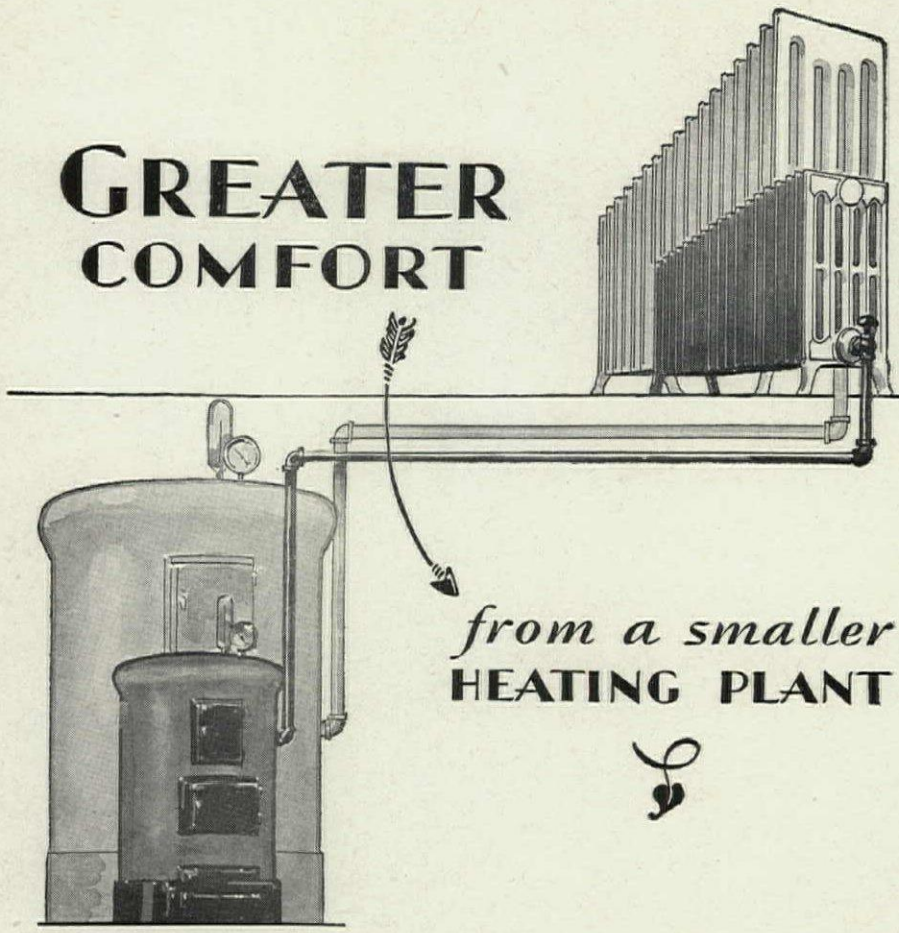
ROLLING STEEL DOORS

THE Mahon Rolling Steel Door represents the finest that modern manufacturing methods can produce. Nowhere at any price will you find a door of equal quality, and yet, Mahon's vast manufacturing facilities permit production of these doors at no greater cost. ¶ Mahon Rolling Steel Doors are furnished in any size, for any purpose, with either hand crank, endless chain or electric operating mechanism. Write today for complete information—and remember, when you buy a Mahon Rolling Steel Door you buy a superior product approved by the Underwriters' Laboratories, Inc.



THE R.C.MAHON COMPANY
DETROIT, MICHIGAN

GREATER COMFORT



from a smaller HEATING PLANT

THE determining factor in the size of a heating plant is not the size of the structure but the amount of heat lost from the building. That's why a MAFTEX Insulated structure—apartment house, office building or private home—can be easily kept comfortable with a smaller heating system (furnace, radiators, piping).

MAFTEX Insulation effects an annual saving of 20 to 30% in fuel bills and eliminates the forcing of fires even in severe weather.

Made from the tough roots of licorice, MAFTEX is the ideal four-in-one board that combines Insulation, Sheathing, Plaster Base and Sound Deadening.

MAFTEX is moisture resisting, does not attract rats or vermin and does not mold or disintegrate. It is of single ply construction, is easily handled, quickly installed and economical in cost.

MAFTEX Insulation results in actual dollars and cents savings and greatly increases the value of a structure. Complete information on request.

MACANDREWS & FORBES COMPANY
Business Established in U. S. A., 1870
200 FIFTH AVE., NEW YORK

Also Manufacturers of Fiberlic Wall Board

MAFTEX

The "Thermal-Insulating" Board that has Structural Strength

MAFTEX

has high insulating value

In addition to numerous special tests to determine its conductivity, daily runs of MAFTEX are tested as part of the production schedule. These tests indicate that a coefficient of 0.34 B. T. U. per hour, per square foot, per inch thickness, per degree Fahrenheit difference in temperature is a conservative figure for MAFTEX.

Make your own tests. Send for sample.

The International Telephone *and* Telegraph Building —*New York City*

The Building of the International Telephone nd Telegraph Corporation, shown on the right, was ompleted on May 1, 1928, and the architect's con- eption, above, combines the present structure with the ldition to be completed May 1, 1930. Bethlehem Wide- ange Structural Shapes were used in the steel frame- ork of the original structure, and will be used also in e framework of the addition.

BETHLEHEM WIDE-FLANGE STRUCTURAL SHAPES

BETHLEHEM STEEL COMPANY · · *General Offices:* BETHLEHEM, PA.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Detroit, Cincinnati, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, Portland, Honolulu

ELEVATOR ENTRANCES by DAHLSTROM

EACH year the growing number of buildings that are Dahlstrom-equipped testify to the architect's recognition of Dahlstrom quality. The spirit of the founders who started the Hollow Metal industry is alive today in the craftsmen whose work bears the mark of their years of experience. For design, for precision, look to Dahlstrom ... its twenty-six years' record is its greatest testimonial. Write for interestingexamples of recent Dahlstrom installations.

◆ ◆ ◆

In the Smith Young Tower, San Antonio, Texas the Elevator Entrances are by Dahlstrom. Architect: Atlee B. and Robert M. Ayres, San Antonio, Texas. Contractor: McKenzie Construction Company, San Antonio, Texas.

DAHLSTROM METALLIC DOOR CO.

455 BUFFALO STREET (ESTABLISHED 1904) JAMESTOWN, N.Y

NEW YORK CHICAGO LOS ANGELES DETROIT DALLA

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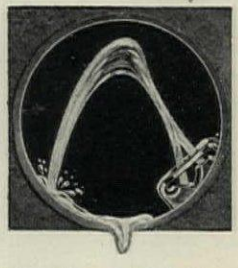
OUR COMPLETE CATALOG IS NOW IN SWEET'S

» » » Architects, specification writers, engineers and contractors will find our complete line illustrated and described in Sweet's 1930 Architectural Edition. Fourteen pages of text and information—practical useful information to help you in preparing "the specification for sanitation"—Halsey Taylor Drinking Fountains « « « « The Halsey W. Taylor Co., Warren, Ohio. » » » »



Two-Stream Projector; Practical Automatic Stream Control

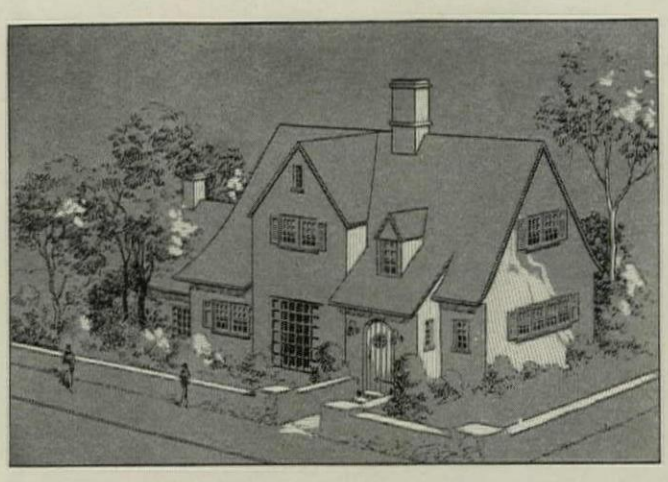
Water is never too high, never too low—and always in the bowl, not on the floor. A patented practical automatic control keeps height of stream unvarying regardless of pressure while two-stream projector makes it impractical for lips to touch.

HALSEY TAYLOR
DRINKING FOUNTAINS
The Specification For Sanitation

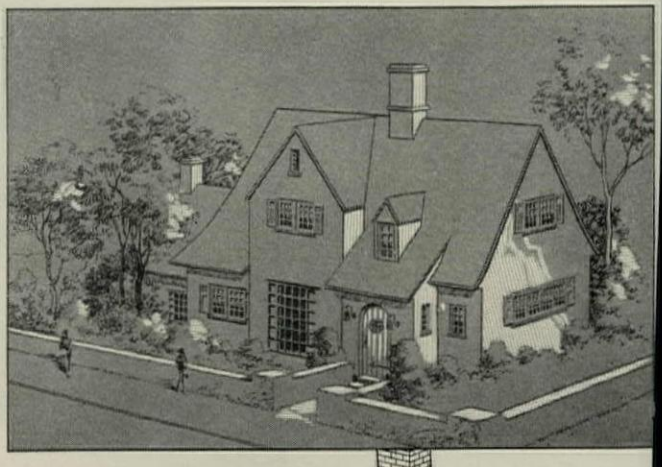
•

SEE PAGES D-4401 TO D-4414, INCLUSIVE

Which is modern?



—a look in the basement will tell



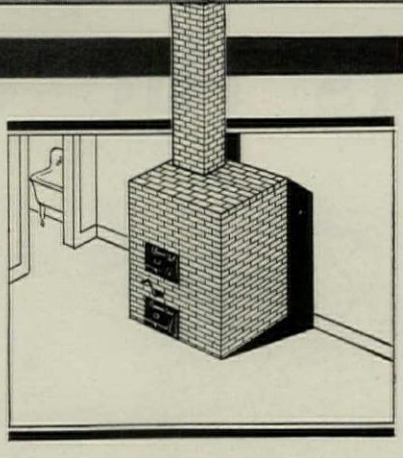
TWO HOUSES—exactly alike to all appearances, yet only one is truly modern . . . For only one has a Kernerator, the crowning convenience for modern housekeepers.

In the truly modern home there is no rubbish problem for the Kernerator quickly disposes of it all. Wrappings, wilted flowers, garbage and refuse of all kinds are forgotten when they are deposited in the handy hopper door.

You can specify Kernerator with complete confidence because it is more than cast iron and masonry. It represents the best developments by the pioneer of flue-fed incineration. It is installed under the manufacturer's supervision which guarantees perfect operation. It has a record of performance that justifies your confidence.

KERNER INCINERATOR COMPANY
1233 NORTH WATER STREET MILWAUKEE, WISCONSIN

Ask for A. I. A. Folder or see our Catalog in Sweet's.



With oil or gas for heating, what will you do with waste and rubbish?

KERNERATOR
REG. U.S. PAT. OFF.
INCINERATION
FOR NEW AND EXISTING BUILDINGS

Von Duprin

Self-Releasing Fire and Panic Exit Latches

Cost—in the Beginning —and in the End.

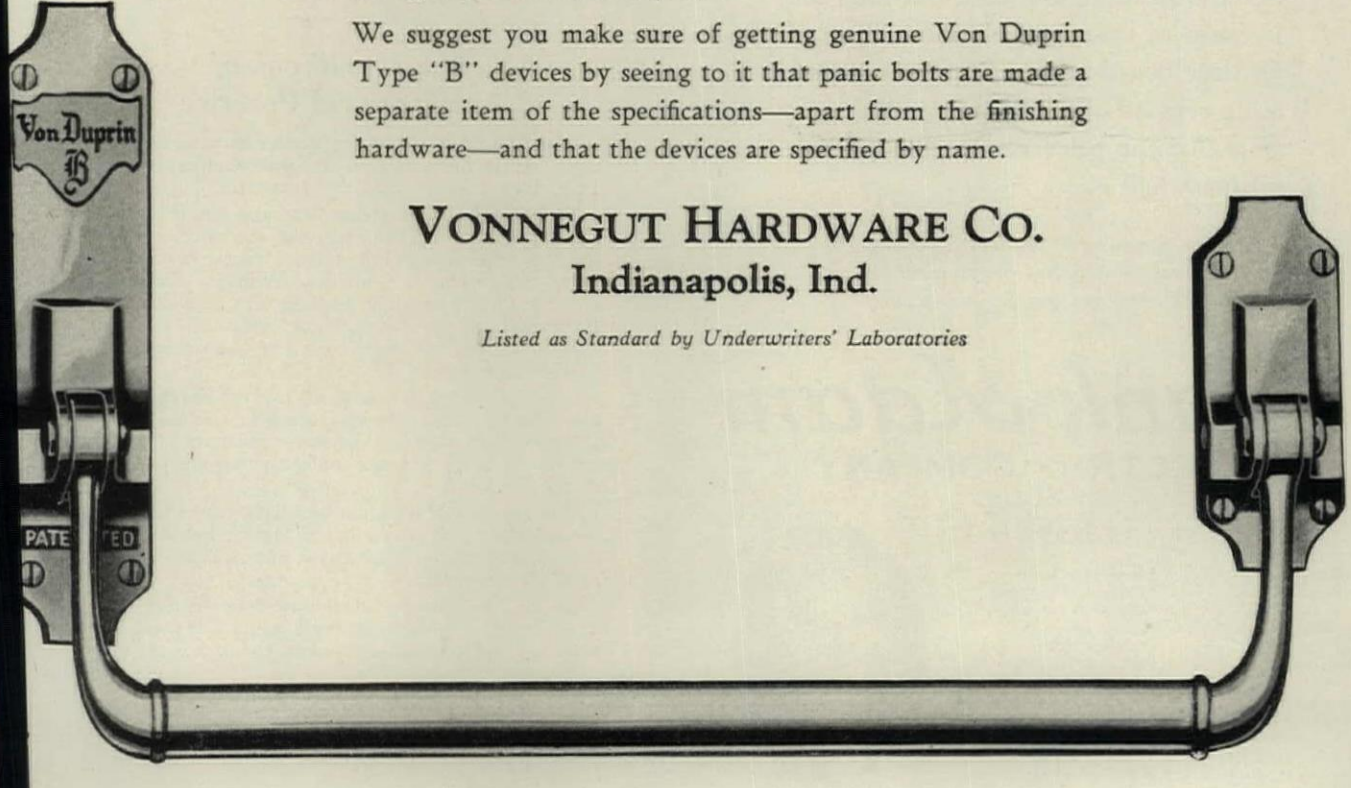
Sweets, Pages C3130-C3135

AIA 27c5

The new series, genuine Type "B" Von Duprins are not cheap when first bought. In fact, they cost more than any others on the market.

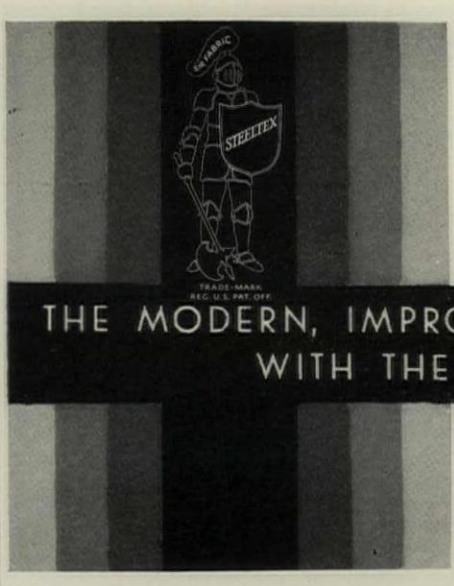
Yet, over a period of years, this higher first cost is far more than overcome by the negligible cost of maintaining them—by the steady, trouble-free service they render every day—by the knowledge that they are so reliable in operation, so durable that they will stand up under the terrific strain of emergency use in case of panic.

We suggest you make sure of getting genuine Von Duprin Type "B" devices by seeing to it that panic bolts are made a separate item of the specifications—apart from the finishing hardware—and that the devices are specified by name.



VONNEGUT HARDWARE CO.
Indianapolis, Ind.

Listed as Standard by Underwriters' Laboratories



FOR HOMES AND BUILDINGS WHETHER LARGE OR SMALL *SPECIFY STEELTEX*

THE MODERN, IMPROVED PLASTER BASE AND REINFORCEMENT WITH THE NEW V-SHAPED RIB STIFFENERS

***Plaster Walls and Ceilings are fully protected . . . are reinforced (like concrete) . . . and made permanent . . . to last a lifetime . . . with* STEELTEX FOR PLASTER**

STEELTEX lath is nothing experimental—nothing untried. It is an engineered product, tried and tested. Leading architects, contractors and craftsmen endorse its use.

The New Ribbed STEELTEX for Plaster is manufactured in sheets—size 28½ x 50 inches—and comes conveniently packed. The reinforcement of STEELTEX consists of cold-drawn, electrically welded steel wire mesh (heavily galvanized). This wire mesh is securely interwoven to a heavy pure-fibrous backing to which the reinforced plaster clings tight. STEELTEX is further strengthened by a series of the new V-shaped Rib Stiffeners that extend across the back of the sheet—insuring board-like rigidity.

STEELTEX is easily handled—a one-man material—quickly applied—and when plastered becomes a one-piece, solid reinforced slab—not just a veneer. STEELTEX also actually reinforces the building as well as the plaster. Strains and stresses are uniformly distributed reducing cracking hazards to the minimum. It provides, in addition, sound deadening and added insulation.

A SUMMARY OF *STEELTEX ADVANTAGES*

1. STEELTEX makes plaster a lifetime material.
2. New V-Rib stiffeners produce level lathing job of board-like rigidity.
3. Plaster applies easily and stays put.
4. Slab of uniform thickness assured—smooth in front as well as back.
5. All plaster functions in the slab—no waste in keys or hangovers.
6. Furring device assures embedment of reinforcing steel.
7. Steel reinforcing minimizes plaster cracking hazards.
8. Network of steel wires strengthens framework of building.
9. No possibility of lath or joint marks to mar plaster beauty.
10. Insulates against heat and cold.
11. STEELTEX functions to deaden sound.
12. Reinforced plaster now economical enough for any type of home or building.

There are more than a quarter million* STEELTEX *installations

STEELTEX is the modern, up-to-date plaster lath and reinforcement. To know the valuable lathing characteristics of STEELTEX, see and examine a full-size sheet. The sheet itself clearly demonstrates its value. Write for a sample sheet of STEELTEX, and our free book, "Better Walls for Better Homes."

***STEELTEX** three types . . . same principle . . . same protection: for plaster . . . for stucco . . . for floors and roofs* (concrete and gypsum)

ational Steel Fabric Company,
02 Union Trust Bldg., Pittsburgh, Pa.
Please send your free book, "Better Walls for
tter Homes," also a sample sheet of STEELTEX
Plaster.

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NATIONAL STEEL FABRIC COMPANY

Union Trust Building DIVISION OF Pittsburgh Steel Co. *Pittsburgh, Penna.*

MADE BY THE WORLD'S LARGEST MANUFACTURERS OF WELDED STEEL FABRIC

The Invisible Superintendent at the Mortar Box *Assures the Mix* SPECIFIED

EVEN when the architect specifies the ideal mix for portland-cement-and-lime mortar, he has no assurance that his specifications will be accurately followed unless his superintendent is constantly at the mortar box... The proportion of lime may be increased for the sake of plasticity or the mix may be oversanded. In either case the strength of the mortar is impaired.

The use of BRIXMENT, *however, is your assurance that all mortar will be uniform in strength and color and that specifications will be accurately followed.* If oversanded, BRIXMENT mortar works short and, since there is no lime in the mix, the necessary plasticity can be secured only by using the proper amount of BRIXMENT. *Handbook on request.* Louisville Cement Company, *Incorporated,* Louisville, Kentucky.

District Sales Offices: 1610 Builders Bldg., *Chicago;* 301 Rose Bldg., *Cleveland;* 602 Murphy Bldg., *Detroit;* 101 Park Ave., *New York*

BRIXMENT

for Mortar and Stucco

BROADWAY

NATIONAL BANK & TRUST COMPANY

DISPLAYS MONEL METAL'S WHITE BEAUTY

THERE'S no better place than Fifth Avenue, New York, to watch the trend of popular favor—in fashions, in automobiles or in architectural decoration. On Fifth Avenue are situated some of the most impressive bank and office buildings American architecture has created. You may look to Fifth Avenue for inspiring suggestions for modern metal decoration.

On the entrance to the Broadway National Bank & Trust Company, at the corner of 29th Street, you will see etched Monel Metal panels inserted in bronze doors. You will see a Monel Metal clock dial. Inside the bank, you will find combinations of Monel Metal and bronze employed for counter screens, check desks, grilles and other trim.

With the present vogue for ornamental white metals, Monel Metal comes into its own. Its silvery beauty is permanent. It resists the attacks of age and corrosion. It can be kept bright and shining with very little care. It retains its original attractiveness for years and years.

In designing ornamental work which must be executed in white metal, specify a material that will perpetuate your design. Specify Monel Metal.

Monel Metal and bronze entrance of the Broadway National Bank & Trust Co., Fifth Ave. & 29th Street, New York. Metal work executed by SUPERB BRONZE AND IRON CO. of Brooklyn, N. Y. Etched Monel Metal panels by ETCHED PRODUCTS CORP., Long Island City, N. Y. Architect: LOUIS H. FRIEDLAND, New York.

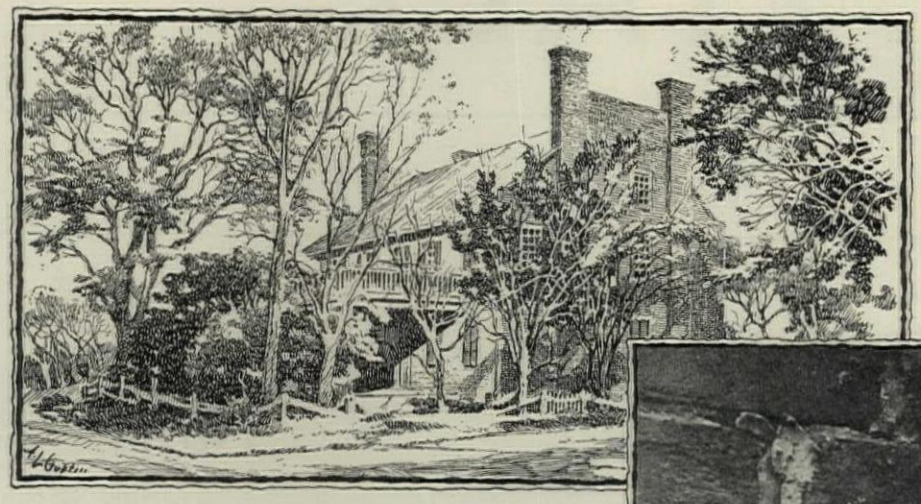
Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company. The name "Monel Metal" is a registered trade mark.

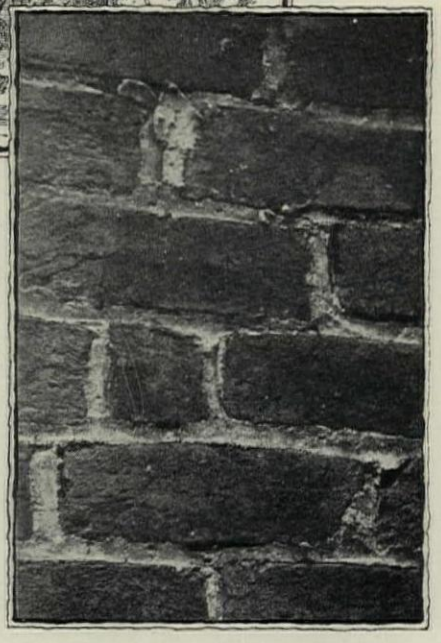
INCO MONEL METAL

HAVE YOU RECEIVED THE MONEL METAL ARCHITECTURAL FOLDERS?

MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y





Close up of the old Calhoun house brick. Note those squarish headers. We make our Jefferson mould-made brick that way

The Old Calhoun House

Used As An Inn In John Randolph's Day

Being Brick Tale Telling
Number XXIX

AND those were proud and impressive days, when high spirited (almost haughty) John Randolph used to pull up in front of the old house, with his four white horses and two negro servants sitting on the high seat at the back "all livered up".

The grandfather of John C. Calhoun, Carolina's great senator, built the spacious roomed old place at Charlotte Court House. It has passed through many vicissitudes, changing hands endlessly. In fact the very day I was last there, it was to be put up at auction on the morrow, to satisfy a mortgage of $6,000. Think of that wondrous old brick-built house of Virginia's cavalier days, going begging for $6,000!

But you see it's too far away from present day so-called "main ways". Someday this section will come into its own, if for no other reason than that "a hoop and a holler and four look-overs", is the Patrick Henry estate, the original house on which burned some 10 years ago.

And by the way, Patrick Henry and old John had no love for each other. Some time must tell you a very amusing instance concerning them, and this one-time Inn. It was told me by undoubtedly the oldest inhabitant. Leastwise, his hat surely was.

Oh yes—nearly forgot. We are making a right smart lot of bricks here at Salem. Can't quite describe them. Well anyway they have something about them others don't have, and can't seem to get. Of late architects have been leaning toward them a tolerable lot. Might be a fairish idea to find out just why.

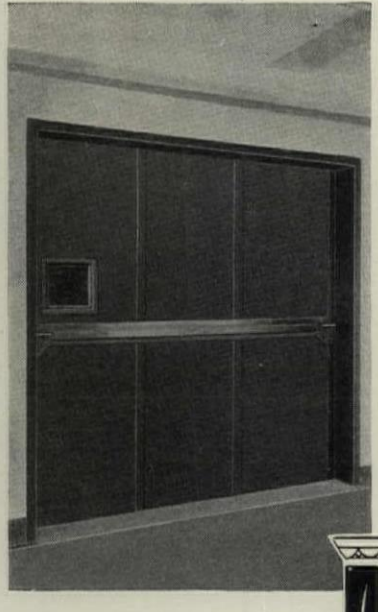
FIRST NATIONAL BANK BUILDING
Detroit, Mich.

ALBERT KAHN, Inc.
Architect

OTTO MISCH CO.
Contractor

FOUR SHAFTS OF FREIGHT ELEVATOR DOORS

N CONSTANT USE



"HE NEW First National Bank Build- ing of Detroit represents the test development in the design a combined bank-and-office ilding. Every item of its equip- ent was selected with a view to rmanence, design, workmanship, d the ability to withstand abuse.

e four freight elevator shafts in s 30-story building are equipped th "St. Louis Freight Elevator ors" to accord with the high class uipment throughout the structure. cause of the constant service re- ired, care was taken to obtain here, as else- ere, the most rugged construction available.

ese, like all St. Louis Freight Elevator Doors, are equipped with automatic Sill-Leveling Devices which maintain level trucking surfaces between elevator and floor under all conditions. This equipment is in use in many notable commercial structures in different parts of the country.

Literature describing it in detail is at the services of architects and others interested in construction work. Special engineering coöperation is also freely at the service of the architectural profession.

SEE OUR CATALOGUE IN SWEETS

ST. LOUIS FREIGHT ELEVATOR DOORS

. LOUIS FIRE DOOR CO., 1138 S. 6th St., St. Louis, Mo.
Manufacturers of all kinds of Fire-Proof Doors and Door Control Systems

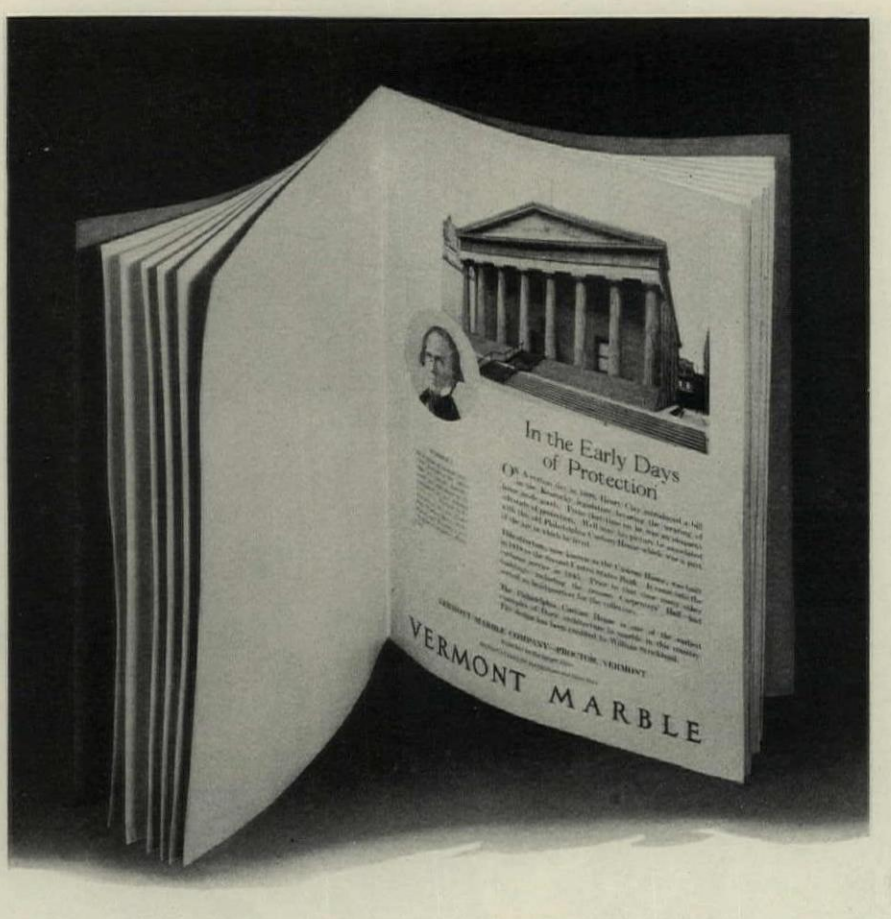
ORANGE UNION HIGH SCHOOL
ORANGE, CALIFORNIA

NO other type of public building has more "floor traffic" than the modern school. To stand the severe service demanded of it, the floor covering used in the class rooms and halls must be designed for heavy duty. For this reason, the new Orange Union High School of Orange, California, has installed 1400 square yards of Blabon's 6 mm Gray Battleship Linoleum.

Every architect and linoleum contractor should have a complete full-color Blabon Pattern Book. We will be glad to forward one on request.

SEE OUR CATALOG IN SWEET'S

BLABON-SANDURA COMPANY, Inc
FINANCE BUILDING PHILADELPHIA, PA



Your Copy is Waiting

DURING 1929 the Vermont Marble advertisements in the Architectural Journals have featured old American buildings—a series of twelve historic structures, all of which have achieved more than local fame. Our thought in bringing them out was that, entirely apart from the marble which went into their making, they were extremely interesting from the standpoint of design. This judgment seems to have been confirmed by readers of the building magazines. At least we have had numerous calls for a complete set of these pictures.

To meet this demand we have had the pages reassembled in booklet form suitable for filing. If you would like a copy, just send us a card with your name and address, and the book will come to you by return mail.

VERMONT MARBLE COMPANY—PROCTOR, VERMONT

Branches in the Larger Cities

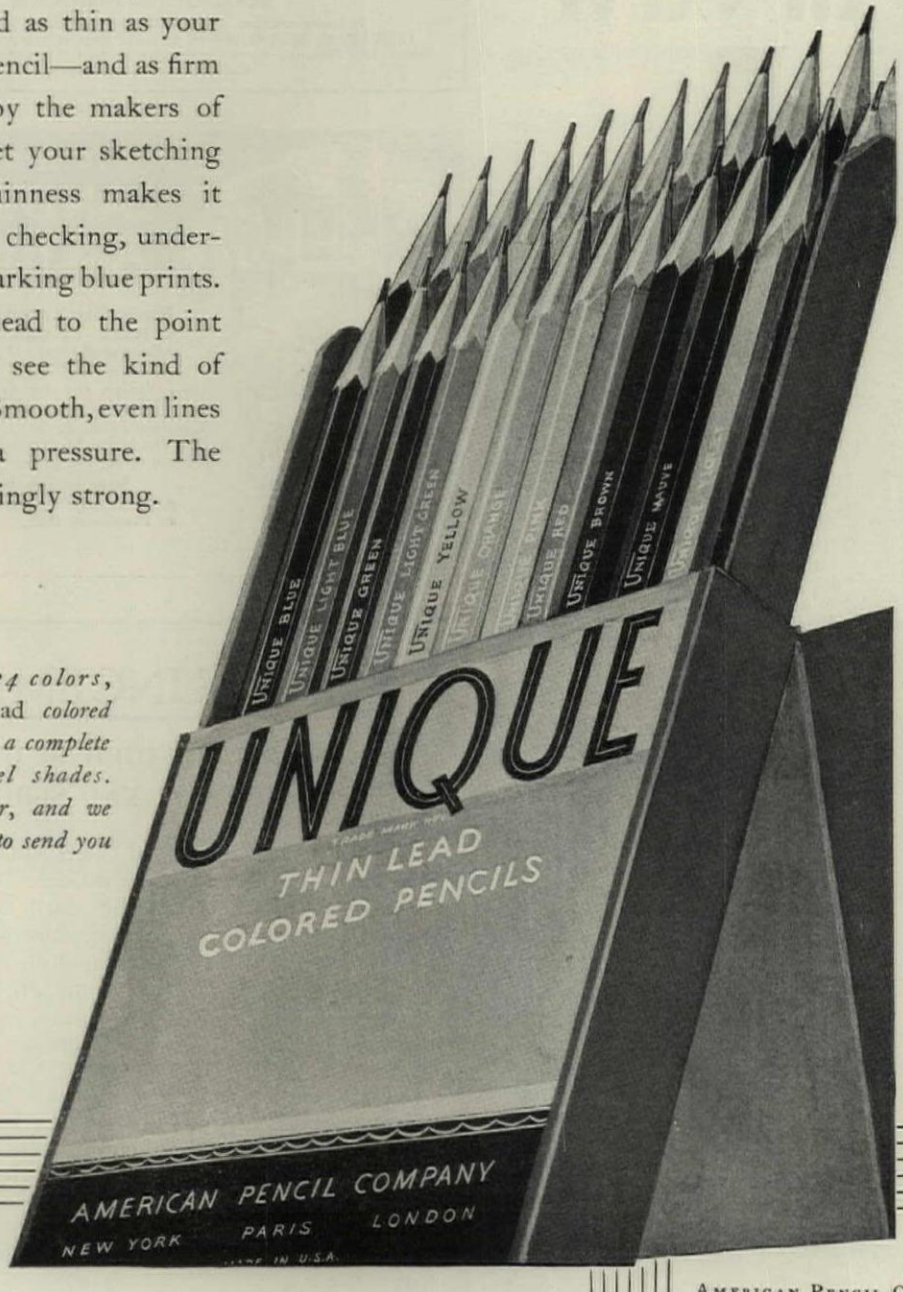
See Sweet's Catalog for Specifications and Other Data

VERMONT MARBLE

Unique *thin lead* colored pencils keep a firm, fine point

A COLORED CRAYON pencil with lead as thin as your regular lead pencil—and as firm—is offered by the makers of Venus to meet your sketching needs. Its thinness makes it invaluable for checking, underscoring and marking blue prints. Sharpen the lead to the point you like and see the kind of work it does. Smooth, even lines without extra pressure. The lead is surprisingly strong.

Furnished in 24 colors, UNIQUE thin lead *colored pencils offer you a complete palette of pastel shades. Name your color, and we shall be pleased to send you a sample.*



UNIQUE *thin lead colored pencils are made in*

BLUE
RED
GREEN
YELLOW
PURPLE
BROWN
BLACK
ORANGE
WHITE
LIGHT BLUE
PINK
LIGHT GREEN
MAROON
SEPIA
MAUVE
DARK RED
OLIVE GREEN
CHROME YELLOW
VIOLET
VERMILION
GRAY
FIELD GREEN
ULTRAMARINE
OCHRE

Your dealer carries a box of the first 12 colors at $1 and the complete range at $2 the box. If he cannot supply you, write us direct.

MADE BY THE MAKERS OF VENUS PENCILS

AMERICAN PENCIL COMPANY
Venus Building, Hoboken, N. J.

Without obligation, please send me a sample UNIQUE thin lead colored pencil in the following shade .....

Name .....

Address .....

City and State .....

Occupation .....

ANNOUNCEMENT

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

COMPETITION FOR TWO SCHOLARSHIPS

TWO scholarships of four hundred dollars each are offered in the academic year 1930-31 for *special students* in the third or the fourth year of the course in Architecture at the Massachusetts Institute of Technology. They will be awarded as the result of a competition in design under the direction of the Committee on Design of the Department of Architecture.

The competition is open to citizens of the United States of good character, who are between twenty-one and twenty-eight years of age, and who have had at least three years of office experience.

The competition will be held from May 17 to May 26.

Competitors are allowed to prepare their drawings wherever conditions conform to the requirements of the Committee, but these drawings must be sent to Boston for judgment.

Applications should be received on or before April 14, addressed to Professor William Emerson, 491 Boylston Street, Boston

WITH AND FOR OUR ADVERTISERS

ADVERTISING OFFICE, 419 FOURTH AVE., NEW YORK, N. Y., PHILIP H. HUBBARD, *Advertising Manager*
District Offices: 1050 Straus Building, Chicago; 953 Leader Building, Cleveland; 703 Market St., San Francisco.

Purchase of the business of Dwyer Equipment Company, Chicago, makers of unit heaters, is announced by the C. A. Dunham Co., Chicago, manufacturers of the differential vacuum system of steam heating and of low pressure steam heating appliances. Lawrence P. Dwyer, president, and Wm. J. Mauer, vice-president, of Dwyer Equipment Co., join the C. A. Dunham organization. Mr. Dwyer becomes general manager of the unit heater division, and Mr. Mauer sales manager of that division, each to be located at the general offices of the Dunham Company in its own building, 450 East Ohio Street. The Dwyer Twinfan unit heaters are made in four types and in a full range of sizes for all requirements of industrial and commercial building heating applications. The Dwyer plant, now located in Chicago, will be moved to the newly constructed Michigan City factory of the Dunham Company.

James D. Erskine, President of the Rome Brass Radiator Corporation, New York, N. Y., announces a reduction in the price of Robras 20-20 radiators effective Jan. 15th. A reduction of 7 per cent is made on short lengths to 22 per cent on the longer lengths.

At a meeting of the Board of Directors of the Yeomans Brothers Company, Chicago, Ill., D. W. Burgoon was elected Vice President and General Manager of the company. Mr. Burgoon will be in full charge of all operations including, as in the past, general supervision of sales.

The General Electric Company, Schenectady, N. Y., announces a line of single-phase, squirrel-cage capacitor motors, designated type KC, especially designed for quiet operation. These motors are expected to find their principal application driving blowers and ventilating fans in buildings, on low-torque centrifugal machinery on low-pressure pumping applications, etc.

Effective January sixth, Richmond H. Skinner, of Boston, Mass., joined the engineering staff of the National Lumber Manufacturers Association as structural engineer, succeeding Nelson S. Perkins, who recently resigned to accept a position with the National Committee on Wood Utilization.

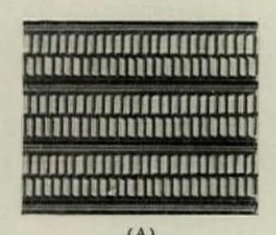
Nineteen wholesale electrical supply companies doing a total annual business of $60,000,000, with branches in sixty cities, have been organized by the Westinghouse Electric & Manufacturing Company into a single system under the name of the Westinghouse Electric Supply Company. Previous to the reorganization, these companies were owned by the Westinghouse Commercial Investment Company, a subsidiary of the Westinghouse Electric & Manufacturing Company, but conducted business under their own names and with their own corporate organization. In the new arrangement the Commercial Investment Company has changed its name to the Westinghouse Electric Supply Company, its subsidiaries have adopted similar titles and certain alterations in official positions have been made in order to unify the organization as a whole. However, each unit will continue to carry on its business as it has in the past and with the same management. One of the objectives of the new system is to secure greater efficiency in the distribution of electrical products and to this end central reserve warehouses are being established in Boston, New York City, Syracuse, Philadelphia, Tampa, Detroit, Indianapolis, Chicago, St. Paul, St. Louis, Dallas, Los Angeles, Portland, Ore., and Seattle.

Stay-Rib Is More Rigid than Other Lath of Equal Weight

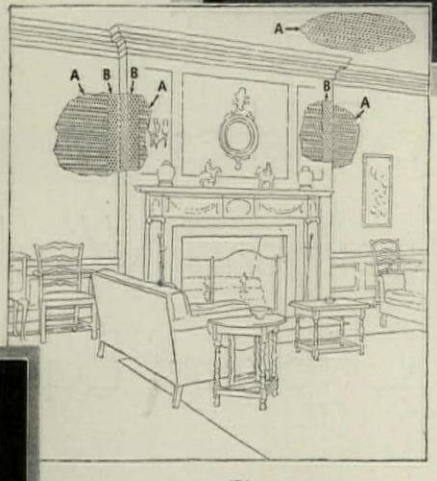
THE longitudinal ribs, or beads, of Milcor Stay-Rib Metal Lath add a stiffness that gives definite assurance of permanence in plaster. Then, too, the strands of expanded metal are reinforced at their centers by other stiffening members. The result is that Stay-Rib Metal Lath is actually more rigid than other laths of equal weight.

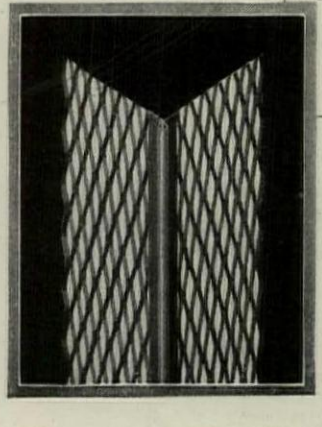
Due to the unusually large metal surface presented by *Milcor* Stay-Rib, scratching and doubling up can be done from one scaffold . . . a worthwhile saving in time and labor. Minimum plaster is required . . . and adequate key is secured without waste. Easy to handle . . . no jagged points to scratch workmen's hands . . . *Milcor* Stay-Rib encourages faster work and lower costs. It has no "equal" . . . In corner bead design, *Milcor* has achieved an outstanding success. The expanded metal wings permit keying the plaster right up to the bead. Corners of unusual strength are secured . . . and the bead permanently preserves the beauty of straight lines and graceful curves. *Milcor* Expansion Corner Bead has no equal. Specify it by name to be sure of securing the advantages offered by it alone.

Lounge of Milwaukee Country Club. *Architects*: Fitzhugh Scott, *Milwaukee*, Roger H. Bullard, *New York City*.



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





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

MILWAUKEE CORRUGATING COMPANY
1403 Burnham Street Milwaukee, Wis.

Copperalloy Steel · ARMCO Ingot Iron · Save with Steel

MILCOR PRODUCTS

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