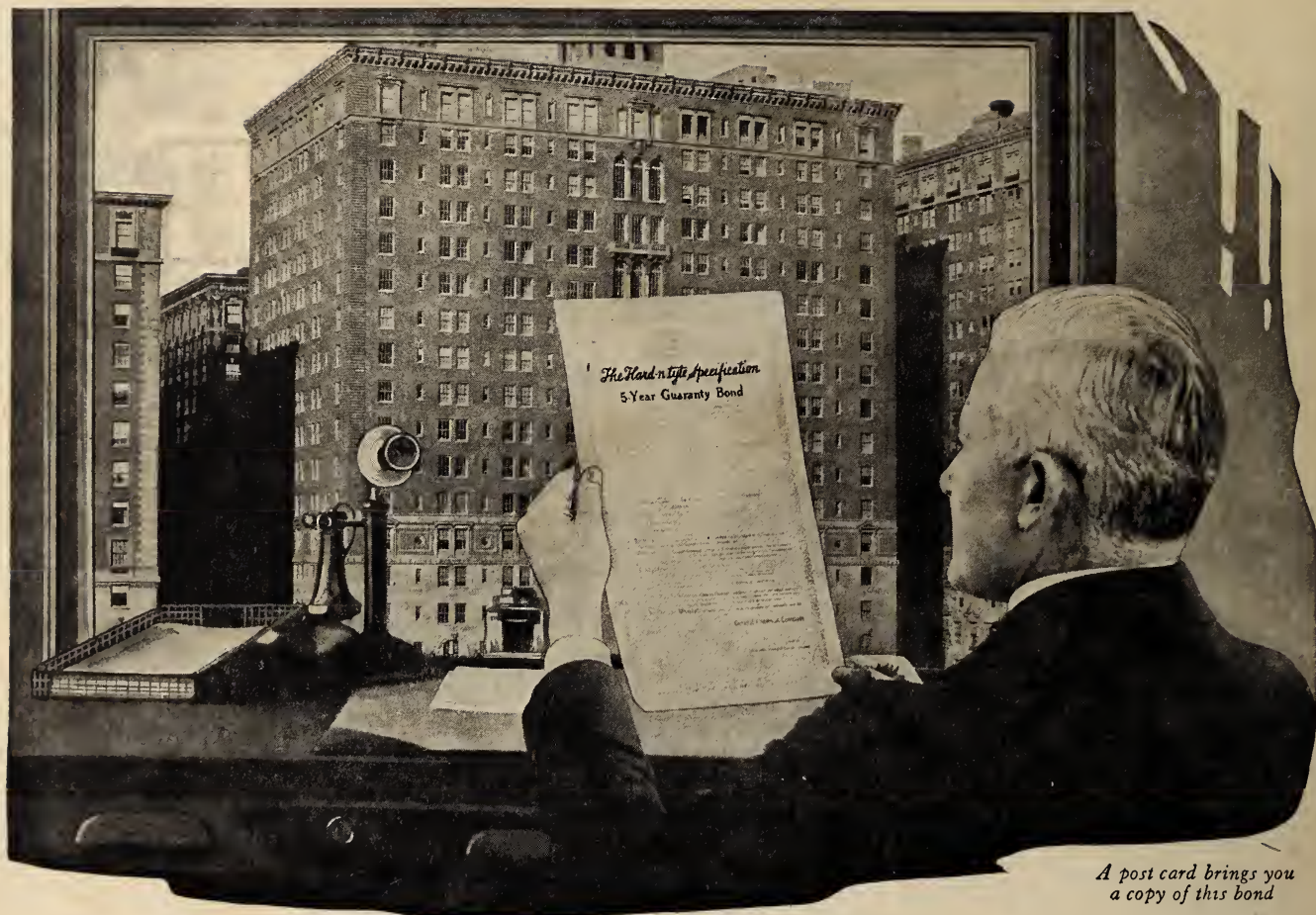


THE ARCHITECTURAL FORUM



NOVEMBER
1922



*A post card brings you
a copy of this bond*

Why make a big problem of a concrete floor?



For over twenty years the General Chemical Company has been at the forefront of chemical research and manufacture in this country. The Hard-n-tyte Specification is the latest contribution of its splendid staff of chemists. It is the successful result of long search for a concrete floor hardener that really hardens the floor and materially increases its life. It enables engineers and architects to give their clients a quality of concrete work far in advance of anything that has been possible heretofore.

THE average man might take a month or so to decide upon what floor hardener to use on the concrete floors of a building like "290 Park Avenue," New York.

But, to trained business men the matter settles itself immediately. The 5-Year Guaranty Bond is the first thing the business man sees, and he exclaims:

"Enough!"

His second thought is that chemists and concrete specialists must have proved the sureness with which floors

are hardened when treated with Hard-n-tyte. They must have proved the long life—much more than 5 years—before the U. S. Fidelity & Guaranty Company ever agreed to issue a 5-Year Guaranty Bond insuring every Hard-n-tyte Specification Floor.

That is exactly right! All these things *were* settled. And because of that every concrete floor you lay will be insured. Every dollar the building owner spends for Hard-n-tyte is protected by a 5-Year Guaranty Bond, if you put down Hard-n-tyte Specification Floors.

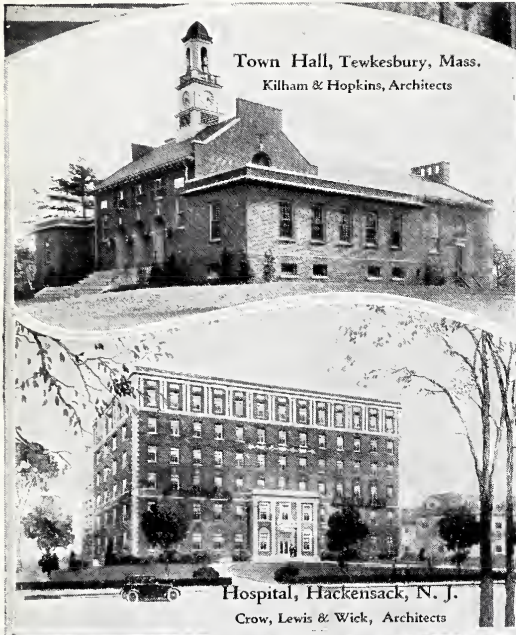
Drop us a post card asking for a copy of the Hard-n-tyte Specification and a sample bond.

The building illustrated above is 290 Park Ave., New York.
WARREN & WETMORE, Architects
FRED T. LEY & Co., General Contractors
GENERAL FLOOR MAINTENANCE Co., Contractors for Application of Hard-n-tyte.

General Chemical Company
40 Rector Street New York City

Hard-n-tyte Specification Floors

—dustless, long-wearing concrete



Save $\frac{1}{3}$

of the labor, dead load and mortar in the next building you erect by using Natco Header Backer Tile with a veneer of face brick. The saving in structural steel runs into tons and foundation costs are materially decreased. The elimination of through mortar joints insures dry interior walls. These savings have already been made and time of erection cut down on hundreds of the finest structures from office buildings to residences.

Write us for data on this new form of construction with list of buildings, architects, contractors, etc.

National Fire Proofing Co.
Fulton Building, Pittsburgh, Pa.

NATCO HEADER-BACKER TILE

TRUSCON Waterproofing Paste CONCENTRATED



No Waterproofing used
in this Stucco



Waterproofing was used
in this Stucco

WHY THE MOTTLED STUCCO? OF THE HOUSE ON THE LEFT

THE house at the left is an instance of what may happen when waterproofing is not used in stucco. Difference of absorption of various sections of the wall underlying the stucco, and the normal porosity of the stucco itself, may sometimes result in a checkered appearance.

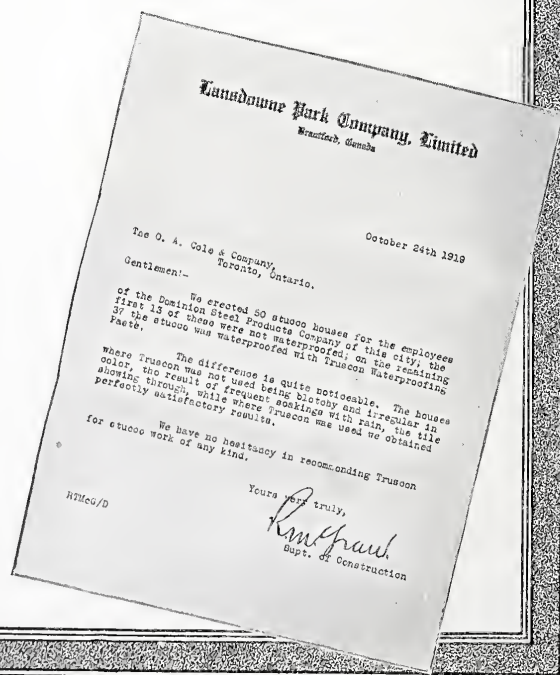
Cement stucco is a beautiful form of construction; it is attractive and durable—but like all masonry, stucco should be waterproofed. Because stucco is porous. Even a concrete wall is porous and absorbs water—how much more permeable to water must a thin shell of stucco be?

We were unusually fortunate in being able to obtain these two pictures of stucco construction from the Lansdowne Park Company, Brantford, Ont. It just happened that the first 13 houses which they built on a contract of 50 were finished with unwaterproofed stucco. The house at the left, with its mottled appearance, is an example. The house at the right is representative of the remaining 37, which were waterproofed with Truscon Waterproofing Paste, Concentrated.

Truscon Waterproofing Paste has other advantages besides that of waterproofing. It makes a rich, creamy stucco which is very satisfactory to apply. It kills absorption, producing an even textured stucco. It keeps water out of the surface and prevents hair-checks, mottling and serious stucco discolorations.

Should you be interested in the subject of waterproofed stucco, we will gladly send you specifications. Ask for "Science and Practice of Integral Waterproofing".

Facsimile of letter from the Lansdowne Park Company, Ltd., Brantford, Ont., on the advantages of Waterproofing in Cement Stucco



THE TRUSCON LABORATORIES

*The World's Largest
Manufacturers of Integral
Waterproofings*

DETROIT, MICHIGAN



We repeat—Every Raymond
Concrete Pile is cast in place
in a spirally reinforced steel
shell and this shell is left
in the ground—think it over

RAYMOND CONCRETE PILE COMPANY

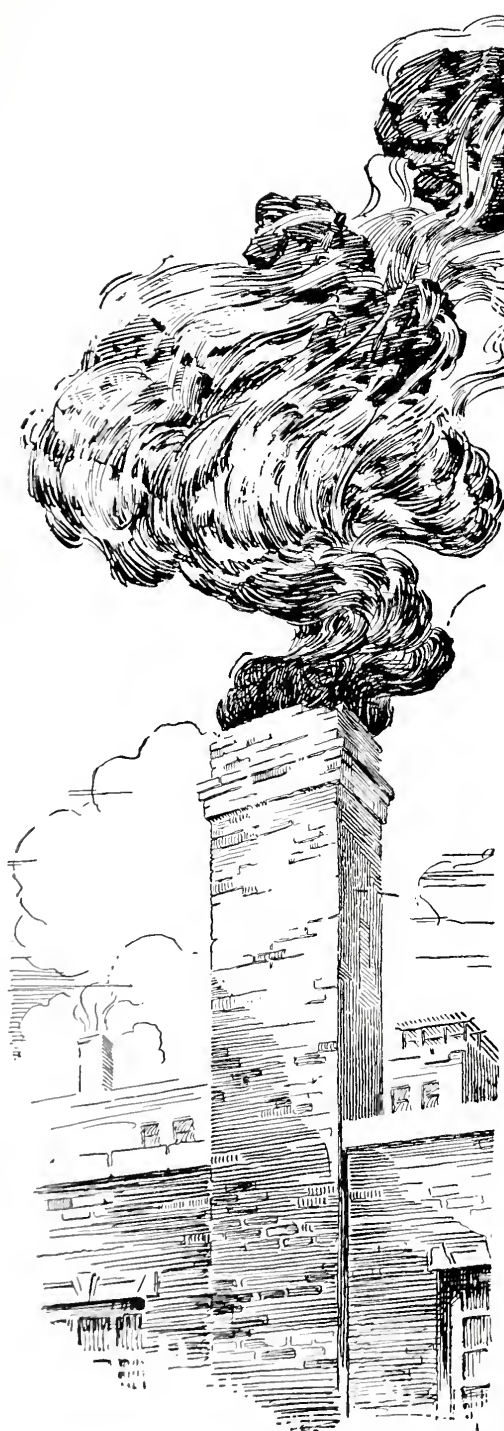
New York: 140 Cedar Street

Chicago: 111 West Monroe Street

Montreal, Canada: Raymond Pile Co., Ltd.

A Form for Every Pile—A Pile for Every Purpose

RAYMOND



SMOKE is unconsumed FUEL

A Kewanee Smokeless Boiler burns *all* its coal—hence none of it is wasted up the stack as smoke. The man who pays the coal bill appreciates the saving—usually it is a big one.

Furthermore, Kewanee Smokeless Boilers have “burned” their way into the hearts of owners by their ability to burn *any* coal. Your reputation is safe when you specify and install a Kewanee.

KEWANEE BOILER COMPANY KEWANEE, ILLINOIS

Steel Heating Boilers, Radiators, Tanks, Water Heating Garbage Burners

BRANCHES:

CHICAGO	Washington and Market Sts.	MILWAUKEE	835 Merch. & Mfrs. Bldg.
NEW YORK	47 W. 42nd St.	PITTSBURGH	945 Oliver Bldg.
DES MOINES	315 Hubbell Bldg.	DENVER	514 Boston Bldg.
KANSAS CITY	2014 Wyandotte St.	DALLAS	809 Southwestern Life Bldg.
INDIANAPOLIS	509-10 Occidental Bldg.	DETROIT	1772 Lafayette Blvd.
ST. LOUIS	1212 Chemical Bldg.	TOLEDO	1121-22 Nicholas Bldg.
MINNEAPOLIS	708 Builders Exchange	CLEVELAND	706 Rose Bldg.
COLUMBUS	808 First Nat'l Bank Bldg.	ATLANTA	1524-25 Candler Bldg.
SALT LAKE CITY	204 Dooly Bldg.	SAN FRANCISCO	72-Fremont St.

CANADIAN REPRESENTATIVES—The Dominion Radiator Co., Ltd.

Toronto, Ont., Montreal Que., Winnipeg, Man.
Hamilton, Ont., St. John, N. B., Calgary, Alta.

KEWANEE



The Century Club, New York City. McKim, Mead & White, Architects. Terra Cotta used for wall finish of lower story above base and ornamental treatment up to and including parapet balustrade.

GOOD ARCHITECTURE, GOOD MATERIAL

Good architecture implies careful selection of good material. Consistency in this respect characterizes the work of leading architects.

For 33 years the Century Club has stood as among the finest achievements of McKim, Mead & White. It not only shows a fitting selection of Terra Cotta but illustrates its absolute durability when intelligently incorporated with good construction.

Let us assist you in correctly detailing for this result. Address **National Terra Cotta Society**, 19 West 44th Street, New York, N. Y.

TERRA COTTA

Permanent

Beautiful

Profitable



*The Home
that stays
beautiful*

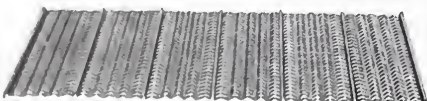
ENDURING beauty in a home is the result of forethought. If a house has been thoughtfully planned with a direct view to permanence, it preserves its charm of interior and exterior indefinitely.

One of the most distressing disfigurements that a house can suffer is in the plaster and its decorations, where unsightly cracks too often mar the surface. It is then almost impossible to restore the original beauty of the walls and ceiling.

The only remedy is prevention. The use of metal lath is very effective in maintaining the original appearance of the home. In the interior, it prevents cracks, stops fire and saves in cost of repairs and redecoration. The use of stucco on metal lath for the exterior gives the most economical, fire-resistive construction, requires no painting and saves in up-keep.

TRUSCON METAL LATHS are efficient and economical to use. Furnished in a variety of types, they meet every requirement. Wide spacing of studs and channels permits saving in material and labor. TRUSCON METAL LATHS mean permanence and economy.

TRUSCON METAL LATH



Truscon Steel Company

Youngstown, Ohio

Warehouses and Representatives in Principal Cities





THEATERS

Theaters demand an architectural treatment that expresses their purpose. Color, modeling and attractive ornament are distinctly an asset and a necessity. These features can be had at moderate cost in only one material,

TERRA COTTA

Technical and design facilities at our plant insure faithful execution of your specifications.

Motion Picture Theater, Philadelphia, Pa.

Stuckert & Sloan, *Architects*

Terra Cotta in cream glaze with a black splatter

CONKLING-ARMSTRONG TERRA COTTA CO.

WISSAHICKON AVENUE AND JUNIATA STREET
MAIN OFFICE AND WORKS

PHILADELPHIA, PA.

Baltimore, 804 Law Building
Pittsburgh, 413 Fourth Avenue

Washington, 234 Woodward Building
Boston, E. Stanley Wires Co., 120 Boylston Street

• TERRA COTTA •

Tints of Color Hold the Future of Architecture

Our material furnishes them in acceptable,
lasting and cleanly form

Wm D Gates Pres.

American Terra Cotta and Ceramic Co.
Chicago, Ill.

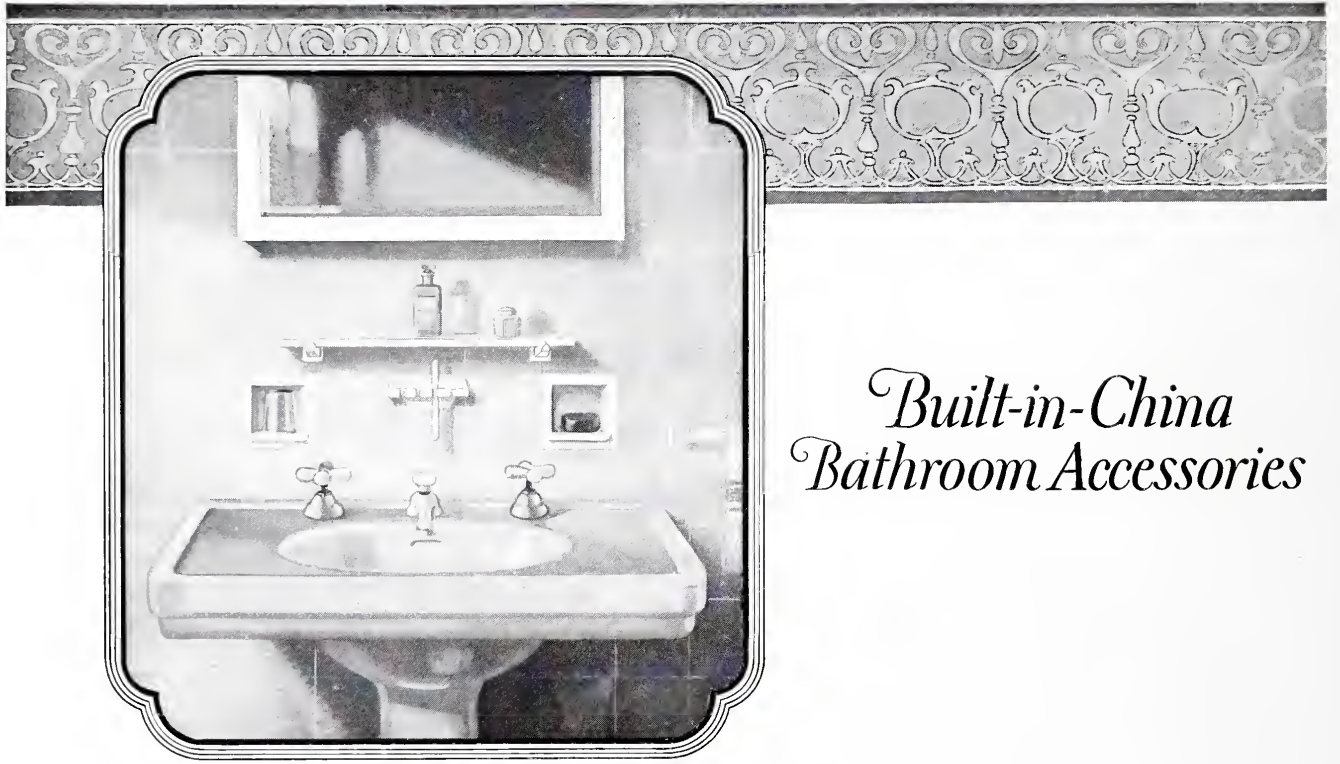


The tower of the Schiller Building, Chicago, originally named the German Opera House. The auditorium is now used as the Garrick Theatre. Built 1891,—thirty-one years ago; Adler and Sullivan (Louis H.), Architects.

The entire facing and trim is unglazed Northwestern terra cotta of light gray color. The fine enrichment of the tower is surpassed in the exquisite detail of the lower stories, to be illustrated at a later date.

NORTHWESTERN
is a short form of
specification for archi-
tectural Terra Cotta
of superior quality.

THE NORTHWESTERN TERRA COTTA CO.
CHICAGO



Built-in-China Bathroom Accessories

THE installation of Fairfacts China Accessories in bathroom walls is rapidly becoming standard practice not only in the construction of the finest residences, hotels and apartment houses, but in less pretentious homes as well.

It is not conceivable that anyone who has enjoyed their convenience would willingly go back to old-fashioned portable fixtures.

Because Fairfacts Accessories are made of china, they are easily cleaned. They will not crack or check and are free from danger of stains. These accessories cover every need of the modern bathroom—Soap Holders, Towel Racks, Paper Holders, Tooth Brush and Tumbler Holders, Shelves and Electric Radiators.

Architects' Service Department

WE ARE glad to cooperate with architects in furnishing construction details as well as to suggest the most convenient arrangement in the placing of these accessories.

Fairfacts Fixtures are installed by tile contractors—the only trade that does this work and should be included in the tile contract. We do not sell the plumbing trade.

THE FAIRFACTS COMPANY, *Inc.*
Manufacturers

234 West 14th Street

New York City

Fairfacts Fixtures

BUILT IN YOUR BATHROOM WALLS

“Swimming Pools”

A Helpful Reference Book

THIS publication is one which many architects have found of considerable practical value as a reference book. It supplies accurate and essential facts based upon collective experience and an extensive study of all aspects of swimming pool construction.

The standard designs and details presented in this book have formed the basis for designs adopted by a number of official and private organizations.

Among others, the California State Board of Health prepared many of its regulations and recommendations upon the principles set forth, and incorporated parts of the text, plans and illustrations in its own publications.

This book also serves as a text book in a number of colleges and architectural schools. If it is not in your library, a copy will be sent on request without charge.



THE ASSOCIATED
TILE MANUFACTURERS

Beaver Falls, Pa.

VENUS EVERPOINTED



THE superlative quality of VENUS Drawing Pencils is admitted by all.

Now you will want the VENUS EVER-POINTED Mechanical Pencil with the famous VENUS THIN LEADS; of exquisite appearance and perfect operation—the cherished pocket pencil. Buy one to own—ideal for gifts.

VENUS EVERPOINTED PENCILS are made in plain, chased, engine-turned and hand-engraved designs; silver-filled, gold-filled, sterling silver and solid gold materials; large and small sizes.

From \$1.00 to \$50.00

Gold-filled — Engine-turned . . .	\$5.00
Gold-filled — Plain	3.00
Silver-filled — Chased	1.75
Silver-filled — Plain	1.50

If your dealer cannot supply you, write us.

Beautiful Venus Everpointed booklet sent on request.

VENUS THIN LEADS

Unsurpassed for Venus Everpointed and for all metal pencils. Always straight, smooth, crumble-proof and perfectly graded.

All 7 degrees

2B soft and black	F firm
B soft	H medium hard
HB soft medium	2H hard
4H extra hard	

Venus Thin Leads No. 38 are packed in special Venus water-marked tubes, as illustrated above.

15c per tube of 12 leads
2 tubes for 25c

American Lead Pencil Co.
218 Fifth Ave. New York
and London, Eng.



17 black degrees—and 3 copying

VENUS Pencils
are the largest
selling quality
pencils in the
world.

ONLIWON HYGIENE

Inconspicuous

ONLIWON Set-in Tile Cabinet for toilet paper fits into a recess in the wall and replaces a standard tile. It is made in two sizes, 6" x 6" and 3" x 6". The cabinet holds 500 interfolded sheets and serves just two at a time.

Send for Specification Card that fits your file

A. P. W. Paper Co.
Department F
Albany, N. Y.

BY INVITATION
MEMBER OF



NEW YORK, U. S. A.

No Bathroom Is Complete

Without a
**Hess White
Steel Medicine
Cabinet
or Lavatory Mirror**

Five sizes to recess or to hang
on the wall

Shaft Mirror Doors and
Cabinets also



This mark
guarantees



best quality
throughout

Sold by Jobbers and Dealers everywhere

Hess Warming & Ventilating Co.

1216 Tacoma Building, Chicago

Sweet's Index, page 1638

Makers also of Hess Welded Steel Furnaces



Park Avenue Baptist Church, New York City. Associated Architects: Henry C. Pelton, Allen & Collins; Contractor, Marc Eidlitz & Son, Inc. 6100 sq. ft. of 30-inch extra dense nailing Pyrobar Roof Tile used.

U.S. PYROBAR ROOF TILE

Was Used on This Beautiful Church

In keeping with the plan to use only the finest materials throughout, Pyrobar Roof Tile were selected for the roof deck of the new Park Avenue Baptist Church, New York City.

Pyrobar tile are ideal for churches, schools, hospitals and other public buildings. They are light and require a minimum of supporting steel. They are easily erected and are fireproof and permanent. Ornamental tile or slate can be nailed directly to Pyrobar.

There is a type of Pyrobar for every roof design. Our engineering department is at your service for consultation on roof decking problems. We erect Pyrobar. Write for descriptive bulletins.

UNITED STATES GYPSUM COMPANY

World's Largest Producers of Gypsum Products

General Offices: Dept. N, 205 W. Monroe Street, Chicago, Ill.

SALES OFFICES

New York, N. Y., Buffalo, N. Y., Boston, Massachusetts, Washington, D. C., Philadelphia, Pa., Pittsburgh, Pa., Cleveland, Ohio, Cincinnati, Ohio, Detroit, Mich., Milwaukee, Wisconsin, Minneapolis, Minnesota, St. Louis, Missouri, Kansas City, Missouri, Omaha, Neb., Denver, Colorado, Los Angeles, California, Baltimore, Md., Atlanta, Ga., New Orleans, La.

MINES AND MILLS

Oakfield, N. Y., Plasterco, Va., Cleveland, Ohio, Gypsum, Ohio, Genoa, Ohio, Detroit, Michigan, Alabaster, Mich., Grand Rapids, Mich., Milwaukee, Wis., Fort Dodge, Iowa, Blue Rapids, Kansas, Southard, Okla., Eldorado, Okla., Piedmont, S. D., Loveland, Colo., Denver, Colo., Arden, Nev., Amboy, California

Clinton Mortar Colors



To All Architects

SOME months ago we offered this ingenious Mortar Color Experimenter to a limited number of architects in New York State. The response was gratifying—the letter given below is typical of many received. The Experimenter is very easy to use and gives the exact effect of each color combination. These can be tried until both architect and client are completely satisfied.

We believe that many architects will find it valuable. We will gladly send it on request, without charge.

GEORGE O. BARNES
ARCHITECT
GREAT NECK, L. I.

March 27, 1922

Clinton Metallic Paint Co.
Clinton, N. Y.

Dear Sirs:—

Your mortar color strips received for which please accept my profuse thanks.

I did not expect anything so wonderfully convenient. I had an idea I would have to lay up a panel of brick in mortar with raked joints and insert 3/8" cardboard strips, colored on one side, which you would supply, so you can see how agreeably surprised I was with what you sent me.

Again thanking you, I am,

Very truly yours,

Geo. O. Barnes

The Clinton Metallic Paint Co.
Clinton, N. Y. Dealers everywhere

Nature's Permanent Colors. Made since 1887

Established 1856

HENRY MAURER & SON

MANUFACTURERS OF

HOLLOW TILE FIREPROOFING MATERIALS OF EVERY DESCRIPTION FIRE BRICK

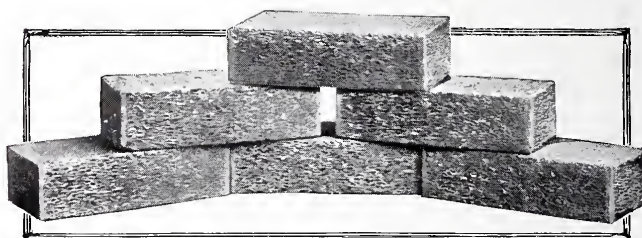
FLAT AND SEGMENT ARCHES, PARTITIONS
FURRING, ETC.

HOLLOW WALL BLOCKS FOR BUILDINGS

GENERAL OFFICE
420 East 23d St., New York

PHILADELPHIA OFFICE
Penna Building

Works: Maurer, New Jersey



Correctness in Brick

Specify These Brick

Doric Stippled Brick

The Dorics offer six unusual shades of buffs and tans, from a delicate buff with a pinkish cast, through olive buffs, golden tans and rich browns, to deep purplish browns and blacks.

Gothic Stippled Brick

The Gothics offer beautiful tones of rich browns and reds, ranging from dark brown or black, through light browns and reds to a wonderful old rose shade.

Write Department 111 for
Stippled Brick Booklet

WITH brick, as with clothing, there are correct and incorrect styles. Some brick are plain, flat and smooth. They are like plain ultra-conservative clothing. They have no life—no character. They are uninteresting and tiring.

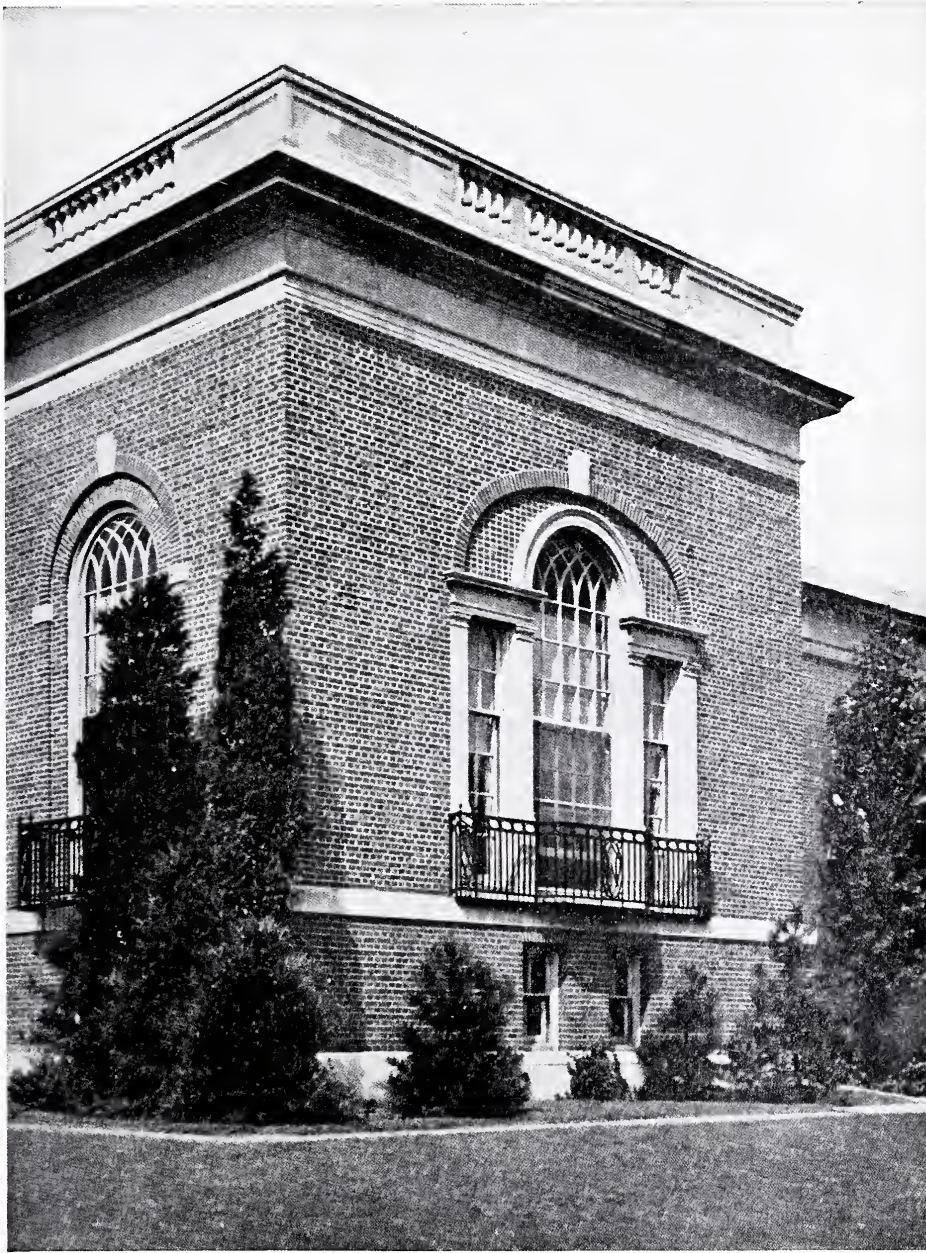
Others are unusually rough and fanciful—like freakish garments—adaptable only to a few specialized uses, and then often of temporary popularity. They collect dust which the rain distributes over the wall, causing stains.

Stippled Brick might be compared with "correct" apparel. Their texture is lively, interesting, original. One never tires of them. They diffuse light rays gently, and bring out the beautiful soft colors of the brick. You will be proud of your Stippled Brick buildings.

STIPPLED BRICK



Western Brick Company
Capacity One Hundred Million Annually
Danville, Illinois



Wing of Public Library, Waltham, Mass. Joseph Leland, Architect

There is distinctive character in this design, as there is in the durable brick and the English Bond in which it is carried out. A century from now this building will have the added mellowness of tradition and age, with its usefulness unimpaired.

Advance in Artistic Brickwork

A COMPARISON of present day brickwork with that of a generation ago shows a remarkable advance in the handling of this plastic material. The greater skill on the part of designers in the use of bonds, pattern work, mortar colors and the color ranges in the material itself is, in all parts of the country, producing beautiful structures. Many architects have learned that artistic effects in brickwork are not dependent on special sizes or molded forms, but that they can be economi-

cally obtained by the use of standard size Face Brick.

More than a hundred examples of the artistic possibilities of standard size Face Brick are shown in *The Portfolio of Architectural Detail in Brickwork*. The de luxe half-tone plates comprising the series are assembled in three series, each in an enclosed folder, with printed tab, ready for filing. A set of these folders will be sent to any architect requesting them on his office stationery.

AMERICAN FACE BRICK ASSOCIATION

1751 PEOPLES LIFE BUILDING • CHICAGO, ILLINOIS

MASTERPIECES IN MARBLE



A series of advertisements showing practical uses of Appalachian Marble



Number Fifteen

Jacksonville
Terminal
Station
Jacksonville,
Florida.

Architect,
Kenneth M.
Murchison,
New York City

The Service Department of the Appalachian Marble Company is at your service week in and week out. A word from you will put it to work. This department comprises experts in Interior Marble.

If you will send plans and ask for estimates the work will be quickly and exactly done. If you wish infor-

mation or advice on the selection or erection of Interior Marble, all helpful facts will be cheerfully furnished.

Please consider the Service Department of the Appalachian Marble Company as part of your own organization and use its services accordingly.

APPALACHIAN MARBLE COMPANY

KNOXVILLE - TENNESSEE

QUALITY - - - - - SERVICE



The Leeds Memorial, Woodlawn Cemetery, New York
John Russell Pope, Architect

JUST as the immortal symphonies of Beethoven receive adequate rendition only by the finest orchestras, so the idealism embodied in a memorial design of character can only be expressed in the finished product by those who have devoted their lives to the fashioning of monuments. Harrison service will meet your every requirement.

Write for Booklet "D"

HARRISON GRANITE CO., Inc.

Established 1845

200 Fifth Avenue, New York

867 Fine Arts Building, Chicago
1927 Osage Avenue, Philadelphia
1501 Kresge Building, Detroit
Works: Barre, Vermont

HARRISON MEMORIALS



M. J. P. Cahill Residence
Greenwich, Conn.

F. P. Whiting
Architect

TUDOR Stone Roof, gray walls and flagstone terrace combine to give this home that matured appearance which is so desirable.

Write for copy of our new "Architectural Leaflet" giving detailed specifications and information.

Tudor Stone Roofs

Rising and Nelson Slate Company

Since 1869 Miners and Makers of High-grade Roofing Slates
Quarries and Main Office, West Pawlet, Vermont

Architects' Service Department, 101 Park Avenue, New York
CHICAGO PHILADELPHIA BOSTON



Medusa Protected

THE beautiful new Scottish Rite Masonic Temple at Guthrie, Oklahoma, was built of Bedford Limestone set with Medusa Stainless White Cement Mortar.

"Medusa" prevents discoloration and streaking not only in the mortar itself, but in the material it is used to set, as well, whether it be limestone, marble, tile, face brick, or terra cotta.

Apart from its usefulness in mortar, Medusa Waterproofed White Cement also serves as an ideal medium for ornamental building trim. With it, decorative walls and entrance-ways, lawn and garden furniture, balustrades, pillars, etc., can be cast in a variety of pleasing effects, either in pure white or tinted shades.

Such work is not only non-staining, in texture, but is rendered permanently impervious against the absorption and resulting destructive effect of moisture, dampness and frost for all time.

Booklets containing specifications will be sent upon request

THE SANDUSKY CEMENT COMPANY
Department F Cleveland, Ohio

Manufacturers of Medusa Stainless White Cement (Plain and Waterproofed); Medusa Gray Cement (Plain and Waterproofed); Medusa Waterproofing (Powder or Paste); and Medusa Waterproof Cement Paint.

Scottish Rite Masonic Temple, Guthrie, Oklahoma. Architects: Messrs. Hawk and Parr, Oklahoma City, Okla. Contractor: James Stewart. Bedford Limestone furnished by J. Hoadley & Sons, Guthrie, and set by John McBeath & Son.



MEDUSA

WHITE CEMENT

Waterproofed or Plain





Birmingham Post Office, Birmingham, Ala.
Supervising Architect, Washington, D. C.
(Interior marble furnished by the Alabama Marble Co.)

Alabama Marble Company

*Sole Producers and Manufacturers of the
Standard Grades of*

Alabama Statuary	Alabama Veined Grade A
Alabama Selected A	Alabama Pocahontas
Alabama Grade A	Alabama Italian
Alabama Statuary Mosaic	
Alabama Mixed Mosaic	
Alabama Terrazzo	

*The best possible and most satisfactory service in Interior
Marble can be obtained by dealing directly
with the Manufacturing Producer*

The Reasons Why —

1. He has more marble to select from.
2. He can take the necessary waste at a minimum of expense.
3. He cannot evade his own responsibility.
4. His living depends on your satisfaction with work done for you in his marble.
5. He has a pride in his material which insures his best effort on every job.
6. Having the largest stock to draw from, he can make the promptest deliveries.
7. His prices are the most reasonable.

Alabama Marble Company

Gantts Quarry, Alabama

Main Office, Quarries and Finishing Plant

The Best All-Around Floor

T·M·B

FLOORING

THE Mastic Floor

**Durable Good Looking Noiseless
Warm Resilient Sanitary**

You'll find it good business to specify T-M-B Flooring in the buildings you are planning. You can depend upon it to meet all qualifications of a thoroughly high-grade, serviceable floor.

T-M-B Flooring, laid on new or old floors of cement, wood, composition, etc., will never crack, wrinkle or loosen. It successfully withstands excessive wear. Always is clean and sanitary.

Its resilient texture makes it restful and quiet underfoot. It is warm and non-slippery. There are no seams or joints to mar its attractive appearance. Made in three pleasing colors.

You will find T-M-B Flooring unequaled for offices, schools, corridors, stair treads, and wherever super-floor service is required.

THOS. MOULDING BRICK CO.

133 W. Washington St.

CHICAGO

Write Dept. 2 for full information



MARBLELOID

*The Universal FLOORING
for Modern Buildings*

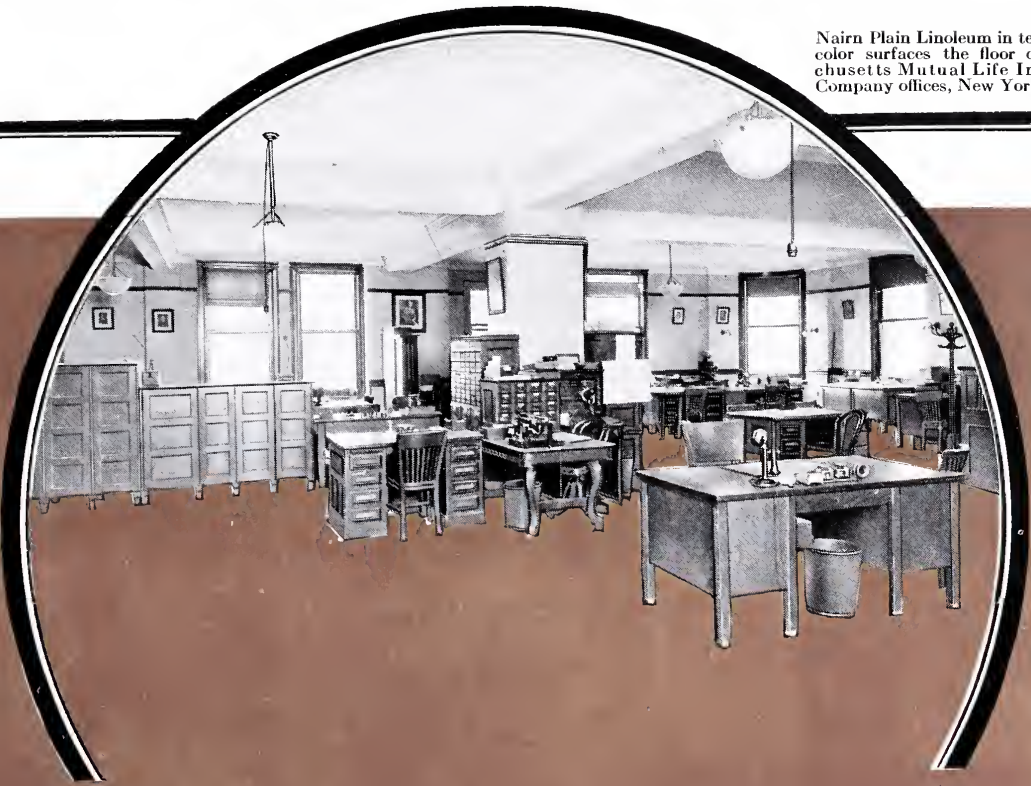
Jointless
Sanitary
Smooth Surfaced
Fireproof
Warm
Easily Cleaned
For New Floors
Manufactured, installed and guaranteed by us

Resilient
Long-lived
Non-dusting
No-upkeep
Assorted Colors
Reduces Noise
Makes Old Floors New

Write for complete specifications, samples, etc. Also see Sweet's

The Marbleoid Co., 1404 Printing Crafts Bldg., New York

Nairn Plain Linoleum in terra cotta color surfaces the floor of Massachusetts Mutual Life Insurance Company offices, New York City.



Life Insurance for the Floor!

THE Massachusetts Mutual Life Insurance Company insures the life of man. The Nairn Linoleum Company insures the life of man's floor. It is natural that the floor of the New York Offices of the Massachusetts Mutual is surfaced with Nairn Plain Linoleum.

Nairn Plain Linoleum, in terra cotta, dresses up the entire office. Its superior surface finish keeps it new every day—a mop and water brighten it back to youth.

And it will continue to look new day in and day out until worn through—but that is too many years off to contemplate.

Samples and specifications on request

NAIRN

PLAIN LINOLEUMS

NAIRN LINOLEUM COMPANY, NEWARK, N. J.

W. & J. SLOANE

575 Fifth Avenue, New York

Sole Selling Agents

216-228 Sutter St., San Francisco

VERMONT *and* ALASKA MARBLE

Effectively combined
in the building of one
of the nation's most
notable structures



*Sectional Views of Main Foyer and
Stairway, Cleveland Auditorium*

J. H. MacDowell, Architect



The city of Cleveland has just completed a great auditorium which covers an entire block. It cost approximately \$6,500,000. The interior marble came from our quarries at Token, Alaska and the Verde Antique quarries of Vermont.

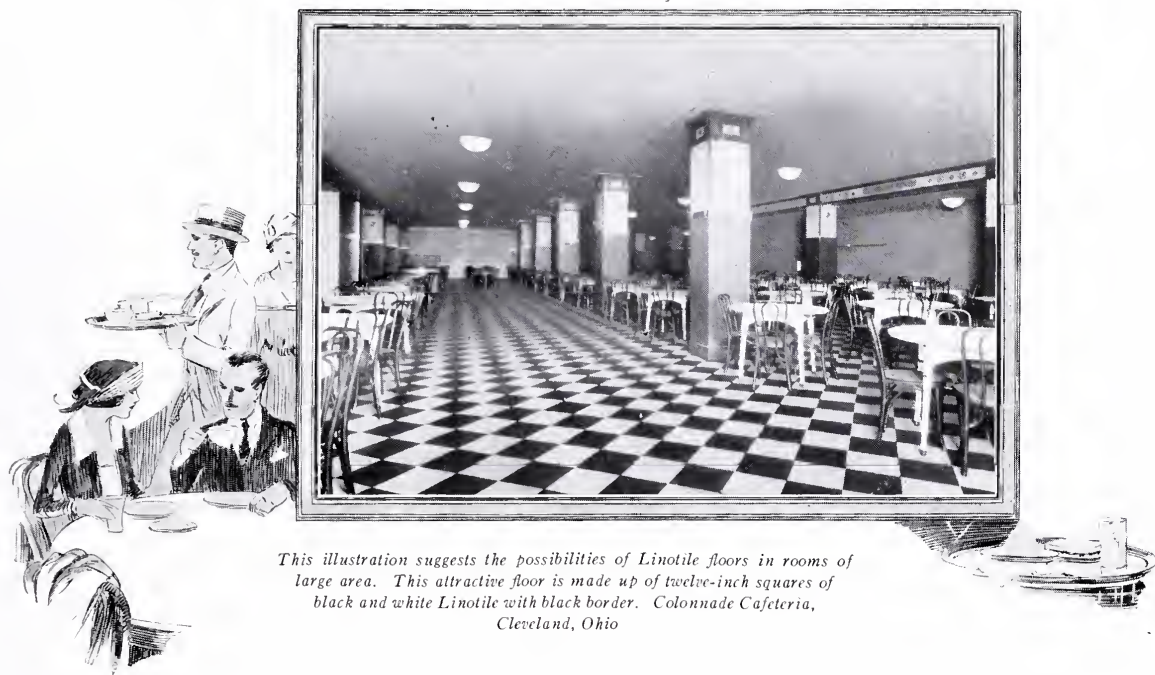
VERMONT MARBLE COMPANY

Proctor



Vermont

Branches in the large cities



Distinctive Restaurant Floors

THE floor can be made just as expressive of the character and individuality of the restaurant as its architecture and furnishing. Where Linotile is used the floor becomes an interesting feature—decorative as well as comfortable; not a neutral background, but a positive contribution to the beauty and charm of the room.

Linotile is a composition of cork and other substances, made in various sizes and shapes and in eleven colors. It is laid in waterproof cement over any smooth, dry base. Colors and sizes in varied arrangements permit the designing of floors equally suitable for the lobby, private rooms and main dining floor.

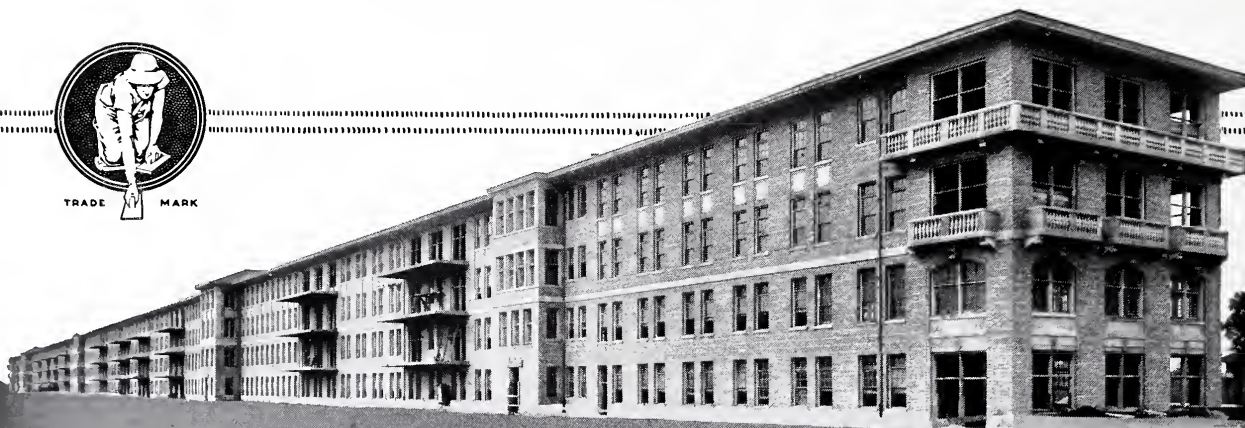
Linotile floors have a smooth but non-slippery surface and are firm, yet resilient underfoot, and practically noiseless. They are sanitary, easily cleaned and without cracks or crevices to collect moisture and dirt. Linotile floors will last for years without refinishing, if properly cleaned and cared for—economical because of their low upkeep cost.

The 44-page book, "Linotile Floors," which is illustrated in colors, contains complete specifications and many interesting examples of how this distinctive material is used. A copy and sample tile will be sent to you on request

Armstrong Cork & Insulation Company
132 Twenty-fourth St., Pittsburgh, Pa.

Also manufacturers of Armstrong's Cork Tile

LINOTILE FLOORS



Telephone
Main 1647

George H. Shank, *President*
F. H. Foster, *Secretary-Treasurer*

SHANK COMPANY

Rooms 535-536
30 NORTH LASALLE STREET

GROUND PURCHASED AND
FACTORIES, WAREHOUSES AND OFFICE BUILDINGS
BUILT TO SUIT TENANTS

Chicago, February 28, 1922

The Master Builders Co., Cleveland, Ohio.

*Re: Edward Hines, Jr., Memorial Hospital,
Maywood, Ill.*

Gentlemen:

Your letter regarding our experience in the use of your product, MASTER MIX, for the above job, we take pleasure in answering.

MASTER MIX was adopted for all the floors in this building which are cement finish, after a thorough investigation of all the various products offered in competition.

We are not sorry for our selection and your claims were all verified and even more so.

The topping was applied on a set slab, and we not only used MASTER MIX in the top finish, but followed your directions and used it as a bonding coat and it proved its value in this respect. We had but a few hundred square feet that was not bonded, over an area of 600,000 square feet where we found that failure was caused by the slab not being cleaned of plaster that had fallen before topping was applied.

The floor finish with the MASTER MIX is very dense, hard and dustless. From the contractor's standpoint, it is a big advantage for time and labor saving, a claim you make that we doubted at the start.

We are glad to lend a good word for the advancement of your product. If you could carry these floors around as a sample, you would sell every prospect.

Very truly yours,
SHANK COMPANY
By GEORGE H. SHANK, *President*

This large institution, the Edward Hines, Jr., Memorial Hospital at Maywood, Ill., has 600,000 square feet of Master-Mix Floors. Contractor—Shank Company, Chicago. Acting Supervising Architect—James A. Wetmore

MASTER MIX is a liquid integral cement accelerator-hardner, waterproofer and anti-freeze compound. Master Mix, by securing maximum hydration of each particle of the cement, creates as dense concrete as it is possible to obtain. Because of this density, capillary attraction (due to porosity of ordinary concrete) is eliminated, thus rendering the concrete permanently waterproof. Master Mix is no surface treatment—it hardens and densifies the entire topping. This means permanently wearproof floors.

For specifications see pages 202, 203, 7th Edition, Sweet's Engineering Catalog, and pages 104, 105, 17th Architectural Edition.

The Master Builders Co.
Main Offices : Cleveland, Ohio

Sales Offices in 70 Cities

Factories at Cleveland and Irvington, N.J.

Master Mix for Mortar

BOOK DEPARTMENT

A GUIDE TO ENGLISH GOTHIC ARCHITECTURE. By S. Gardner. 56 drawings in the text and 180 photographs. 6 x 10 ins. Price \$5.25. The Macmillan Co., New York.

THE genius of the centuries of the later middle ages, from the eleventh to the fourteenth, worked the development of a different form of Gothic architecture for each country into which the use of Gothic forms had been carried. Even within the borders of a single land there might be many and subtle variations of design and mannerisms of construction, uses emanating from the chief cities of different provinces. France saw the development of many such schools, the Gothic of the Ile de France differing considerably from that of Burgundy, Anjou or Champagne, even during the period when Gothic architecture was at its height and when builders were diffusing the knowledge and making common property the achievements which experience had given them.

Different by far from the history of Gothic in France is its story in England. The conquest of England by the Normans, toward the end of the eleventh century, brought into England the manner of building which even then prevailed in Normandy, developed by that hardy race which had invaded northern France as barbarians, the destroyers of churches, murderers of priests and the ravagers of convents, but which within one brief century had not only embraced Christianity and the arts of peace but had absorbed the architectural

knowledge of the conquered territory and were building in many parts of Europe the beautiful forms which we know as Norman. The same builders were to carry to England the Gothic architecture of France, and Normandy sent across the channel the best of her sons to be master craftsmen as well as bishops and nobles.

In this work there are contained illustrations and descriptions of many of the religious structures built in England which stand as examples of the architecture of the late Norman and Gothic periods. The use of transitional forms and of the early English, decorated and perpendicular Gothic types, is made clear and definite and aids the student in gathering a clear idea of the history of this great movement which was destined to cover all Europe with a white mantle of churches. Because the building of its Gothic forms is so clearly the reflection of the temperament of a race it is important that the student recognize the points of divergence between the plans of the great cathedrals of France—Paris, Rheims, Chartres and Amiens—and the great structures which mark the culmination of English Gothic—the substitution for the apse and the *chevet*, made up of its en-



The Deanery, Winchester
From "A Guide to English Gothic Architecture"

circling ambulatory and radiating chapels, of the square end with its great window which filled the entire east end of the sanctuary, and differences of design, such as the tendency of the French to use vast window spaces, thus diminishing the proportion of solid wall which was

Architectural Rendering in Wash

By H. VAN BUREN MAGONIGLE, F.A.I.A.

A TREATISE on the rendering of architectural drawings, by an architect who has made a special study of this branch of draftsmanship, but written from the point of view of a beginner. The subjects of technique

and materials are gone into minutely, and the work forms an invaluable manual for the student in this field. Fully illustrated by rendered drawings—one in color—by many of the best known draftsmen.

160 pages, illustrated; 7½ x 10 ins. Price \$5 postpaid

ROGERS AND MANSON COMPANY - 142 Berkeley Street, Boston

Three "House & Garden" Books

which sum up the designing of the house, the decorating and furnishing of the interior, and the development of the garden.



The Book of Houses contains 110 pages of illustrations and plans of some of the best moderate-cost homes in the country, of different styles and materials and of great variety of plan. Successful alterations are shown, and there are numerous illustrations of details such as porches, fireplaces and mantels, doorways, windows, stairways and chimneys. Price \$3.

The Book of Interiors presents 126 pages of well decorated and furnished rooms; its suggestions are practical and helpful, particularly as most of the examples illustrated are of moderate cost. It deals with questions such as period styles, color schemes, lighting fixtures, furniture, floor coverings and antiques. Price \$4.

The Book of Gardens shows, in 127 pages, some of the most beautiful of American gardens, chiefly those of medium extent and cost. More than 400 illustrations aid the architect or decorator in the designing of such details as fountains, pergolas and latticework or in the laying out of lawns, walks and flower borders. One of the most practical books ever published. Price \$5.

Sizes 9½ x 12¾ inches

Sent postpaid

ROGERS AND MANSON COMPANY
142 Berkeley Street, Boston

more customary in England. Then, too, the English cathedrals were situated differently from those of France, and were almost invariably built where much surrounding area gives opportunity for the emphasis of its architectural dignity; almost always the spacious area of close and other domain sets the cathedral apart from its town, as at Salisbury or Litchfield, or else its towers may dominate a height, as at Durham, in any case securing an opportunity for expression which could never be had by a French cathedral, intimate part and parcel of a town's life and so closely built around with domestic structures, as at Amiens or Rheims, that it is often impossible to secure an adequate view of the cathedral itself.

The method in which the work is arranged adapts it to the student's use, for it is planned according to subjects with the illustrations placed in chronological order. These illustrations include general interiors, spires, towers, porches, windows and doors, and numerous details of sculpture, such as capitals, foliage, bosses, corbels and figure subjects of different kinds.

Notwithstanding the number of works being published on the subject of Gothic it is not always easy for the student to obtain a really firm grasp upon its meaning, and particularly welcome is a work which renders more easily understood the theory and practice of architecture's supreme achievement.

HET MODERNE LANDHUIS IN NEDERLAND. By J. H. W. Leliman and K. Sluyterman. 236 pp., 8½ x 11½ ins., bound in cloth. Martinus Nijhoff, The Hague, Holland.

THE modern suburban or country house in Holland has undergone the transformation which has attended its development in every country, and this well printed and fully illustrated volume sets forth the result. With the well defined traditional domestic architecture of Holland as a foundation, the modern Dutch architects have evidently not been slow to adapt to their problems whatever in the architecture of other countries fitted in with their needs, and many of these well designed homes suggest that Holland as well as America has felt the influence of what is sometimes known as the "modern English" style, while certain others might almost have been photographed in the suburbs of Boston or New York.

An interesting characteristic of the greater number of these houses, almost all in country or suburbs, is the prevalence of brick as a building material, to be expected no doubt in a country where forests are but rare while brick has been in use for centuries. The illustrations prove that the Dutch have not lost their ancient skill in the use of brick and in its combination in pleasing manner with wood, tiles, stucco and the other materials which are combined with brick in other lands. An interesting detail of many of the illustrations is the use which they show of roofing materials—tile for the most part, though many houses are roofed with what closely resembles old fashioned thatch, which adds that touch of quaintness which Americans are apt to associate with the Netherlands. The floor plans of the various houses which are included show an arrangement not greatly different from what would be found in America, the chief difference being perhaps the apparent tendency toward planning a number of small rooms in the area wherein America but one or two larger rooms would be preferred.

ARCHITECTURAL DRAWING. By Wooster Bard Field, Architect. 9 x 12 ins., 161 pp. Price \$4. McGraw-Hill Book Co., Inc., New York.

EVEN the most skilled of draftsmen is apt to consider his knowledge incomplete. The technique of architectural drawing is so large in extent and in many of its phases so complicated in detail that the proper grasping of the subject may well occupy years of study, application and practice. To obtain a good working knowledge of the art many volumes of text and countless expensive plates would be required, since almost without exception these books and portfolios of plates each deal with but a single aspect of the subject and go into that at considerable length, which makes it necessary that the student have access to a well equipped library or else invest in a variety of more or less expensive works.

In this volume, prepared by the Assistant Professor of Engineering Drawing at the Ohio State University, an attempt has been made to provide for the student those things which might be regarded as the fundamentals of the initial stage of the subject, as well as a careful presentation of certain of the more important points which are not generally covered in the work of the schools, but left to be acquired by actual practice after the student has left school. The subjects covered are taken up in the order in which they are naturally presented at the drawing board, which would seem to be a logical and natural method of presenting them, since this sequence would also give the reader a comprehensive and well-ordered grasp of the entire process. First there is an explanation of the method of orthographic projection and its application to architectural drawing; this includes the relation of views, auxiliary projections, sections, developed views and intersections. Next in order there is a description of the instruments commonly used in drawing and consideration of the geometric solutions most employed by architects. The subjects of preliminary sketches, scale and detail drawing and the orders of architecture are then taken up. While upon the subject of scale drawings examples are given of typical drawings which show buildings of different materials and various methods of construction to present to the student the methods by which certain well known architects actually portray such buildings, knowledge of which is of value to draftsmen.

As a guide to the student a suggested course of study has been added, presented in view of the author's wide experience as a professor of engineering drawing. This course is made up in such a way as to serve as an outline for either a simple or a comprehensive program of study, and it gives the student a methodical order of procedure while making it optional with him as to the extent of his work in each of the departments concerned. The work deals primarily with architectural drawing, but suggestions are made for wider study in both architectural design and engineering. For most students an important subject during earlier days is lettering as applied to architectural work, and this subject has been treated at some length by Prof. Thomas E. French, also of the Ohio State University.

A work of this kind would be quite naturally intended primarily for the use of students of architecture, but it will be found invaluable as well to anyone concerned in any way with architectural work.

Small Houses of the Late Georgian Period

By STANLEY C. RAMSEY



A volume on the small country or suburban houses and town houses, detached or in rows, of the late eighteenth century type, suitable for American use today. The houses shown include those of stone, brick, stucco or clapboards and most of them are designed in the dignified, slightly formal style which marks the Georgian period; some of the buildings contain shops on the ground floors with living quarters above. The volume also contains illustrations of doorways, porticoes, balconies and wrought ironwork of the time.

This book contains no fewer than 130 carefully selected examples of small houses, all finely reproduced to a large size from photographs specially taken for the purpose.

Apart from its immediate practical utility, this book is of distinct educational value, and it will make a strong appeal to all architects, students and general readers who are interested in the Georgian period.

Handsomely bound in full cloth gilt, size 12½ x 8½ ins., and printed on heavy art paper

Price \$8.40 postpaid

ROGERS AND MANSON COMPANY

142 Berkeley Street, Boston

Eighty-six Cement Manufacturers Unite to Serve You

The Portland Cement Association means this: that valuable scientific, advisory and educational work which no one cement manufacturer could reasonably undertake alone is at your disposal. This means that you can be absolutely sure of yourself in using Concrete.

You can be sure in the first place of the cement you buy. Any manufacturer of Portland cement may join the Association, and no manufacturer has to belong to it. But Association By-Laws require that members' products shall measure up to the high standard of specifications of the United States Government and the American Society for Testing Materials. Cement bought from a member of the Association is therefore dependable.

You can be equally sure of the way to use it. If you want information about its usefulness under certain conditions, or about how to mix it or place it to get the best results most economically, you can get it from any one of our 24 offices, one of which is near you.

Supplying dependable information without charge, by booklet, or by personal correspondence or by conference when necessary, is the work of the Association. To supply it authoritatively, the Association maintains a large research laboratory and a staff of more than two hundred engineers.

The Association is, in effect, the joint research and educational foundation of 86 manufacturers of cement in the United States, Canada, Mexico, Cuba and South America. You are invited to use it freely.

Suggestions as to how our work may be made more useful to you are invited.

PORTLAND CEMENT ASSOCIATION

*A National Organization
to Improve and Extend the Uses of Concrete*

Atlanta
Boston
Chicago
Dallas
Denver

Des Moines
Detroit
Helena
Indianapolis
Kansas City

Los Angeles
Milwaukee
Minneapolis
New York

Parkersburg
Philadelphia
Pittsburgh
Portland, Oreg.
Salt Lake City

San Francisco
Seattle
St. Louis
Vancouver, B. C.
Washington, D. C.

32,000 SQ. Ft. BLOXONEND FLOORING

in the
Seymour Vocational School



BRIGHT—CLEAN—DURABLE—and affording a resilient surface of lasting smoothness, BLOXONEND FLOORING is particularly adapted to vocational schools, manual training departments, school corridors and gymnasiums.

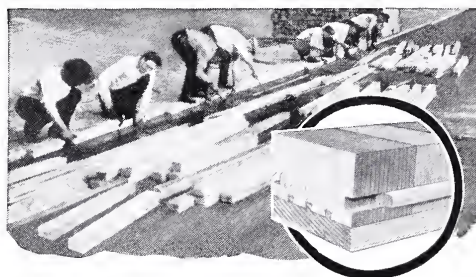
BLOXONEND—not loose blocks—is constructed of Southern pine. In the first stage of its manufacture the Southern pine blocks, with the end grain presented to wear, are dove-tailed on to base boards

approximating 8 feet in length. This built-up strip is then accurately “milled” to exact size

and grooved for splines. Because of its composite form, it lays like any good dressed and matched flooring, but with a smoother surface and one that remains smooth always.

Bloxonend is also paying for itself in hundreds of the leading industrial plants.

Write nearest office for Architectural specifications and a copy of Booklet “B”



Left—A workroom in the Seymour Vocational School, Newark, N. J. Ely & Ely, Archts.

In the above illustration, Bloxonend is being laid directly on concrete slab by our lateral nailing method. This method eliminates embedded sleepers, nailing strips or wood subfloor.

A few of the many architects who specify Bloxonend flooring for vocational departments:

Frank Irving Cooper	Boston, Mass.
C. B. J. Snyder	New York City
W. R. McCornack	Cleveland, O.
Guilbert & Betelle	Newark, N. J.
W. F. Fanning	Paterson, N. J.
Chas. Howard Lloyd	Harrisburg, Pa.
John H. & Wilson C. Ely	Newark, N. J.
C. Godfrey Poggi	Elizabeth, N. J.
J. M. Beall	Monessen, Pa.
Chas. A. Smith	Kansas City, Mo.
R. A. Bradley & Company	Hastings, Nebr.
Coffin & Coffin	New York City
Davis & Wilson	Lincoln, Nebr.
Donald G. Anderson	Bayonne, N. J.
Smith & May	Baltimore, Md.

Carter Bloxonend Flooring Company

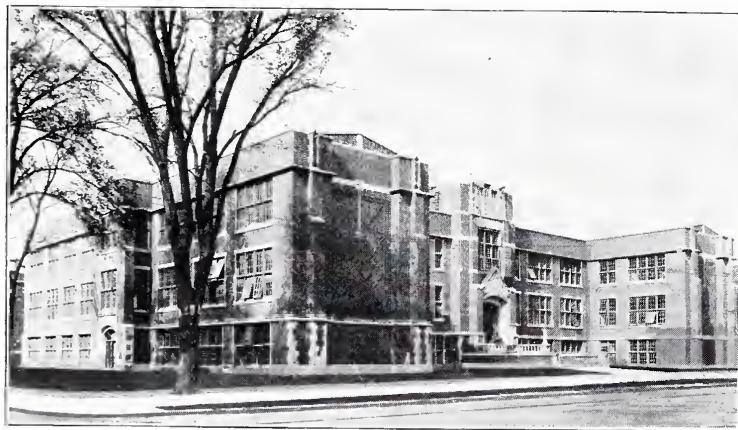
R. A. Long Building, Kansas City, Mo.

Chicago: 332 South Michigan Ave.
Cleveland: 1900 Euclid Ave.

New York: 501 Fifth Ave.
Boston: 312 Broad Exchange

BLOXONEND

Lays Smooth—Stays Smooth



Jacksonville High School, Jacksonville, Ill. J. W. Royer, Architect, Urbana, Ill.
Asbestone Floors Throughout

Floors of Quality



Asbestone Composition Flooring

"The Floor You Like to Walk On"

The recognized standing of ASBESTONE Flooring as the world's best interior flooring has been achieved through appreciation of the fact that ASBESTONE quality and service are beyond question

FLOORS ARE THE MOST USED AND ABUSED PORTION OF ANY BUILDING
Therefore, specify ASBESTONE and secure best results. **All Installations Guaranteed**

Prices, samples and full particulars free on application

Franklyn R. Muller & Co. *Composition Flooring and Stucco Manufacturers* 108 Madison St., Waukegan, Ill.

Rubber Covered Wires and Cables

National Electrical Code Standard

FOR

FACTORIES AND
OFFICE BUILDINGS

FOR

SCHOOLS AND
PUBLIC BUILDINGS



Complete detail specifications for your files upon request.

Ask for Simcore Specifications No. 2053.

SIMPLEX WIRE & CABLE CO

MANUFACTURERS

201 DEVONSHIRE ST., BOSTON 9
15 SOUTH DESPLAINES ST., CHICAGO
612 HOWARD ST., SAN FRANCISCO



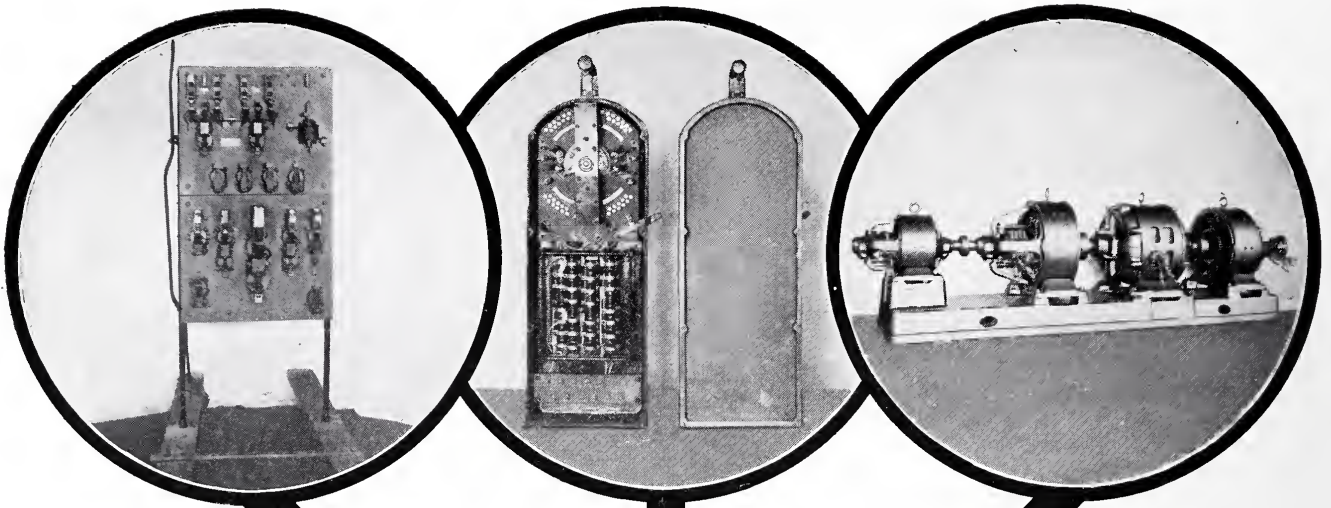
OTIS

*For more than a half century
The World's Word
For Elevator Safety*

OTIS ELEVATOR COMPANY

Offices in all principal cities of the world





NEW

Variable Voltage Elevator Control

VARIABLE voltage elevator control is a distinctly new system developed by Westinghouse. It is being used where exacting service requirements demand the best elevators that can be purchased.

This new control gives a surprising smoothness of starting and stopping which is a revelation in elevator operation.

Higher car speeds and shorter accelerating periods can be used, resulting in faster schedules and better service.

Landings can be made quickly and with great accuracy.

Alternating current power can be used for high speed elevators with the assurance of the best performance.

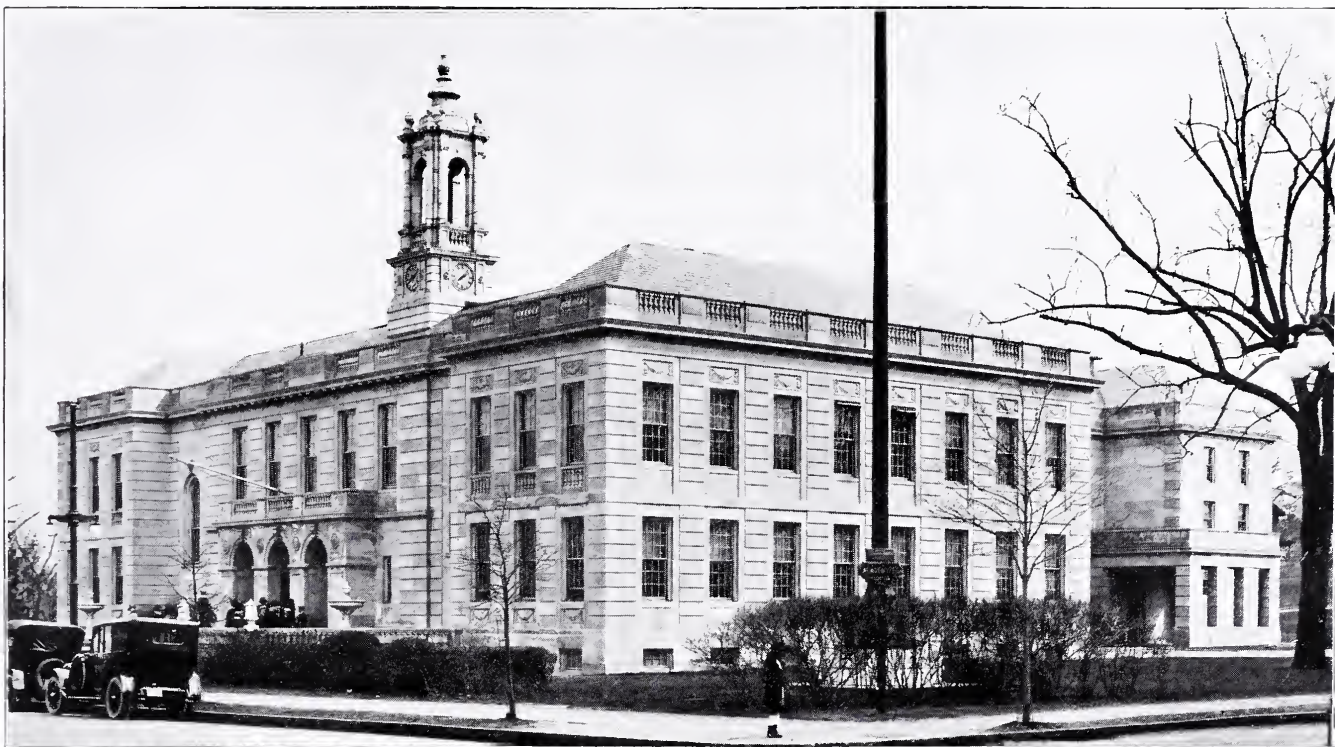
All power losses in armature resistance are prevented.

Westinghouse Electric & Manufacturing Company
East Pittsburgh, Pa.

Sales Offices in All Principal American Cities

Westinghouse

ELEVATOR MOTORS & CONTROL



*Arlington Town Hall, Arlington, Mass.
R. Clifton Sturgis, Architect*

INDIANA LIMESTONE

*Booklets will be sent
free upon request*

Indiana Limestone Lends Character to Community Buildings

The small community building should be of simple and artistic design, executed in a material that combines beauty with utility. The selection of the well-known product — Indiana Limestone — for the construction of the Town Hall, Arlington, Mass., has determined its success and permanent beauty.

Indiana Limestone Quarrymen's Association

Box 766 • Bedford, Indiana

Metropolitan Service Bureau, 622 Marbridge Bldg., New York City

INDIANA LIMESTONE

THE NATION'S BUILDING STONE



The Home of the Travelers Insurance Company at Hartford, Conn., is equipped with Brass pipe and Brass fittings in both hot and cold water lines. In the older section Brass pipe has been giving uniformly efficient service for 15 years.

A Brass Pipe City

Hartford, the insurance hub of America, is a Brass Pipe City, and is becoming more so each year.

The many insurance companies whose home offices are in Hartford have erected beautiful struc-

tures which are monuments to *foresight and thrift*.

These buildings are all equipped with Brass pipe. A recent incident illustrates how and why the use of Brass has spread in Hartford:

When the home of the Phoenix Mutual Life Insurance Company was being planned, the Company's building superintendent recommended Brass pipe in the hot water system.

An occurrence about that time in the Hartford Club decided the officials of the Phoenix Company to go their building superintendent one better.

A galvanized iron pipe, which had become rust-eaten after about eight years' service, burst and greatly damaged the Club's decorations and furnishings.

Whereupon the Phoenix officials, for their building, ordered Brass pipe not only for the hot water lines but for the cold as well.

Architects cannot hope for the uniformly successful results for which they strive unless they can induce their clients to use proper materials.

We are co-operating with you by telling in widespread advertis-

ing how small a percentage Brass pipe adds to the total cost of a building. Why not give your client who asks for cheap materials a figure on Brass also and let him choose after seeing the actual difference in dollars and cents?

COPPER & BRASS RESEARCH ASSOCIATION

25 Broadway - New York

THE ARCHITECTURAL FORUM

VOLUME XXXVII

NUMBER 5

CONTENTS for NOVEMBER 1922

PLATE ILLUSTRATIONS

	Architect	Plate
HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK	<i>Guy Lowell</i>	73-80
CO-OPERATIVE APARTMENT HOUSE, 136 EAST 67TH STREET, NEW YORK	<i>Walker & Gillette</i>	81, 82
LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS.	<i>Putnam & Cox</i>	83-86
HOUSE OF ARTHUR S. PARKS, ESQ., WICHITA, KAN.	<i>Myron Hunt</i>	87, 88

LETTERPRESS

	Author	Page
GREEK VASE	<i>Cover Design</i>	
Drawn by O. R. Eggers		
PORCH, NOTRE DAME, BEAUNE, FRANCE	<i>Frontispiece</i>	
ARCHITECTS' VACATION SKETCHES		203
Exhibition of drawings at Boston Architectural Club		
MEXICAN RENAISSANCE—I	<i>Walter H. Kilham</i>	209
ITALIAN RENAISSANCE DETAILS		215
Two Fireplaces from the Davanzati Palace, Florence		
Measured drawings by Howard Moise		
BUSINESS AND FINANCE DEPARTMENT		
Some Successful Co-operative Apartment Houses	<i>C. Stanley Taylor</i>	219
DEPARTMENT OF ENGINEERING		
The Hotel or Restaurant Kitchen	<i>N. W. Aldrich</i>	225
Electrical Wiring Layouts for Schools (Concluded)	<i>Nelson C. Ross</i>	227
CONCRETE CONSTRUCTION	<i>Walter W. Clifford</i>	231
V. Concrete in the Office		
PLATE DESCRIPTION		235
EDITORIAL COMMENT		236
Architectural Education and the Profession		
DECORATION AND FURNITURE DEPARTMENT		239
A Plea for the Architect's Interest in Fabrics	<i>Horace Moran</i>	
Some Furniture by Duncan Phyfe		243

ALBERT J. MacDONALD, Editor

Published Monthly by
ROGERS AND MANSON COMPANY

142 Berkeley Street, Boston 17, Mass.
Advertising Department, 103 Park Avenue, New York
Yearly Subscription, payable in advance, U.S.A., Insular Possessions and Cuba, \$6.00
Canada.....\$6.75 Foreign Countries in the Postal Union, 7.50
Single Copies.....60 cents All Copies Mailed Flat
Trade Supplied by American News Company and its Branches. Entered as
Second Class Matter, March 12, 1892, at the Post Office at Boston, Mass.
Copyright, 1922, by Rogers and Manson Company

Bishopric Stucco and Bishopric Base

For Exterior and Interior Wall Construction



*Residence—Mrs. Rose F. Vorenburg, Puritan Road, Swampscott, Mass. Architect—Harry E. Davidson, 46 Cornhill, Boston, Mass.
Stucco Contractor—J. H. Townsend Co., Pemberton Square, Boston, Mass. Bishopric Base used on all exteriors*

IT is of great importance in the construction of the house of stucco to provide for the preservation of its beauty, its resistance against fire, vermin and decay, its insulation against change of temperature and dampness. Bishopric Stucco over Bishopric Base in construction and in use offers the possibilities of this insurance.



We have prepared "Bishopric For All Time and Clime," an explanatory booklet for you, illustrated with photographs of beautiful houses built with Bishopric stucco, plaster and sheathing units. Ask for it

The Bishopric Manufacturing Company
103 Este Avenue Cincinnati, Ohio

Factories: Cincinnati, Ohio, and Ottawa, Canada
New York City Office: 2848 Grand Central Terminal

THE EDITOR'S FORUM

PHILADELPHIA EXPOSITION

ON recommendation of the Engineers' Club of Philadelphia and the Philadelphia Chapter of the A. I. A., Paul Philippe Cret and E. B. Temple have been designated as architect and engineer, respectively, to take charge of the preliminary planning of the exhibition to be held in Philadelphia in 1926 in celebration of the 150th anniversary of the signing of the Declaration of Independence. In explaining the action of the Committee on Grounds and Buildings, headed by General Atterbury of the Pennsylvania Railroad, Colonel Franklin D'Olier, President of the Sesqui-Centennial Exhibition Association, said: "The purpose of this move is to work out a tentative plan of grounds and buildings on the Parkway-Fairmount Park site. Mr. Temple, in consultation with the Engineers' Committee, and Dr. Cret, in consultation with the Architects' Committee, and also with the approval of our association, will select their associate engineers and architects. They will form a small, compact, rapidly-working group of engineers and architects who will submit this plan at the earliest possible moment. Dr. Cret and Mr. Temple have volunteered their services as a matter of civic pride, and will act without compensation for this preliminary work."

HOSPITAL COMPETITION

AN interesting competition, open to architects and hospital superintendents, for the design of a small general hospital has recently been announced by *The Modern Hospital*, a monthly publication devoted to the interests of the hospital field.

Richard E. Schmidt, of the firm of Richard E. Schmidt, Garden & Martin, will act as professional adviser. The drawings will be judged by a jury consisting of two architects, two hospital superintendents and a graduate nurse, who has had experience as the superintendent of a small general hospital. Three cash prizes and two honorable mentions will be awarded, the prizes being first, \$500; second, \$300; third, \$200. The drawings required comprise a perspective, two elevations and section, floor plans and plot plan arranged on three sheets.

Those intending to submit drawings are requested to register their names with *The Modern Hospital*, 22 East Ontario street, Chicago, and to apply for a detailed program. The final date for registration has been advanced to December 15, and the date for submitting designs to February 1, 1923.

ONE FORM OF PUBLIC SERVICE

THE value of carefully designed and well planned houses in establishing the character of a community is so universally acknowledged that it might seem to be unnecessary to dwell upon it. But the fact

remains that only too often a prospective builder seeks to economize by leaving the planning of the house to a contractor who may have an "architectural department" of some kind, or else a plan is selected from a book of published designs which may or may not be of the character which would enhance the attractiveness of the locality in which the house is to be built. Everything is done, in fact, save the adoption of the obviously correct course and securing an architect to design the best house which architectural skill can provide.

It has often seemed that much might be accomplished were real estate boards or public organizations to interest themselves definitely in the improvement of building design. The raising of public standards and consequently of public values is in one way or another the *raison d'être* of most public bodies, and what is more effectual in raising values than good architecture?

The Chamber of Commerce of Berkeley, California, has undertaken just this work by arranging for an advisory home building committee to which prospective home owners may come for suggestions. A small library of books and periodicals is to be formed for reference and supplying ideas, and names and addresses of local architects are given those who desire them. Considerable educational work must be done to improve the general standard of good taste and to bring the public to a proper valuation of good architecture, which of all the arts possesses the broadest appeal by coming most closely to the daily lives of the people.

THE MATTER OF SUB-CONTRACTS

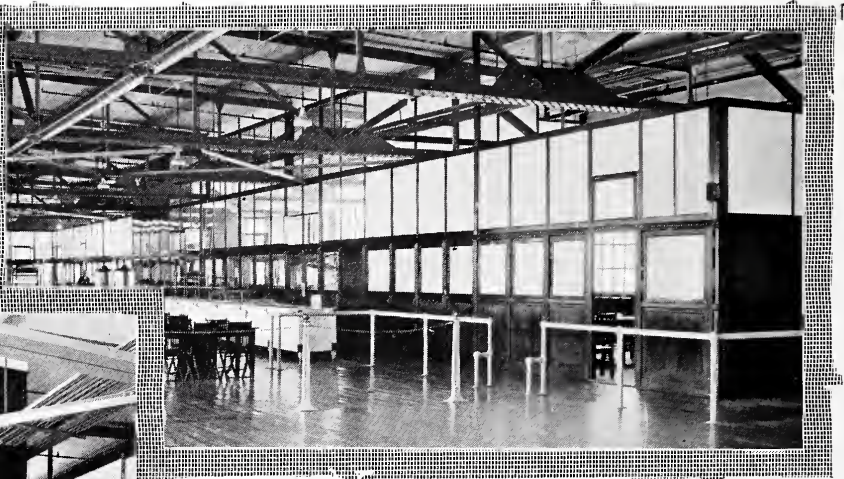
THE Associated General Contractors of America have observed the tendency of some architects to divide their work into many small contracts and place them directly without the aid of a general contractor. Their Committee on Ethics has been requested to draw up a statement of conditions to discuss with the American Institute of Architects and other professional bodies. There is no desire on the part of architects to assume the duties of the contractor, excepting as they feel warranted by the failure of many general contractors to function according to expectations. A thorough discussion of the difficulty should help in arriving at the definite duties of each group.

LE BRUN TRAVELING SCHOLARSHIP

THE Le Brun Scholarship Committee of the New York Chapter, A. I. A., announces the holding of a competition for the award of this scholarship in 1923. Application and nomination blanks may be had of the secretary of any A. I. A. Chapter or of the Le Brun Scholarship Committee, New York Chapter, A. I. A., 215 West 57th street.



Women's rest room Westinghouse Lamp Co. plant. Telesco Partition with top extended



Main dining room Westinghouse Lamp Co. plant. Rest rooms partitioned with Telesco Partition

In Factories As Well As In Office Buildings, Telesco Partition Has Thousands of Friends

And nowhere is Telesco more welcome than in the factory where things are booming and business expanding. For here the uncertainty of the future, the requirements of expansion, make Telesco the happy solution to the partition problem.

Where other partition takes weeks to tear down and rearrange, Telesco Partition takes a few hours' time of a house-carpenter. Telesco extension top enables it to fit any ceiling height without alteration and the standard sized units will accom-

modate themselves to practically any new layout that is desired.

Besides office subdivisions, Telesco Partition is used for coat rooms, telephone booths, washroom enclosures, stationary closets, and the like.

We'd be glad to send you a copy of our catalog. It shows the complete construction and is full of suggestive ideas as to why Telesco Partition can be used in factories as well as in office buildings.

14C

IMPROVED OFFICE PARTITION
COMPANY
25 GRAND ST. ELMHURST, NEW YORK, N.Y.



PORCH, NOTRE DAME, BEAUNE, FRANCE
FROM PHOTOGRAPH BY G. DOLBY

The ARCHITECTURAL FORUM

VOLUME XXXVII

NOVEMBER 1922

NUMBER 5

Architects' Vacation Sketches

INTERESTING EXHIBITION OF DRAWINGS BY ARCHITECTS
AT BOSTON ARCHITECTURAL CLUB

DURING the latter part of September and the early days of October the great hall of the Boston Architectural Club was used as an exhibition room for a collection of sketches made by members of the club during the rambles and holidays of the past summer. The sole condition under which contributions to the exhibition were received was that the drawings were made during the vacations of this present year. The terms "sketches" or "drawings" were somewhat broadly interpreted, for some of the exhibits were drawings in pencil, crayon, charcoal, or pen and ink; a num-

ber were etchings or lithographs, while water colors were the medium in which a majority of the exhibits were made. The exhibition started with but two entries, but increased in scope day by day as new contributors brought in their work and installed it in place or as other contributors enlarged the number of their entries. Some of the exhibits had the added dignity of frames, while others were simply arranged on cardboard mounts. The informal manner of presenting the sketches rather added to their interest, when they were hung upon the long wall spaces of the great hall or else placed



Water Color of an Entrance Doorway
Grand Prize. By F. L. W. Richardson

upon benches when all the available spaces were covered, for the exhibitors were not professional painters but practical architects, who for the love of it had tried their hands at making pictures.

Of course there is a vast difference between the drawing which forms a large share of an architect's professional work and the drawing which is included in an exhibition such as this,—drawing which is practiced for the most part during the early days of one's career, or perhaps during foreign travels or while sojourning abroad. What generally follows as part of an architect's daily work is drawing of a

much more technical and architectural character, more exact, necessarily drawn to a precise scale and so hedged about with restrictions of a practical or utilitarian nature that it is apt to lack the joyous freedom of movement, the spontaneity of feeling and the delicacy of touch which contribute so largely to the charm of sketches,—a charm which is necessarily absent in the usual drawing of an elevation. An architect's sketch is apt to be rather dry to a painter, who rebels at the restraint of rigidity of lines which necessity compels in most architectural drawing, and this rigidity is apt to

become fixed when one's drawing is wholly of this character. What has been proved here, however, is that the faculty of easily handling drawing of a non-architectural character is by no means lost or always impaired by years of drawing of a more technical nature. Especial interest is found in the fact that these sketches are by architects and not by the younger draftsmen, who have lately been instructed in water color, and the exhibition serves two practical purposes in that it points the way to the younger men and proves to them that although the busy architect has but little opportunity for sketching, he still retains the ability necessary for it.

In addition to being produced in different mediums the items included in this exhibition were drawings of a wide variety of subjects, in which architectural character by no means predominated. With an architect's well-trained eye for the picturesque which lends itself to the purpose of a sketch there were selected many subjects in which buildings occur, but many were the sketches in which buildings were wholly lacking. Many



Water Color, Entrance, Old Mansion at Wiscasset, Maine
Second Prize. By Carroll Bill



Water Color, Old Houses at
Nantucket, Mass.
By Hubert G. Ripley
Mention

VACATION SKETCHES BY BOSTON ARCHITECTS

At Right, Water Color, End of Old House
at Nantucket, Mass.

By Hubert G. Ripley

Below, Etching, Old Custom House, Boston

By A. H. Hepburn



of the subjects, as might be expected, were chosen from among the quaint byways and forgotten corners which are still many in Boston, notwithstanding all the tearing down and building up which accompanies the march of progress. A. H. Hepburn contributed two delightful etchings, one of the west end of the state house as seen through Mt. Vernon place, and another of the heavy Doric portico of the old custom house. Views of bits not far away formed the subject of Carroll Bill's "An Old Mansion in Wiscasset, Maine," where the most sketchy



Pencil Drawing by Oliver P. Morton

of drawing was used, the shadows of trees playing across the front of an old white frame house possessing a most charming quality. Several delicate little water colors of bits along the Nantucket coast came from Hubert G. Ripley, one being a village street with a group of two small, prim New England houses with huge stack chimneys, and the other one end of a rambling old frame house overgrown with greenery which climbs the walls and twists itself about a tall brick chimney. Another bit sketched along the Massachusetts coast was the pencil drawing of an old colonial doorway embowered in green, by Oliver P. Morton, and other water colors were a "Boy on a Veranda" by James Clapp, and "Boys by a Brook" by Robert P. Bellows, and an interesting interior of an old dining room by Nelson Chase.

But not all of the exhibits were glimpses of details comparatively near at hand, for one very delightful water color was that by Timothy Walsh showing a view in Venice with the campanile and several of the Byzantine domes of St. Mark's, while the water color which received the supreme prize, by F. L. W. Richardson, shows "An Entrance Door" which might have been sketched in Italy or Spain. Evidence of travel in other lands not as far distant as Venice or Spain is presented in a number of sketches by Ralph W. Gray of bits sketched in Bermuda; one is a fine little water view with rising clouds, a sketch which is broad and sure and as simple in its technique as it is admirable in its conception, while another is a study of the gnarled branches of old tamarisk trees, a sketch full of decorative quality. In several instances where a number of items were sent by the same contributor it was interesting to observe that they varied so greatly in color and method as almost to suggest the sketches having



Water Color of an Interior
Second Prize. By Nelson Chase

VACATION SKETCHES

BY BOSTON ARCHITECTS



Water Color, Boy on Veranda
By James Ford Clapp
Mention



Water Color, Campanile,
San Marco, Venice
By Timothy Walsh

Water Color, Seaside Pool
By Robert P. Bellows



been made by different artists—direct contrasts of technique or the use of mannerisms so widely different that they show the use of several wholly different styles.

Of course as might have been expected with an exhibition so interesting prizes and even mentions were too few to be awarded to all the items well deserving of honors. The rough and tumble-down buildings which fringe the waterfront of Rockport and overhang the water's edge were painted in water colors by Frank A. Bourne; C. L. Pitkin sent a crayon drawing of the Quincy market in Boston, and from Walter H. Kilham came a number of tiny water colors of interesting bits in Boston's west end, where steep grades and unusual layouts of old streets sometimes bring about unexpected dispositions of buildings. From the brush of R. Clipston Sturgis came eight small sketches done in a remarkably brilliant style, showing old roads in and about Portsmouth; J. Lovell Little contributed two sketches of the woods in northern Maine, virile and emphatic in tone and technique, one particularly which showed through a group of gaunt tree trunks in the foreground a view of a distant lake and mountain. The first prize was awarded to F. L. W. Richardson for his water color "An Entrance Door"; second prizes were voted for exhibits in various mediums to Carroll Bill, Nelson Chase, O. R.

Freeman, Ralph W. Gray, M. B. Gulick and A. H. Hepburn, while mention was given to W. T. Aldrich, James Ford Clapp and Hubert G. Ripley.

The enthusiasm which this exhibition of vacation sketches aroused among Boston architects, and the interest which it created upon the part of the press and the public in general, might well stimulate the holding of exhibitions of somewhat similar scope in other cities. There is hardly a town or city in America which does not offer interesting material for sketching, and local architects might welcome the pretext which such an exhibition would afford to renew contact with a field of work which may be in danger of being crowded out or forgotten in the daily work of the office.

In England it has for many years been the custom to encourage draftsmen to make sketches and measured drawings of the fine examples of old architecture in which England and the continental countries abound, for it has been found that the draftsmen are benefited by their own attempts and by comparison of their own work with that of others; it has also been found that such sketching tours are of benefit in another way, for intimate contact with fine work brings its own reward in heightened appreciation of detail, mass grouping, composition and other aspects of architectural work which finds expression in actual practice.



Etching,
Massachusetts
State House
from Mt. Vernon
Place, Boston

By A. H. Hepburn
First Prize in
Black and White
Medium

Mexican Renaissance

PART I

By WALTER H. KILHAM

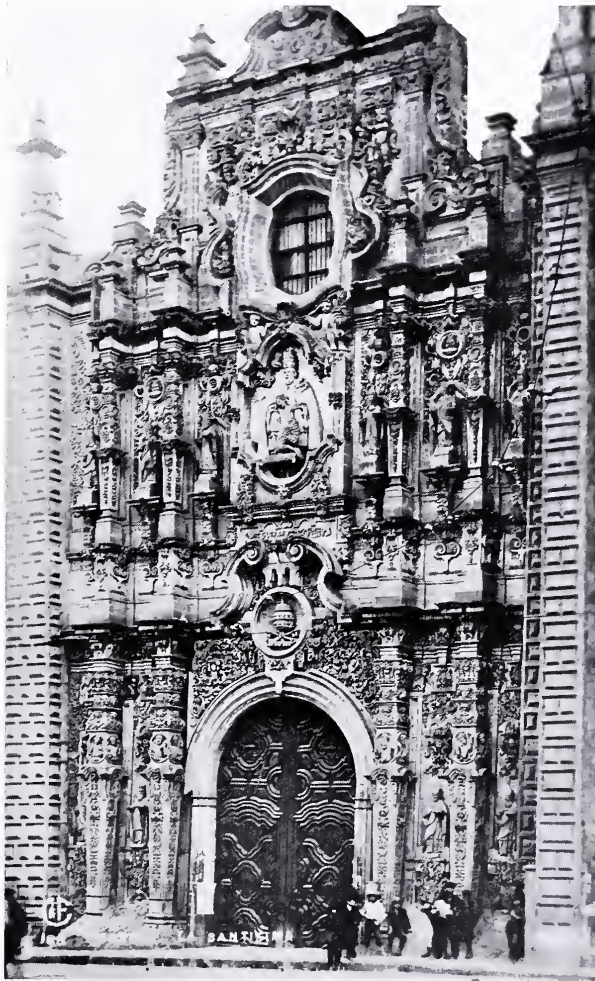
A MODERN geography, in high favor at the present time in public and private schools, disposes of the architecture of Mexico with the statement that "the houses of the people have but one story and are commonly built of sun-dried bricks or adobe held together by layers of mud, the ceilings being made of brush and the floors nothing but earth or stone," qualifying the remark slightly by adding that "this description does not apply to wealthier and educated Mexicans, but even these have adobe houses which somewhat resemble those of southern Spain." When statements of this sort go unchallenged and are officially taught to the rising generation, it is not remarkable that the true story of architecture in that country remains generally unknown to our people.

As a matter of fact, it would be more correct to say that up to about 1820, the date of Mexican independence, Mexico was the only country on the American continent which practiced architecture at all in the real sense of the word, for prior to that time the buildings of the English colonies and the United States were comparatively small in size and slight in construction, with thin walls and wooden roofs, devoid of sculpture or mural decoration, and of a degree of artistic development which entitles them to consideration more for sentimental reasons than for any great merit, while those of the other Spanish settlements are generally of less artistic importance than those of Mexico, though ordinarily of solid and scientific masonry construction. This frugality of architectural output in the English colonies was of course due partly to the over-abundant supply of timber and partly to the scarcity of labor, for the native Indians were few in number and intractable at that; but

it was also brought about by the fact that the English and Dutch settlers were not natural builders, as compared with the Latin races. In Mexico, however, these conditions were reversed. Good building stone was plenty, timber was scarce, and the populous native races, once conquered, proved surprisingly amenable to direction, when they were baptized and taken into the fold of the church. With an abundance of labor available the task of building notable and enduring structures was much simplified, but failure might even then have ensued if the directing race had not been endowed with unusual talent for the designing and construction of important buildings.

Of course a highly developed technique was not attainable at the beginning, and the early buildings, rude rather than elegant, sought to satisfy the most urgent needs rather than good taste and perfect convenience; a contemporary writer says of them that "so solidly were they built, one would say they were not houses but fortresses." Nevertheless, such buildings as the palace of Cortez at Cuernavaca or the Casa Alvarado at Coyoacan, both built within a very few years of the conquest (1521), even though the walls are of rather undue thickness and the arches low and squat, are of a far greater degree of sophistication from a constructional standpoint than anything produced in the American colonies before the revolution.

While the bibliography of travel and politics in Mexico is considerable, and much study has been directed toward her prehistoric remains, very little serious work has been done towards presenting a complete story of the Spanish architecture of the viceroyal period. Probably



Portal of La Santísima Trinidad, Mexico City



Facade, Casa del Alfenique, Puebla, Mexico

the best book on this subject, although it is all too brief, is the very interesting essay entitled "El Arte en México en la Epoca Antigua y durante el Gobierno Virreinal" by Lic. D. Manuel G. Revilla, published by the Mexican government in 1893. Other handbooks are those on "Arte Colonial" by D. Manuel Romero de Terreros, and the attractive "Monografías Mexicanas de Arte" by Jorge Enciso, Inspector General de Monumentos Artísticos. This author's title is worth noting, together with a passing speculation as to how long it will be before the United States will feel able to support an official of this description. It is interesting to remember also that none of the recent revolutionary governments has interfered with Señor Enciso's work. "The Spanish Colonial Architecture of Mexico," by Sylvester Baxter, is splendidly illustrated by photographs, but the real secrets of the design of this period can only be revealed by drawings, which so far are extremely scarce.

The new colony found it difficult at first to work up to the speed of the prevalent plateresque work in old Spain, which even there must have looked to the conservative hidalgos of the time about as startling as a cubist picture still does to the worthy critics of our own day. The earliest churches of Mexico, such as San Francisco and the Capilla Real at Cholula, either displayed vaults with ribs, reminiscences of late Gothic style in the one, or in the other a sort of replica of the Mosque of Cordoba, with 49 actual domes (*bovedas*) since raised on the

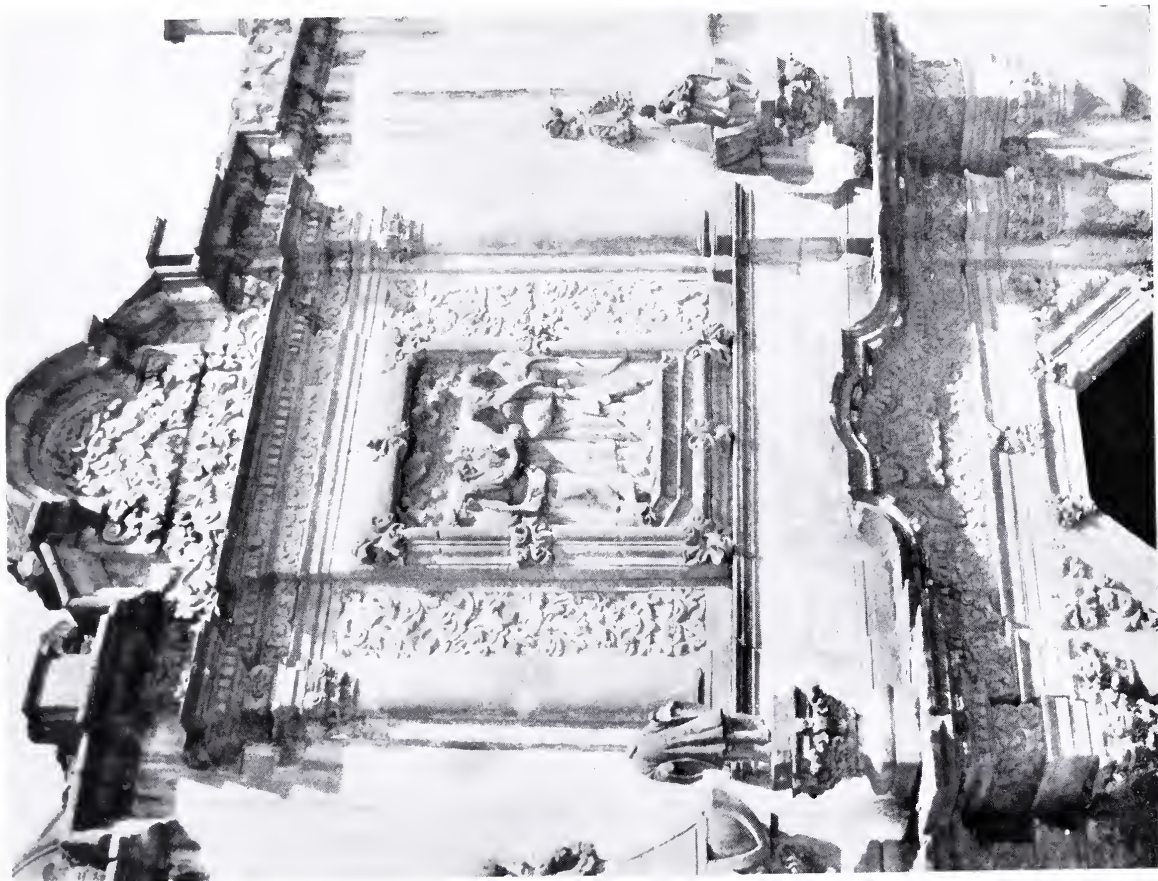
original pillars, recalling the still recent Arabic influence in Spain, while the noble interior of San Juan Bautista at Coyoacan is a veritable basilica with its timber framed roof, massive square pillars and deeply worn flagstone floor.

The true renaissance cruciform plan, with a dome or cupola over the intersection of nave and transept, very likely a reminiscence of the *cimborios* of old Spain, however, soon appeared and before the end of the sixteenth century prevailed universally in church design, while on every hand the growing wealth and power of the colony expressed itself in magnificent palaces and handsome public buildings as well as churches. "As builders, after the Romans come the Spaniards" is a saying in Mexico, which seems fairly truthful when one contemplates the extent of building operations carried on during the three centuries of Spanish supremacy. With the advent of the seventeenth century the colonial style swung into the full current of the prevailing *barroco*, with its capricious proportions, heavy and pompous members and broken pediments, a real style nevertheless, and in the hands of the Spaniards one of extraordinary character.

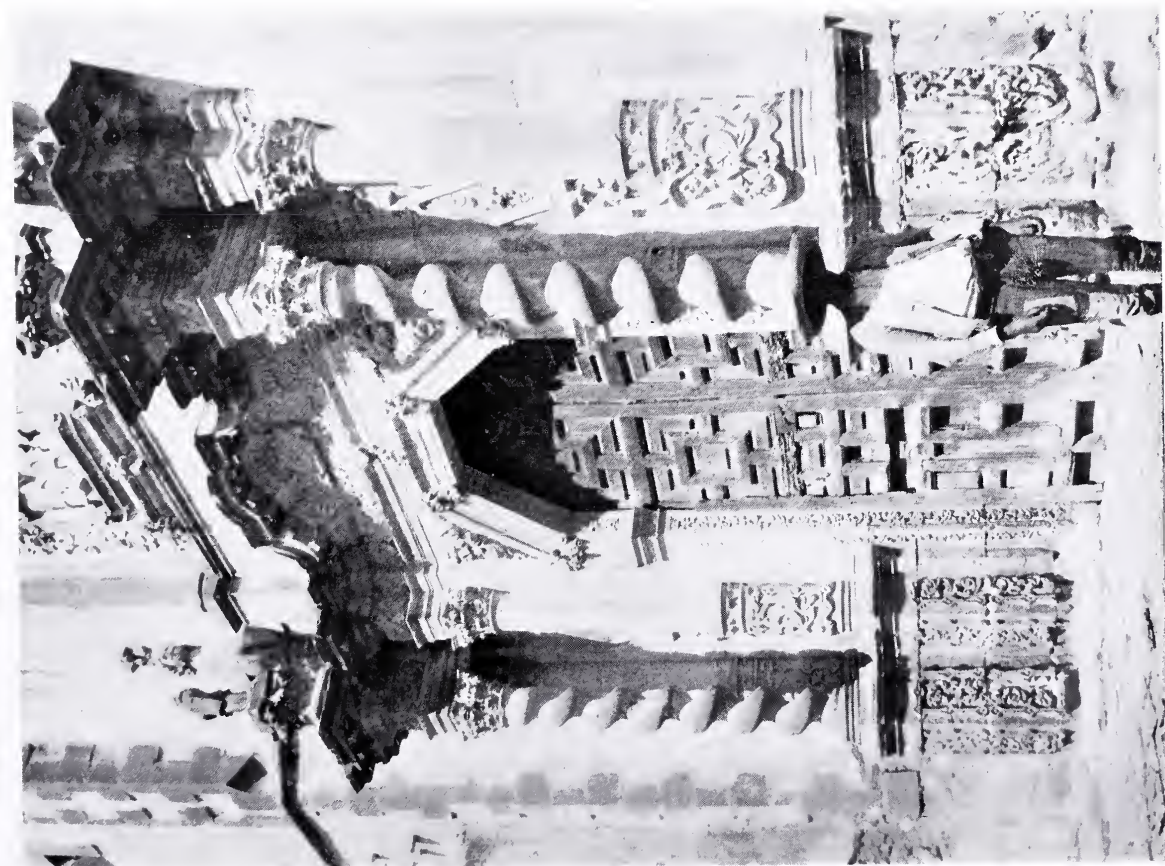
The eighteenth century was the apogee of New Spain. At that period its religious communities, nobility and principal citizens had acquired considerable fortunes. Numerous building projects were undertaken, and older buildings were remodeled in accord with the prevailing taste. The general decadence in Spain under the third Philip was reflected in her provinces, and the arts were not exempt. The *barroco* merged into the Churrigueresque, and the



Detail of Doorway, Casa del Alfenique



CARVED BAS-RELIEF OVER DOORWAY



DETAIL OF DOORWAY

PORTAL OF CHURCH NEAR S. JUAN TEOTIHUACAN, MEXICO
FROM PHOTOGRAPHS BY WALTER H. KILHAM

two styles mingled so as to be almost indistinguishable. In both the relation of exterior decoration to the actual construction was often disregarded; the *barroco* retained the column as a decoration, though frequently with a twisted or figured shaft, while the Churrigueresque changed it to a pilaster, thicker above than below, and seeming to hang from its cornice rather than to support it. The members are decorated with complicated panels, friezes and garlands, and the pediments writhe in intricate convolutions which baffle the pencil of the sketcher; one is amazed at the imaginative power of the designers. Good examples of this riotous form of design are the two churches of the Sagrario and the Santísima Trinidad in Mexico City. The elaboration and intricacy of these designs are almost inconceivable to an American mind, but at the same time the harmony and proportions of the composition are never lost. In the facade of the Sagrario particularly, the framing of the gray mass of the portals between the plain flanking masses of pink *tezontle* throws the lively sculpture into the



Tower of La Concepcion
Mexico City

high relief characteristic of all Spanish work, whether at home or in the colonies, and emphasizes the brilliant light and shade on the carved stone. But not alone did the Spaniards direct the toiling natives who carved the fronts of these buildings. Motifs and details appear which never came from old Castile, and just as the conquered Arab impressed his taste on the cities of Spain, so did the poor Aztec workman in some mysterious way weave the pathos and genius of his lost race into the facades and towers which the conqueror claimed as his own.

One is almost at a loss to choose examples of the baroque influence among the amazing examples of brilliant Mexican work; their number is legion, and I will confine my illustrations to two or three which have never before been published. One is the portal of a little *hacienda* church near Teotihuacan, far from any town or high road, which I happened on by mere chance. The twisted columns on either side of the door carry a coquettishly elaborated entablature topped by carved urns, and the whole supports an upper story consisting of a beautifully carved bas-relief framed by Corinthian columns and decorative side panels. It was interesting to note that the interior of this church, built on the plan of a perfect Greek cross, is entirely carried out in gray stone in a style of Doric chastity perfect enough to excite comment anywhere. San Domingo in Mexico City is another baroque facade of good proportion and elegant detail. The large figure panel above the portal is of particularly good execution.

Another form of the baroque is that which gives to the city of Puebla its distinctive and charming form of domestic architecture of which the well-known Casa del Alféñique is the best example. Puebla, on the high road from Vera Cruz to the capital, was a great trading center between Mexico and Spain, and very probably due to its constant communication with Seville, the seat of the council of the Indies, its architecture shows a considerable influence of the Arabic or Mudejar style which manifested itself in the use of tiles for the facing of the exterior facades of the houses and in the widely projecting stone



Photo © C. B. Waite, Mexico

Detail of House in Calle Manrique, Mexico City

cornices and *antipechos* or balconies, very thin and carved with the most elaborate profusion. Alfeñique is Spanish for "almond cake," and the name means "gingerbread house"; it is nevertheless one of the most beautiful domestic structures in the world. The patio, though small is of the greatest charm with its delicate ironwork, airy open stairway and graceful arches. A house nearby on the same street has a curious cornice in the shape of a succession of wagon tops sheltering a long balcony. The walls of these houses and many others in Puebla are of red unglazed tiles with insets of colored glazed tile in patterns, but the effect, while interesting, is not as striking or as beautiful as that of the famous Casa de los Azulejos in Mexico City, an excellent example.

The quality of the Spanish architecture, however, depends not at all upon its detail. The visitor, lost in a rather puzzled study of the elaborate church and palace facades, often fails at first to note how the enriched surface is always flanked by powerful buttresses of plain stone. The towers, whose bell chambers are always elaborately carved and decorated, never fail to rise from massive and simple bases, and their profiles are always noble, even if sometimes their nobility is tinged with a certain arrogance. The peculiar local method of hanging the bells which swing in the arches lends a characteristic flavor to the weatherbeaten old belfries, though due to the insistent cries for "reform" (how many crimes have been committed in that name!)



Photo © by C. B. Waite, Mexico

Detail of Stone Carving about Doorway, Church of the Sagrario, Mexico City

the bells of many an ancient church have gone to the melting pot or have even been sold to the Gringos. The photographs show the massive tower of La Concepcion in Mexico City and the Giralda-like shaft of the cathedral at Cuernavaca, but many other pictures would be necessary before the subject could be adequately presented.

The renaissance gave Mexico the dome which, always a striking feature, attains here an extraordinary development, always built of solid masonry, displaying its actual construction, without false inner or outer shell, and as it is employed in great numbers its use imparts a singular sweetness and majesty to the skylines of the cities. So numerous are these domes that one might almost say that the poorest pueblo in Mexico possesses a collection that, built as they are of solid masonry, would create an architectural sensation in New York even, and they were constructed with such facility that many churches possess five or six and, as just said, the Capilla Real at Cholula has actually 49. Some domes rise simply from the crossings above the curved vaults of the roofs, which in Mexico are exposed to the weather, no protective wooden roof being required. Others are raised on drums which may contain windows, which again may be treated with pediments or curved tops breaking into the base of the cupola. The dome itself may be flattened, as in the case of the cathedral at Puebla, or elongated vertically as in the Capilla del Pocito at Guadalupe (see THE ARCHITECTURAL FORUM for March, 1921), or it may be a regular half-orange as is usually the case. It generally carries a lantern

(*linternilla*) and in many cases is covered with enameled tiles of blue, red and yellow, laid either in geometrical patterns or forming magnificent and grandiose coats of arms.

By the time the visitor has assimilated the relations of mass and outline to the applied ornament, he begins to discover that what he has been calling renaissance is in many cases not renaissance at all in the European sense of the word. Where in France, Italy or Spain are found such powerful contrasts of the shadows of deep-set window jambs with delicate mouldings? And the profiles of the mouldings themselves—what decision of line, what vigor in the smallest member! Surfaces ordinarily vertical are inclined outwards to catch the high lights,—overhangs are exaggerated to produce sharply ruled horizontal shadows until the whole facade seems to play and sport with the sunbeams like a tossing fountain. Everyone knows that in sparkle and brilliance the early renaissance of other countries is a dull thing compared with that of Spain; the possibilities of the later renaissance should be studied in Mexico. Note for example the carving of the detail of the building in the calle Manrique in Mexico City, once the palace of the Condé de Heras. The crispness and brilliance of the carving is beyond criticism. The play of the scrolls of the arabesques, the serpent-like ornament between the posts of the balustrade, and the masks at the top of the corner ornament are certainly as pre-Spanish as any ornament can be, while the relief of the ornament is heavier than that of the usual renaissance. The spirit of the detail is Aztec, the effect renaissance.



Photo © by C. B. Waite, Mexico

Cathedral at Cuernavaca, Mexico



Photographs by Mattie Edwards Hewitt

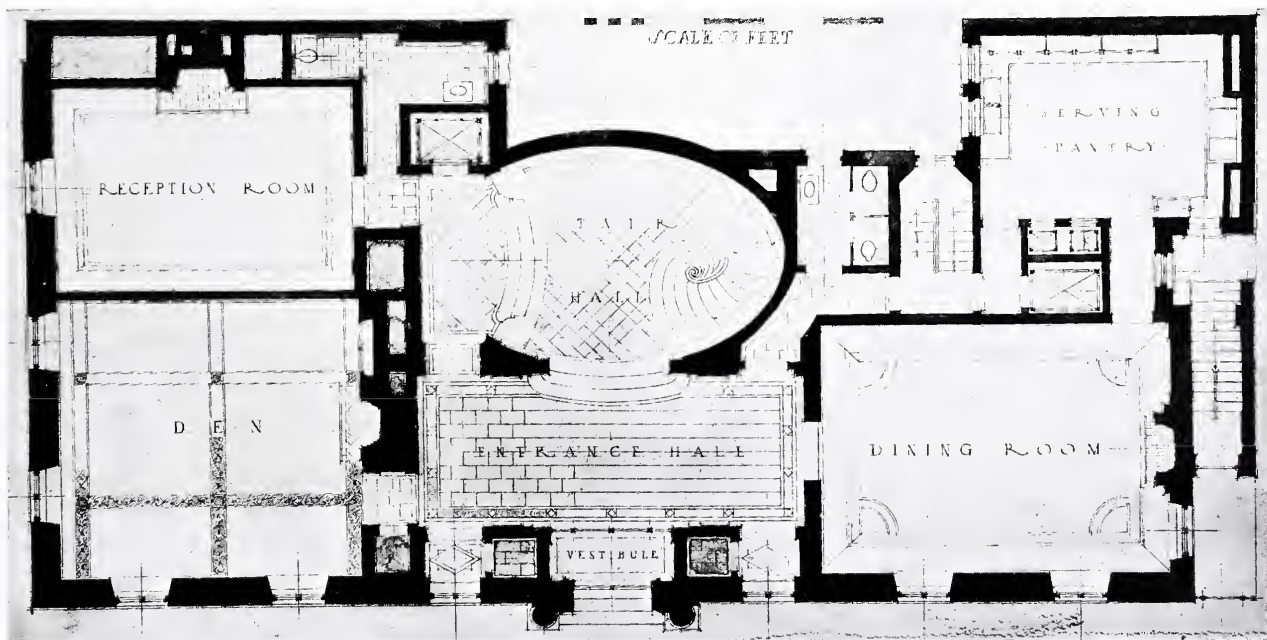
DETAIL OF ENTRANCE

HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK

GUY LOWELL, ARCHITECT



GENERAL EXTERIOR VIEW



FIRST FLOOR PLAN

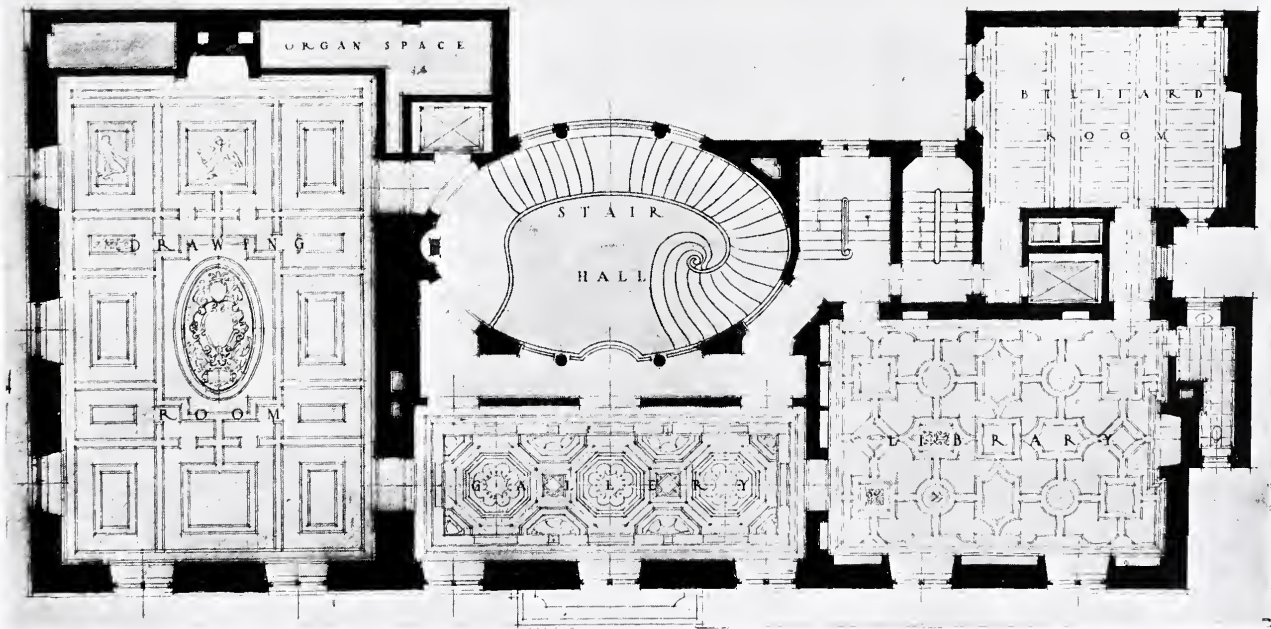
HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK

GUY LOWELL, ARCHITECT



LOUIS XVI RECEPTION ROOM

Arthur S. Vernay, Decorator



SECOND FLOOR PLAN

HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK

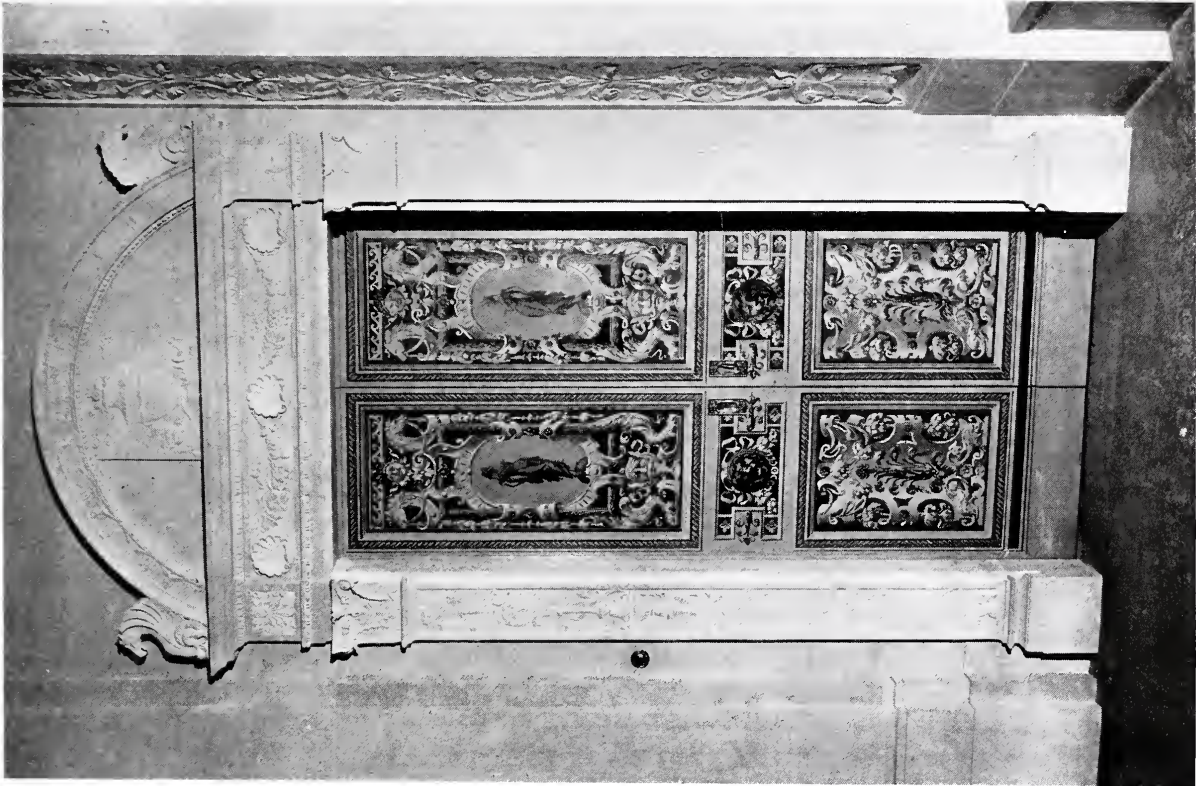
GUY LOWELL, ARCHITECT



STAIR HALL

HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK

GUY LOWELL, ARCHITECT

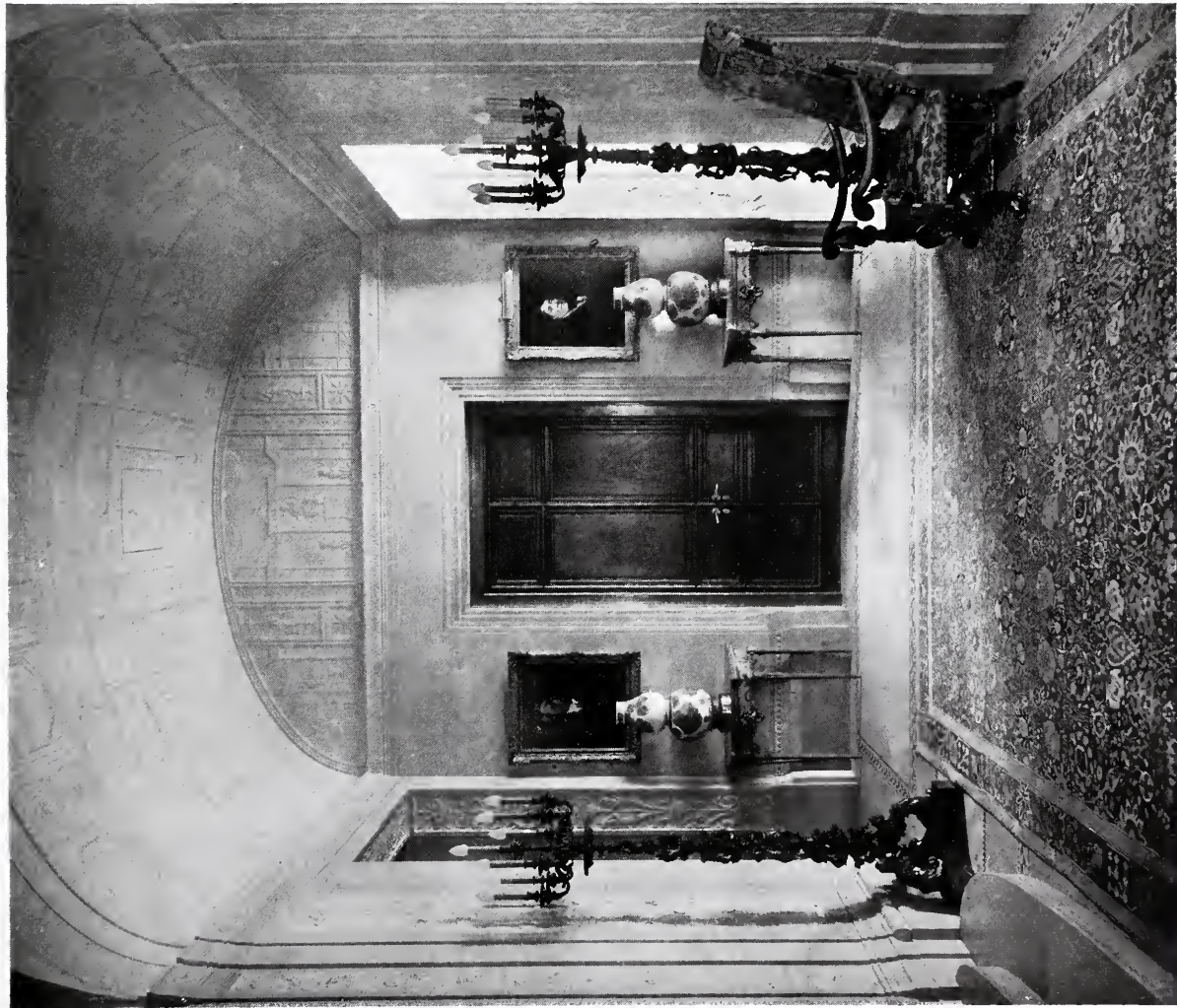
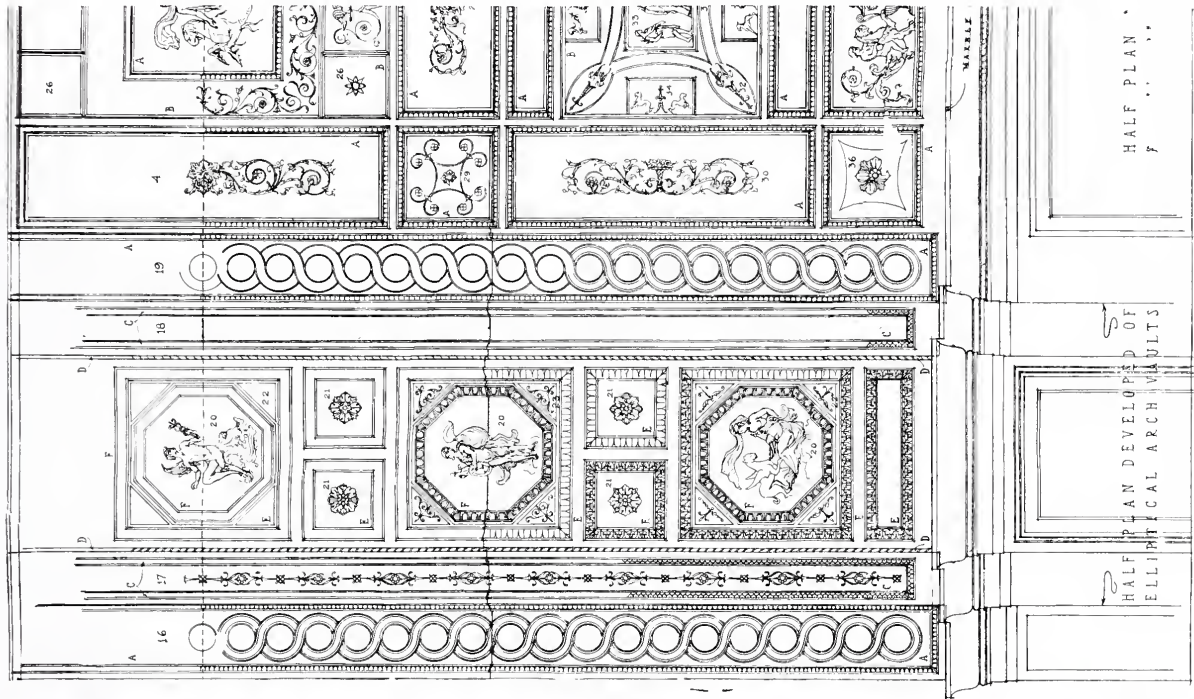


ELEVATOR DOORWAY



STAIR HALL

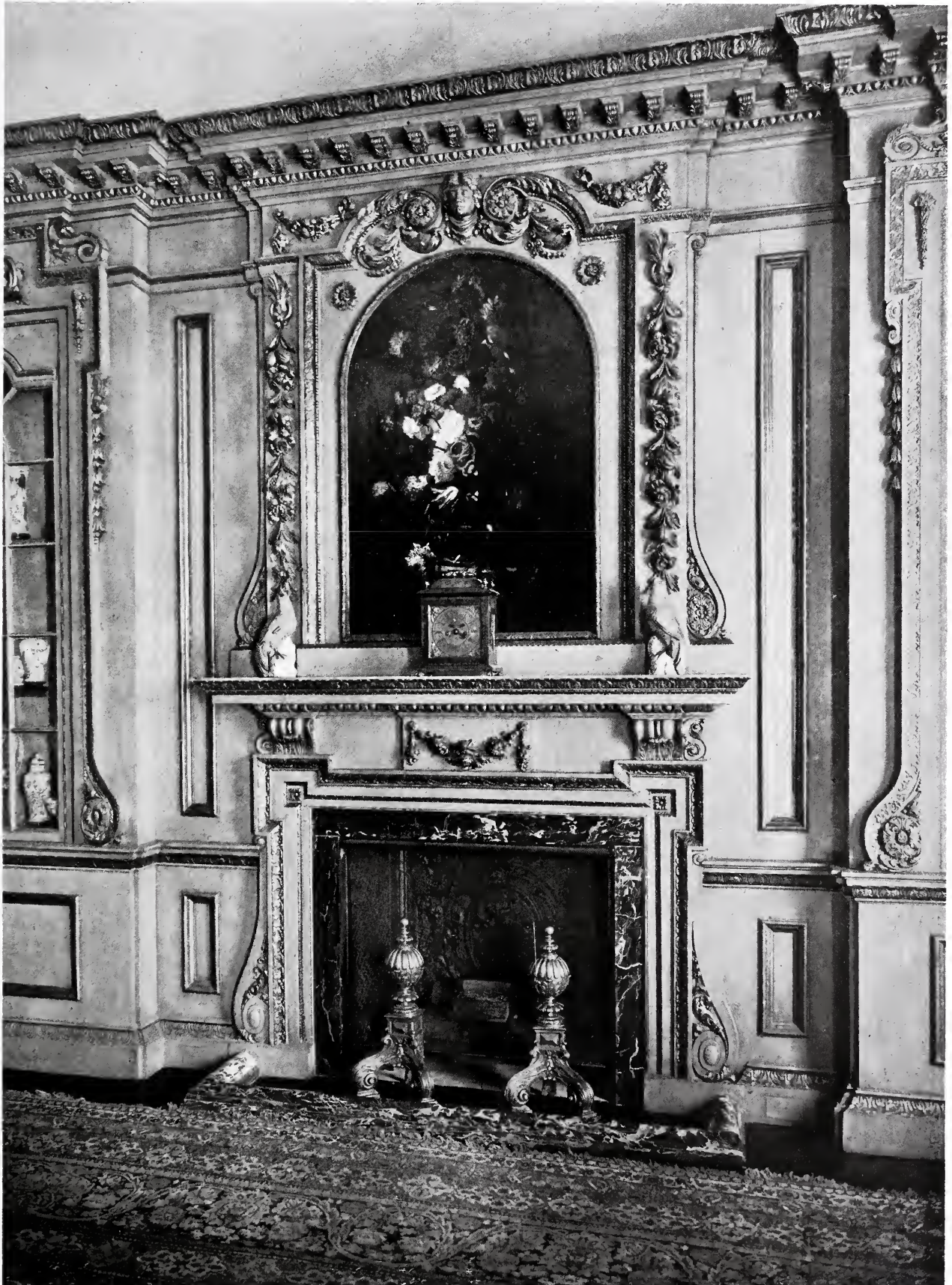
HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK
GUY LOWELL, ARCHITECT



DETAIL OF PLASTER CEILING

ENTRANCE HALL

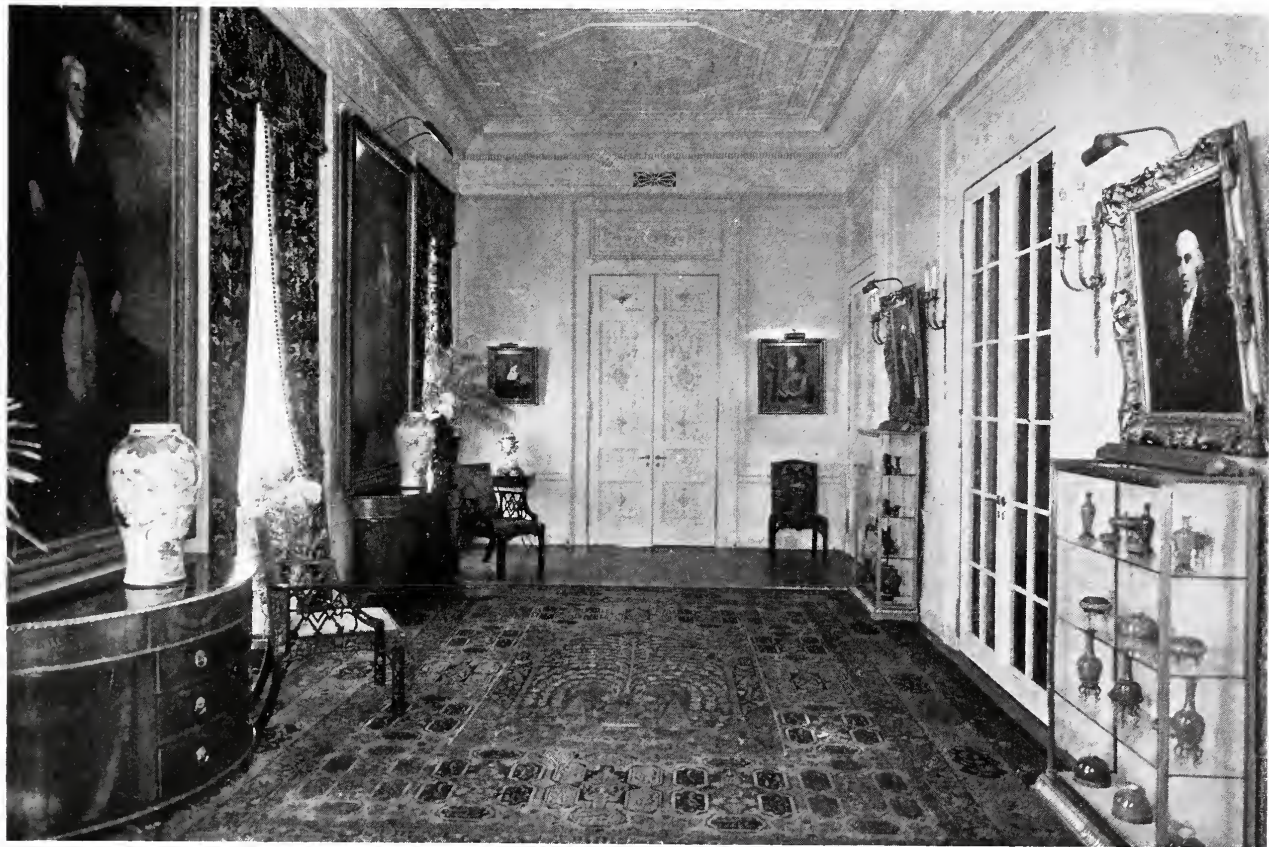
HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK
GUY LOWELL, ARCHITECT



DETAIL OF ENGLISH PAINTED PINE CHIMNEYPiece IN DINING ROOM

HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK

GUY LOWELL, ARCHITECT



SECOND FLOOR GALLERY



PLAYROOM ON ROOF

Mural Decorations by Robert Winthrop Chanler

HOUSE OF MRS. WILLIAM HAYWARD, NEW YORK

GUY LOWELL, ARCHITECT

ITALIAN RENAISSANCE DETAILS

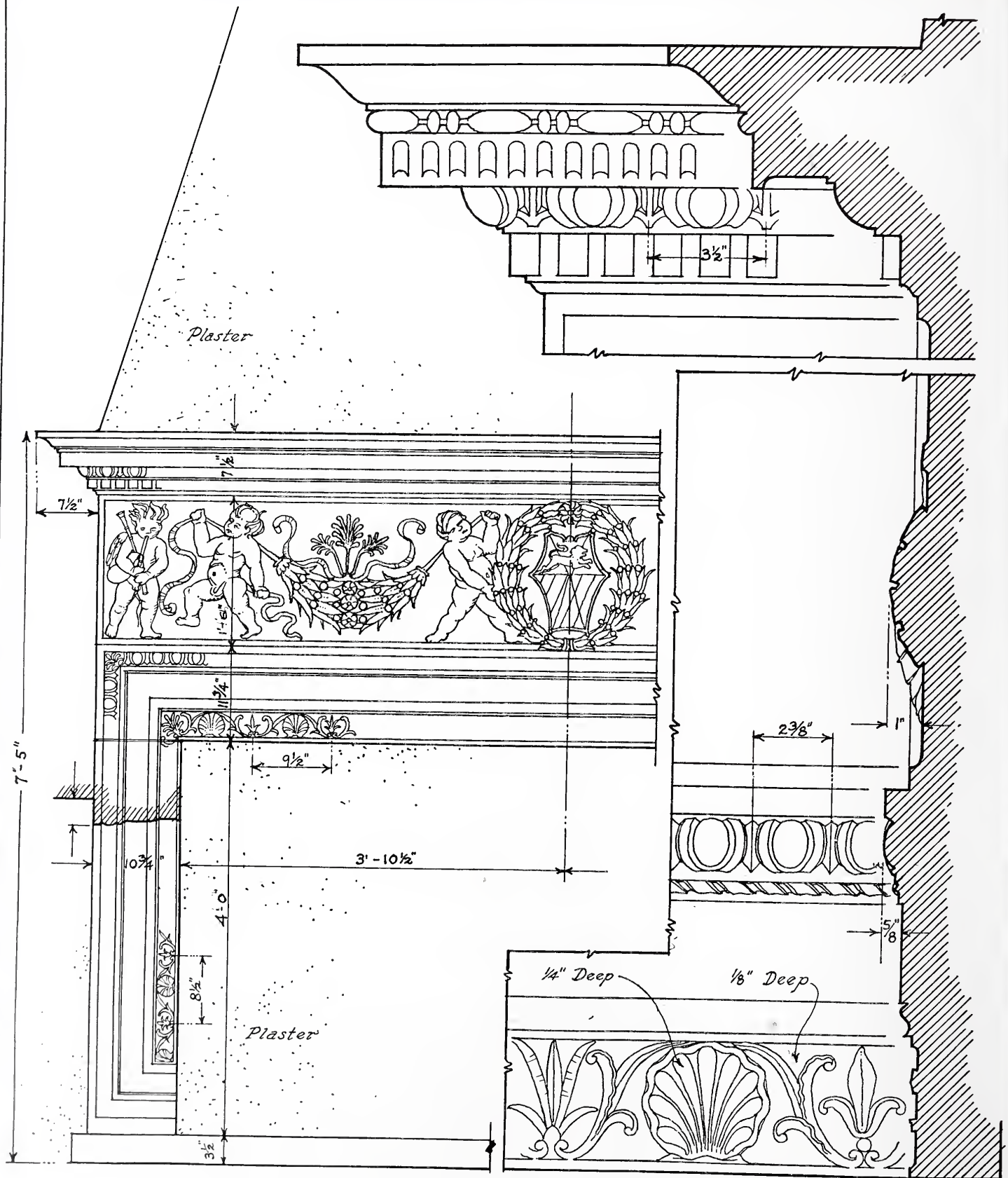
A SERIES OF MEASURED DRAWINGS

By HOWARD MOÏSE



CHIMNEYPiece IN LARGE HALL OF MAIN APARTMENT
PALAZZO DAVANZATI, FLORENCE

PALAZZO DAVANZATI is one of the few structures still remaining from the period when Florence was at the height of her power. Built originally for the Davizzis, it remained in the hands of the Davanzati family from 1578 to 1838, falling then into decay from which it was rescued by Prof. Volpe, restored and furnished with much of its oldtime magnificence. The large hall of the main apartment still retains its old painted and cross-beamed ceiling, and the stone chimney piece illustrated here is adorned with figures of dancing children, carved in spirited fashion, while the hooded form which the wall over the chimney piece assumes tends to minimize the expanse of space between the cornice of the chimney piece and the ceiling.



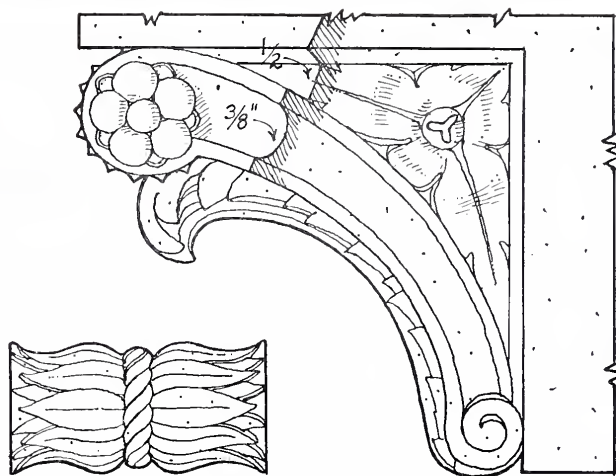
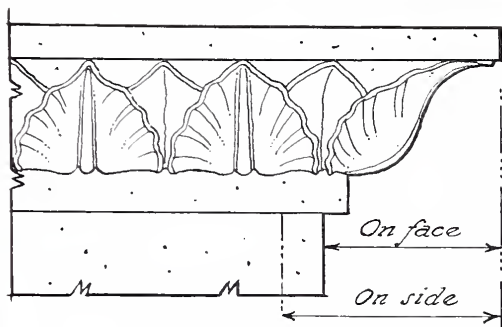
ELEVATION
Scale 3/4"=1'-0"

DETAIL
Scale 3"=1'-0"

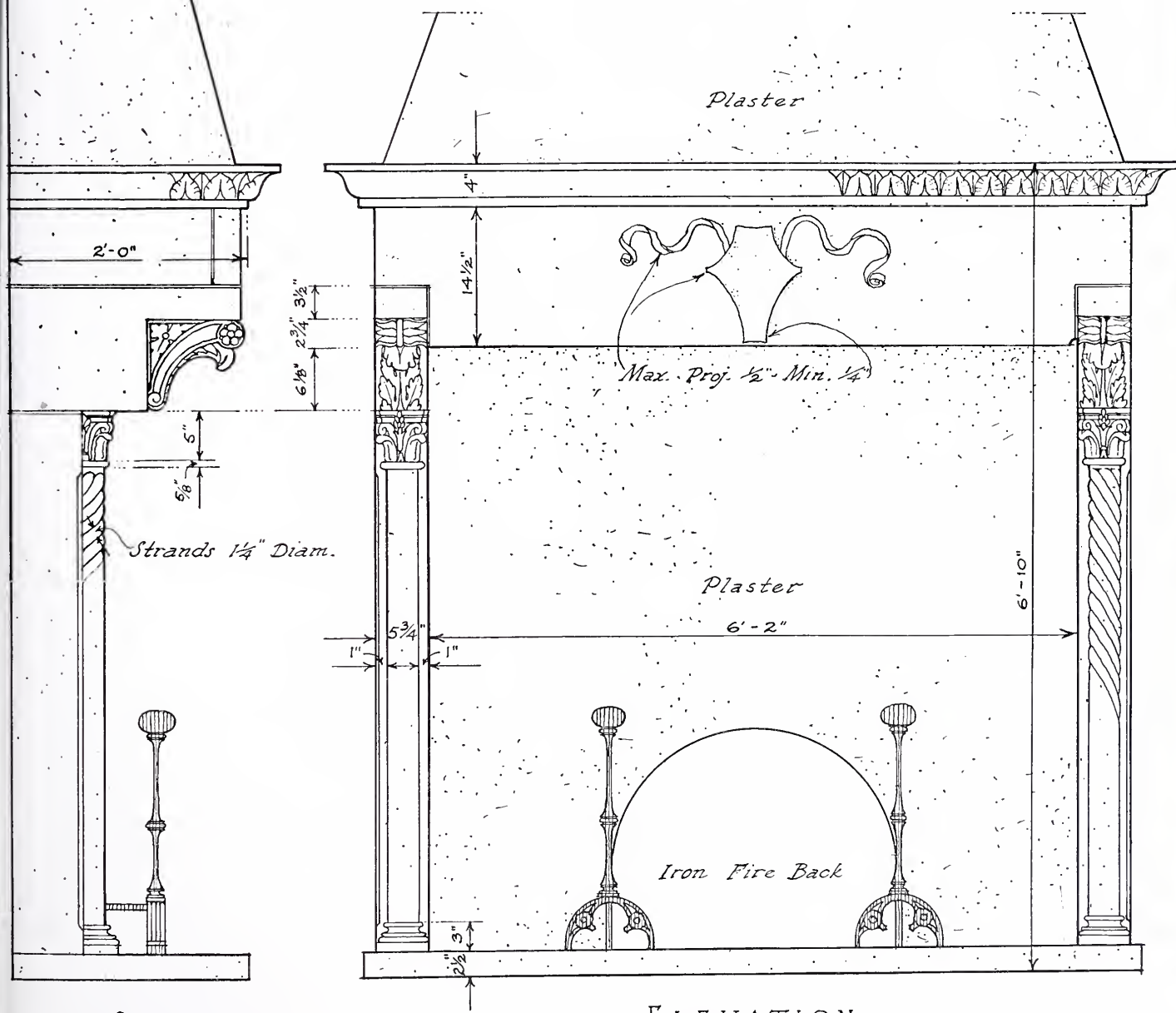
ITALIAN
DETAILS
1922

FIREPLACE
PALAZZO DAVANZATI FLORENCE

MEASURED and
DRAWN by
HOWARD MOISE



DETAILS
Scale 3" = 1'-0"



· SIDE ·

· ELEVATION ·

Scale 3/4" = 1'-0"

ITALIAN
DETAILS
1922.

· FIREPLACE ·
PALAZZO DAVANZATI · FLORENCE

MEASURED and
DRAWN by
HOWARD MOÏSE

ITALIAN RENAISSANCE DETAILS



A CHIMNEYPiece IN A MINOR APARTMENT

PALAZZO DAVANZATI, FLORENCE

DESIGNED like all the great palaces of old Italian cities to shelter various members of a large family in patriarchal fashion, this building includes many great halls and rooms of other kinds, from one of which the chimneypiece illustrated here has been drawn.

It is a particularly good example of the Italian hooded mantel supported by corbels, and lends itself readily to modern adaptation because of its good scale and general simplicity. The carving is in low relief, hardly any portion having a depth of more than one-half inch. The Davanzati Palace was designed by Michelozzi, the successor of Brunelleschi.

BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

Recent Progress in Developing Co-operative Apartment Buildings

ABOUT two years ago there was presented in a series of articles in *THE ARCHITECTURAL FORUM* a general review of progress to that date in the development of co-operative apartment house projects. In view of the large volume of building construction which has occurred in the apartment house field since that time it is but natural that there should have been a crystallization of ideas and a broadening of experience in this field which is of considerable interest to those who contemplate carrying out such projects in the near future. In this article, therefore, we shall consider certain business features which have become more definitely established as important factors in the success of a co-operative building venture.

One important conclusion which may be drawn from the added experience of the past two years in this field is that in the development of a co-operative building project success is more certain under what is termed "the 100 per cent" plan of ownership. When this subject was last reviewed in *THE FORUM* past experience had left open a choice between two plans: first, the 100 per cent plan, in which the entire building is occupied by tenant-owners, and, second, the rental and ownership plan under which a proportion of the building space is reserved for renting at prevailing market rates.

While it is quite logical to assume that the rental income from such space will serve to reduce the overhead cost of occupancy on the part of tenant owners, experience has shown that the added detail of operation and management, the increased investment required, and the danger of being forced to carry unrented space during periods of depression would seem to overbalance any benefit which might directly accrue through rental profit on the space not occupied by tenant-owners. In other words, it has become almost axiomatic in the field of co-operative apartment promotion and ownership that the only successful plan is the 100 per cent ownership plan.

A number of interesting facts and opinions relative to this and other points of importance in a consideration of the co-operative plan have been drawn from comments made by Frederic Culver, President of the Joint Ownership Construction Company. This is the company which developed the building at 136 East 67th street, New York, illustrated in this number of *THE FORUM*. The exact business methods of this building indicate some important points:

"A corporation known as 136 East Sixty-seventh street, Inc., was formed in which title to the property was vested. The stockholders are the occupants of the building. Thus a tenant-owner has an interest in the entire property and is entitled to a 99-year lease on the apartment which he selects. The lease, with his stock, gives him virtual ownership of his apartment. Every apartment in the building is sold. No space to rent is reserved, and therefore speculating in renting apartments and carrying vacancies are eliminated, as every individual owner pays a pro-rata share of the operating expenses of the building. It is a fixed annual sum and precludes the right to make any assessment.

"Reducing apartment rents to just what it would cost a landlord to operate the building is precisely what is achieved, and all landlord's profits are eliminated. In other words, all that an owner pays is exactly what it costs to run the building. It is a logical fact that 25 people can operate one building more cheaply than they can operate 25 separate dwellings. Joint ownership affords a home to a purchaser at less than it can be maintained for in any other way.

"The building has been restricted as to the character and financial responsibility of the tenant-owners. The directors of the corporation, elected annually from among the stockholders for a year, pass on all subleases and resales. In that way the building's original standing is maintained, and although it may restrict the market as regards resale to a certain extent, it considerably enhances the value, as people are willing to pay premiums to purchase in a house having the highest class of occupants. In other words, the directors act in the same capacity as does the committee of admissions to a club. The actual management of the building is taken care of by Culver & Co., affiliated with the Joint Ownership Construction Company, Inc. In that way the operation of the building is in the hands of an experienced concern, relieving the owners of care in that respect.

"There are two aspects to the situation which would have a great influence in determining the future of co-operative enterprises for urban community buildings. One would be whether or not the majority of future developments would be along conservative or quasi-speculative lines. If the investment public should pursue the speculative line, that course would be attended with more or less danger and might retard or kill the movement. For that reason the plan of making a success of the enterprise depends on renting at the prices specified in the promotion plan. If apartments to rent on speculation were included and the prices presumed to be obtained for this space not be obtained the owners would have to make up the deficit, which would react on the investing public. To avoid that danger this company determined to sell stock covering every apartment in the building erected by it and thus by determining the maximum fixed sum its clients would be called on yearly to pay prevent their suffering any disappointment.

"It is more difficult to sell under that plan because it seems to call for a larger fixed annual rent charge than do more speculative plans. These specious proposals, involving rent speculation, lead investors to think that they will get the results that the promoter specifies (the promoter always puts his best foot forward), and are bound to please the unthinking investor more than a more conservative plan.

"It is obvious that if a building were financed on the plan of 90 per cent of the value in mortgage and 10 per cent in stock, whether it were 100 or 50 per cent joint ownership, the price to be paid for the stock would be comparatively small, and if the mortgage were 40 per cent and the equity 60 per cent of the value the cost of the stock would increase, and so would the safety factor. A mortgage of 40 per cent on a first class building



Co-operative Apartment House, 485 Park Avenue, New York
Dwight P. Robinson & Co., Engineers and Constructors

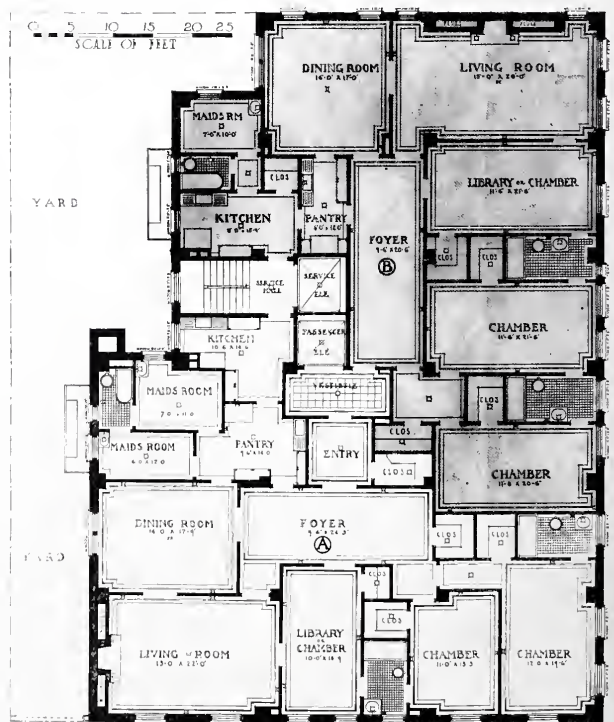
in a first class location in New York should, under normal conditions, be easily and at all times replaceable. For the ultimate success of co-operative apartment enterprises on a very large scale two factors are essential: first, the ability of the owner of that class of stock to borrow on it from a bank or trust company, and, second, the marketableness of the stock in question.

"It seems to be a perfectly logical evolution, if we grant that in cities the apartment house is bound to displace the private residence, that the form that the organization will take will approximate in every essential something akin to private houses, so far as to transfer to title is concerned. The general form that the co-operative apartment investment has taken makes the securities given in representation of ownership, from every point of view, much more marketable than the private residence. For instance, a title insurance policy covers the title; the transfer of title means merely the endorsement of a stock certificate and the examination of the roll of occupants of the building and of its books, which are kept, under good practice by some responsible trust company, to ascertain if the revenue paid by the tenant-owners is more than sufficient to defray the cost of operating the building. In a very brief period the proposed purchaser in one of those enterprises has a trustworthy statement which will enable him to decide as to whether or not he is justified in making his investment. In those types which represent the best plan of organization an investor would find that by becoming an owner his savings in rent over what he would pay to a commercial landlord would be at least equivalent to 12 per cent a year on the amount of money invested. The test of the proposal would be that if the owner made his investment and did not occupy the apartment in connection with his purchase, he would be able to find a tenant who would pay him a rent which, after deducting the sum to be paid to the company, the stock of which he purchased, would leave him a return of 12 per cent a year on his money."

The working out of the financial aspect of a project such as this requires care, and to those who are making a study of this subject some of the cost maintenance and rental figures on this new building, 136 East 67th street, will be of interest. The total cost of the building to the tenant-owners, including land, construction costs, architects' fees, and a reasonable profit for the promoters, amounted to \$630,000. A first mortgage was placed on this building for \$300,000. The equity of \$330,000 represented in this transaction is the amount of stock issued to tenant-owners, divided in accordance with the character and size of various apartments. In order to show how this division was made a tabulation is presented showing the price of each apartment in the building. This price represents the owner's share in the equity above his proportion of the first mortgage. In this tabulation the yearly proprietary rentals are also shown. These are determined by estimating the total operating expense for the building, in this manner:

Interest on \$300,000 mortgage at 6%.....	\$18,000
Taxes on \$480,000 less \$185,000, or on \$295,000 at 3%	8,850
Coal.....	2,400
Insurance (fire and general).....	700
Operating force.....	5,280
Supplies.....	500
Water, light and power.....	1,000
Management.....	1,300
Amortization of mortgage annually at 3% ..	9,000
Contingencies.....	2,470

Aggregate of annual proprietary rents...\$49,500



Typical Floor Plan, Co-operative Apartment House
485 Park Avenue, New York

Here is a tabulation showing individual apartment costs and proprietary rentals:

DESIGNATION	Number of rooms	Number of square feet	Price	Yearly proprietary rental
A-1	6 rms.—2 baths	1510	\$11,300	\$1,695
B-1	4 " —1 "	1035	7,700	1,155
C-1	4 " —1 "	970	7,300	1,095
D-1	3 " —1 "	575	4,300	645
E-1	3 " —1 "	575	4,300	645
F-1	4 " —1 "	970	7,300	1,095
G-1	4 " —1 "	1035	7,700	1,155
H-1	6 " —2 "	1510	11,300	1,695
A-2	6 rms.—2 baths	1510	12,000	1,800
B-2	4 " —1 "	1035	8,100	1,215
C-2	4 " —1 "	970	7,700	1,155
D-2	4 " —1 "	765	6,100	915
E-2	4 " —1 "	765	6,100	915
F-2	4 " —1 "	970	7,700	1,155
G-2	4 " —1 "	1035	8,100	1,215
H-2	6 " —2 "	1510	12,000	1,800
A-3	6 rms.—2 baths	1510	12,600	1,890
B-3	4 " —1 "	1035	8,600	1,290
C-3	4 " —1 "	970	8,000	1,200
D-3	4 " —1 "	765	6,400	960
E-3	4 " —1 "	765	6,400	960
F-3	4 " —1 "	970	8,000	1,200
G-3	4 " —1 "	1035	8,600	1,290
H-3	6 " —2 "	1510	12,600	1,890
A-4	6 rms.—2 baths	1510	13,200	1,980
B-4	4 " —1 "	1035	9,000	1,350
C-4	4 " —1 "	970	8,500	1,275
D-4	4 " —1 "	765	6,700	1,005
E-4	4 " —1 "	765	6,700	1,005
F-4	4 " —1 "	970	8,500	1,275
G-4	4 " —1 "	1035	9,000	1,350
H-4	6 " —2 "	1510	13,200	1,980
A-5	3 rms.—1 bath	1030	9,600	1,440
B-5	4 " —1 "	1300	12,200	1,830
C-5	6 " —2 "	1225	11,500	1,725
D-5	4 " —1 "	1300	12,100	1,815
E-5	3 " —1 "	1015	9,600	1,440

The proprietary rents in the aggregate cover all running expenses and amortization of mortgage.

The subscriptions of prospective tenant-owners in this operation were made payable upon this schedule:

	Per cent
1. On signing.....	10
2. When title is vested in owning company.....	15
3. When foundations are completed, not sooner than one month after last payment.....	15
4. When concrete work of floor for second story of building is in place, not sooner than one month after last payment.....	10
5. When concrete work of the floor for the fourth story of the building is in place, not sooner than one month after last payment.....	15
6. When roof is on the building, not sooner than one month after last payment.....	10
7. When brown coat of plaster is on the building, not sooner than one month after last payment.....	15
8. On completion of building.....	10
	<hr/> 100

Another interesting co-operative apartment building which has just been completed in New York is the structure at 485 Park avenue, developed under the management of Douglas Elliman & Company. Here again experience has shown the soundness of the 100 per cent plan. In this connection Mr. Elliman is authority for the statement that "co-operative apartment house ownership is tenant ownership. It does not mean that you buy an apartment simply, but that you actually invest with others in real estate. The inducement lies in the saving in rental. The only dangers are in trying to get too much out of the investment and in improper management. As an example, a man buys a co-operative apartment, say for \$10,000. Assuming that he had invested that amount at 6 per cent, which would be a fair supposition, his interest would have been \$600 a year on that amount. The upkeep of the apartment would be about \$1,000 a year.



Kitchen



Sun Parlor

Typical Interiors in Hawthorne Court Apartments, Jackson Heights, New York
George H. Wells, Architect

Adding the \$600 interest would make a total of \$1,600, which he would charge to one account. The theoretical rental value of the apartment would be, according to the average of our experience, approximately \$3,200 a year. Consequently he would save 30 to 50 per cent on his rental. His profit would be the difference between \$1,600 and \$3,200 or \$1,600."

The total cost to the tenant-owners of the building at 485 Park avenue was \$1,100,000. Of this amount \$540,000 is in the form of a first mortgage, and the balance, or \$560,000, is represented in stock.

As will be noted by reference to the floor plan presented herewith, these are large apartments, arranged two to a floor, excepting on the eleventh, twelfth and fourteenth floors which are occupied entirely by one apartment each. The typical apartment A represents an investment by the tenant-owner of \$26,000. His proprietary rental is \$3,120 per year for an apartment which has an approximate rental value of \$6,500 per year. Apartment B represents an investment of \$22,400, carries a proprietary rental of \$2,688, and has a market rental value of approximately \$5,600. In estimating the proprietary rental the total expenses of carrying this building are:

Estimated annual expenses:

Labor	
2 doormen at \$80.....	\$1,920
2 passenger elevator men at \$75.....	1,800
2 service elevator men at.....	1,800
1 night fireman at.....	1,200
1 day fireman at.....	900
1 porter at.....	960
1 superintendent at.....	1,800
	<hr/>
	\$10,380
Lay-off in summer.....	1,040
	<hr/>
	\$9,340
Fuel.....	\$3,500
Electricity (net).....	1,000
Water.....	500
Supplies.....	250
Repairs and decorations.....	3,500
Insurance.....	1,100
Administration.....	5,000
Gas.....	50
Miscellaneous.....	2,000
	<hr/>
Total operating expenses.....	\$26,240
Taxes (estimated).....	\$18,000
Interest on first mortgage.....	32,400
	<hr/>
Estimated total expenses.....	\$76,640

Progress at Jackson Heights

In the last two years there have been a number of interesting developments in connection with the great co-operative apartment development of The Queensboro Corporation at Jackson Heights, New York. These buildings, some of which are illustrated in connection with this article, and others designed by Andrew J. Thomas in previous issues, represent still more interesting types of architecture and construction than earlier structures in this development. In line with increased building costs the management of this corporation wisely decided that the more ex-

pensive type of apartment was in order, and no pains have been spared to develop a high standard of attractiveness and living comfort.

Commenting on the experience of his organization, F. R. Howe, Vice-President of The Queensboro Corporation, has made claim that when "certain fundamental conditions are observed, tenant-ownership of apartments shows a greater economy with equal comfort as compared either with the ownership of a house or with the out and out rental of an apartment. These fundamental conditions are thus briefly presented:

1. A fair price.
2. Safe financing.
3. A neighborhood of established or growing values.
4. Careful selection of tenant-owners, to insure harmonious relations.
5. Expert management.

"Reviewing these conditions as they affect Jackson Heights, first with regard to price: The policy of the building up of Jackson Heights has been to charge a fair or normal profit on a large number of buildings, rather than to attempt to make a large profit out of each particular group. The soundness of such a conservative policy has resulted in the fact that many of the tenant-owners at Jackson Heights who have been forced to move to other cities have been able to sell their interests at substantial profits, and they have all made substantial savings by becoming tenant-owners since the inauguration of the plan in the summer of 1919.

"Sound financing of apartment buildings is the same as in other investment enterprises; the relation of the mortgage indebtedness to the entire investment should not exceed one-half, or at the most 60 per cent. At Jackson Heights one-half has never been exceeded, and in some cases the mortgage has been for considerably less than one-half of the value of the enterprise. One of the greatest abuses that tenant-ownership has been subject to has been overloading the properties with two and three, and in some instances four mortgages, which places the purchaser in the same position as the 'shoestring' margin trader in Wall street—the first puff of adversity wipes him out.

"The stability of the neighborhood as a residential district is of great importance to investors in co-operative apartments, and when the neighborhood is of steadily increasing value, the investment is more certain to appreciate with the growth of the neighborhood. Such a condition is presented by the development at Jackson Heights. Starting a few years ago with three or four 5-story apartments, now more than 100 apartment buildings have been constructed or are in course of erection. The careful selection of tenant-owners is a *sine qua non* of successful tenant-ownership. Rigid examination of business and social references is an essential point where people are collective owners of apartments, and nowhere has greater care been used than at Jackson Heights, where in the selection of over 700



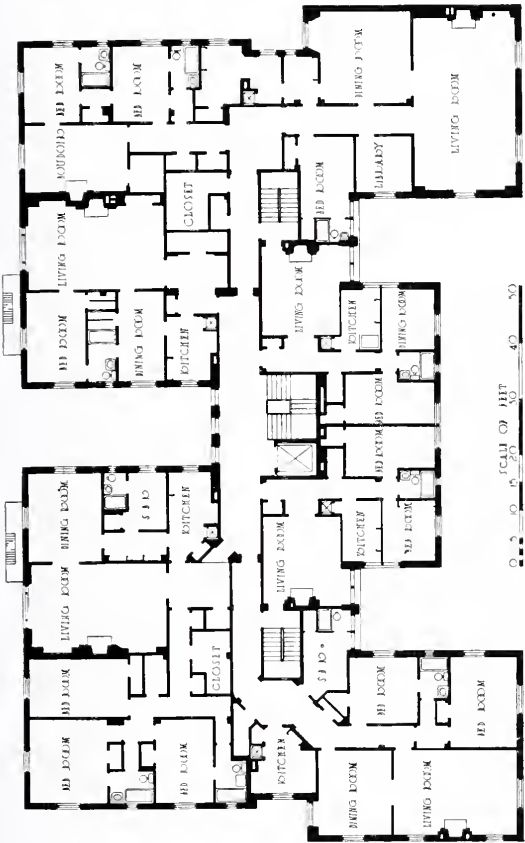
GENERAL EXTERIOR VIEW



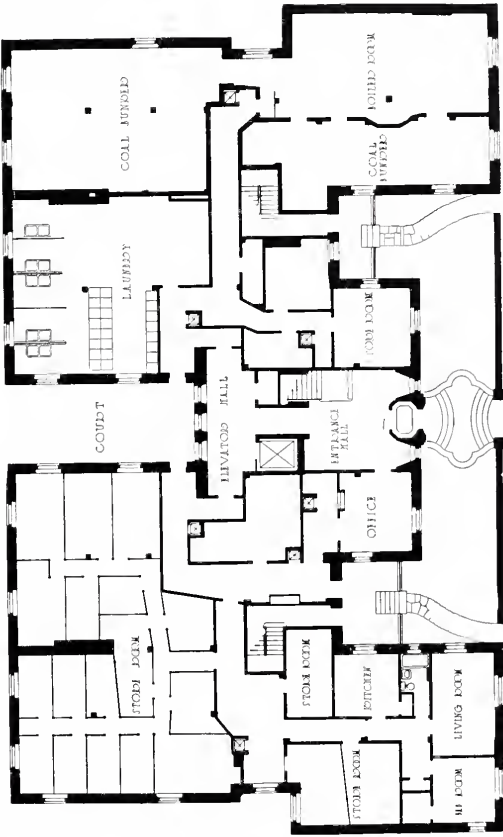
DETAIL VIEW OF UPPER STORIES

CO-OPERATIVE APARTMENT HOUSE, 136 EAST 67TH STREET, NEW YORK

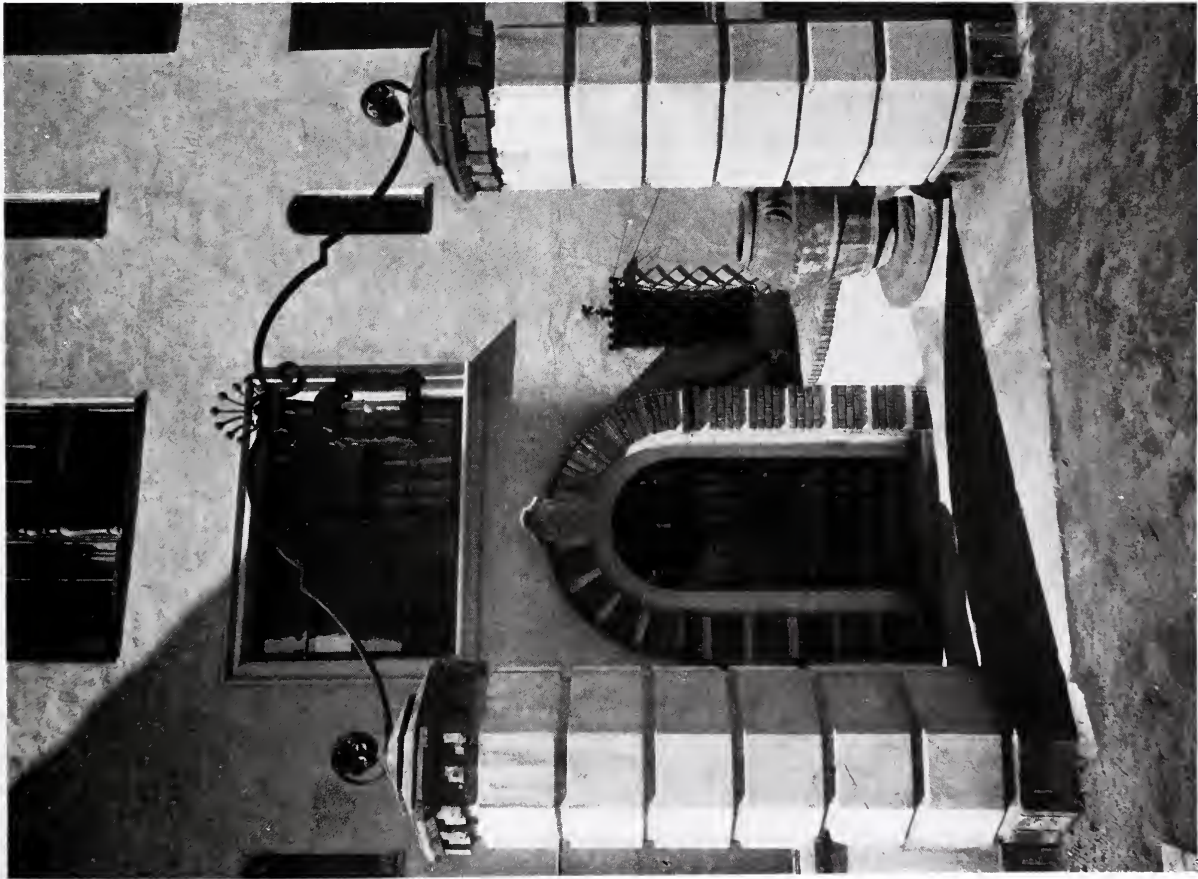
WALKER & GILLETTE, ARCHITECTS



SECOND FLOOR PLAN



FIRST FLOOR PLAN



DETAIL OF ENTRANCE

CO-OPERATIVE APARTMENT HOUSE, 136 EAST 67TH STREET, NEW YORK
WALKER & GILLETTE, ARCHITECTS

present tenant-owners not one mistake has been made in admitting an undesirable owner.

"Many co-operative apartment houses starting out with good financial plans and careful selection of owners have come to grief through amateur management. The business of apartment management is just as much a business as factory management. It should be in expert hands. Like factory management, large scale operations secure reductions in cost. At Jackson Heights The Queensboro Corporation manages the entire enterprise. Over one hundred 4- and 5-story apartment houses in one neighborhood are managed by this corporation, so that large economies are effected in the purchase of such items as coal and in the general direction of the enterprise.

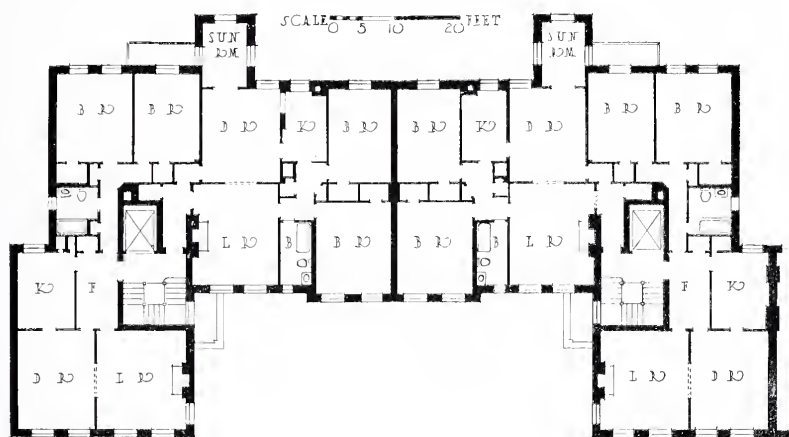
"Recent figures covering the sale of stock representing a high class apartment in one of the new buildings at Jackson Heights will be of interest for

comparative purposes. The apartment taken as an example is a 7-room and 3-bath apartment which is one of eleven apartments in a 5- and 6-story elevator building which is priced at \$213,000 and in which the mortgage is only one-third of the cost. Here the running expenses, including elevator service, janitor service, light, heat, etc., are estimated at \$3,400, and the fixed charges, including taxes in excess of exemption, interest, insurance and management amount to \$7,000.

"In determining the quota to be paid by tenant-owners, there was added \$2,100 amortization on the mortgage, which is at the rate of 3 per cent per annum, and \$850 as a reserve to meet contingencies.

"Turning now to the individual apartment. This apartment could not be rented elsewhere in New York at the present time under from \$3,000 to \$4,000. The cost to buy is \$13,000, which represents its share of the equity in the entire building. It may be purchased under the installment plan by paying down a minimum payment of \$3,500 and paying the balance as rent. This balance includes all of the foregoing items of upkeep, fixed charges, etc., and is \$103 per month. \$123 is the monthly installment, including interest on the deferred balance, making a total of \$226 per month or \$2,700 per year."

These payments will purchase the entire equity of the apartment, valued at \$13,000, in eight years. Comparing this with an apartment renting for \$3,000 per annum, in eight years there would have been paid \$24,000 as rent. Under the installment tenant-ownership plan, in addi-



Typical Floor Plan of Laburnham Court

Co-operative Apartment House Group, Jackson Heights, New York



Exterior of Laburnham Court Apartments and Community Tennis Courts

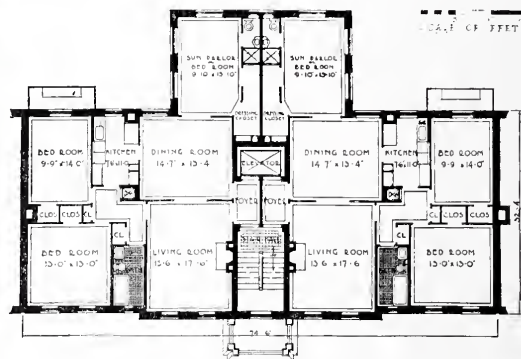
George H. Wells, Architect



Rear View, Showing Garden Treatment in Center of Block
Jackson Heights, New York

tion to the \$3,500 initial payment there would have been paid to meet running expenses, interest, insurance and installments, \$25,196 in eight years.

The result in one case is the ownership of nothing; in the other case, the full paid ownership of an equity of \$13,000 and the reduction by 24 per cent in the share of the mortgage upon the building, which is \$1,600 reduction for this one apartment; furthermore, a payment into reserve for contingencies of over \$600 is effected for this one apartment, and in addition the incalculable amount of saving due to a possible reduction in the future in the cost of operating the buildings, all of which accrues to the tenant-owner, so that with every decline in the



Typical Floor Plan, Hawthorne Court

cost of operation there is increased saving.

One more fact is interesting to know in this connection. Under the original sales plan² of Jackson Heights the owner's rental of an apartment was established at a high enough figure to make it possible to pay 7 per cent interest on the stock representing tenants. Within the past two years it has been deemed wise to eliminate this interest feature and to charge an owner's rental only sufficient to cover running expenses. This has been done for two reasons: first, because the 7 per cent return to the owner in the form of interest on his bonds offered taxation difficulties, and, secondly, because this action withdrew a complication in the sales plan, for the more simple a sales plan for promoting a co-operative venture can be made the more readily will success be attained.

In this series of articles the most important details of a successful co-operation project have been covered, but each operation involves individual consideration and presents specific problems, in solving which a special service is offered to readers.—The Editor.



Exterior of Hawthorne Court Apartments, Jackson Heights, New York
George H. Wells, Architect

ENGINEERING DEPARTMENT

Charles A. Whittemore, *Associate Editor*

The Hotel or Restaurant Kitchen

By N. W. ALDRICH

PROMPT and smoothly running service, upon which depends the success of a restaurant or a hotel dining room, is almost entirely a matter of its being served by well equipped and well arranged kitchen and other service quarters. An examination of a successful restaurant kitchen will show that it has been so planned and organized that it becomes a kind of mechanism, not readily thrown out of balance by unexpected demands upon it.

To make plain what is meant by a well planned and equipped restaurant kitchen a diagram is given which may serve to illustrate the suggested layout. While the plan will to a certain extent explain itself, it is the writer's aim to explain how important it is to bring such departments as are shown on the plan, and especially those in the serving department, as near as possible to the dining room.

It would be almost impossible to give the exact capacity of such a kitchen, owing to the fact that this depends wholly upon its supervision. Stewards as a rule are accustomed to certain ways of running their departments, and some of the most competent in their line may not be familiar with or understand plans as well as an architect or engineer who would consider it his duty to see that such plans are thoroughly understood. Relative to capacity, however, this kitchen with proper supervision should be large enough for the dining room of a medium sized hotel, say of 400 to 500 rooms, or for a restaurant with a seating capacity of from 300 to 400. With the limited amount of space available for this kitchen, say 45 x 60 feet, the receiving room, store-room, bakery, laundry, employes' dining rooms, etc., are located on the floor below and should be properly lighted and ventilated.

Although it is not advisable to recommend every kind of apparatus that may be used in kitchens without first consulting the owners, managers or stewards, care should be taken that space be allowed for such fixtures in order that these may be installed at a later date without interference with the more essential details which are already in place. The section of the kitchen where dishes, silver and glass are washed should be so arranged that waiters or 'bus boys may deposit used dishes at soiled dish tables without interference with those working in this department. A large soiled dish table should be so arranged that glasses and silver as well as dishes may be cared for in this corner of the kitchen.

Dishes should pass through a dish washing machine to the clean dish table where they are assorted and placed in heaters or on shelves, and glass should pass in an opposite direction to glass washer or glass sink and be dried ready to return to cabinet or dining room. Silver may be washed in the same machine as dishes and then passed to where it is sorted and dried, but as dish water is always greasy, glasses should be washed either in a separate machine or a double sink. They never look bright and shiny unless properly wiped. A silver burnisher will also be found practical, and since it is considered one of the essentials, like the machines for cleaning and polishing steel knives, space has been allowed for all these details on the plan. The oyster bar and bar or counters for salads and cold meats, together with a short order or cut meat box and sea food chest, are so arranged that a shortage of help would not cripple the service as it would if these departments were scattered, and waiters ordering from these departments are served over the shelf at convenient height above the working top of the salad bar. The combination feature, including cook's table, bain marie and carving stand, is so located and equipped with upright dish heater that several waiters may be served at the same time without interference, the top of the dish heater being used as a serving shelf and the two tables in the center of the floor being useful for resting trays while loading as well as for warm dishes and clean tray rack.

The section where the vegetable cook performs her duty while serving is provided with steam table, roll warmer, dish heater, table, and combination griddle, toaster and waffle iron; also with sink and refrigerator for cooked vegetables. The egg timer is so located that the waiters themselves may attend to boiling eggs at breakfast time. This vegetable steam table should be provided with dish heaters, under the table as well as overhead, and a serving shelf with space under the roll warmer arranged for storage purposes.

Next in line we have the serving pantry, equipped with bread and pastry cabinets; a refrigerator for fruits, dairy products, etc.; sink; ice cream cabinet; urns and urn stand with cup closets, and serving counters, equipped with overhead shelves; drawers and shelving on the working side, and narrow shelves for cold plates and possibly silver boxes on the service side. By carefully planning this serving pantry

Electrical Wiring Layouts for Schools

(CONCLUDED)

By NELSON C. ROSS, *Associate Member, A.I.E.E.*

IN laying out the plans for the wiring of a school building the highly important subject of supplying power for the operation of various utilities must not be overlooked. These utilities are each year becoming more complex, and provision should be made for all immediate needs as well as for such possible future requirements as can be foreseen.

Motor Circuits and Power Wiring. Motors will be required throughout the building for the operation of ventilating fans, pumps, elevators, machine tools and other equipment. These motors are as a rule supplied by the contractors furnishing this equipment, but all wiring of the motors should be included under the wiring contract.

The motor circuits should be independent in all ways of the lighting circuits, excepting where motors of fractional horsepower are to be used; such motors, however, should be of the single-phase type and wired for operation on 110 volts. They may be permanently connected to branch circuits from the lighting panels, or as portable equipment may be operated from any socket or receptacle on the lighting circuits. With direct current, each motor circuit requires two wires; with single-phase alternating current, two wires; with three-phase alternating current three wires, and with two-phase alternating current three or four wires, depending upon transformer connections.

With direct current, the voltage of the motor circuits will be either 110 or 220 volts; with alternating current either 220-440 or 550 volts, 60-cycle current, and it is of importance that the voltage, frequency and phase of the available motor current should be known before the work is laid out. All motor circuits should be installed in separate conduits and should be fed from the service switchboard, either singly, as in the case with large motors, or in groups where several motors are fed from one power main or riser.

With few exceptions, large school buildings will have two different service connections, one for the lighting service at single-phase, 110-220 volts, three-wire system, and another for the power service at the available motor voltage, either two- or three-phase current. An exception to this rule may be where the power company has not a three-phase or power line near the building, in which case it is sometimes necessary to use single-phase current, with the power company's permission, even on motors of large capacity. As a rule, however, single-phase motors of more than 2 or 3 horsepower in individual motors must not be installed and connected to the service.

Where the motor voltage is 220 volts or less, on any system, the smaller motors may be satisfactorily operated from the power circuits; where, however, the motor voltage is 440 or 550 volts, it is

not advisable to operate any portable equipment, or motors of fractional horsepower, and such small motors should be connected with the lighting service. This also applies to motors for the operation of the machines in the lunch room and kitchen, such as the dish washer, potato peeler, meat grinder, etc., as well as any machines and equipment that may be directly used by the instructors and pupils; when this is done, the specifications should call for single-phase motors for these machines, etc., for operation on either 110 or 220 volts.

Fans for the ventilation of toilet sections may be located on the roof, in an attic space, or elsewhere as may be convenient. Where so located, and where there is sufficient room to install controlling apparatus, the motors should always be operated from the power circuit. Where such vent fans are of the "ready to run" type and are located directly in the toilet section, it is at times advisable to use single-phase motors on these fans, even of as large as $1\frac{1}{2}$ horsepower, and to operate these motors from the lighting circuits, as this permits the starting and stopping of the motor by means of a flush switch of the lock type, set in the wall adjacent to the location of the fan. As these motors are in reach of the pupils, there is then no danger from the higher motor voltage that may be used on the power circuits throughout the building. This also applies to the small motors used for the ventilation of vent hoods in the chemical laboratory or for special laboratory equipment.

All motors throughout the building, and not included under the electrical contract, should be furnished and set in position ready for wiring by the proper contractor. All controlling equipment, such as speed controllers, compensators or automatic starters should be included with the motors. The wiring contract should as a rule include the mounting in position of all such controllers, etc., as well as all wiring to and between the motors and controllers to make the work complete. In the event that slate backs or bases are not included with the controllers, and such controllers are to be mounted on or supported on wood or on plastered walls, the wiring contract should include the furnishing and installation of these slate bases as required by the code. The wiring contract should also include the furnishing and installation of a fused knife switch at each motor, this switch to be of the proper capacity to protect the motor.

With a motor voltage of 220 volts, a standard slate based open type knife switch may be used at the motors. For years, however, it has been the writer's practice to require that these switches and fuses be enclosed in steel cabinets, or to make use of any of the standard externally operated safety switches, as this makes a better installation and

does away with the danger of electric shock or burns due to accidental contact with the current-carrying parts of the switches and fuses. With the use of 550 volts, however, open switches should not be considered, but some type of 550-volt safety switch should be used at all motors; this is of importance, as aside from the question of good construction, or safety in the operation of the motors and equipment, the rules of different cities will arbitrarily require the installation of safety switches on this voltage.

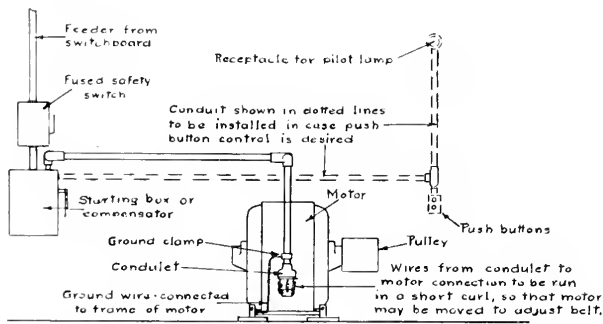


DIAGRAM SHOWING CONNECTION OF
SAFETY SWITCH-COMPENSATOR AND
MOTOR

In general, the construction at the motor should be "under iron," that is the feeding conduit should terminate in the steel box of the motor switch, conduits passing also between the switch and starter, or compensator, and from the starter to the motor. Where the starter is not of the enclosed type, the conduit may terminate in a condulet or similar fitting, the wires passing through holes in the porcelain cap of the fitting direct to the terminals. Where the motor is of the direct connected type, the conduits may be made up with a rigid connection to the motor, but where belted motors are used, the conduit must terminate in a condulet or similar fitting as just noted, the wires passing from the fitting in a curl to the terminals on the motor, sufficient length being left on the wires to permit the motor's being moved on the belt rails or base, to allow for the tightening of the belt.

In the mounting of speed controllers on fan motors, particularly where such motors and equipment are installed in connection with air-washers, the controller should be set up on the wall and not on the floor. It is further advisable that the conduits and wires from the switchboard to the controllers and from the controllers to the motors should be run "up and over" rather than under the floor, so as to avoid trouble on the circuits due to a ruptured water pipe or to some other accident to the air-washer equipment.

As ventilating equipment may be located on the roof or in attic space, as well as in the basement, and as this apparatus must be operated each day, the question of control should have consideration. The writer is not in favor of remote-control equipment for this work, since if the engineer or janitor

must go to each fan in order to put it in operation, he can see that the oil wells are filled, the belts in place and the equipment in proper condition and running at the proper speed, while if this apparatus can be started and stopped from the engine room or other convenient point in the basement, the equipment is very likely to be neglected. If, however, it is desired to control this equipment from a remote point, automatic starters may be located at the motors with controlling push-buttons at points in the basement. Pilot lamps should be installed at the buttons, one to each motor, and so connected that the lamps will glow when the motors are in operation and be canceled when the motors are stopped. No. 14 wire only is required for the controlling circuit. With automatic starting and stopping of the fan equipment, a speed controller of the "pre-set type" is located at the motor, this being set to the speed required. The motor will then run at this speed, under control of the automatic starter; when the speed is to be changed, the engineer must go to the motor and readjust the speed to the desired point.

Another method is sometimes used, consisting of a standard speed controller at the motor, with an underload circuit-breaker connected also in the circuit, a master knife switch being located in the basement at some convenient point. This forces the engineer to go to the motor to start and adjust the speed, but the equipment may be stopped at night by opening the switch in the basement.

Where an elevator is to be used, the hoisting machine may be located on the basement floor, in the attic space, or in a penthouse on the roof. The hoisting equipment, including controller, automatic operating devices, wiring in the car, both for the operation of the car and the car lighting, etc., is included under the elevator contract. The wiring contract should include a separate circuit from the service switchboard to the hoisting machine, and this should terminate in a fused switch with an extension of the circuit from the switch to the location of the controller. All final connections of the circuit with the controller will be made by the elevator contractor. A branch circuit should be carried from one of the lighting panels to a point halfway up the well shaft, terminating in an outlet box at this point in readiness for connection to the flexible lighting cable from the car.

Where equipment is provided for industrial classrooms, such as printing rooms, machine shops, woodworking shops, sheet metal departments, etc., and motor-driven machines are to be used, an accurate layout of the rooms with locations of the machines should be obtained before the wiring plans are completed, as these machines will be grouped throughout the space and the feeding conduits must be run under the floor to the controllers and motors. It is of importance that each industrial department, whether of one or more classrooms, be separately controlled from a panel or switchboard, this kept under lock by the instructor, preventing the tools'

being used by the pupils during the instructor's absence. It is good practice to locate a power panel-board in a steel cabinet at some location convenient to the instructor's desk, this panel being of the standard type and containing fused switches for the control of the different circuits to the machine tools, the cabinet door being fitted with a lock. Where space is permitted but where the development of the industrial equipment is not determined, it is good practice to carry either an empty conduit or a power circuit from the service switchboard to the rooms in question and to terminate this conduit and circuit at a convenient point in the room, either at the ceiling or at a point about 4 feet from the floor, the conduit to be run concealed and terminating approximately 1 inch from the wall. The conduit should be capped and left in readiness for extension of the circuit. This provides a feeder circuit to the room, and the circuit may be extended in exposed conduits to the locations of the motors when the layout is determined. With the use of individual motors this of course means the later cutting of the floor or the installation of the conduits on the ceiling and dropping to the individual motors.

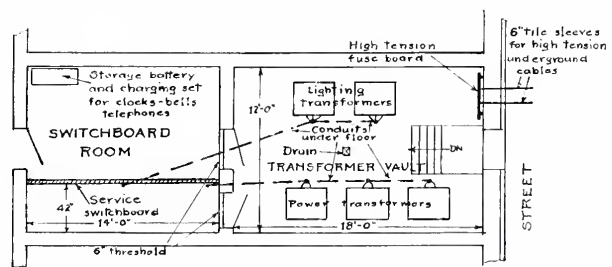
In running circuits from panelboards to the different tools the writer has found it advisable to use a single circuit for motors of 15 horsepower or larger; to use two or three motors of 10 horsepower each on a circuit; five or six motors of 3 horsepower each, and as high as ten or twelve motors of 1 horsepower each. The tools would of course be grouped on the circuits, depending on their types and locations. Thus a large planer would have a single circuit, while two or three small planers, four or five saws, four or five boring machines or drills, or ten to twelve lathes could be grouped on separate circuits from the panelboard. This method of circuiting keeps down the size of the copper and conduits in the floor slabs and provides a flexible equipment, since but few machines will be rendered inoperative by the opening of a fuse; it further permits the instructor to cut out any group of machines at will. The use of floor boxes should be avoided where possible in the installation of machine tools, and the conduit should bend up from the floor in an elbow, the conduit terminating in a fitting well above the floor. This not only provides a waterproof installation, but as the circuit wires are carried above the floor there is ample room to make proper splices and connections.

In proportioning copper for the motor circuits, the full load as well as the starting load must be provided for, and the copper must be heavy enough to take care of the maximum load in amperes. If the starting load on the motor, due to a long line of shafting, or pumps under pressure, is 25 per cent in excess of full load, the copper must be proportioned for the starting load; if, however, a number of motors are connected on one circuit, all of these motors will not start at the same instant, and the feeder copper therefore should be proportioned for the maximum load that may be expected at any one

time. This is, as a rule, on general work from 60 to 80 per cent of the connected load of all the motors on the circuit. Where the circuits are long, additional copper must be provided to care for the drop in voltage due to the resistance of the circuits, etc. In school work, however, where all of the motors are located in one building and the runs are comparatively short, copper proportioned for the full load of the motors will be ample.

For direct current work, allow eight amperes per horsepower on motor circuits when operating at 110 volts, and four amperes per horsepower at 220 volts. For alternating current, three-phase circuits the table on the next page will be found of convenience.

Service Connections and Switchboard. With direct current the service cables will run directly from the street mains to the service switchboard, either underground or on poles. With alternating current service (with transformers installed on the street) the lines will be brought in as just described, there being as a rule one single-phase, three-wire service for lighting and a separate three-phase or two-phase service for power. On the larger school buildings it is generally preferred that a transformer vault be located at some point in the basement and transformers for both lighting and power installed in this vault. When this is done the primary service at 2,300 volts is carried into the vault, terminating in oil circuit-breakers, and passing from the breakers to the primary leads of the transformers. The wiring contract should provide for primary cables, usually No. 4 conductor, from the circuit-breakers to the property line, these installed in conduits or with armored cable. The cables from the property line to the primary mains of the service company are installed by the company. The transformers will be furnished and set in position by the company.



DETAIL SHOWING TRANSFORMER VAULT
AND SWITCHBOARD ROOM

The transformer vault should be of fireproof construction and should have not less than 40 square feet of floor space for 100 K. V. A. transformer capacity, and it should be larger where transformers of greater capacity are to be used. The vault should have full headroom and should be vented to the outer air with not less than two 6-inch square ventilating ducts.

The service switchboard room should be adjacent to the vault, and it is good practice to arrange the board as shown on the diagram, with a door from

the vault to the rear of the board. This keeps all high tension connections in the vault or opening from the vault, and since the vault is kept locked, even the operator of the board cannot come in contact with the high tension terminals. One panel of the switchboard should be reserved for the watt-hour and demand meters of the service company; the drilling for these meters is to be done from templates furnished by the company. The switchboard should be made up in two sections, one for power and one for lighting service, each fitted with a master switch, and the two service mains running from these service switches to the transformers.

Each feeder from the switchboard to the panelboards, motors, etc., should be mastered from fused switches on the switchboard, the switch and fuses being of the full capacity of the feeder. There should be a separate feeder from the board to the stage panel and lobby panel of the assembly hall, also a separate emergency feeder to the lobby panel controlling the exit and emergency lighting.

There should also be a separate feeder to the panel controlling the lighting of the gymnasium, and separate feeders to the different groups of panels controlling the lighting circuit throughout the corridors. As a rule the corridor panels are grouped on four risers, one at each corner of the building, thus controlling four sections of the building on separate risers.

On the power circuits there should be a separate riser controlling the ventilating equipment in the basement, and also separate risers to such ventilating equipment as may be installed on the roof, to the motors in the industrial departments, the elevator, the motor generator set for the moving picture booth, and the motor-driven equipment in the boiler room.

All switches on the lighting panels of the switchboard may be of the standard open type, the same type being used for the power circuits on 220-volt work. With 550-volt work, however, it is advisable to use back connected oil circuit-breakers on the power panels of the service switchboard.

Recording and indicating instruments are not as a rule used on these switchboards; if it is desired to keep records of the loads and distribution of the current, instruments may be installed on this board and connected in the feeder circuits. These may be of the indicating, recording or chart type as desired.

Riser circuits should be run from the switchboard to the panels of the lighting circuits, and where there is more than one panel connected to the riser the riser should pass through the panels connecting in series, full sized copper being used, for if the copper is reduced from panel to panel it becomes

necessary to make use of fuses to protect the smaller conductors, and the cost of the fuses and connections becomes more on these short runs than the cost of the full sized copper.

Riser circuits should be proportioned on three-

TABLE FOR PROPORTIONING COPPER IN MOTOR CIRCUITS
WITH ALTERNATING CURRENTS

H.P.	Approx. full load current in amperes	Amperes of starting fuses	Amperes of running fuses	Amperes of switch	Size of wire
<i>110-volt circuits</i>					
1	6	15	10	30	No. 14
2	12	25	20	30	12
3	18	35	25	30	8
5	30	60	40	60	6
7½	42	80	60	100	4
10	56	100	75	100	2
15	84	150	125	200	0
20	104	200	150	200	00
30	156	250	200	200	300,000 C.M.
<i>220-volt circuits</i>					
1	3	10	6	30	No. 14
2	6	15	10	30	14
3	9	20	15	30	12
5	15	30	20	30	10
7½	21	40	30	60	8
10	28	60	40	60	6
15	42	80	60	100	4
20	52	100	75	100	2
30	78	150	125	200	0

wire, 220-volt circuits for 4.7 amperes per kw. connected load, three wires of the same size being used for each riser circuit.

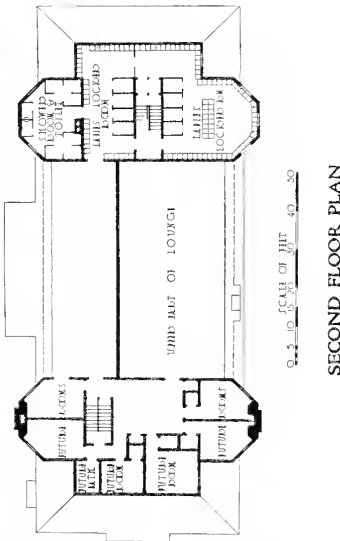
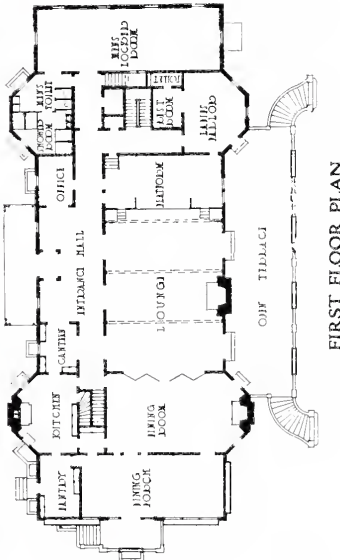
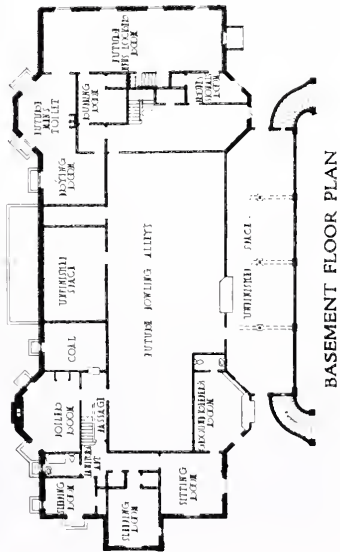
In certain districts a three-wire, 110-220-volt lighting service may not be available, in which case all feeder circuits are developed on a 110-volt, two-wire system. These feeders must be proportioned for 10 amperes per kw. connected load, and the copper should be sized for approximately 80 per cent of the total connected lighting load of the building. Two wires are used (of the same size) for all feeder circuits.

Conduits containing the feeder circuits should be run exposed on the ceiling of the basement corridors or concealed in the first floor slab, rather than under the floor, in order to avoid pockets that may contain moisture. As a rule, these conduits may be run in the duct spaces in the basement corridors, either at the sides of the heat and vent ducts, or in the galvanized iron vent ducts, passing out through the sides of the ducts at the panelboards.

Where, due to building construction, it becomes advisable to install the feeder conduits under the floor of the basement, and where there is any liability of there being moisture, the feeder circuits should be sheathed with lead in addition to the regular rubber insulation. A steel junction or splicing box must be used at the point where the lead wires connect with the riser circuits, this located in an accessible location in the basement corridor, unless the construction permits the lead wires to be carried into the cabinet of the first panelboard without splices, in which case the lead may be laid back and the wires connected direct to the terminals of the buss bars of the first panelboard.



GENERAL VIEW FROM TENNIS COURTS



LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS
PUTNAM & COX, ARCHITECTS



DETAIL OF COURT SIDE

LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS.

PUTNAM & COX, ARCHITECTS



ENTRANCE FRONT

LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS.
PUTNAM & COX, ARCHITECTS



DETAIL OF BAY



DINING AND CARD ROOM



LOUNGE ROOM

LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS.

PUTNAM & COX, ARCHITECTS



VIEW OF ENTRANCE FRONT



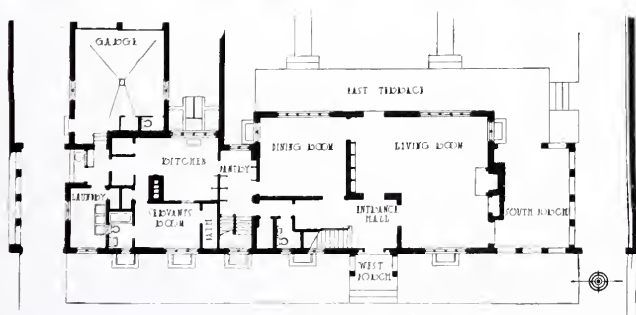
VIEW FROM THE GARDEN

HOUSE OF ARTHUR S. PARKS, ESQ., WICHITA, KAN.

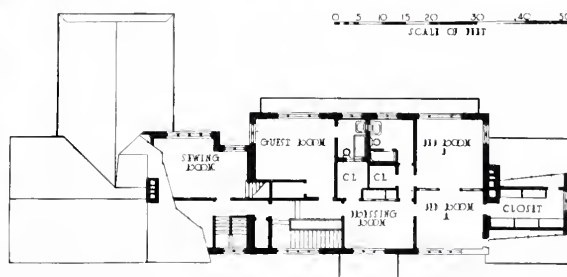
MYRON HUNT, ARCHITECT



DETAIL OF ENTRANCE



FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE OF ARTHUR S. PARKS, ESQ., WICHITA, KAN.

MYRON HUNT, ARCHITECT

Concrete Construction

V. CONCRETE IN THE OFFICE

By WALTER W. CLIFFORD, of *Clifford & Roebled, Engineers*

DESIGN computations, drawings, and specifications comprise the office end of concrete construction. Like the field work, they vary somewhat in practice from other departments of building work.

System in design computations for concrete is of great importance, because practically every concrete member requires as many computations as a steel plate girder. In a concrete beam, for example, the exterior moment must ordinarily be computed at points of positive and negative moment and often at other points to locate the cambers; the shear must be computed at several points in order to space the stirrups, and the rods must be selected for suitable combinations, top and bottom, and for compression steel at the support. After the solution is reached, it cannot be expressed to the draftsman by a simple reference to a standard section, but must be shown in a sketch or the information must be tabulated. Furthermore, grades of material and allowable stresses are not standardized in concrete, and to facilitate a review of computations or later reference thereto, clear presentation of fundamental data is essential. All this work may be done with the utmost neatness, yet if it is arranged in a haphazard manner it will be a tedious process to find all the desired information, and the possibility of there being omitted data is great.

Systematic computations are most easily made by the aid of a printed form. Such a form is a real economy for all offices where design computations are made regularly, and a necessity in offices where computations are likely to be used by several men. In the small offices where one man makes design, drawings and specifications, a form is less important, but even there it is needful to have the data clearly arranged for future reference, and a simple office computation sheet with a heading which has blanks for loadings and unit stresses is worth while.

Design sheets are usually made letter size, and it assists most of us in our striving for neatness in computations to have the sheet quadrilled. In the heading at the top of the sheet, besides the firm name, there are usually blank spaces for the job's name or number, the initials of the designer and the checker, the date, the sheet number, a blank line for "Remarks," such as "Scheme A" or "Four-story design," and a space for the subject of the computation. Next in order of sequence and position comes a tabulation of the data. Space is allowed for "fc" (allowable compression in the concrete), "fs" (allowable tension in the steel), "n" (ratio of the moduli of elasticity), "v" (allowable shear), and "u" (allowable bond stress), and sometimes "R" (coefficient of resistance) and "p" (per-

centage of steel) if these are customarily used. For the small offices, where it is desirable to use one computation form for all classes of work, such a sheet is sufficient. It can be used for wood, steel or concrete, and the results can be shown by a sketch or notation at the bottom of the sheet.

Where sufficient work is done to warrant separate design forms for beams, columns, and miscellaneous members, more can be advantageously added to the form. On beam sheets there should be added to the data blank spaces for the live load, various parts of the dead load, and the panel width. The center-to-center span and clear span should also be included, unless they are already accounted for in a printed design sketch. In the body of the sheet printed forms for the various routine computations, such as " $M = \text{————} = \text{ft. lbs.}$ " may be included at the option of the individual. Finally comes the statement of the results which may be in tabular form, in a sketch or by a combination of the two methods. Probably the most satisfactory method is to have a sketch similar to that shown in Fig. 1. The rods as used can be quickly drawn in over the dotted template lines; intersecting beams can be shown (and dimensioned on the top dimension line), and the sketch used as a load diagram. As actually used the sketch shown is made the full width of the computation paper. Even so, it is rather small to take all the stirrup dimensions, and they can be easily shown in tabular form as:

"Stirrup spacing from the face of left support
....."

"Stirrup spacing from the face of right support
....."

For columns a different type of sheet is needed, and something like that shown in part in Fig. 2 is very satisfactory. Concrete members, aside from beams and columns, vary so greatly that the simple sheet with heading and blank spaces for stresses is most satisfactory, although some offices have special forms for footing design.

To many who have not used them, design forms may seem a needless expense, but aside from the saving in time by having desired information quickly available and insuring against omissions, printing is immensely cheaper than handwork, and the money saved in printing the regularly used words and lines is large.

After computations come drawings. Concrete drawings are of two kinds,—assembly drawings and details. Owing to lack of standardization and other considerations mentioned in a previous article on design, concrete cannot be turned over to the contractor to detail as can structural steel. The assembly drawings for concrete work are largely the fram-

ing plans. They show the locations and sizes of columns and beams as well as of openings, and the identification numbers of beams and columns. It is usually practicable to use the framing plan for a slab detail sheet, supplementing it as may be necessary with sections. The bending diagram of slab rods can often be shown directly on the framing plan, thereby saving in large part the drawing of sections. Framing plans are usually drawn at a scale of $\frac{1}{8}$ inch or $\frac{1}{4}$ inch to the foot.

Concrete details should be drawn after the custom of structural steel details rather than by architectural conventions; that is to say each member,—beam or column,—should be considered as a unit and so detailed. The method of taking various and sundry sections through the building and detailing thereon such members as may be visible or nearly visible is not a satisfactory method. Up to the present, at least, concrete details are usually made to scale rather than on template diagrams such as are used so advantageously in steel detailing.

There are some common conventions and customs which make for speed and economy in concrete detailing. The scale of $\frac{1}{2}$ inch to the foot has been found the most satisfactory for concrete details and is almost universally used in the larger organizations. A convention not so universally used as it should be is the use of full heavy lines to indicate reinforcement. The more or less prevalent use of dotted lines for this purpose is probably based upon the idea that concrete reinforcement should be "invisible" since it is back of the surface. The dotted line has actually nothing to recommend it for showing main steel, although it may be effectively used to distinguish the ends of rods belonging to another member but projecting into that being detailed, as shown in Fig. 3. The full line can be drawn more quickly than the dotted line, and where rods cross the latter often leads to ambiguity. Weight of line offers plenty of opportunity for distinction. On framing plans, beams are often shown as heavy single lines, rods as full lines of medium weight, and outlines by a light full line, all being as clear and distinct as they could possibly be if dotted lines were used, and the whole drawing is clearer and more easily read. Another old convention which can be readily improved upon is the use of triangles and dots to indicate concrete in section. This is very interesting when well done, but shading on the back of the tracing with a soft pencil is fully as satisfactory and is much more quickly made. Still another convention—it might almost be called a principle—of concrete detailing is that clear diagramming of reinforcement is much more important than correct orthographic projection; for example, in the elevation of a beam at supports, rods should be separated on the drawing as may be necessary to indicate clearly the outline of each rod, even if they are actually in the same plane. The section and dimensions will locate them in the proper planes.

It is probably better to leave the rod type num-

bers to the contractor and there is, of course, no need for the architect's giving schedules or complete bending diagrams. The designer must, however, give identification numbers or marks to the beams and columns for his own reference. For this purpose, the co-ordinate system as described in the "Handbook of Building Construction" has many advantages over the old system of consecutive numbering. The details of information which the architect should give, and must give if he is to justify himself as the designer of his work, are the sizes and locations of all main reinforcement, together with the angles and locations of all cambers and bends, and the size, shape and location or spacing of all secondary reinforcement such as stirrups, hoops or spacers. In general, the designer should give such information that the detail bending diagrams and schedules can be made only one way, and then check them to see that they are made in that one way. Certain of the information about auxiliary reinforcing, such as spacer rods in slabs and beams, stirrups where uniformly spaced, column hoops, amount of cover over main reinforcement, number of reinforcing chairs or supports and the lap of column rods, can be covered by suitable notes on the drawings or in the specifications.

The specification is the final item of concrete work in the office. To this chapter of the specification, as well as to the rest, should be applied the three Cs—clearness, completeness, and conciseness. Concrete specifications of the architect are to a considerable degree amenable to standardization. By this it is not meant that concrete chapters can be printed and inserted bodily in the individual specification with merely a glance at the heading, as can be done with the specifications of certain patented articles, nor is it possible to make much headway with a specification for all kinds of concrete work for all parts of the country. But a standard specification can be written for a certain class of building work in a given locality which will, by suitable deletions and such minor descriptive items as pertain specifically to the individual job, answer for the greater part of the work of any one office, and also be a helpful guide in the exceptional cases. Such a specification should contain many sidenotes suggestive of conditions under which certain omissions or additions should be made and should suggest necessary cross references to "Allowances" and other chapters. This standard can be used in two ways: first, by having a single copy and using it as a guide for dictating and, second, by having the standard mimeographed and marking one sheet up as needed for stenographic copy.

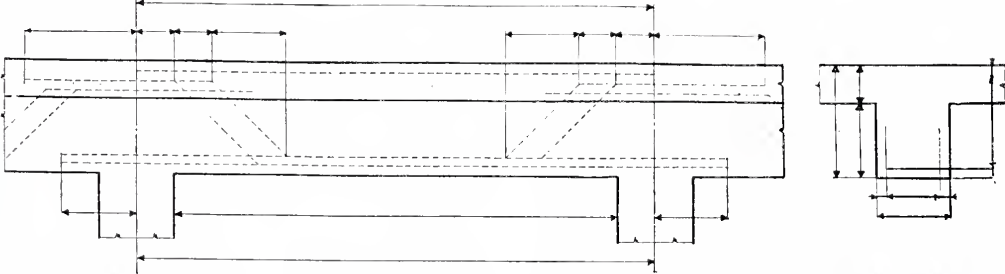
Here is a satisfactory outline of such a chapter for ordinary building work:

A. EXTENT OF WORK AND ESTIMATES

1. Extent of work.
2. Division of estimate.
3. Alternate estimates.
4. Unit prices.

ROE & DOE
ARCHITECTS & ENGINEERS
BOSTON, MASS.

BEAM AND SLAB
COMPUTATION SHEET

JOB No. _____
SHEET No. _____
COMPUTED BY _____ DATE _____ CHECKED BY _____ DATE _____
REMARKS _____
COMPUTATION FOR _____
ALLOWABLE $f_c =$ _____ $f_s =$ _____ $n =$ _____ $v =$ _____ $u =$ _____


REACTION

LOADS

REACTION

LIVE LOAD

SLAB

FINISH & PLAS.

WT. OF BEAM

TOTAL LOAD PER FT.

LOAD Per Sq. Ft.	WIDTH of Panel	
		=
		=
		=
		=
		=
		=

Fig. 1

ROE & DOE
ARCHITECTS & ENGINEERS
BOSTON, MASS.

COLUMN
COMPUTATION SHEET

Job _____
Computed by _____ Checked by _____ Date _____ Sheet No. _____
Remarks _____

FLOORS STORY HEIGHT	TYP. COL.	LOADS		DESIGN	
	SIM. COL.				
TOTAL					
L. LOAD					
ROOF					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					
L. LOAD					
FLOOR					
BEAMS					
WALLS					
COL.					
TOTAL					

B. MATERIALS

1. Cement.
2. Sand.
3. Coarse aggregate.
4. Cinders.
5. Water.
6. Reinforcement.
7. Waterproofing materials.
8. Hydrated lime.

C. WORKMANSHIP

1. Forms.
2. Bending and placing reinforcement.
3. Proportioning concrete.
4. Mixing concrete.
5. Placing concrete.
6. Construction joints.
7. Cold weather protection.

D. DETAILS OF CONSTRUCTION

1. Granolithic floor finish.
2. Cinder concrete.
3. Roof crickets.
4. Holes for pipes, etc.
5. Rubble concrete.
6. Surface treatment.
7. Special details.

In division "A" the section on extent of work is of course different for each case. Sometimes, when the work is largely concrete, the general description at the beginning of the specification covers this point sufficiently. Sections 2, 3 and 4 of this division are governed by the customs of the individual office in letting work as well as by the conditions of the specific instance. They can be arranged in any case so that it will be necessary only to fill in a few words under each item if they are needed.

In division "B,"—"Materials,"—"Cement,"—"Lime" and "Reinforcement" can be covered as regards quality by reference to the standard specifications of the American Society for Testing Materials. It must be noted under reinforcement, however, that there are several possible alternatives. All should be covered in the standard, and those not needed deleted from the individual specification. The quality of sand, coarse aggregates, cinders and

water can be covered by standard paragraphs for any given section of the country. The sizes of the coarse aggregates can be left to "Proportioning Concrete" in division C. Occasionally special paragraphs will be needed on aggregates required for ornamental surface treatment. In the standard specification this can be taken care of by suitable sidenotes. Waterproofing materials can be covered by standard paragraphs for the great majority of cases, since the accepted types of waterproofing materials are few in number.

Under division C,—"Workmanship,"—"Forms," "Bending and Placing Reinforcement," "Mixing Concrete," "Placing Concrete," and "Construction Joints" can all be covered by standard paragraphs and adapted to the individual piece of work by suitable deletions. The section on proportioning concrete can be similarly handled by the use of a table of mixtures from which such are used and referred to as needed in the individual case. The section on "Cold Weather Protection" will be used or omitted as a whole. For the benefit of the entire building industry it is to be hoped that there will be increasing need for its use. The Portland Cement Association publishes a pamphlet which gives excellent material for this section.

In division D, brief standard sections will cover "Cinder Concrete," "Roof Crickets," "Holes for Pipes, etc.," and "Rubble Concrete." "Granolithic Finish" has several possibilities from which to choose, and this is the case to an even greater extent in the matter of "Surface Treatment." The writing of these sections will be greatly facilitated by reference to the "Proceedings of the American Concrete Institute" for the last year or two. The section "Special Details" is the catchall for minor special features which will occasionally crop up. With complete drawings it is not often needed.

But the arts and sciences are moving forward, and the best of standards must be frequently revised. The "Tentative Specifications for Concrete and Reinforced Concrete of the Joint Committee of Engineering Societies," issued about a year ago, suggests many changes in practice which may occur in the next few years. While it is not at present in such shape as to be of very definite help, it should be read by every writer of specifications.

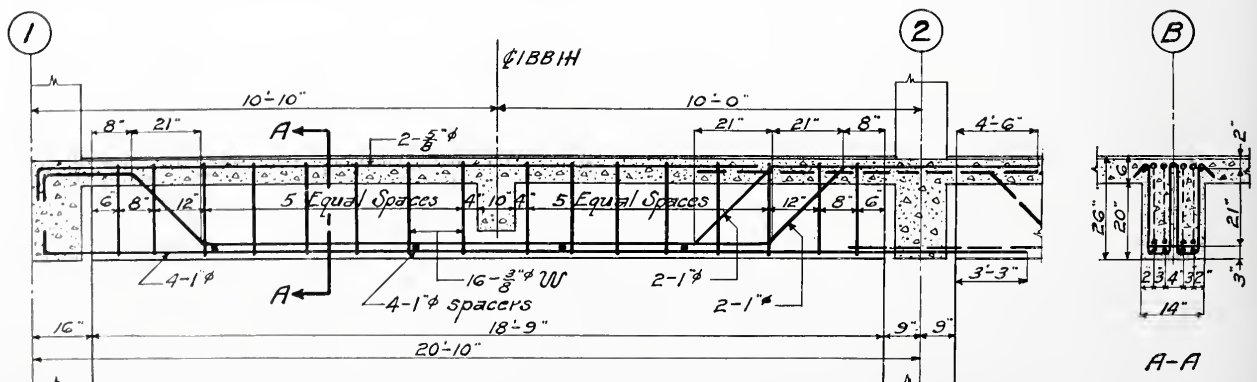


Fig. 3

Plate Description

HOUSE OF MRS. WILLIAM HAYWARD, 1051 FIFTH AVENUE, NEW YORK. Plates 73-80. Situated at the corner of Fifth avenue and 86th street and facing Central Park this residence is one of the most important individual dwellings erected in New York during recent years. Designed by Guy Lowell in the style of the Italian renaissance, the house is built entirely of pink Tennessee marble, while a balustrade of bronze is placed above the cornice.

The plan of the interior provides rooms of unusual size and height. From the vestibule one enters the lower hall from which the dining room opens at the right, while at the left and facing Fifth avenue are two reception rooms, and just ahead is the stair hall of elliptical form in which the balanced stairway leads to the main floor. Upon this floor the entire avenue side of the house is taken up by the drawing room which is connected by a long gallery facing 86th street with the library, while still beyond is a billiard room. The ceilings of the first floor are 15 feet and those of the second or main floor 18 feet, 6 inches in height.

The interior of the house fulfills the promise made by its rich and dignified exterior. Several of the rooms are fitted with antique paneling and other woodwork taken from old buildings in France and England, and the furnishings of the house are largely antiques, with many treasures of paintings, tapestries and oriental porcelain.

CO-OPERATIVE APARTMENT HOUSE, 136 EAST 67TH STREET, NEW YORK. Plates 81, 82. This structure is the latest of several co-operative apartment buildings in the neighborhood centering at 67th street and Lexington avenue, but it has not the height which often characterizes New York apartment houses, being but approximately one-half that of the adjoining structure shown in one of the plates. Owing to the ample area of the plot it has been possible to give all the apartments excellent light and air, for as viewed from the street the building is arranged somewhat in courtyard fashion, while at the rear which is toward the south the structure is planned with a deep court.

Walker & Gillette, the architects of the building, have planned the exterior in the Spanish style with stuccoed walls and with tiles used upon the roofs, the parapet and even upon certain of the chimneys, while balconies of wrought iron of simple patterns are placed at certain of the windows to give accent and variety to the stuccoed facade. The building gains an added Spanish character by the recessing of the upper story some distance from the roof cornice and the covering of this story with a low pitched tile roof of its own.

LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS. Plates 83-86. Judicious alterations and additions have transformed an old and obsolete building into this well planned and attractive clubhouse. The

operations involved the moving of the original structure to a new site, the addition of a new wing, considerable altering of the interior and correction of many architectural shortcomings in the way of faulty lines and excess ornament.

The present building, of which Putnam & Cox are the architects, is planned with two fronts, the entrance front near which are arranged the offices and rooms for the reception of guests, and another front which overlooks the tennis courts. The arrangement of the main floor makes excellent provision for the uses of a club of somewhat broad scope and provides a lounging room of generous size and two full stories in height. At one end is a stage or platform, useful for many purposes, while at either side of a great fireplace French windows open upon a broad terrace which is placed at a considerable elevation above the grounds. At the end opposite the stage doors lead from the lounge into the club's dining room, while still beyond is an out of door dining room, both these departments being served from one kitchen and pantry.

The exterior presents an appearance wholly different from that of the original building. After the various changes were made, the shingled walls of the old structure as well as the walls of the newer portions were covered with metal lath upon which cream colored stucco of a slightly rough cast was applied. The chimneys were also stuccoed, the roofs covered with slate of varied colors, and the blinds painted dark green. The terrace upon which the lounge opens is supported by a brick wall, and about the terrace is a wood balustrade painted white to match the rest of the exterior trim.

HOUSE OF ARTHUR S. PARKS, ESQ., WICHITA, KAN. Plates 87, 88. In the exterior lines of this residence there is much to suggest the types associated with the early Spanish buildings in the west and southwest; the broad horizontal roof lines, emphasized by the overhanging veranda or balcony across the front, recall distinctly similar planning in old buildings in southern California, while the Spanish feeling is strengthened by the grouping of all the necessary structures under what is practically one roof, and the wooden gateway leading to the service quarters and garage. The materials used, however, are brick for the exterior walls and shingles for the roofs, materials which do not lend themselves to carrying out the Spanish type suggested by the design of the building, though presenting a pleasing appearance, particularly since the house stands surrounded by grounds which are well planned and are being well developed.

The architect, Myron Hunt, has provided a plan adapted to the spirit of the exterior—large rooms arranged in somewhat informal fashion, the large living room opening at one side upon a covered porch and at another side upon a broad terrace.

EDITORIAL COMMENT

ARCHITECTURAL EDUCATION AND THE PROFESSION

THE progress of architectural education in the United States, though extending over a comparatively brief period of time, has in general kept pace with the demands of the profession. As in the case of many other American activities we have chosen features from European precedents, adapting them to fit our special needs and conditions. Thus we were first influenced by the thorough training in the so-called practical subjects that resulted from the English system of pupilage; this produced the first architectural courses as a part of engineering study in our large technical schools. Later we were influenced by the work of the Ecole des Beaux-Arts in Paris, and with the accession of French masters and the return of many American students trained in the methods of the Ecole the pendulum swung to the opposite extreme, and a worship of the "style" sponsored by modern French architects drew attention away from construction and focused it on axes of plan and elaborate conception of elevation, which translated into brick and stone many of the Grand Prix projects that presented such beautiful studies on paper.

These two extremes afforded opportunity for study of educational methods, and we now enjoy the benefits of a system that is a compromise between them and quite typically American. That the ideal in architectural education has not been reached is, however, evident from the detailed discussion the topic always provokes at conventions of the American Institute of Architects. The problem is made complicated by the fact that architecture is both a science and an art, each phase demanding distinctly different teaching methods; the teaching of science consists of putting before the pupil facts which he is to store and later use as facts; in art, the facts are placed before the pupil, but for him to digest and reproduce in his own form. The problem is to secure a proper balance between the two, and the schools complain that the profession is not a unit in voicing its opinion as to the respective importance of these divergent requirements. The present system of education has done remarkably well under this handicap, but recent tendencies would indicate that instead of bringing the æsthetic and constructive sides of architecture together, they are being developed separately.

We have seen the manifestation of this possibility in practice within the past few years. The danger is that architecture will cease to have a definite function. We cannot deny that the engineer can construct without an architect, that the builder

can build, and that the decorator can decorate without an architect. The architect's province and logical function are to direct the efforts of these various specialists, and through the medium of his general solution of a building problem produce a structure that meets definite requirements. He must have a broad understanding of the architect's real function; he must have a knowledge of modern methods and materials that will organically connect him with modern building. Disproportionate emphasis on pure design and too close study of building methods and instincts of the past will develop only academic knowledge. These problems are first met in actual practice; it is, therefore, from this experience that the requirements for successful training must be relayed to the schools. This means co-operation between the profession and the schools, and this element is too often lacking.

A definite example of one way to accomplish this co-operation is shown by the architects of Boston. Boston has always been favored in architectural education by the presence of the two schools of architecture at the Massachusetts Institute of Technology and at Harvard University. An enterprising atelier has also been conducted at the Boston Architectural Club, for the younger men working in the offices, and the atelier and the schools in past years have frequently collaborated on design problems to mutual advantage.

These facilities have served well for the younger student, but there has been no opportunity of giving the students the benefit of association with older men, nor has there been enough opportunity for the man past student age to profit from teaching as it is worked out in the great French schools.

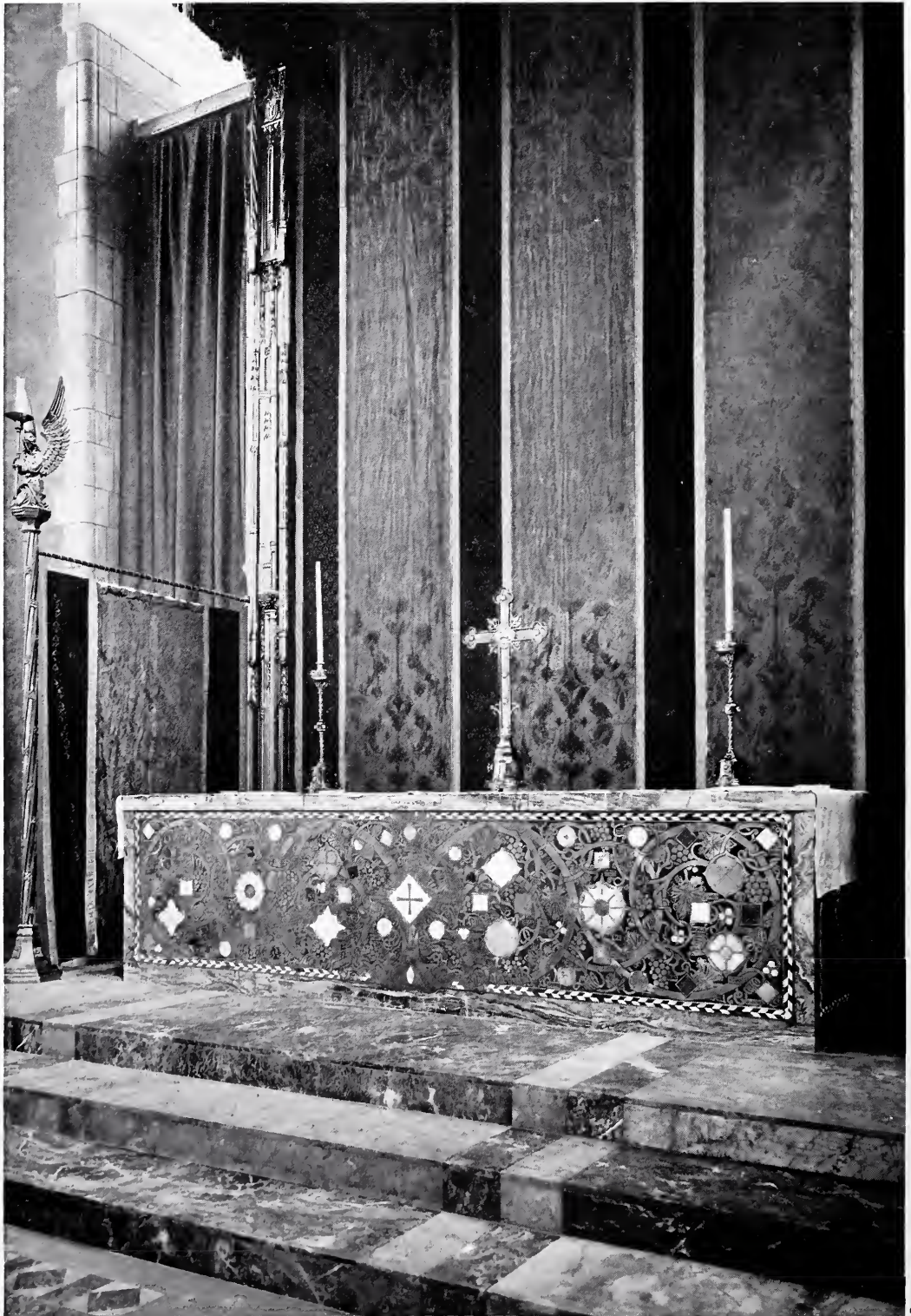
The Committee of Education of the Boston Society of Architects has now arranged with the two professional schools for a revision of schedules that will permit students to continue their relations with their parent schools for the years immediately following their graduation. To encourage this movement back to the schools, the Boston Society of Architects has announced, as part of its annual competition, a prize of \$150 "to go to the best project presented by a regular or special student at Harvard, Technology, or the Boston Architectural Club, or to any former student (not necessarily a graduate) who has been out of school for not more than five years. All projects must be done at one of the three schools."

Many of the Boston offices have agreed to permit their draftsmen to participate from time to time in this work, and the results are expected not only to strengthen the men who take up the opportunity, but to strengthen the schools as well.

DECORATION *and* FURNITURE



A DEPARTMENT
DEVOTED TO THE VARIED
PROFESSIONAL & DESIGN INTERESTS
WITH SPECIAL REFERENCE TO
AVAILABLE MATERIALS



AN ALTAR TREATMENT WITH AMERICAN FABRICS
EXHIBITING MASTERLY SCALE
BERTRAM GROSVENOR GOODHUE, ARCHITECT

A Plea for the Architect's Interest in Textile Fabrics

III. FABRICS AVAILABLE IN SHOPS TODAY

By HORACE MORAN, *Interior Decorator*

THE patrician of early Greek and Eastern civilization and his counterpart down to the nineteenth century were the only secular patrons of the textile arts in the past. The religious organizations were the other important factor in their encouragement. It was this and the possession of only the hand loom which have resulted in the production of all the great forms of woven material which have yielded to us such a wealth of decorative fabric documents, the source of inspiration for these days of quantity production. Since the introduction of the power loom the producers have been well occupied in applying this inheritance to modern needs, both by reproducing the costly weaves and adapting their designs to the more common materials.

The simplicity of democracy, perhaps somewhat of a pose in matters æsthetic, has given rise to a great variety of simple textiles, not affecting the costly weaves, but made to look the modest rôle they play and adapted to the modest homes they would grace. It is worthy of note that the Greeks of

the classic period boasted just such simplicity in their fabrics, particularly for garments, which were purged of the florid and resplendent design of their Eastern neighbors. This reverting to the simple with us is a natural reaction following a period of debauchery in design, during which the gorgeous and pretentious ruled, regardless of real æsthetic merit. We are now treading more cautiously the field of design, and with the encouragement of the architect and the cultured client we may forget our upholstered past and use the art of the weaver to cheer interiors and not to smother them.

In this train of thought, one is tempted to consider the trend of interior design in general, so closely are the decorative fabrics related to the subject. Just one thought in this direction. The home decorated with elements so simple that the interior effect is grasped at a glance is devoid of interest, is created without imagination, and shows the influence of the thousand and one magazine articles on "how to decorate the home"; it looks like the show-



A Splendid Use of Tapestry on Furniture, the Decorative Value of Which Is Enhanced by the Marble Walls

Charles A. Platt, Architect

room of a dealer in house furnishings, and satisfies the mind of the dweller therein only because his æsthetic sense became atrophied in youth.

The many irrational and conflicting "schools" of art of recent years have led the confiding public into such confused emotions that it is a joy to see the reaction setting in in favor of a substantial, rational art, strong in a creative sense and with the rich background of tradition. This is manifesting itself in the fabric world and meets with the approval of all sane designers. There is a marked drift toward fullness of color and design, making interiors it is a pleasure to enter, and which always increase in interest like an often-heard symphony.

But to return to our subject. We are also passing beyond the era of shop tradition, when we were the victims of the upholsterer and curtain maker—a time when the drawing room window was draped with elaborate creations of plush with great and fearful fringes and tassels. This over-garment partly exposed two layers of gorgeous lace, and such an

arrangement was considered quite correct and loudly proclaimed the financial standing of its owner. The chair of that period was upholstered, plump and bulbous, and boasted fringes like the mane of an Assyrian lion; he was indeed fleshy who could sink the springs to any degree of comfort. The walls, not hung, but covered with silk drawn taut

over a padded lining, completed the picture. This in England, the mid-Victorian, was with us the "Grant" period. Today the designer instructs the mechanic how to arrange the curtains, selects not only the fabrics, but the fringes, the linings, and hardware, and finds all this as important for his composition as the details he gives to the cabinet maker.

There is a much-used piece of furniture of today for which there is no precedent in the past. This is the "all-upholstered" chair or sofa. Designers have for the past 30 or 40 years tried to add to this details of exposed wood frame in an effort to give it the character of some particular period of design. The shops are full of such creations, and they are sure to be found in the homes of those who know nothing of design and do not seek professional advice. This all-upholstered piece of furniture is not to be condemned, for it is useful and need not be made to assert itself in an interior. The solution of the problem is the omission of all elaborations of outline in the upholstery, the suppressing of all exposed woodwork, and adding to what is a piece of furniture of great comfort a covering material not aggressive. The writer recalls the salon of a duquesa at Madrid filled with gems of the



A Generous Use of Printed Linen for Curtains Rich in Colors and Almost as Effective as Tapestry. Horace Moran, Decorator



A Window Treatment Showing the Value of Scale in the Curtains
John Russell Pope, Architect



A Playful Use of Fabrics in a Room with Plain Walls
Cross & Cross, Architects

early Spanish crafts, one of the most interesting interiors in Europe, but with just such upholstered furniture for the comfort of her guests.

There are some things we overlook in the mad rush to execute work, but those who would employ textile fabrics effectively should never forget, first, that a wall hung with a fabric is usually more impressive than a wall upholstered; second, that a window should be hung with real curtains, not cluttered with meaningless drapery; third, that doorways between rooms are seldom improved by adding curtains, and fourth, that a chair seat looks and is more comfortable if concave and not convex, and that a loose cushion, the earliest form of upholstery, is always decorative and inviting.

To conclude, it would seem to be appropriate to give the reader a list of all the available fabrics to be had in shops of the dealers. This, however, would be beyond the range of a magazine article, and the list here given is made up of a few items from stocks that can be found at any important dealer's show rooms, showing how extensive is this field. The names designating the fabrics in each instance create as distinct an image in the mind of designers accustomed to using fabrics as would a list of the members of a classic entablature to the architect. For curtains or upholstery there are such materials as Atsbury Velvet, Antique Mohair, Belgravia Velvet, Bradford Repts, Cordova Velvets, Jaspe Cloths, Radnor Cloths, Satin Directoire, and so on. Of materials that may only be

used for curtains, there are Burma Cloths, Ming Toy Silks, Tanjore Gauze, Watteau Repts, and Sunfast Super-Kopocks.

The professional world can hardly be expected to appreciate the development of textile manufacture in this country. We are now producing every kind of decorative fabric, and can boast excellent velvets, damasks and tapestries, as well as the many varieties of less costly materials. One of our difficulties in the past was the making of enduring dyes of subtle colors, but the demand for this essential quality in fabrics is meeting with a willing response on the part of the producers. We must encourage the American mills with our patronage, and freely admire and boldly con-

demn where merit and failure warrant it.

The illustrations of interiors accompanying this article reveal an effort not to burden the composition with an excess of fabrics, but rather a natural placing of such materials where they will be of use and gracefully lend their decorative value to the interior.



A Room with All the Fabrics Plain, the Walls Giving Sufficient Play of Detail
John Russell Pope, Architect



A Rational Window Treatment with Curtain Poles in Pockets
CROSS & CROSS, ARCHITECTS



This Room of Marble Would Have Been Less Impressive with Other Than a Simple Treatment at the Windows
CHARLES A. PLATT, ARCHITECT

Some Furniture by Duncan Phyfe

EXHIBITION AT METROPOLITAN MUSEUM

INTEREST in early American furniture, already greatly encouraged and strengthened by study of the permanent collections of the Metropolitan Museum of Art, is being further stimulated by an exhibition, from October 16 to December 15, of a group of more than 100 examples of furniture from the workshop of Duncan Phyfe, the New York cabinet maker. The pieces exhibited have been loaned by different friends of the museum from their private collections, and although they show a broad range of design they have been limited to what are considered the best years of Phyfe's period, before 1825.

Unlike all the other earlier makers of American furniture, Phyfe stands out clearly, and enough remains of his authenticated work to make possible the assigning to him of a definite place among American craftsmen. A Scotchman by birth, Phyfe came to this country about 1783 and settled in New York soon after 1790. Even the most casual study of his work will show that Phyfe worked in the style prevalent in England during the latter part of the eighteenth century. At first his design was almost purely Hepplewhite or Sheraton, but early in the nineteenth century the influence of France, which was powerful in New York at that day, brought him into contact with certain elements of directoire, consulate and early empire origin. These French influences he absorbed, and combined French forms



Armchair by Duncan Phyfe
Showing Sheraton Influence

gracefully with the English types in which he had theretofore worked.

The pieces assembled at the Metropolitan fall readily into certain well defined groups. Phyfe's furniture consisted largely of chairs, sofas, and particularly of tables. He is not known as a designer of what is sometimes called "case furniture," such as sideboards, chests of drawers and other pieces made up chiefly of drawers, but a few pieces such as dressing tables, sewing tables and sideboards are in existence. Among the side chairs which are shown in this loan exhibition many are designed in a manner which plainly shows Sheraton influence, having horseshoe seats, reeded

diagonal or curved cross-bars in the backs, and reeded seat-rails and legs. Another type, slightly different, retains the back and seat of the type just described, but the front legs are reversed curves, their outer surfaces adorned with acanthus leaves. The most typical of Phyfe chairs, the type with which his name is perhaps chiefly associated, exhibit full and unmistakable directoire influence with a lyre back and with legs carved in either dog foot or acanthus pattern, and still another type employs legs similarly ornamented but includes a slat in the back, made up of an oval medallion set between carved scrolls. Chairs of these varieties are found with arms, although they are rare.

As has already been suggested, Duncan Phyfe's



Dressing Table by Duncan Phyfe



Small Table with Reeded Legs

fame rests very largely upon the designs of his tables, and they may be divided into three groups according to structure: tables supported upon legs at the corners; those supported at the ends upon coupled colonnettes or else upon lyres, and those resting upon pedestals. The type first mentioned stands upon reeded legs which are straight or, as in one rare and possibly unique example, upon legs made up of reverse curves, carved with the dog foot or acanthus, these supports being quite similar to those which he often used for his chairs. Of the type which employs a pedestal there are three well defined varieties. One is that designed with a small platform which is supported upon four gracefully curved legs which are often reeded, generally terminating in a metal end or sometimes in a carved foot; this platform in turn supports crossed lyres which form a kind of pedestal upon which rests the table top. Another type, quite similar, retains the platform and curving legs, but instead of crossed lyres has four colonnettes which support the table top. The third type, used for large as well as for small tables, has the top supported upon a pedestal which often assumes the shape of an urn, from which legs carved in various spirited designs—three or more frequently four—curve outward.

The French influence which lent so much of charm to Phyfe's work during what has been described as



Small Table with Lyre Pedestal
From Workshop of Duncan Phyfe

his golden period led finally to the marring of the beauty and delicacy which marked the purity of his style, for the American following of French taste extended even to acceptance of the styles of the empire when its solid, heavy forms came into vogue. Perhaps, like Chippendale and many another furniture maker before and since, Phyfe was forced against his better judgment to cater to the prevailing taste, and to design furniture in what he knew to be a debased style. His following of empire fashions was much simplified, it is true, and his ornament was handled in a somewhat restrained manner with only moderate use of decoration of gilt bronze. His furniture of this period appears to strive in a pathetic way to adhere to what might be called the letter of the empire style, while doing violence to its spirit by lightening and refining its heaviness and vulgarity—an effort, perhaps, upon the part of the student and follower of good taste to steer a middle course through the perils of a dangerous period. The effort may have proved to be too great, or possibly he was unable to check the tendency toward even more vicious design, for with the coming of black walnut and all that the name implies, Phyfe entered with the public of his day upon the downward path of bad taste, from which there was no return. Phyfe is known, happily, by only what he produced during his best period.



Typical Phyfe Work Table and Side Chairs Showing Slats with Medallions and Scrolls

A Little Writing Room at the Hampton Shops

ONE of the most delightful phases of the decoration of Louis XV days is shown in this little personal library, photographed at the Hampton Exhibits. The paneling of carved French oak and the draperies of interesting old Chinoiserie patterned French brocade are unusual, while each piece of furniture is an example of exquisite carving or marqueterie which has been chosen and arranged with that consideration of balance and scale as well as convenience of use which characterizes each Hampton interior.

Hampton Shops

18 East 50th Street
facing St. Patrick's Cathedral
New York



Decoration · Antiquities · Furniture



The Hampton Exhibits occupy this entire building. No branches or associated companies.

TODHUNTER

WOOD & MARBLE MANTELS



Replica of a fine Georgian mantel, with hand-onely chased burnished steel register grate

FIREPLACE EQUIPMENT

HAND FORGED METALWORK

ARTHUR TODHUNTER, 414 MADISON AVE., NEW YORK



ROOKWOOD

POTTERY AND TILES

Pottery is an ideal gift. Our agent in your vicinity can supply it, or write direct.

THE ROOKWOOD POTTERY COMPANY

Architectural Dept., Cincinnati, Ohio



NATTIER. MADAME SOPHIE DE FRANCE
(Versailles)

Size of colour surface, 19 x 15 inches

Price, \$7.50

One of nearly 250 exact facsimiles in full colour of great paintings by great masters reproduced direct from the originals in the world's galleries and private collections.

Your art dealer will show you The Medici Prints.

"What Is a Medici Print?"

THE MEDICI SOCIETY EXISTS IN ORDER TO PUBLISH THE FINEST FACSIMILE COLOUR REPRODUCTIONS OF GREAT PAINTINGS—of which modern photographic methods are capable—AT THE LOWEST PRICE COMMERCIALY POSSIBLE. As to its success in fulfilling this programme the Society may quote Mr. Ralph Adams Cram, who, in the course of a recent statement concerning the primary necessity of training the general public in appreciation if we are to have artists to appreciate, says of The Medici Prints:

"The power of a great picture is an eternal power. . . . Yet very few can go to Florence or Belgium, and a photograph means nothing except to those who have seen the originals. These new facsimiles are in quite a different class, and I cannot see why they should not serve a brilliantly useful purpose in bringing a great part of the vital beauty of the far original to those who cannot seek it out in its distant shrine.

"It is astonishing how faithful is the reproduction I confess these colour-prints give me much of the poignant thrill of the originals.

"It seems to me that these prints should be used in every school-room. A half-dozen would do incalculable good in bringing a sense of beauty into the lives of children, and so help them to achieve a better standard of comparative values.

"Of course all this applies equally well to the home . . . since these Medici Prints became available."

Send stamp for complete list and information about THE MEDICI PRINTS and our other publications.

Publishers for the United States of THE BURLINGTON MAGAZINE FOR CONNOISSEURS, recognized as authoritative on questions of Art and Art History.

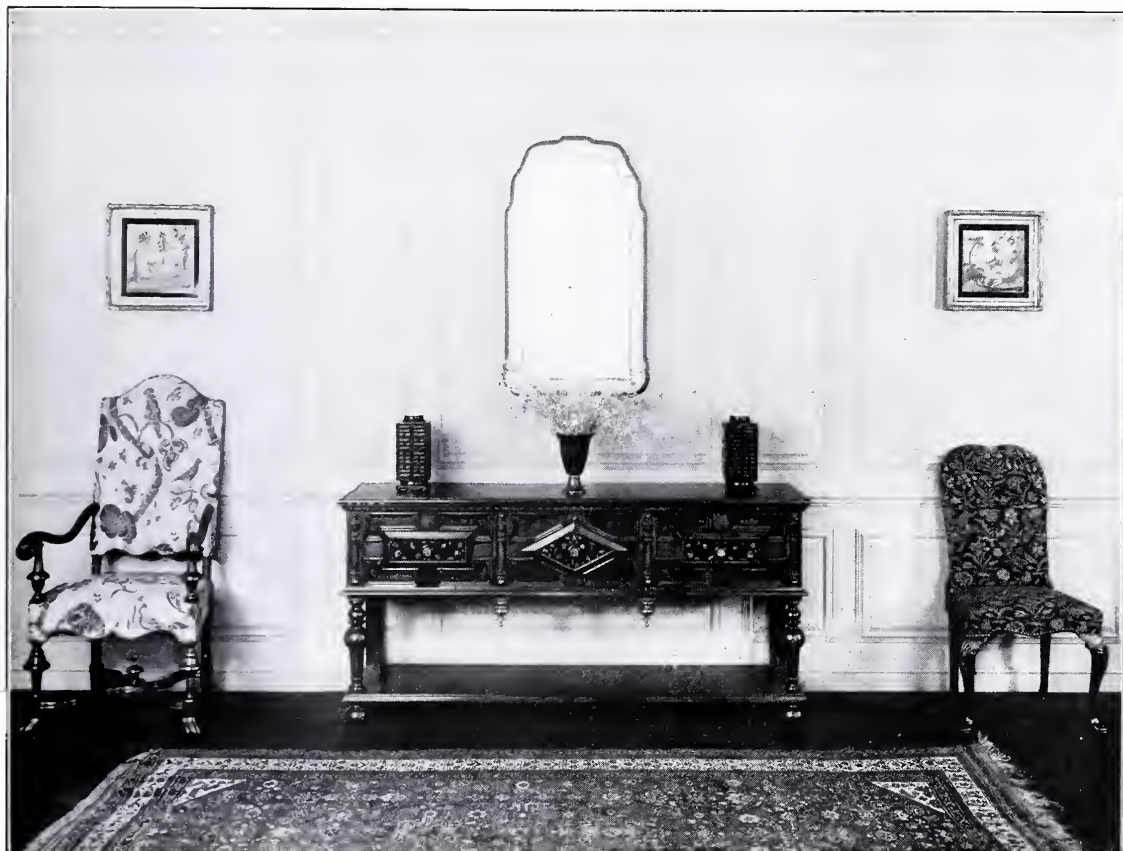
Among the subjects dealt with are: Architecture, Arms and Armour, Bronzes, Oriental Carpets, Chinese Porcelain, Embroideries and Lace, Engravings, Furniture, Miniatures, Paintings, Sculpture, Silver and Pewter, Tapestries, etc. A Classified List will be sent on request.

Illustrated. Published monthly. Per copy, \$1.00; by the year, \$9.00. Sample, 75 cents



The Medici Society of America
Book and Art Publishers
745 Boylston Street, Boston

KENSINGTON FURNITURE



*A Wall in the Showrooms
English walnut furniture, by Kensington
Circa 1680-1715*

STRANGELY enough there was little of the classic in the Dutch influence which dominated furniture design during the fifty years, from 1668 to 1718, when under the leadership of Sir Christopher Wren the Palladian tradition was firmly established in England. Yet a common appreciation of good proportions and the value of simplicity in the treatment of flat surfaces brought the furniture into harmony with its architectural background.

Due to this variety in design motive there is a

freedom from stiffness in these dignified interiors that makes the style especially appropriate for important rooms in which a homelike, livable quality is desirable.

Kensington reproductions include numerous examples of this interesting furniture, authentic in every detail of design and retaining through the old-time hand processes of the Kensington craftsmen the character and the decorative quality of old work.

Architects interested in completing the interiors they design with furnishings harmonious in both character and quality are cordially invited to avail themselves of the service of the Kensington Showrooms and staff

Illustrated booklet F sent on request

SHOPS
EAST END AVENUE
79TH STREET

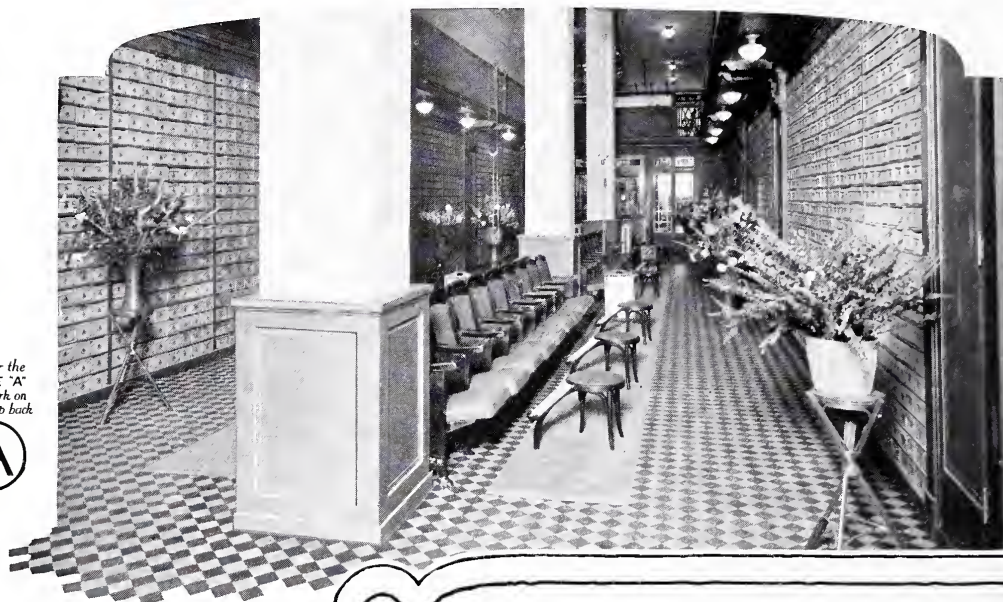
WHOLESALE SHOWROOMS
14 EAST 32ND STREET
7TH FLOOR

KENSINGTON COMPANY
MANUFACTURERS AND IMPORTERS
FINE FURNITURE AND ART OBJECTS
NEW YORK

Armstrong's Linoleum

for Every Floor in the House

Look for the
CIRCLE "A"
trademark on
the burlop back



The floor of this handsome new store in Portland, Ore., is a three-inch black and gray tile pattern (No. 201) in Armstrong's Straight Line Inlaid Linoleum.



STAIGER SHOE STORE
Portland, Oregon

1500 sq. ft. Armstrong's Straight Line Inlaid Linoleum, No. 201 laid. Specified by Strong & McNaughton. Installed by Cork Floor Products Co.

FREE MODEL EXPLAINS LAYING

A small model, as illustrated here, will be sent to any architect who is interested in better linoleum floors, laid by cementing over a lining of deadening felt. Ask on your letterhead for the model and the layer's book of instructions, "Detailed Directions for Laying and Caring for Linoleum."

Complete specifications for installing linoleum by cementing over felt are given in the sixteenth edition of Sweet's Architectural Catalog, pages 441-445.



Linoleum, the Floor for Up-to-Date Stores

DO you still think of Linoleum as an old-fashioned floor covering? Or are you acquainted with modern linoleum, handsome in design and installed as a permanent floor.

Here is a splendid example of the present-day use of linoleum—in a high-grade shoe store. This linoleum floor was laid by the contractor when the room was outfitted, as much a part of the store as the mahogany shelving or the lighting fixtures.

A well-chosen, good-looking patterned linoleum not only makes for greater cleanliness and sanitation, but is a positive sales asset as well. People like to trade where all the appointments are in good taste.

There are designs in Armstrong's Linoleum appropriate for any type of business floor—store, shop, restaurant, office. "Business Floors," a forty-eight page book showing designs in color and giving complete directions for installing and taking care of linoleum floors, will be mailed to any architect, free, upon request. Ask for a copy on your letterhead.

Armstrong Cork Co., Linoleum Division, Lancaster, Pa.

F-SCHUMACHER & CO.



INDO-CHINESE SCENES

An achievement in tapestry reproduction



In this room in Lady Sackville's London house, hangs one of the original Soho tapestries which Schumacher has reproduced so successfully. This particular one is the original of the reproduction illustrated above.



The original Soho tapestry of which the one illustrated here is a reproduction is one of a group of eight panels probably executed in the early eighteenth century by the famous Flemish artist, John Vanderbank.

Two of the originals were lost track of many years ago. The remaining were formerly owned by Elihu Yale in England, founder of Yale College. Today they form important historical groups in Lady Sackville's London house and in the South Kensington Museum.

Six of these Soho tapestries have been reproduced in France for F. Schumacher & Co. Hand made, in a very fine point, these reproductions skillfully preserve the unique charm and unusual color variations in the backgrounds which so distinguish the originals. The Schumacher reproductions of four of these tapestries are landscape size, 6' x 9', and the other two are uprights, 9' x 7'3".

In addition to these tapestries, Schumacher has reproduced many other beautiful designs of the same period including Louis XIV "Apollo and the Muses" panels and a set of Georgian panels, as well as other tapestries in various sizes. These may be seen in their New York office.

F. Schumacher & Co., Importers, Manufacturers, Distributors, to the trade only, of Decorative Drapery & Upholstery Fabrics, 60 West 40th Street, New York City. Offices in Boston, Chicago and Philadelphia.

PERPETUATING IDEALS

THE ARCHITECT recognizes beautifully carved wood as the most appropriate medium for the adornment of the church interior.

He will find our Wood Carving Studios ready to co-operate with him to any degree in the interpretation and faithful execution of his designs and specifications; or in designing fitments to conform with his architectural treatment.

Our recently published book, "Ars Ecclesiastica," contains illustrations of memorials and other church interior work in carved wood. The architect's request for a copy will bring him a useful addition to his reference library.

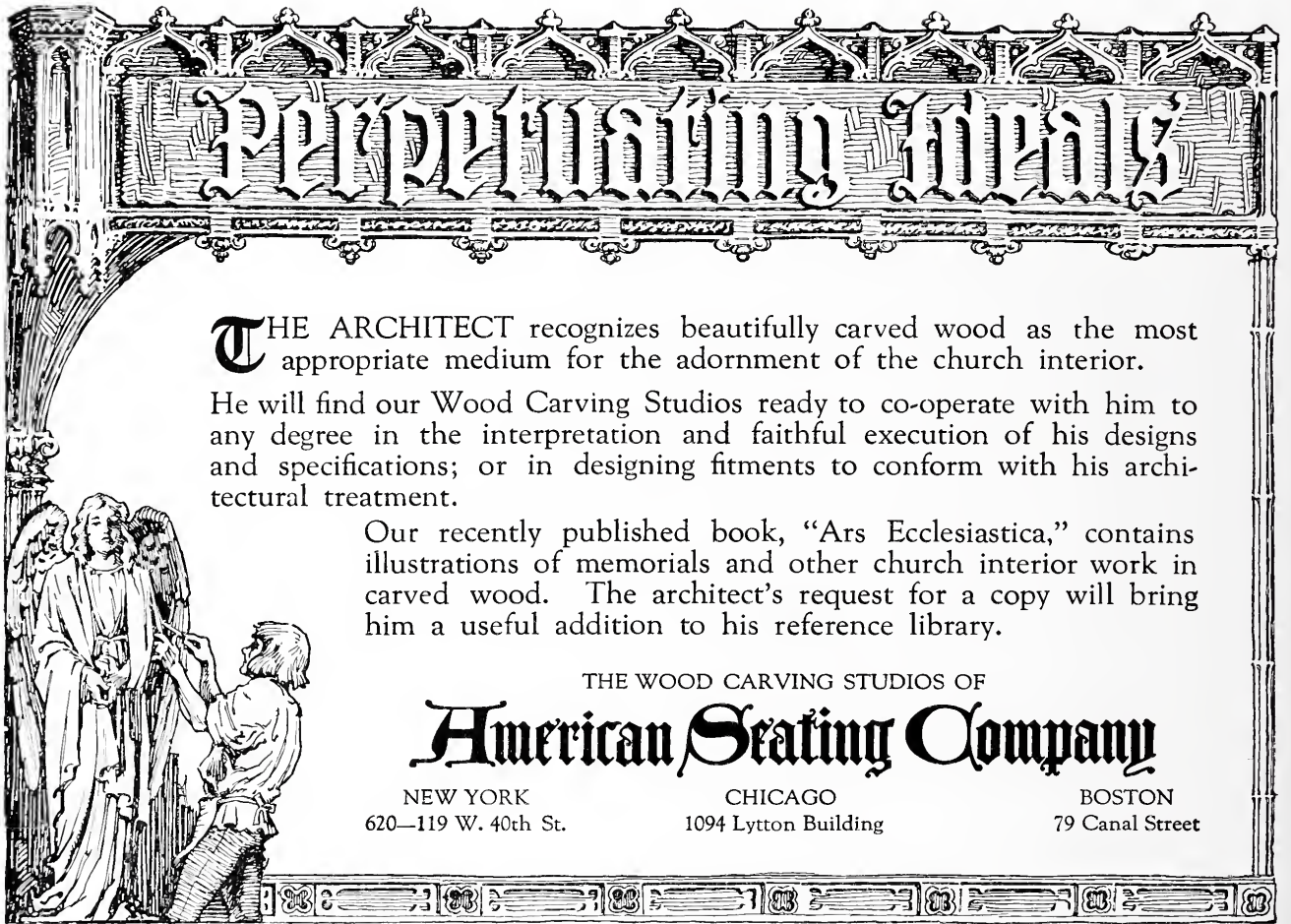
THE WOOD CARVING STUDIOS OF

American Seating Company

NEW YORK
620-119 W. 40th St.

CHICAGO
1094 Lytton Building

BOSTON
79 Canal Street



Individualism in Good Furniture



Why Furniture Is Important

BECAUSE furniture is one of the first things noticed upon entering a room it is important that it should be in absolute good taste.

Architects who gain success by careful attention to such important details are particular to select the furniture personally from the artistic models of Elgin A. Simonds Co. Furniture. For large commissions special designs are created to give an original tone to the seating equipment.

Write for interesting Booklet "M" which deals with interior design



The
Elgin A. Simonds
Company
Manufacturers of Furniture
SYRACUSE, N.Y.
NEW YORK BOSTON CHICAGO



Salesrooms of Hess, Goldsmith & Co., New York. *Gold-Seal Battleship Linoleum* laid by Douglass-Lynch, Inc.

THESE are attractive salesrooms—and *Gold-Seal Battleship Linoleum* helps make them so. A glance at the pictures will show how the expanse of linoleum sets off the lighter tones of the walls—forms an effective background for the artistic details and furnishings.

Gold-Seal Battleship Linoleum is practical as well as beautiful. It is sturdy and durable, quiet underfoot, and easy to keep clean. Installation cost is low; costly refinishing never necessary.

If you are interested in attractive, efficient and economical floors, write us. We will gladly send you samples, give you more information, and tell you where you can get estimates.

CONGOLEUM COMPANY
INCORPORATED

Philadelphia New York Boston Chicago San Francisco Kansas City
Minneapolis Atlanta Dallas Pittsburgh Montreal



The dark grey linoleum is in pleasing contrast with the mottled walls, dark wood trim and fabric rug.



These floors get hard wear. But *Gold-Seal Battleship Linoleum* combines maximum service with maximum good looks.

GOLD SEAL Battleship Linoleum

(THE FAMOUS FARR & BAILEY BRAND)

Made According to U.S. Navy Standard.



The *Gold-Seal Guarantee* pasted on every roll identifies all genuine, guaranteed *Gold-Seal Battleship Linoleum*.



Residence of S. D. WEIL, Cleveland, Meade & Hamilton, Architects

CRITTALL

Steel Casements

for substantial, artistic buildings

*Made in varied designs
to meet all conditions*



ENGLISH CASEMENTS
and WINDOWS for
BANKS, OFFICES, SCHOOLS,
HOSPITALS, etc.

CRITTALL CASEMENT WINDOW CO., *Manufacturers*,—DETROIT



Modern Lounge Chair with loose seat and back cushions. Pattern 555. Height, 36 inches; width, 34 inches; depth, 33 inches.

Upholstered Furniture

*excelling in quality of
Materials
Workmanship
Design*

OUR upholstered furniture will stand the careful scrutiny of architects and decorators on these three vital points.

From the standpoint of design we take particular pride in producing furniture that merits use in some of the finest architectural interiors of the day as evidenced by installations both large and small.

PHOTOGRAPHS

We will gladly send photographs of furniture to interested architects and decorators, and welcome correspondence detailing their problems. Our facilities are also available for special work from the designs of architects or decorators.

SMITH & JONES

Showrooms

216 East 37th Street
New York, N. Y.



Directors' Room
First National Bank
Detroit
Architect
Albert Kahn, Detroit
Woodwork
Matthews Bros.
Milwaukee

N U M B E R F I V E O F A S E R I E S

LIBERAL USE IN MODERN ARCHITECTURE

The entire style of this bank building is Italian Renaissance. This room is floored with dust-proof concrete, with a border of inlaid polished oak, and a heavy chenille rug.

The walls and doors are of carefully matched American Walnut. The ceiling is white plaster, moulded in classic figures. The moulding is a very simple serrated design, also in walnut. The low baseboard and the fireplace are old Virginia marble, dark green, the fire bricks arranged in a herring-bone pattern. There are two Colonial mirrors, one shown in this picture.

Daylight comes from two large windows at the right. The large Directors' table used in this room is American Walnut, as are the chairs, which are upholstered in dark green Russian leather. The radiators are enclosed in wall cabinets with grated walnut doors.

Leading American architects of today, as their forerunners of all ages, find Walnut the most satisfactory medium for the expression of their decorative themes in wood, combining, as does no other cabinet wood, the quadruple advantages of being light, durable, stable and beautifully figured.



"The Walnut Book" Will Interest You

An accurate treatise on the history and development of Walnut in interior woodwork and furniture, containing some unusual half-tone illustrations, mailed free to architects, architectural firms, schools, teachers or societies.

American Walnut Manufacturers' Association
Room 1000, 616 South Michigan Boulevard, Chicago, Illinois



Use
PLATE
Glass

A mirror for balance

IS there a true lover of artistic achievement in home design who doesn't love the enchanting illusion of the mirrored door? First, the subterfuge of a puzzled architect, but now the artifice of artistic effect in planning interiors.

Seemingly something that it isn't, the mirrored door may add a witching air of mystery. It may hold the secret of balance essential to a restful room. It may compensate a window or a door, or break the tiresome space of blank walls.

A mirror is something more than merely an article of furniture to be hung up. Considered in the building of house or apartment, and in the hands of a skillful artist, it may play an important part in the architectural scheme.

Plate glass mirrors made in America are unsurpassed in brilliance, clearness

and flawless perfection. They are made of selected plate glass silvered with the greatest care by skillful workmen.

Specify plate glass mirrors in bedroom doors, closet doors, bathroom doors, medicine-cabinet doors, over the mantel and paneled French doors. If properly installed, built-in plate glass mirrors will last the life of a house without discoloration. They are made for permanency.

A well-designed house, the pride of its owner and builder, deserves nothing less than plate glass in its windows. Its beautifully polished surfaces and crystal clearness make all the difference in the world in the external appearance of the house. Yet the difference in cost between plate glass and common sheet glass is surprisingly small. Get comparative figures from any glazing contractor or builder.

PLATE GLASS MANUFACTURERS of AMERICA



Genuine
PLATE GLASS



**Nothing Else
is Like it**

*Plate Glass is best
for:*

Hotel, Office-
Building and
House Windows
Windshields
Closed Car
Windows
Desk Tops
Table Tops
Window
Ventilators



"I AM DELIGHTED with Arkansas Soft Pine woodwork — it is the ideal wood for white enamel. We have lived in this home over twenty years and there is not a single sign of discoloration or raised grain in any of the woodwork. Moreover, it cost us just about half the price of other materials often considered as indispensable to a successful white finish."

Arkansas Soft Pine

SATIN-LIKE INTERIOR TRIM

makes a *permanent friend* of every owner, builder and architect who installs it. It is the one moderate priced woodwork of such physical character as assures lasting satisfaction.

Arkansas Soft Pine is the logical woodwork for homes of every size, apartments, offices, and semi-public buildings. See Sweets Catalog and American Architect Manual for specifications, etc.

LITERATURE AND SAMPLES ON REQUEST

Arkansas Soft Pine is trade marked and sold by dealers East of the Rockies

ARKANSAS SOFT PINE BUREAU

1114 Boyle Building • Little Rock, Arkansas



Vine Street Public
School
Los Angeles, Calif.
Wilmer & Watson
Architects



Hoffman Casements

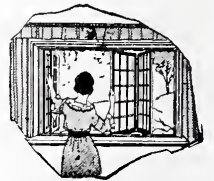
are efficient school windows because they operate easily, regulate ventilation exactly, admit maximum light, require no maintenance allowance and close weathertight.

THEY are suitable for general use in buildings of all types, especially hospitals, schools and dwellings.



Portfolio of Detailed Drawings mailed to architects upon request—Filing size

Andrew Hoffman Mfg. Co.
Hoffman Casement Window
900 Steger Building
Chicago



Write for illustrated booklet of interest to home builders



**INTERNATIONAL
CASEMENTS**
JAMESTOWN, NEW YORK
+ SALES OFFICES +

NEW YORK CITY: 101 Park Avenue
BOSTON MASS: 49 Federal Street
ST. LOUIS, MO: Chemical Building
CHICAGO ILL: 58 E. Washington St.
SAN FRANCISCO CAL: Hearst Building
+ AGENTS IN PRINCIPAL CITIES. +



Specify

"Rogers" Metal Beds

YOU can be sure of obtaining the genuine Rogers Metal Beds if you specify "Rogers" in your contract for furnishing or re-furnishing.

You will not have the most economical, artistic and satisfactory metal beds unless you do specify "Rogers."

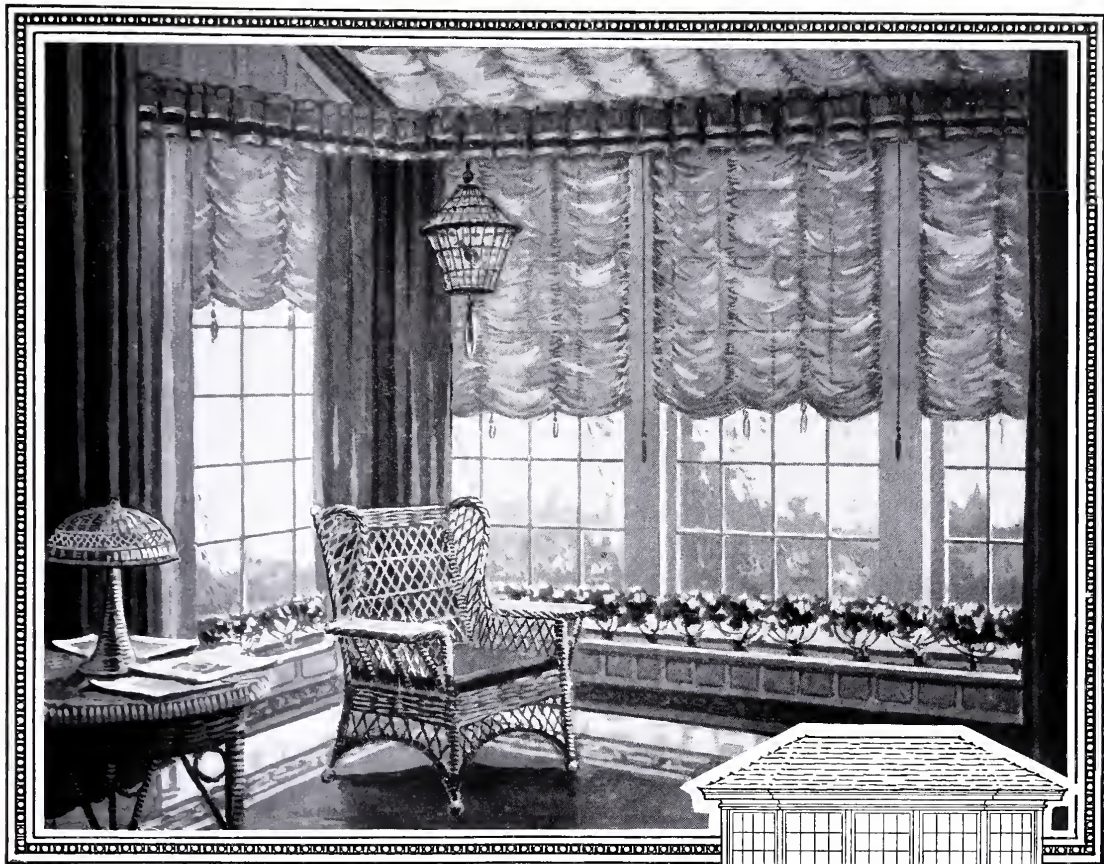
We will be glad to estimate for you direct. Let us know your present requirements!

Charles P. Rogers & Co., Inc.

Manufacturers of Upholstered Furniture,
Metal Beds and Bedding since 1855

16 East 33rd Street, New York





ARCHITECTURAL HOME MAKING

THE attractiveness of home life begins in the drafting room. Long after the fee is paid and forgotten the thoughtfulness of the architect is remembered.

It is notable how many sun parlors are added to houses long after they have been built. It is but the addition of something which had been forgotten.

There is an ever-increasing trend "sunward" towards the enjoyment of sunshine and air made possible by the judicious but liberal use of better window glass. Cater to the "sunward" movement and reward will follow; principles of health, sanitation and human happiness will have been recognized.

The Mark

On the Box

The long ellipse that appears on every box of genuine American Window Glass is an assurance of quality.

Within the ellipse is the grade mark, A or B. The B glass is of as consistently high quality as the A grade of ordinary glass, and our A grade is correspondingly superior. Demand the beauty, clarity, evenness and strength assured by this mark on every box.



AMERICAN WINDOW GLASS CO.

GENERAL OFFICES: PITTSBURGH, PA.

BRANCHES IN PRINCIPAL CITIES



Kewaunee

LABORATORY FURNITURE

In planning Industrial Buildings, or in remodeling them, it is well to keep in mind that the present cycle of business is a highly competitive one. Manufacturers must be equipped for manufacturing with a higher degree of efficiency and for maintaining more uniform quality. In many industries, this presupposes

the installation of adequate Laboratory Equipment.

Because of our line of over five hundred standardized designs it is seldom necessary to plan special equipment if you choose Kewaunee. You will find that we have already met nearly every possible laboratory need with a standard desk, table, bench or sink.

Write for a copy of the Kewaunee Book and ask for details of our Free Engineering Service. Address all inquiries to the factory at Kewaunee

New York Office
70 Fifth Avenue

Kewaunee Mfg. Co.
LABORATORY FURNITURE EXPERTS

141 Lincoln St.
Kewaunee, Wis.

C. G. Campbell, Treasurer and General Manager
Branch Offices: Chicago, Minneapolis, Kansas City, Houston, Little Rock, Phoenix, Omaha, Jackson, Miss., Denver, Baton Rouge, La., San Francisco, Albuquerque, Columbus, Spokane, Oklahoma City, Greensboro, N. C., Salt Lake City, Toronto, Canada

If a client could read a few rough lines

IF your client could visualize a facade or floor plan from a rough pencil sketch, you could eliminate a lot of art work.

But usually he must have a carefully prepared drawing or water color, from the looks of which he is apt to estimate the value of your work.

A "rendering" on WHATMAN, because of the superfine quality of the stock, always appears richer than on any other drawing paper.

WHATMAN
Genuine Hand-Made Drawing Papers

Send for handy sample book of sizes, surfaces and weights—*free* to artists, architects and engineers

H. REEVE ANGEL & CO.
Incorporated

7-11 Spruce Street New York City



Chicago common brick walls finished with Cabot's Old Virginia White; roof stained with Cabot's Creosote Stains
E. Norman Brydges, Architect, Chicago

Another Beautiful Job of Cabot's Old Virginia White on Brickwork

The cheapest kind of common brick give unique and charming effects for residences when treated with two brush coats of old Virginia White. Brilliant white, soft texture, no "painty" effect.

Full information on request

SAMUEL CABOT, INC. Manufacturing **BOSTON, MASS.**
Chemists
342 Madison Ave., NEW YORK 24 West Kinzie St., CHICAGO
525 Market St., SAN FRANCISCO 331 E. 4th St., LOS ANGELES

Cabot's Creosote Stains, Insulating and Deadening Quilt, Brick and Stucco Stains, Conservo Wood Preservative, etc.



"Save the surface and
you save all" — *Paint & Varnish*

SOFT and restful—a finish that reflects the refinement and simple charm of true beauty. It is obtained with Dutch Boy White-Lead and Dutch Boy Flatting Oil. Dutch Boy flat paint is easy to apply, brushes out smoothly, and does not crack or scale. Economical because it spreads and covers in a superior way.

Write for Portfolio No. 2 concerning interior painting

NATIONAL LEAD COMPANY

New York Boston Cincinnati San Francisco
Cleveland Buffalo Chicago St. Louis

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

Dutch Boy Products for Interior Painting

Architecture and Finance

IN building construction, architecture and finance go hand in hand. Each is dependent on the other for results.

S. W. STRAUS & CO. cooperate with architects and builders in financing sound and profitable building operations, such as office and apartment buildings.

We are always in the market for construction loans on such properties, in the form of first mortgage bond issues, preferably in amounts of \$500,000 upward.

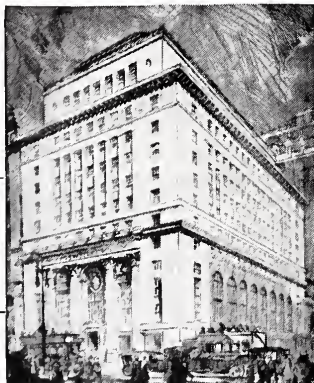
We invite inquiries for our booklet explaining the STRAUS PLAN and our service to architects. In writing, please specify

BOOKLET F

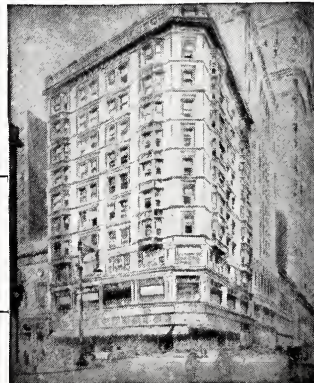
S.W. STRAUS & CO.

ESTABLISHED 1882 / OFFICES IN TWENTY PRINCIPAL CITIES / INCORPORATED

NEW YORK
Straus Building
Fifth Ave. at 46th St.



CHICAGO
Straus Building
Clark & Madison Sts.



SAN FRANCISCO—Crocker Building, Market and Post Streets

40 YEARS WITHOUT LOSS TO ANY INVESTOR

SERVICE SECTION of THE ARCHITECTURAL FORUM

Information on economic aspects of construction and direct service for architects on subjects allied to building, through members of THE FORUM Consultation Committee

The Building Situation

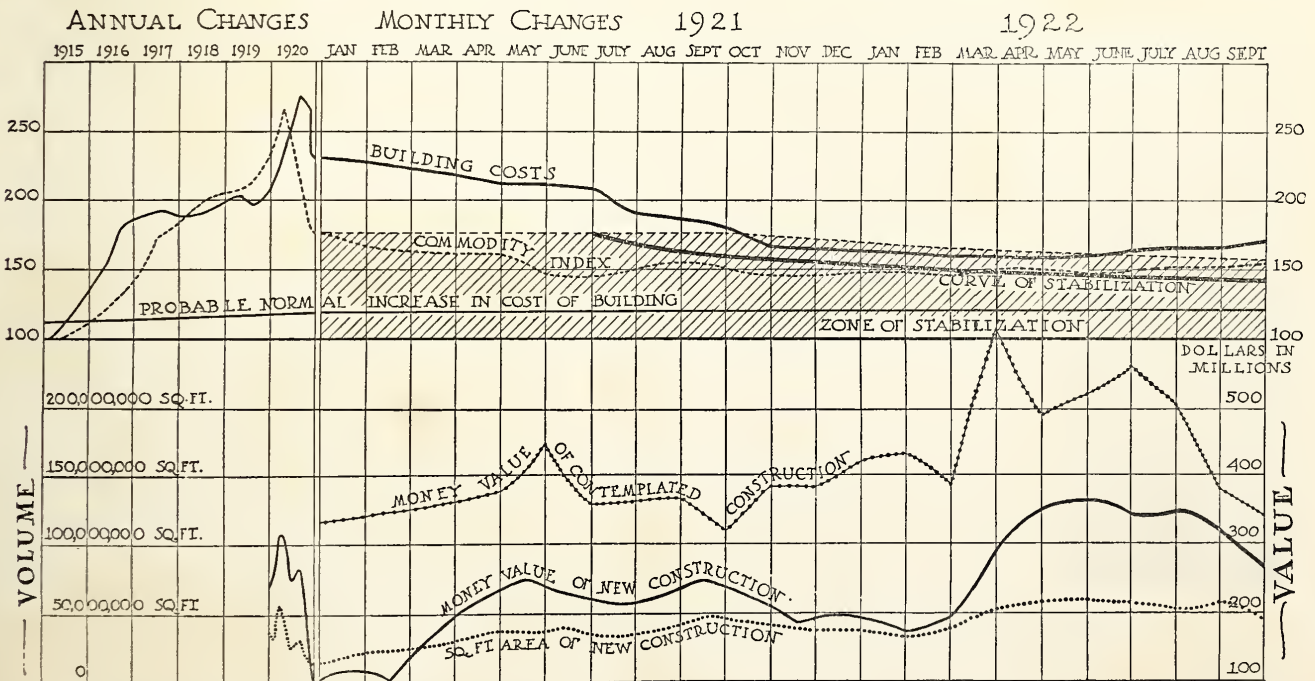
THE past few weeks have recorded only a slight decrease in the volume of construction, indicating that the drop recorded in August and September has been seasonal rather than primarily due to increased costs.

Residential construction is holding up well in volume, particularly in the small house field. An analysis of the rental situation as it affects apartment buildings shows that not for many years have there been so many vacant apartments on October 1 in our larger cities. Rentals are being maintained at high levels, however, principally to justify sales prices on buildings that have passed through speculative hands. The general trend of the housing situation indicates less activity in apartment building, but more interest in fine residences for next year. The building of moderate cost houses will undoubtedly be resumed actively early next year.

Engineering contractors report unusual activity

in power projects and electric service buildings. Architects are very busy in the middle west and many are active in the east, although general business activity for the architect has been somewhat slower to arrive in that section. The type of work under planning for next year is excellent.

There has been a sharp increase in the cost of building, probably greater than 10 per cent in the last few weeks. Active projects are now feeling this increase, and it is definitely evident as jobs are re-estimated. It is confidently anticipated that this is only a temporary condition, however, due to the coal and labor difficulties and the readiness of some material dealers and possibly some manufacturers to take advantage of logical excuses for price raising in the midst of heavy demand. In all probability the cost of building will resume a gradual downward trend by next spring, when production facilities will be greater than ever before.

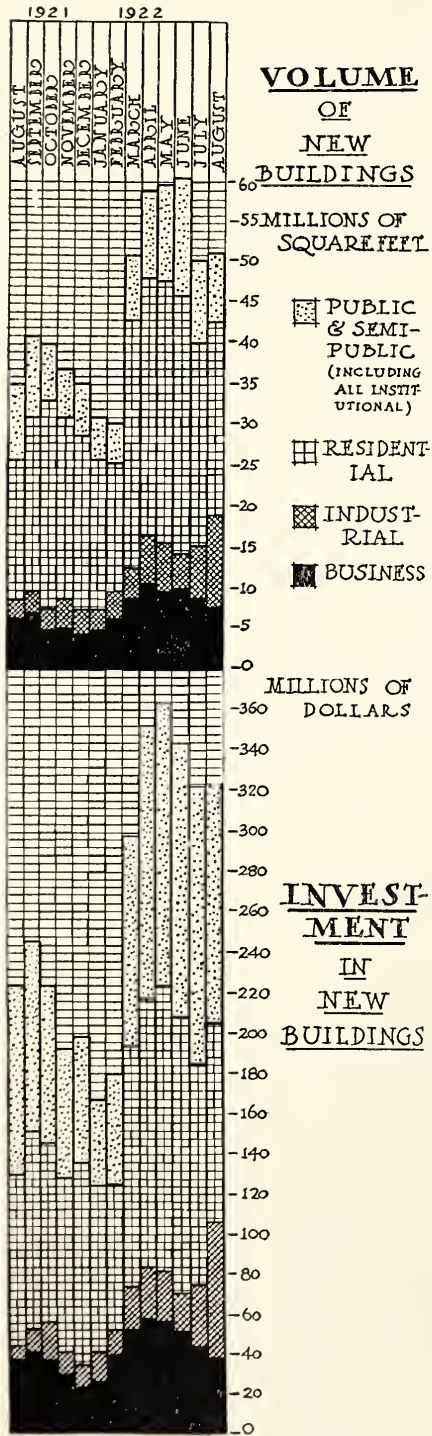


THIS chart is presented monthly with trend lines extended to the most recent date of available information. Its purpose is to show actual changes in the cost of building construction and the effect upon new building volume and investment as the *index line of building cost* approaches or recedes from the "curve of stabilization."

The *CURVE OF STABILIZATION* represents the building cost line at which investors in this field may be expected to build without fear of too great shrinkage in the reproduction value or income value of new buildings. The index line representing actual cost of building entered the *ZONE OF STABILIZATION* in the fall of 1921. If this cost line passes *out* of the zone of stabilization, building volume will decrease materially.

The degree of the curve of stabilization is based on (a) an analysis of time involved in return to normal conditions after the civil war and that of 1812; (b) the effect of economic control exercised by the Federal Reserve Bank in accelerating this return after the recent war, and (c) an estimate of the probable normal increase in building cost.

Factors of Fluctuation in Building Costs



Analysis of new construction showing comparative importance of major building types in volume and investment.

THE graphic chart at the right is presented for the purpose of showing fluctuations in the prices of a number of important building materials and in labor costs. These fluctuations cover a period of three months and are shown in each issue of the Service Section in order to make possible at least a partial analysis of the building cost trend line as shown on the preceding page.

While the volume and investment chart shows a continuation of the seasonal de-

Lumber

Price trend line based on soft wood price index presented by *Lumber*. This indicates price variation of yellow pine, Douglas fir, hemlock, N. C. pine, white pine, cypress and spruce

Steel

Structural shapes
Price per 100 lbs.

Reinforcing bars
Price per 100 lbs.

Cement

Price per bbl. without bags

Lime

Finishing
Hydrated, price per $\frac{1}{4}$ ton
Common lump
Price per bbl.

Brick

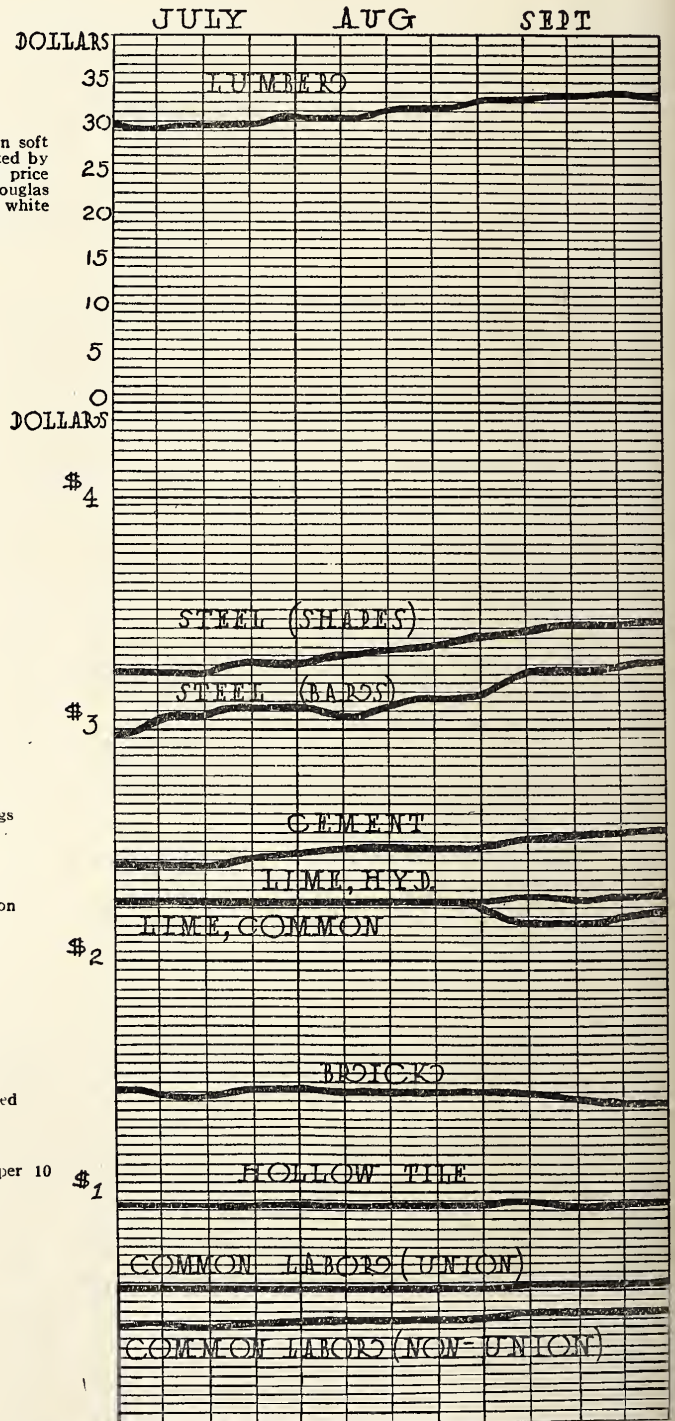
Common, per 100 delivered

Hollow Tile

Partition, 4 x 12 x 12, per 10 blocks

Common Labor

Union
Rate per hour
Non-union
Rate per hour



Figures used in developing all trend lines represent average prices to contractors in following cities: New York, Chicago, Denver, Seattle, Minneapolis, Atlanta, Dallas and San Francisco

cline and the effect of rising costs, it is interesting to realize that each month from July to September has shown a greater volume of construction than any similar month for many years past.

The trend of lines in the materials chart indicates basic reasons for the recent advance on building costs. As the winter season opens, practically all basic building materials and labor show a continued tendency to increase in price. It is confidently anticipated, however, that a reaction will

again turn the trend of building costs into the long downward swing which must certainly represent the future of this line.

Eradication of the after-effects of the recent coal and rail disturbances will contribute definitely to this result. In view of the curtailed production of some commodities, notably lumber, because of the scarcity of cars, it is gratifying to note comparatively stable price conditions and indications that efforts are being made to prevent any "gouging" of the consumer.

THE FORUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

THE editors of THE ARCHITECTURAL FORUM have been fortunate in obtaining the co-operation of the following recognized experts who constitute THE FORUM Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries.

The basis on which this Committee has been organized is:

- (a) That each Committee member shall be a representative leader in his line;
- (b) That no Committee member has affiliations with any manufacturer;
- (c) That no Committee member will be called upon for detailed service excepting by special arrangement;
- (d) That a special editorial article on a subject represented under each of the headings below shall be prepared during the year by the Committee member.

SUBJECTS AND COMMITTEE PERSONNEL

FINANCE

WALTER STABLER

Comptroller, Metropolitan Life Insurance Co.

The largest institution in the United States making loans for building construction. Mr. Stabler's knowledge of building investments covers the country and is widely recognized.

CO-OPERATIVE FINANCING

FREDERIC CULVER

President, Culver & Co., New York

A specialist in the financing and development of co-operative house projects. Mr. Culver has successfully developed approximately 25 million dollars' worth of co-operative apartment houses. He is an attorney and has had long experience in financing and construction of this nature.

REAL ESTATE

C. STANLEY TAYLOR

Widely experienced in real estate development and financing, real property law, architecture, engineering and building construction. Financial and Business Editor of THE ARCHITECTURAL FORUM.

FIRE PROTECTION ENGINEERING

J. D. HUNTER

Chief Engineer, Marsh & McLennan, Insurance Brokers, New York

Specialist in insurance engineering as applied to building design, construction and equipment.

BUILDING MANAGEMENT

J. CLYDESDALE CUSHMAN

President, Cushman & Wakefield, Inc., Real Estate, New York, Vice President, Building Managers and Owners' Association of New York

Mr. Cushman's firm has participated largely in the promotion and operation of many large New York buildings. His specialty is the management of office buildings.

GAS SERVICE AND UTILIZATION

NILS T. SELLMAN

Service Engineer, American Gas Association

A specialist in problems pertaining to gas service and its use in all classes of buildings and industries.

HOTEL DESIGN AND EQUIPMENT

DANIEL P. RITCHEY

Known in the hotel field as the "hotel doctor." Mr. Ritchey, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

HEATING AND VENTILATING

CHARLES A. FULLER

Consulting Heating and Ventilating Engineer

Member of firm of Griggs & Myers, New York. Widely experienced in the field of heating and ventilating design for office buildings, institutions and industrials; specialist on investigation and report work on mechanical equipment for new and old plants.

ELECTRICAL SCIENCE

WILLIAM L. GOODWIN

Assistant to the President and in charge of activities of the Society for Electrical Development

This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

SAFETY ENGINEERING

S. J. WILLIAMS

Secretary and Chief Engineer, National Safety Council, Chicago

Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

FARM SCIENCE

FREDERICK WALTER IVES, B.S., M.E.

Professor and Head of Department of Agricultural Engineering, Ohio State University. Consulting Agricultural Engineer, Columbus, Ohio.

Specialist in land drainage, soil improvement, surveys, farm arrangement for economical production, purchase of equipment and economical layout of farm buildings with special reference to interior arrangement.

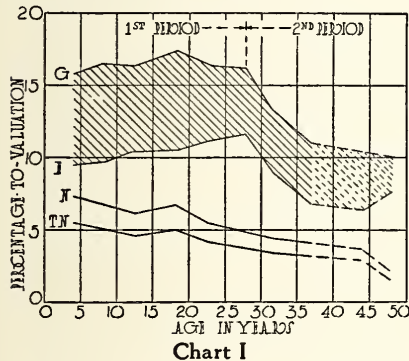
THE FORUM DIGEST

A SURVEY OF IMPORTANT CURRENT ARTICLES ON BUILDING ECONOMICS AND BUSINESS CONDITIONS AFFECTING CONSTRUCTION

The Editors of this Department select from a wide range of publications matter of definite interest to Architects which would otherwise be available only through laborious effort

EFFECT OF OBSOLESCENCE ON THE USEFUL LIFE OF OFFICE BUILDINGS

AN interesting presentation of this important subject was recently made by Earle Schultz, President of the National Association of Building Owners and Managers in *Buildings and Building Management*. To determine the effect of age on the income and expenses of office buildings, reports were obtained from 155 buildings. The charts shown herewith indicate results.



"It will be seen from Chart I that the life of an office building may be divided into two periods.

"Period 1 extends from the erection of the building to about the 28th year. During this period the gross income is nearly constant. The expenses, however, rise continuously with a corresponding falling off in the net return. This period represents the useful and profitable life of an office building, during which it is earning an adequate return on the investment. During most of this period, the buildings are able to maintain themselves as first-class buildings housing the best grade of tenants.

"Period 2 extends from the 28th year to the end of the building's life. During this period the gross income of the building falls very rapidly as also do its operating expenses, while the net income continues to decline at a somewhat faster rate than during the first period. At the beginning of this period the building finds that through the action of obsolescence in any one or more of its several forms it is losing its better class of tenants and that it is impossible for it to maintain its income at its previous level. Because of this falling off in income, it must necessarily reduce its operating expenses in proportion by giving a cheaper grade of service, thus becoming a second grade building. In

spite of all that can be done to reduce operating costs, the ever-increasing extent of repairs and replacements necessary in an old building serve to increase expenses, with the result that if the building continues in existence it soon becomes a non-producer and is very often operated at a loss.

"Period 2 necessarily ends with the life of the building, which occurs when obsolescence has progressed so far that the building is torn down to be replaced by a new structure. Later in this report many illustrations will be cited of buildings thus torn down and replaced at ages varying from 15 to 40 years. Because of the fact that when a building has arrived at the second period of its life and it is only a question of time when it will have to be torn down, its investment value declines very rapidly and is very often extinguished entirely. That is, whereas if a building is sold during the first period of its life, it will bring a price somewhere near its cost; if it is sold in the second period of its life, it will bring a very much smaller price, and very often will not be considered as adding any value whatever to the land on which it stands. As a consequence, while a building in the second period of its life may for a time under favorable conditions continue to be operated at a small margin of profit, obsolescence will have largely or wholly destroyed its sale value.

"The solid line represents the actual five-year averages, and the dotted line a theoretical curve drawn through these averages. From these curves it will be seen that during the early years of its life, the value of the average building is equal to the value of the land on which it stands. This ratio, however, increases more and more rapidly until at the age of 50 years the value of the land has become six times the value of the building. In other words, if a lot now valued at \$100,000, for instance, requires as an adequate improvement a building costing \$100,000 or more, then after a period of 50 years when the value of this lot has become approximately \$500,000, any improvement thereon to be adequate must have a value of \$500,000.

"A study of the present ratio between land and building for buildings of different ages will indicate the effect which the growth of the business district of a city has in rendering buildings inadequate improvements of the land. This has been done by taking the ratio between land and building for all the buildings reporting, and grouping them by ages to obtain five-year averages as pre-

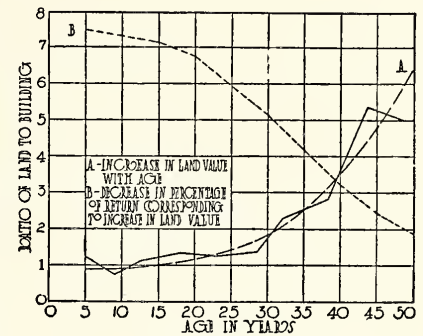


Chart II

viously explained. The averages thus obtained are indicated on Chart II. On this chart the two curves marked 'AA' represent the increasing ratio between land and building as the age of the building increases.

Obsolescence in Type of Construction

"It is generally believed that the present type of office building represents the highest possible development of these structures, and consequently that they will not suffer from obsolescence in type as have the older buildings. A study of the growth of the office building and of the purpose and plan of its design will easily convince anyone that it has by no means arrived at a state of perfection.

"There has been very little office building construction throughout the country for the past six years, due to the excessive cost of labor and material, so that the supply of office space in most cities is, at the present time, inadequate. As the cost of construction gets back to normal and as business conditions improve, there will be a revival of office building construction, and out of this revival is sure to come a new type of building. If office building owners and managers have learned any one thing during the past period of inflation, it has been the necessity of economical operation. The new type of office building will, therefore, be built primarily as an investment and designed not only for efficiency of layout to produce the greatest gross income, but also for economy of operation to give the lowest operating cost. Forerunners of this type are already appearing. These newer buildings are thoroughly standardized in their layout, and their lighting, plumbing and heating arrangements are such as to permit of the moving of interior partitions without affecting any

of the mechanical equipment of the offices. In the proposed Dexter-Horton Building, to be erected next year in Seattle, this standardization has been carried to a high state of development. The cost of alterations in this building should be but a small percentage of that experienced by the average building today. This plan of standardization was also adopted in the General Motors Building in Detroit. In one regard the latter building has gone a step further. In it they are using movable steel partitions that can be taken apart and re-assembled for any new layout of office space desired. In fact, quite a number of buildings in cities requiring all steel interior construction are using these movable partitions. They are as yet expensive in their first cost and are not, by any means, perfect in their design. It is only a question of time, however, until partitions of this sort will be developed that will have the greatest flexibility and will be very economical in their operation.

"One of the difficult problems of operation of the present office building is that of heat and ventilation. The office building is one of the most wasteful users of heat, because its use is entirely in the hands of the tenants who waste it without regard to cost. The new type of building will probably be mechanically ventilated throughout (as is the Chicago, Burlington and Quincy office building in Chicago) with double glass windows permanently closed. In this way the air in the office building will be at all times not only purified, but either heated or cooled to the proper temperature and moistened to the proper humidity. A building so equipped would add very materially to the efficiency and health of its occupants, and consequently would attract tenants from buildings not so equipped. Such an installation would also reduce the operating cost of heating by eliminating waste, and it would, by keeping out the dust-laden air, also eliminate much of the expense of cleaning and decorating.

"The recent Burlington fire in Chicago, in which eight floors of this very high type of fire-proof building were completely gutted by an exterior fire which came in through the windows of the building and was provided with fuel by the wooden furniture in the building, will probably lead to two new features in the coming type of building. One will be some method of protecting the windows of an office building from exterior fire exposure; the other the exclusion of all wooden furniture. It will be only through the adoption of these two provisions that an office building can afford complete fire protection to its tenants."

STANDARDIZING LUMBER AND METAL LATH

"THESE notes regarding progress of standardization in building materials appear in a recent issue of *Engineering News-Record*:

"Agreement has been reached by the central committee on lumber standards, which was appointed by the several

branches of the industry last July, to formulate a program for simplification of the industry. It is planned (1) to collect and analyze all information that will aid in the simplification of sizes, grades, and names of lumber products; (2) to submit these findings to the producers, distributors, and consumers by means of the associations in these fields; (3) to promote discussion of the questions involved and to harmonize differences of opinion; (4) to establish a grade-marking and inspection service that will guarantee to the consumer the quality and quantity of his lumber purchases; and (5) to arrange a national conference of representatives of all branches of the industry which would finally adopt specific practices in these fields that will conform to the requirements of the Department of Agriculture and the Department of Commerce.

"Following the reduction in standard sizes of paving brick and lumber initiated by the Department of Commerce, work is now under way in the standardization of metal lath. A reduction from 71 to 9 in the number of weights and styles of lath was recommended at a preliminary conference held at the Department of Commerce Oct. 2. The manufacturers have worked out a plan for this reduction which they believe will be acceptable to contractors and other consumers.

"A general conference will be held Dec. 12 to which manufacturers, distributors and consumers will be invited. At that conference, it is expected that a definite conclusion will be reached."

BASIC DEFINITIONS AND CLASSIFICATIONS OF LUMBER

THE Central Committee on Lumber Standards, which met for four days during the first week of October in Washington, has assembled information on trade practices in all parts of the country, and out of its work it is hoped standards governing the production and use of lumber will come. Some of its recommendations have already been placed before the lumber industry, and perhaps of most importance are the suggested standard classifications of use, size and manufacture.

It is also suggested that there be a single standard name to identify each important commercial species, and that such standard names be exclusively used in the grading and inspection rules and in official association publications, and that their universal recognition throughout the lumber trade be promoted. A suitable outline of such species names is still to be prepared.

The definitions already agreed upon in committee are:

I. Use Classification

Lumber is the product of the saw and planing mill, not further manufactured than by sawing, resawing, and passing lengthwise through a standard planing machine, crosscut to length, and matched.

Lumber is classified as (1) yard lumber, (2) shop or factory lumber, and (3) structural timber. Different grading rules apply to each class of lumber.

(1) Yard lumber is lumber that is less than 6 inches in thickness and is intended for general building and construction purposes. The grading of yard lumber is based upon the use of the entire piece.

(2) Shop or Factory lumber is lumber intended to be cut up for use in further manufacture. It is graded on the basis of the percentage of the area which will produce a limited number of cuttings of a given minimum size and quality.

(3) Structural Timber is lumber that is 6 inches or over in thickness and width. The grading of structural timber is based upon the strength of the piece and the use of the entire piece.

Yard Lumber is classified roughly as (a) Finish and (b) Construction lumber. There is no sharp line between finish and construction lumber. The medium grades may be used for either purpose.

(a) Finish is yard lumber of the higher grades in which appearance, perfection of the surface, and finishing qualities are primarily the basis on which the grade is determined. The higher finishing grades are more suitable for "natural" or transparent finishes while the lower finishing grades are smooth and free from serious defects and are particularly adapted to the use of paint.

(b) Construction lumber is yard lumber which is graded primarily upon the basis of its strength, as affected by defects, and its fitness for general construction purposes.

II. Size Classification

(1) Strips are yard lumber less than 2 inches thick and under 8 inches wide. Strips are usually manufactured into matched and patterned lumber.

(2) Boards are yard lumber less than 2 inches thick and 8 inches or over wide.

(3) Dimension includes all yard lumber excepting boards and strips and timbers; that is, yard lumber 2 inches and under 6 inches thick and of any width.

(a) Planks are yard lumber 2 inches and under 4 inches thick and 8 inches and over wide.

(b) Scantlings are yard lumber 2 inches and under 6 inches thick and under 8 inches wide.

(c) Heavy Joists are yard lumber that is 4 inches and under 6 inches thick and 8 inches or over wide.

(4) Timbers are lumber 6 inches or larger in their least dimension.

III. Manufacturing Classification

Manufactured lumber is classified as (1) Rough, (2) Surfaced, and (3) Worked.

(1) Rough lumber is undressed lumber left as it comes from the saw.

(2) Surfaced lumber is lumber that is dressed by running through a planer. It may be surfaced on one side (S1S), two sides (S2S), one edge (S1E), two edges (S2E), or a combination of sides and edges (as S1S1E, S2S1E, or S1S2E).

(3) Worked lumber is lumber which has been through a matching machine, sticker or moulder. Worked lumber may be (a) matched, (b) shiplapped or (c) patterned. Patterned lumber is usually matched or shiplapped.

(a) Matched lumber is lumber that is edge dressed and shaped to make a close tongue and groove joint at the edges or ends when laid edge to edge or end to end.

(b) Shiplapped lumber is lumber that is edge dressed to make a close rabbeted or lap joint when laid edge to edge.

(c) Patterned lumber is worked lumber that is shaped to a patterned or moulded form.

BUILDING COSTS ON PERMANENTLY HIGHER SCALE

TO all who follow the trend of building it is quite evident that building costs will remain on a higher plane than existed before the war. Graphic records of the cost increases in the elements that make up building cost are always valuable in pointing out to clients the reasons for continued high costs, and we present as of interest some charts based on those appearing in *The Constructor* for October, 1922.

In commenting on them *The Constructor* says: "It will be evident from the cost of building diagram that build-

ing trades have varied in the same period and shows averages of the wages paid in 11 of the building trades in 8 representative cities. The index of the cost of building in Diagram 1 is a composite of the material index and wage index in which the former represents 60 per cent, and the latter 40 per cent of the final result. These diagrams and the index of wholesale prices of all commodities show that practically nothing can be purchased today at pre-war prices. The commodity index is a composite of the prices of over 400 different articles. It is similar in shape to that of the building cost line; average prices did not go quite so high in 1920, and

what always happens to prices when business is recovering from a depression. It does not mean that prices are going back to where they were in 1920, and it probably does not mean that they are going very much higher than they now are, but it is a very strong argument for the contention that prices have settled down to a relatively permanent new price level. In other words, prices for some years to come will probably fluctuate in accordance with the ebb and flow of general business prosperity above and below some average point located at just about the present level."

It may well be that some time in the future, perhaps 20 years from now, the general average of prices may again be down to the 1913 figure or below it. But if we are to judge by past history, building costs will probably not go down in equal ratio. In the Civil War period just as in the World War period, the cost of building increased enormously, and this increase was due very much more to higher prices for materials than it was to higher wages. Although wages went up more slowly and relatively much less, they afterwards came down more slowly and relatively not so far as the price of materials. Following the Civil War peak and the subsequent depression there was, beginning with 1870, a period of about two and one-half years during which the price of building materials increased and also the cost of building. We seem to be now experiencing the beginning of a similar rise in prices. It is not safe, however, to figure on a close parallel between the two periods but we may conclude, that the extreme price changes of the war period are passed; that if prices in general again reach their pre-war level it will only be after many years; that wages will probably never go down to their pre-war level; and that the total cost of building, likewise, is permanently higher than it was before the war.

FACTS ABOUT BUILDING IN COLD WEATHER

ARCHITECTS will be interested in the following facts presented by C. S. Hill in a recent issue of *Engineering News-Record*. This analysis of the question of building in cold weather should encourage a decrease of seasonal activity:

"Concrete and Building Construction—Work on concrete structures of all kinds, and building operations generally, are commonly carried on in winter. Methods have been highly perfected and are now textbook knowledge. The conditions can be stated thus:

1. All concreting and building masonry operations can be carried on in winter with dispatch and absolute safety by heating the materials, housing in the work under construction and heating the enclosure.
2. Steel erection in winter is largely a function of storm and temperature. In any weather in which the workman can withstand the cold and work safely, structural steel can be erected.
3. Interior building work, plumbing, steamfitting, plastering, etc., can be performed in winter with little loss of efficiency.

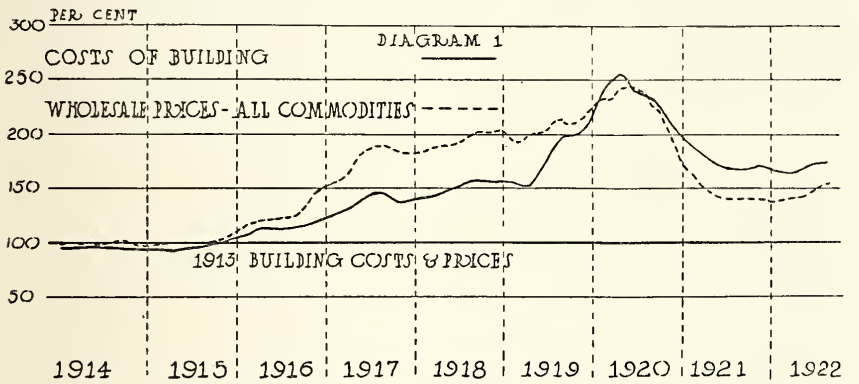


Fig. 1. Cost of Building Index and Wholesale Price Index

ing costs are now 75 per cent greater than they were in 1913, and exceed the corresponding figures for any month prior to July, 1919. (The solid line in this diagram shows building costs, and the dotted line general wholesale commodity costs over the same period.)

they are not quite so high now as the price of building materials or the cost of completed buildings. The commodity index includes a number of important items, such as zinc, tin, copper, and rubber, which for reasons easily explained in each case are now selling at

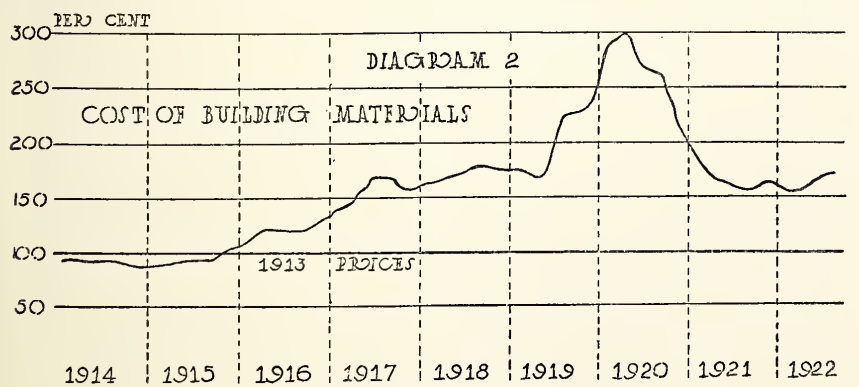


Fig. 2. Cost of Building Materials Index

"Diagram 2 shows the index of building material prices computed by the Department of Labor, and is a composite of prices of some 40 different materials for which quotations are obtained from a large number of different points. Diagram 3 shows how wages in the

figures below pre-war prices. This helps to explain why the index of wholesale prices is at a lower point than that of building materials.

"It will be noted that each of the diagrams shows an increase in prices during the past few months. This is

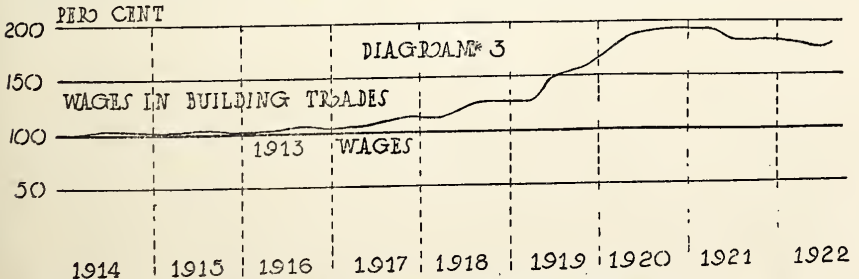


Fig. 3. Index of Wages in the Building Trades

4. Winter construction in building adds from 3 to 10 per cent to the cost according to the records of large concrete building contractors.

5. There is probably some greater risk of poor workmanship in winter concreting, masonry work and steel erection which calls for more exacting supervision and inspection.

"General Conclusion"—Nothing in the general conditions laid down, or in the conclusions from practice, place the problem of methods of winter construction beyond the range of easy solution by engineers and contractors. With very moderate inquiry and analysis it would be practicable to state recommended practices or standard methods. This investigation may precede more complex study of economic conditions because whether or not winter construction in general is economical there are always individual operations which it will pay to carry on in winter. In other cases, such as winter hauling in road building, it may be profitable to perform parts of the work in winter. As a broad generalization of the technical problem of winter construction it may be concluded that any kind of construction can be performed for which the owner is willing to pay cold weather prices.

"Economic Problems"—The economics of winter construction do not lend themselves to the simple methods of handling the technical problem. As applied to a single structure the economic question is: Will possession of the structure at a definite earlier date be of enough value to pay for the extra cost of winter construction and leave a little over? Visualizing the construction industry as a whole the query is much the same. While, however, in the case of the individual structure the means are at hand for a ready answer there are inadequate, indeed almost no, data by which to determine the answer for the whole industry. Determination of these data is the great task of research before engineers and contractors and the *determination needs to be quantitative.*

"Briefly, winter construction appears to offer economies by (1) spreading overhead costs over 12 producing months instead of some less period; (2) reducing the seasonal employment of men in construction and the allied industries; (3) ironing out the peak in the curve of production of construction materials and equipment; (4) equalizing the demand on transportation agencies. The economic waste in all these activities due to reduction of construction during cold weather is universally admitted as a general truth but there are no determined figures of the amount of waste. These quantitative data are what research is called upon to supply. The reasons are:

1. The construction industry is the servant of the building public and evidence of specific savings is necessary to induce the building public to alter its practices.

2. Without full knowledge of the economic waste from winter idleness in construction the industry cannot stabilize its own business or assume the duty, which it must, of teaching the public."

DATA FOR THE PLANNING OF PUBLIC GARAGES

SOME interesting information has been recently published in the monthly bulletin of the Ramp Buildings Corporation of New York. This provides definite data on general dimensions for passenger car and truck garages:

"The average automobile is 15 feet long, and in designing a garage it is advisable to allot a space of $6\frac{1}{2}$ x 15 for each car. This space is not and does not include any frontage occupied by columns. Fords are 11 feet long, and a few of the largest cars are 18 feet in length. There are now several cars of approximately the size of the Ford, and among these may be listed the Chevrolet and the Star. The Cadillac is about 16 feet over all, whereas most of the cars selling for around \$1,000 are 12 to 13 feet long. The average garage aisle is 20 feet wide. On this basis the minimum width of a building is about 50 feet, although buildings occasionally are made 45 feet wide and even 40 feet. A 45-foot building is feasible provided the cars to be stored are not too large, but 40 feet is never satisfactory and it is better to abandon the idea of using it.

"It is rapidly becoming common practice to make the distance between floors 10 feet in the clear, and in some cases even 9 feet has been used with satisfaction. Extreme headroom is not desirable, because it increases the cost of the building unduly and also because it increases the steepness of the ramp or the distance which the elevator must travel. In a garage building solely for passenger cars there is no reason for making the floors more than 11 feet apart, and in most cases it is quite practical to make them 10 feet.

"Where it is necessary to arrange the columns for the economical storage of both passenger cars and trucks, interchangeably, it is a good plan to use four car bays with $6\frac{1}{2}$ -foot spacing. In other words, the net frontage of the bay will be 26 feet which will accommodate three large trucks, four delivery cars or four passenger cars.

"Trucks vary considerably in size. Their lengths run all the way from 11 feet for a Ford to approximately 22 feet for a large truck. The Ford will have a width of a little less than 6 feet while the big truck may be more than 7 feet broad. Five-ton trucks ordinarily require a space 8 x 20 or, in rare cases, 22 or 25. There are comparatively few five-ton trucks, however, compared to two- and three- and one-ton trucks. Therefore, in designing a truck garage it is usually not necessary to have very many spaces 8 x 22. The average two- or three-ton truck will occupy a space $7\frac{1}{2}$ x 18.

"In designing a truck garage it is extremely desirable to know whether the bulk of the business will consist of the storage of small trucks or large trucks. Where this point cannot be determined, or where it is feared that the character of the truck storage may change, it is advisable to use a spacing of about 7 feet for the trucks making the bays four trucks wide, or 28 feet net. Such a bay

will accommodate three very large trucks without wasting too much space and, on the other hand, will accommodate four trucks of medium and small sizes. Such a bay, for example, might house one delivery car, two one-ton trucks, and one three-ton truck.

"The tallest trucks require headroom of about 11 feet, whereas there are many trucks that do not require headroom of more than 9 feet, and smaller trucks and delivery cars may not need headroom of more than 8 feet. It all depends upon the type of body. It is a good plan, therefore, in designing a truck garage to design the first floor with sufficient headroom to accommodate the largest trucks; in other words, with a headroom of 11 feet clear for the first floor, the second floor with, perhaps, 9 feet clear, and the third floor with headroom of 8 feet net. At least, this arrangement will be feasible with a three-story building to house equal numbers of small, large, and medium sized trucks."

LUMBER MARKET OUTLOOK

PRESENT conditions in the lumber market are indicated by these notes from *Lumber*, October 13, 1922:

"The lumber market appears to be more stationary than it has been for some months, and this applies to prices as well as to movement of the product. The cleaning up of a large number of transit cars of softwoods that had for a time the effect of congesting distributing centers has almost eliminated the speculative factor, with the result that both mills and wholesalers are insisting that prices are about as low as they can be expected to go despite other conditions that might contribute to either a decline or advance. It is true that price concessions are being made here and there on a few items of softwoods for which demand is light and supply abundant, but in the main prices are firm throughout the list. In fact, along the entire Atlantic seaboard there is a strengthening tendency, North Carolina pine in particular being in very active demand with prices better than they have been for quite a while. That condition does not extend to the lake region, however, where considerable 'bargaining' is reported, nor to the central west, where retail dealers are still waiting for farmers to get in a better buying mood. Conditions along the Gulf and Pacific coasts show no change of consequence. The transportation situation is still a disturbing factor, but with no prospect of immediate relief so far as the railroads are concerned the lumber industry is accepting the situation as best it can and 'carrying on' in the same way, while being consoled to some extent by increasing orders from the railroads themselves for car and other materials.

"Conditions in the hardwood branch of the industry are about the same as they have been for some weeks, which is to say that both production and shipment are suffering from inadequate transportation facilities, demand is still good and price fluctuations are still upwards."

Selected List of Manufacturers' Literature

FOR THE SERVICE OF ARCHITECTS, ENGINEERS, DECORATORS, AND CONTRACTORS

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

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

ASH HOISTS—ELECTRIC AND HAND POWER

Gillis & Geoghegan, 544 West Broadway, New York, N. Y.
General Catalog. 8½ x 11 in. 20 pp. Fully illustrated. Contains specifications in two forms (with manufacturer's name and without). Detail ¼" scale for each telescopic model and special material-handling section.
The Man-Saving Load Lifter. 5½ x 8½ in. 8 pp. Illustrated. Describes G&G Telescopic and Non-Telescopic Hoists for handling material in factories.

BOILERS—See Heating Equipment

BRICK

American Face Brick Association, 1751 Peoples Life Bldg., Chicago, Ill.
The Story of Brick. Booklet. 7 x 9½ in. 55 pp. Illustrated. Presents the merits of face brick from structural and artistic standpoints. Tables of comparative costs.
The Home of Beauty. Booklet. 8 x 10 in. 72 pp. Color plates. Presents fifty designs for small face brick houses submitted in national competition by architects. Text by Aymar Embury II, Architect. Price 50c.
Bungalow and Small House Plans. Booklets. 8½ x 11 in. 50 pp. Illustrated. Four booklets, showing a variety of designs for small face-brick houses, covering 3, 4, 5, 6, 7 and 8 room houses. Price, 25c. each, \$1 for the set.
A Manual of Face-Brick Construction. Booklet. 8½ x 11 in. Text-book on construction of the brick wall and various uses of face brick. 31 colored plates of brick houses with plans. Price, \$1.00.
Architectural Details in Brickwork. Series 1, 2, 3. 8½ x 11 in. Very useful to the architect or draftsman. Sent free to architects applying on their office stationery. To others, \$1.50.

BUILDING FINANCE

S. W. Straus & Co., 565 Fifth Ave., New York, N. Y.
The Straus Plan of Financing. Booklet. 8 x 6 in. 24 pp. Illustrated. Describes Straus system of co-operation with Architects, Builders, Engineers and Brokers in financing important building operations; also the making of construction loans on the larger and better properties in our large cities.
Forty Years Without Loss to Any Investor. Booklet. 8 x 5 in. 38 pp. Illustrated. A carefully prepared booklet for the thinking investor. Describes Straus bonds, the property upon which loans are made, and explains the Straus plan of safeguards which made possible the 40-year record.

BUILDING STONE—See Stone, Building

CEMENT

Atlas Portland Cement Company, 25 Broadway, New York, N. Y.
The Stucco House. Booklet. 8½ x 11 in. 96 pp. Illustrated. Contains valuable data on application of Portland Cement Stucco for those interested in building. Also photographic reproductions of beautiful and unusual stucco finishes, instructions and specifications.
Atlas Handbook on Concrete Construction. Book. 4½ x 6½ in. 144 pp. Illustrated. Provides in convenient form practical information on concrete, plain and reinforced. Written from the practical rather than from the technical point of view. A valuable pocket text-book.
Carney's Cement Company, Mankato, Minn. Booklet. 8 x 10 in. 20 pp. Illustrated. Complete information on product, showing prominent buildings in which this cement has been used.
Louisville Cement Co., 315 Guthrie St., Louisville, Ky.
Brixment. Booklet. 7½ x 5 in. 16 pp. Illustrated. Brixment, what it is, what it does, how it does it and why.
Sandusky Cement Co., Dept. F, Cleveland, Ohio.
Medusa White Portland Cement, Stainless. Booklet. 8½ x 11 in. 48 pp. Illustrated.
Medusa Waterproof White Portland Cement. Booklet. 6 x 9 in. 32 pp. Illustrated.
Medusa Review. 6 x 9 in. 18 pp. Illustrated. House organ issued bi-monthly.

CONDUIT

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

CONSTRUCTION, FIREPROOF

National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.
Standard Fire Proofing Bulletin 171. 8½ x 11 in. 32 pp. Illustrated. A treatise on fire proof floor construction.
Northwestern Expanded Metal Co., 934 Old Colony Building, Chicago, Ill.
Fireproof Construction. Catalog. 6 x 9 in. 72 pp. Illustrated. Handbook of practical suggestions for architects and contractors. Describing Nemco Expanded Metal Lath.
Fire-proof Construction. Handbook. 6 x 9 in. 72 pp. Illustrated. Describing Kno-Burn expanded metal lath.
United States Gypsum Company, 205 West Monroe St., Chicago, Ill.
Pyrobar Gypsum Tile. Booklet. 8½ x 11 in. 32 pp. Illustrated. Details and specifications for fireproof partitions.
Bulletins, 8½ x 11 in., containing details and specifications for Pyrobar voids for use with reinforced concrete joist floor construction; Pyrobar roof tile; and monolithic gypsum floors and roofs.

DAMPPOOFING

The Truscon Laboratories, Detroit, Mich.
Booklet. 5½ x 7¾ in. Illustrated. Contains descriptions and specifications of black dampproofing compounds for interior and exterior use.

DOORS, WINDOWS AND TRIM, METAL

Dahlstrom Metallic Door Company, 425 Buffalo Street, Jamestown, N. Y.
Architectural Catalog. 10 x 14 in. 46 pp. 11 sections. Illustrated. Catalog showing our regular styles and types of hollow metal doors and interior trim. Various types of frames and other architectural shapes also illustrated.
Architectural Portfolio. 14 x 18 in. 30 pp. Illustrated. Portfolio of various designs and types of Dahlstrom doors. Drawings and details of each style or type. This is only sent free to reliable architects.
The Compound & Pyrono Door Company, St. Joseph, Mich.
Pyrono Handbook for Architects and Contractors. 8½ x 11 in. 16 pp. Contains full information regarding Pyrono Fireproof Veneered Doors and Trim, with complete details and specifications. Pyrono details in sheet form for tracing.
The G. Drouvé Company, Bridgeport, Conn.
Daylighting the Factory. Booklet. 8½ x 11 in. 26 pp. Illustrated. Describes and illustrates the "Anti-Pluvius" puttyless skylight construction. Also contains interesting information on how to judge a skylight and the advantages of skylighting industrial plants.

DUMBWAITERS

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

ELECTRICAL EQUIPMENT

Frank, Inc., I. P., 24th Street and 10th Avenue, New York, N. Y.
Catalog 415. 8½ x 11 in. 46 pp. Photographs and scaled cross sections. Specialized bank lighting, screen and partition reflectors, double and single desk reflectors and Polarlite Signs.
General Electric Company, Schenectady, N. Y.
Wires and Cables. Booklet. 8 x 10½ in. 85 pp. Illustrated. Four bulletins in a binder, describing wires and cables in general, conductors insulated with vulcanized rubber compound, varnished cambric and paper insulated cables, splicing materials and junction boxes for cable installations, armored cables.
Electric Fans. Folder. 6 pp. 3¼ x 6 in. Illustrated. Describes 1922 line of electric fans, giving catalog numbers, voltages and frequencies.
Reliable Wiring Devices. Catalog. 3 x 4½ in. 206 pp. Illustrated. Pocket catalog giving prices, schedule classifications and data for socket receptacles, switches, rosettes, outlets and fuses for miscellaneous devices.
Lighting of Public Buildings. Bulletin. 6 x 9 in. 25 pp. Illustrated. Describes lighting of galleries, banks, museums, libraries, municipal, county and state buildings.
Hart & Hegeman Mfg. Co., 342 Capitol Ave., Hartford, Conn.
A new H & H Switch. Leaflet. 3½ x 6 in. 4 pp. Illustrated. Illustrates a new H & H composition base push switch of DeLuxe quality.
Tumbler Switches. Booklet. 3½ x 6 in. 6 pp. Illustrated. Shows complete line of H & H Tumbler Switches.
H & H Elextis. Booklet. 8 x 10½ in. Illustrated. Shows new complete line of Elextis—places for lights. May be used for Wall Receptacles or Electric Fixtures.
H & H Radio Button Push Switches. Booklet. 3½ x 6 in. Illustrated. Radio Luminous Buttons applied to Push Switches and Sockets.
Kohler Co., Kohler, Wis.
Kohler Automatic Power and Light 110 Volt D. C. Booklet. 5 x 7 in. 32 pp. Illustrated. Describes a standard voltage automatic, electric power and light plant for isolated homes.
Simplex Wire & Cable Co., 201 Devonshire Street, Boston, Mass.
Simplex Manual Catalog and reference book. 6¼ x 4¼ in. 92 pp. Contains in addition to information regarding Simplex products, tables and data for the ready reference of architects, electrical engineers and contractors.
Sprague Electric Works of the General Electric Company, 527 West 34th St., New York, N. Y.
Panel Boards and Cabinets. Catalog No. 47901. 8 x 10½ in. 70 pp. Illustrated. Panel Boards and Cabinets shown in this catalog have been selected after careful study of the general requirements. All appliances listed herein meet with the requirements of the National Board of Fire Underwriters.
Panel Circuits. Bulletin No. 47941. 8 x 10½ in. 8 pp. Illustrated. In addition to circuits for panel boards illustrated, a full line of circuits for panel boards having fuses inside branch circuit switches is also listed.
Panel Boards and Cabinets. Bulletin No. 47942. 8 x 10½ in. 16 pp. Illustrated. This bulletin covers the ever increasing demand for devices that provide maximum safety to the operator.
Dead Front Panels. Pamphlet No. 727. 5½ x 7½ in. 8 pp. Illustrated. A "Safety First" pamphlet covering Safety Panels and Dead Front Switchboards, for use in office buildings, factories, theaters, department stores, public buildings and in all places where the switches may be operated by persons ignorant of the changes of contact with current-carrying parts.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — Continued from page 63

ELECTRICAL EQUIPMENT—Continued

Varnum Door Engine Company, 949 West 16th St., Los Angeles, Calif.
Varnum Electric Door Engines. Booklet. 5 x 7½ in. 16 pp. Illustrated. Descriptive booklet containing illustrations and list of representative institutions now using Varnum Door Engines.

ELEVATORS

Kaestner & Hecht Co., Chicago, Ill.
Bulletin 500. Contains 32 pp. Giving general information on passenger elevators for high buildings.
Otis Elevator Company, 11th Ave. & 26th Street, New York, N. Y.
Otis Push Button Controlled Elevators. Booklet. 6 x 9 in. 56 pp. Illustrated. Detailed description of Otis Push Button Elevators. Their uses in residences, stores, institutions, apartment houses, business offices and banks, etc.
Otis Gravity Spiral Conveyors. Booklet. 6 x 9 in. 56 pp. Illustrated. Gravity spiral conveyors for lowering packaged merchandise, boxed, cased and bundled goods in factories, warehouses, terminal buildings, etc.
Otis Electric Traction Elevators. Booklet. 9 x 12 in. 28 pp. Illustrated. Full details and illustrations of Otis geared and gearless traction elevators for all types of buildings.
Otis Escalators. Booklet. 6 x 9 in. 36 pp. Illustrated. Description of step and cleat type single and double file escalators (moving stairways).
Sedgwick Machine Works, 151 West 15th Street, New York.
Catalog and descriptive pamphlets. 4¼ x 8¼ in. 70 pp. Illustrated. Descriptive pamphlets on hand power freight elevators, sidewalk elevators, automobile elevators, etc.

FENCES

American Fence Construction Co., 130 West 34th St., New York.
Afco Factory Fences. Booklet. 9 x 12 in. 32 pp. Illustrated. Residential Fences. Booklets. 7 x 2½ in. Illustrated. A series of booklets on residential fences consisting of photographs and brief descriptions.
Page Steel and Wire Company, Bridgeport, Conn.
Page American Ingot Iron Fence. Booklet. 4 x 6½ in. 76 pp. Illustrated. Complete information, with diagrams, sizes, etc., for those interested in rust-resisting iron fence made of ARMCO iron.
Page Ornamental Fence for Lawn and Garden. Booklet. 6 x 9 in. 12 pp. Illustrated. Description, with photographs and diagrams of lawn fence and gates. Complete instructions for ordering fence.
The Stewart Iron Works Company, Cincinnati, Ohio.
Book of Designs "B." 9 x 12 in. 80 pp. Illustrated. Book of designs illustrated from photographs of ornamental iron fence and entrance gates erected by us. Valuable to architects.

FIRE DOORS—See Doors, Windows and Trim, Metal

FIREPLACE EQUIPMENT

Covert Co., H. W., 137 E. 46th Street, New York, N. Y.
Hints on Fireplace Construction. Catalog. 5½ x 8½ in. 11 pp. Illustrated. Diagrams of construction and installation of Covert "Improved" and "Old Style" Dampers and Smoke Chambers. Also illustrations of Covert brass and wrought iron Fireplace Fittings.

FLOORING

Armstrong Cork & Insulation Co., 132 24th Street, Pittsburgh, Pa.
Linotile Floors. Catalog. 6 x 9 in. 40 pp. Color plates. Describes Linotile, a composition of ground cork, wood flour, linseed oil and various gums and pigments in tile form.
Armstrong's Cork Tile. Revised Edition. Booklet. 24 pp. 5 x 7 in. Illustrated in color. Contains complete specifications.
Armstrong Cork Co. (Linoleum Dept.), Lancaster, Pa.
Armstrong's Linoleum Floors. Catalog. 8½ x 11 in. 54 pp. Color plates. A technical treatise on linoleum, including table of gauges and weights and specifications for installing linoleum floors.
Decorative Floors. Booklet. 11¼ x 15 in. 16 pp. Color plates.
Armstrong's Linoleum Pattern Book, 1922. Catalog. 3½ x 6 in. 168 pp. Color plates. Reproductions in color of all patterns of linoleum and cork carpet in the Armstrong line.
Quality Sample Book. Three books. 3½ x 5½ in. Showing all gauges and thicknesses in the Armstrong line of linoleum and cork carpets.
Congoleum Company, Inc. (Linoleum Dept.), Philadelphia, Pa.
"Specifications for Laying Linoleum and Cork Carpet, according to the Congoleum Company's new method compiled after years of careful research."
Linoleum Service Sheet. Gives complete printed specifications as well as detail drawings showing application in specific cases such as thresholds, staircases, under radiators, etc.
Installation and Care of Battleship Linoleum. Booklet. 6 x 9 in. 24 pp. Illustrated. Instructions as to the uses of Battleship Linoleum, its laying and care.
Pocket Pattern Book. Descriptive Booklet. 3½ x 8½ in. 64 pp. Illustrated. Shows color reproductions of every grade and color of Gold Seal Battleship Linoleum, Inlaid Linoleum, Cork Carpet and also all patterns of the Gold-Seal Line.
Maple Flooring Manufacturers Assn., Stock Exchange Bldg., Chicago, Ill.
Flooring of Maple, Beech and Birch. Booklet. 9½ x 7 in. 46 pp. Illustrated. A complete manuscript on Maple, Beech and Birch Flooring, written by Forest Crissey.
Color Harmony in Floors. Booklet. 24 pp. 6¼ x 4½ in. Illustrated. Reproductions in six colors of 12 styles of maple, beech and birch floors, with a short message on the subject.
How to Lay and Finish Maple, Beech and Birch Floors. Booklet. 6¼ x 3½ in. 16 pp. Illustrated. A handbook on laying maple, beech and birch floors and on keeping them in good condition.
Grading Rules for Maple, Beech and Birch Flooring. Leaflet. 6¼ x 3½ in. 8 pp. Illustrated. Contains information on grades, standard measurement, custom governing re-inspection, etc.

FLOORING—Continued

The Marbleoid Co., 461 Eighth Ave., New York, N. Y.
The Universal Flooring for Modern Buildings. Booklet. 6¼ x 9¼ in. 32 pp. Illustrated. Describes uses and contains specifications for Marbleoid flooring, base, wainscoting, etc.
Marbleoid Flooring for Hospitals. Bulletin. 8½ x 11 in. 4 pp. Illustrated. Describes the special features of this composition floor for hospital buildings.
Marbleoid Specifications. Booklet. 8½ x 11 in. 4 pp. Illustrated.
Marbleoid Flooring for Schools. Bulletin. 8½ x 11 in. 4 pp. Illustrated. Describes special features of this composition floor for school buildings.
Muller Co., Franklyn R., Waukegan, Ill.
Asbestos Composition Flooring. Circulars. 8½ x 11 in. Description and Specifications.
The Nairn Linoleum Company, 179 Belgrove Drive, Kearny, N. J.
Linoleum. Booklet. 5½ x 8½ in. 68 pp. Illustrated in color. Reproductions in color of Inlaid, Printed, Plain and Battleship Linoleum; also Cork Carpets and Felt Base Floor Coverings.
Oak Flooring Advertising Bureau, 1057 Ashland Block, Chicago, Ill.
Modern Oak Floors. Booklet. 6¼ x 9¼ in. 24 pp. Illustrated. A general book that tells the complete story on Oak Flooring.
Oak Flooring, How and Where to Use it. Booklet. 3½ x 6¼ in. 16 pp. Illustrated. A small, technical book showing the general rules, standard thickness and widths, how to lay, finish and care for oak floors.

FLOOR HARDENERS

General Chemical Company, The, 25 Broad Street, New York, N. Y.
Making Concrete Wear Like Iron. Booklet. 4 pp. 8½ x 11 in. Illustrated. Describes Hard-n-tyte and its application to concrete floors.
Casehardening Concrete. Folder. 3¼ x 8½ in. 6 pp. Illustrated. Describes treatment of concrete surfaces with Hard-n-tyte so that they become literally "casehardened."
The Hard-n-tyte Specification. Booklet. 8½ x 11 in. 4 pp. Gives exact specifications for concrete floor finish.
Sonneborn Sons, Inc., L., 116 Fifth Avenue, New York.
Concrete and Lapidolith. Booklet. 5½ x 8½ in. 24 pp. Illustrated. Describing relation of Lapidolith chemical floor hardener to concrete construction.
Why Lapidolith? Booklet. 8½ x 11 in. 11 pp. Illustrated. Reasons why Lapidolith should be specified.
Lapidolith Specifications. Circular. 8½ x 10¾ in. 2 pp.

FLOOR HARDENERS (CHEMICAL)

The Truscon Laboratories, Detroit, Mich.
Agatex and Its Performances. Booklet. 8½ x 11 in. 16 pp. Describes use of Agatex Liquid Chemical for hardening cement floors.

FLOOR HARDENERS (METALLIC)

The Truscon Laboratories, Detroit, Mich.
Truscon Floor Hardener. Pamphlet. 7¼ x 5½ in. 18 pp.

FURNACES—See Heating Equipment

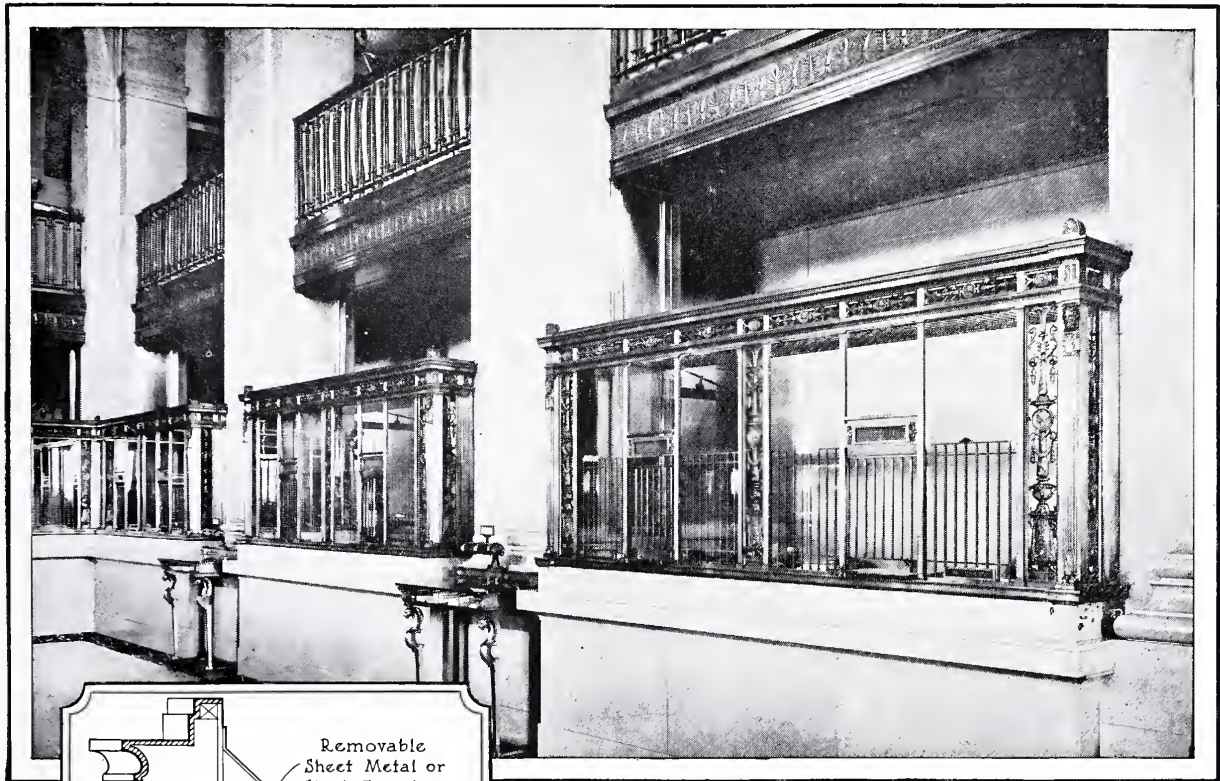
FURNITURE

American Seating Company, 1094 Lytton Bldg., Chicago, Ill.
"Ars Ecclesiastica." Booklet. 8½ x 11 in. 48 pp. 31 full page illustrations, showing the fine art of wood-carving for ecclesiastical purposes as portrayed by the craftsmen of the American Seating Company.
Seating, School, Theatre and Church. Catalogs, fully illustrated, with complete descriptions of equipment for buildings of these kinds.
Estey Organ Company, Brattleboro, Vt.
Pipe Organs. Complete specifications and full information furnished to the architect for pipe organ to be installed in any given residence, upon receipt of plans and other particulars.
Hampton Shops, 18 East 50th St., New York, N. Y.
Glimpses from Hampton Exhibits. Brochure. 16 pp. 5 x 7½ in. Illustrated. Shows examples of Hampton work and gives one an idea of their resources. Of interest to the client as well as to the architect.
Kensington Mfg. Company, 14 East 32nd St., New York, N. Y.
Photographs and full description of hand-made furniture in all the period styles furnished promptly in response to a specific inquiry. Illustrated booklet indicative of the scope, character and decorative quality of Kensington furniture mailed on request.
Kewaunee Mfg. Company, Kewaunee, Wis.
Book No. 13. 6 x 9 in. 194 pp. Illustrated. Full description of Kewaunee Vocational Equipment for domestic science, demonstration dining rooms, fitting rooms, drafting rooms, manual training and shop-equipment, kindergarten and hospital equipment and dietetic tables.
Book No. 14. 6 x 9 in. 226 pp. Illustrated. Shows Laboratory furniture for chemistry, physics, biology, zoology, electrical and physiography laboratories, medical college, hospital laboratory equipment, industrial and commercial laboratory equipment. Engineering service gratis.
Charles P. Rogers & Co., Inc., 14-16 East 33rd St., New York, N. Y.
A Guide to Buying Quality Furniture, Beds and Bedding. Booklet. 4 x 6 in. Illustrated. Describes the manufacture of good furniture as compared with the ordinary kind.
Elgin A. Simonds Company, Syracuse, N. Y.
Furnishing the Home. 24 pp. 6 x 9 in. Illustrated. A treatise on modern interior decoration.

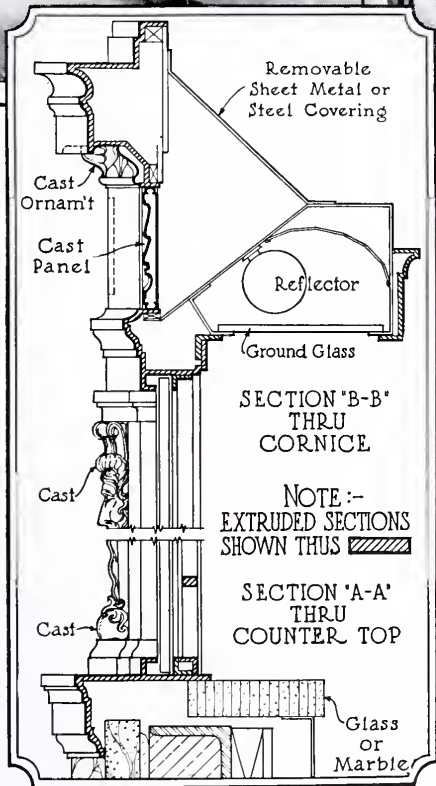
GLASS CONSTRUCTION

Mississippi Wire Glass, 220 Fifth Avenue, New York.
Mississippi Wire Glass. Catalog. 3½ x 8½ in. 32 pp. Illustrated. Covers the complete line.

ANACONDA ARCHITECTURAL BRONZE



Counter Screen of the Astor Trust Company, New York.
Charles E. Birge, Architect. Fabricated by the Gorham
Company from Anaconda extruded architectural bronze.



Structural Detail of Astor Trust Company Bank Screen

IN the banking rooms of the Astor Trust Company the beauty and sharpness of line that characterizes Anaconda extruded architectural bronze has been fully utilized in the counter screen. The extruded bars and shapes have been effectively combined with ornamental bronze castings and sheet bronze panels.

Equally fine examples of the application of Anaconda extruded bronze shapes to distinctive metal construction are to be found in many of the public buildings and residences of the country. Anaconda bronze is used not only for bank screens but for window-frames, doors, store fronts, elevator enclosures and for all interior and exterior metal trimmings.

Prices quoted on application. Send blueprint or sketch of shape required.

THE AMERICAN BRASS COMPANY
GENERAL OFFICES, WATERBURY, CONN.

MILLS AND FACTORIES
Ansonia, Conn. Torrington, Conn. Waterbury, Conn. Buffalo, N.Y. Kenosha, Wis.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 64

GRANITE—See Stone, Building

HARDWARE

- Cutler Mail Chute Company**, Rochester, N. Y.
Cutler Mail Chute Model F. Booklet. 4 x 9½ in. 8 pp. Illustrated.
- McKinney Mfg. Co.**, Pittsburgh, Pa.
McKinney Cabinet Hardware. Catalog. 6 x 9 in. 32 pp. Illustrated. Describes complete line of hardware for cabinet and furniture work.
- McKinney Hardware for Sliding Doors. Booklet. 6 x 9 in. 18 pp. Illustrated. Describes different types of sliding door hardware.
- Stanley Works, The**, New Britain, Conn.
Wrought Hardware. Catalog. BJ10. 6½ x 10 in. Color plates. Shows all of the Stanley Works products made of steel from their own mills.
- Vonnegut Hardware Co.**, Indianapolis, Ind.
Von Duprin Self-Releasing Fire Exit Devices. Catalog. 12F 8 x 11 in. 41 pp. Illustrated.
- "Saving Lives." Booklet. 3¼ x 6 in. 16 pp. Illustrated. A brief outline why Self-Releasing Fire Exit Devices should be used.

HEATING EQUIPMENT

- American District Steam Company**, North Tonawanda, N. Y.
Bulletin No. 150-AF. 6 x 9 in. 32 pp. Illustrated. Describes the Adaco System of Atmospheric Steam Heating and explains how it saves 20 to 30% of fuel cost. Tells how to figure radiation.
- Catalog No. 21-AF. 6 x 9 in. 200 pp. Illustrated. Lists and describes the full line of equipment and devices manufactured for use on underground and interior steam mains, expansion joints, steam meters, condensation meters, traps, flange fittings, angle fittings, manhole curbs, alignment guides, etc.
- Clarage Fan Company**, Kalamazoo, Mich.
Catalog No. 52. 8½ x 11 in. 84 pp. Illustrated. Describes Clarage Kalamazoo Multiblade Fans and Heaters for use in schools, churches, hospitals and industrial plants. Engineering data, capacity tables and dimensions included.
- James B. Clow & Sons**, 534 S. Franklin Street, Chicago, Ill.
Gasteam. Catalog. 6 x 9 in. 16 pp. Illustrated. New radiator using gas for fuel.
- Excelso Specialty Works**, 119 Clinton St., Buffalo, N. Y.
Excelso Water Heater. Booklet. 12 pp. 3 x 6 in. Illustrated. Describing the new Excelso method of generating domestic hot water in connection with heating boilers. (Firepot Coil eliminated.)
- Gorton & Lidgerwood Co.**, 96 Liberty Street, New York, N. Y.
Gorton Self-Feeding Boilers. Booklet. 4¼ x 7¼ in. 32 pp. Illustrated. Descriptions, specifications and prices.
- Johnson Service Company**, 149 Michigan St., Milwaukee, Wis.
Regulation of Temperature and Humidity. Booklet. 11¼ x 8½ in. 64 pp. Illustrated. Describes Johnson system of pneumatic, automatic regulation of temperature and humidity, and illustrates thermostats, valves, air compressors, dampers and other parts.
- Johnson Electric Thermostats, Valves and Controllers. Booklet. 6¼ x 3½ in. 24 pp. Illustrated. Excellent plates showing electric thermostats and controllers.
- Kelsey Heating Company**, James St., Syracuse, N. Y.
Booklet No. 5. 4 x 9 in. 32 pp. Illustrated. A dealers' booklet showing the Kelsey Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended, and shows the mechanical and gravity system of heating homes, churches and schools.
- Monroe Pipeless Booklet. 4½ x 8 in. 20 pp. Illustrated.
- Monroe Tubular Heater. Booklet. 4½ x 8 in. 20 pp. Illustrated.
- General Booklet giving capacities, dimensions, weights, etc.
- Syracuse Pipeless Booklet. 4½ x 8 in. 12 pp. Illustrated. General Booklet, giving sizes and capacities.
- Kewanee Boiler Co.**, Kewanee, Ill.
Kewanee on the Job. Catalog. 8½ x 11 in. 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators, etc.
- Catalog No. 73. 6 x 9 in. 35 pp. Illustrated. Describes Kewanee steel power boilers with complete specifications.
- Minneapolis Heat Regulator Company**, Minneapolis, Minn.
The Heart of the Heating Plant. Catalog. 6 x 9 in. 20 pp. Illustrated. Describing the Minneapolis Heat Regulator, its construction, application and operation for the automatic control of temperature where coal, gas, fuel oil or street steam is used.
- Page Boiler Company, The Wm. H.**, 141 West 36th Street, New York, N. Y.
Page Boilers. Catalog. 4½ x 8 in. 84 pp. Illustrated. Descriptions with specifications of the Volunteer Round and Monarch Square Sectional Boilers; also the Monarch Up-Draft and Down-Draft Smokeless Boiler; with method for apportioning size of boiler and radiation, and other heating data.
- United States Radiator Corporation**, Detroit, Mich.
The Complete Line. Catalog. 4¼ x 7¼ in. 255 pp. Illustrated. Contains important technical information of special interest to architects and heating engineers.
- Capitol Smokeless Type Boilers. Booklet. 8½ x 11 in. 12 pp. Illustrated. Describing a new type of low-pressure heating boiler which burns soft coal without smoke.
- Utica Heater Company**, Utica, N. Y.
Utica Imperial SUPER-SMOKELESS Boiler. Catalog. 8½ x 11 in. Consists of the following seven bulletins, either loose or bound together: (1) School Heating Bulletin. (2) Public Building Bulletin. (3) Theater Heating Bulletin. (4) Churches and Religious Institutions. (5) Residences, Apartments and Hotels. (6) Offices, Industrial Buildings and Garages. (7) Technical Bulletin describing patented Bunsen Burner design and construction of the SUPER-SMOKELESS BOILER, which burns the cheapest grades of soft coal smokelessly and operates equally well with hard coal, coke or fuel oil.

HEATING EQUIPMENT—Continued

Utica Heater Company—Continued

- Imperial Round and Square Boilers and Supplies. Catalog. 3½ x 6½ in. Gives complete data on small heaters.
- Special Folders. 8½ x 11 in. "Warmth and Comfort," describing the scientifically correct NEW IDEA pipeless furnaces. "SUPERIOR Warm Air Pipe Furnaces," a standard line of heating equipment for over forty years. "SUPER-SMOKELESS Pipe and Pipeless Furnaces," a new and remarkably efficient warm air heater, burning cheap soft coal without smoke—utilizing the principle of the Bunsen Burner.
- "Imperial Sectional Square Boilers," for hard coal heating of all types of buildings.

HEAT REGULATORS—See Heating Equipment

HOISTS

- Gillis & Geoghegan**, 544 West Broadway, New York.
Hoists for Industrial Plants. Booklet. 6 x 8½ in. 8 pp. Illustrated. Labor saving service in the lifting or lowering of lighter loads, through the use of G & G Telescopic and Non-telescopic Hoists.
- Removing Ashes. Booklet. 6 x 8½ in. 6 pp. Illustrated. Removing ashes from boiler room directly to wagon by electrically operated Telescopic Hoists.

HOLLOW TILE—See Tile, Hollow

INSULATION

- Bishopric Manufacturing Co.**, 103 Este Ave., Cincinnati, Ohio.
For All Time and Climate. Booklet. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco base and Bishopric plaster base.
- Philip Carey Co., The**, Cincinnati, Ohio.
Carey Asbestos and Magnesia Products. Catalog. 6 x 9 in. 72 pp. Illustrated.
- United States Gypsum Company**, 205 West Monroe St., Chicago, Ill.
Bulletin. 8½ x 11 in. Details and specifications for insulating roofs to prevent condensation.
- United States Mineral Wool Co.**, 280 Madison Ave., New York, N. Y.
The Uses of Mineral Wool in Architecture. Booklet. 5¼ x 6½ in. 24 pp. Illustrated. Describes properties of mineral wool as insulation against heat, frost, sound. Specifications and section drawings for use as a fireproofing. Rule for estimate and cost.

KITCHEN EQUIPMENT

- Wm. M. Crane Company**, 16-20 West 32nd St., New York, N. Y.
VULCAN Gas Ranges and Appliances. Booklet. 5 x 8 in. 50 pp. Illustrated. Describes complete line, including VULCAN SMOOTH-TOP Compact Cabinet Gas Ranges for kitchens in the home.
- VULCAN Gas Equipment for Hotels, Hospitals, Restaurants, etc. Booklet. 5 x 8 in. 45 pp. Illustrated. Equipment for heavy-duty cooking requirements, with information of value to architects in planning kitchens.

LATH, METAL AND REINFORCING

- North Western Expanded Metal Co.**, 934 Old Colony Building, Chicago, Ill.
Designing Data. Catalog. 6 x 9 in. 94 pp. Illustrated. Describes most efficient use of Econo Expanded Metal Reinforcing.
- Formless Concrete Construction. Catalog. 6 x 9 in. 80 pp. Illustrated. Describes use of T-Rib Chancelath, a form and reinforcing for concrete.

LEADERS AND GUTTERS

- Copper & Brass Research Assn.**, 25 Broadway, New York, N. Y.
Copper Roofing. Booklet. 8½ x 11 in. 32 pp. Illustrated. Gives information regarding weights of various roofing materials. Describes up-to-date practice and methods of laying copper roofs; decorative effects and how to obtain them. Gives specifications and details. Flashings, reglets, gutters and leaders, cornices and copper-covered walls.

MAIL CHUTES

- Cutler Mail Chute Company**, Rochester, N. Y.
Cutler Mail Chute Model F. Booklet. 4 x 9½ in. 8 pp. Illustrated.

MANTELS

- Arnold & North, Inc.**, 124 East 41st St., New York, N. Y.
Booklet. 5 x 6 in. Contains photographic reproductions of a variety of old English and Colonial mantelpieces with complete information as to sizes and prices.
- Arthur Todhunter**, 414 Madison Ave., New York, N. Y.
Mantels and Fireplace Equipment. Booklet. 8½ x 11 in. Illustrated. Separate sheet plates showing mantels installed and furnished, also andirons and grates grouped with suitable pieces, also lanterns, weather-vanes and hand-wrought hardware. All sizes and descriptions given on each plate.

NIGHT

The test of security comes when the world sleeps.

More than 80% of the robberies, incendiary fires and acts of vandalism occur at night.

PAGE PROTECTION FENCE

stands guard over hundreds of factories, public buildings and residences, saving expense of watchmen and giving positive security—day and night, all year round.

PAGE FENCE & WIRE PRODUCTS ASSOCIATION
215 North Michigan Avenue, Chicago



*"America's
first wire
fence—1885"*

PAGE

PROTECTION FENCE



*Ingot Iron
The only wire
fence made of
Armco Ingot Iron*

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 66

MARBLE

- The Georgia Marble Company**, Tate, Ga. New York office, 1328 Broadway.
 Why Georgia Marble is Better. Booklet. $3\frac{3}{4} \times 6$ in. Gives analysis, physical qualities, comparison of absorption with granites, opinions of authorities, etc.
 Convincing Proof. Booklet. $3\frac{3}{4} \times 6$ in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of Architects and Sculptors.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York, N. Y.
 Reproductions in natural colors of imported and domestic marbles and stone for interior and exterior uses.
 Bulletins, $9\frac{3}{4} \times 12\frac{3}{4}$ in., illustrating buildings of various types in which Tompkins-Kiel Marble Company's imported and domestic marbles and stone have been used.
Vermont Marble Company, Adv. Dept., Proctor, Vt.
 The Book of Vermont Marble. Booklet. $8\frac{1}{2} \times 11$ in. 68 pp. Illustrated. A reference book for architects, describing various kinds of Vermont Marble, with illustrations and details.
 Marble Banks and Modern Business. Booklet. $7\frac{3}{4} \times 10\frac{1}{2}$ in. 48 pp. Illustrated. Contains many pictures of important Vermont Marble bank work, with certain tests and analyses relating to the product.

METAL LATH—See Lath, Metal and Reinforcing

METALS

- American Brass Company**, Waterbury, Conn.
 Illustrated pamphlet describes the use and adaptability of extruded architectural shapes to meet the architect's design.
American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.
 Reference Book. Pocket Ed. $2\frac{1}{2} \times 4\frac{1}{4}$ in. 168 pp. Illustrated
 Covers the complete line of Sheet and Tin Mill Products.
 Apollo and Apollo-Keystone Galvanized Sheets. Catalog. $8\frac{1}{2} \times 11$ in. 20 pp. Illustrated.
 Research on the Corrosion Resistance of Copper Steel. Booklet. $8\frac{1}{2} \times 11$ in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.
 Facts Simply and Briefly Told. Booklet. $8\frac{1}{2} \times 11$ in. 16 pp. Illustrated. Non-technical statements relating to Keystone Copper Steel.
 Black Sheets and Special Sheets. Catalog. $8\frac{1}{2} \times 11$ in. 28 pp. Illustrated. Describes standard grades of Black and Uncoated Sheets, together with weights, bundling tables, etc.
 Bright Tin Plates. Catalog. $8\frac{1}{2} \times 11$ in. 16 pp.
Bridgeport Brass Company, Bridgeport, Conn.
 Seven Centuries of Brass Making. Booklet. $10\frac{1}{2} \times 8$ in. 78 pp. Illustrated in color. A brief history of the ancient art of Brass Making and its early (and even recent) method of production—contrasted with that of the Electric Furnace Process—a twentieth century achievement of the Bridgeport Brass Company.
 Tested High-Speed Brass Rod. Booklet. $10\frac{1}{2} \times 8$ in. 16 pp. Illustrated. Short treatise on the manufacture of Brass Rod for use in Screw Machines, with particular reference to improvements originated by the Bridgeport Brass Company.
 Handbook for Architects, Engineers & Superintendents. Book. $7\frac{1}{2} \times 4$ in. 100 pp. Illustrated. Descriptive catalog of the products of the Bridgeport Brass Company, prepared especially for architects, engineers and superintendents, fully illustrated, and containing much valuable information.
Copper & Brass Research Assn., 25 Broadway, New York, N. Y.
 Copper Roofing. Booklet. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Gives information regarding weights of various roofing materials. Describes up-to-date practice and methods of laying copper roofs; decorative effects and how to obtain them. Gives specifications and details. Flashings, reglets, gutters and leaders, cornices and copper-covered walls.

METAL TRIM—See Doors, Windows and Trim, Metal

MORTAR COLORS

- Clinton Metallic Paint Co.**, Clinton, N. Y.
 Clinton Mortar Colors. Booklet. $3\frac{1}{2} \times 6\frac{1}{2}$ in. 8 pp. Illustrated
 Complete description of Clinton Mortar Colors with color samples

PAINTS, STAINS, VARNISHES AND WOOD FINISHES

- Cabot, Inc.**, Samuel, Boston, Mass.
 Cabot's Creosote Stains. Booklet. $4 \times 8\frac{1}{2}$ in. 16 pp. Illustrated.
S. C. Johnson & Son, Racine, Wis.
 The Proper Treatment for Floors, Woodwork & Furniture. Booklet $6\frac{1}{4} \times 8\frac{1}{4}$ in. 32 pp. Illustrated in color. A treatise on finishing hard and soft wood in stained and enameled effects; also natural wood effects.
 Portfolio of Wood Panels. $5\frac{1}{2} \times 10\frac{1}{4}$ in. 14 pp. A portfolio containing actual panels of finished woods. Also contains valuable information on finishing and re-finishing floors and woodwork.
National Lead Company, 111 Broadway, New York, N. Y.
 Handy Book on Painting. Book. $5\frac{1}{2} \times 3\frac{1}{4}$ in. 100 pp. Gives directions and formulas for painting various surfaces of wood, plaster, metal, etc., both interior and exterior.
 Red Lead in Paste Form. Booklet. $6\frac{1}{4} \times 3\frac{1}{4}$ in. 16 pp. Illustrated
 Directions and formulas for painting metals.
 Came Lead. Booklet. $8\frac{3}{4} \times 6$ in. 12 pp. Illustrated. Describes various styles of lead came.
 Cinch Anchoring Specialties. Booklet. $6 \times 3\frac{1}{4}$ in. 20 pp. Illustrated. Describes complete line of expansion bolts.
The Ripolin Company, Cleveland, Ohio
 Ripolin Specification Book. $8 \times 10\frac{1}{4}$ in. 12 pp. Complete specifications and general instructions for the application of Ripolin, the original Holland enamel paint. Also directions for proper finishing of wood, metal, plaster, concrete, brick and other surfaces.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES—Continued

- Ruberoid Co.**, The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.
 Preservative Coatings. Booklet. 6×9 in. 15 pp. Illustrated. Presents in a concise manner the properties and uses of the Ruberoid Company's various paint preparations.
Smith & Co., Edward, P. O. Box 76, City Hall Station, New York, N. Y.
 Architect's Hand Book. $4\frac{3}{4} \times 7\frac{1}{2}$ in. 24 pp. Specifications and suggestions for painting, varnishing, enameling, etc.
Sonneborn Sons, Inc., L., Dept. 4, 264 Pearl Street, New York.
 Paint Specifications. Booklet. $8\frac{1}{2} \times 10\frac{1}{4}$ in. 4 pp.
The Truscon Laboratories, Detroit, Mich.
 Architects' Specification Handbook. $8\frac{1}{2} \times 11$ in. 108 pp. Complete specifications covering Waterproofings, Dampproofings, Oilproofings, Technical Finishes, Steel Paints, Mill White Paints, Floor Hardeners and Varnishes.

PARTITIONS

- Improved Office Partition Company**, 25 Grant St., Elmhurst, L. I.
 Telesco Partition. Catalog. $8\frac{1}{2} \times 11$ in. 14 pp. Illustrated. Shows typical offices laid out with Telesco partitions, cuts of finished partition units in various woods. Gives specifications and cuts of buildings using Telesco.
 Detailed Instructions for erecting Telesco Partitions. Booklet. 24 pp. $8\frac{1}{2} \times 11$ in. Illustrated. Complete instructions, with cuts and drawings, showing how easily Telesco Partition can be erected.
The J. G. Wilson Corporation, 11 East 36th St., New York, N. Y.
 Folding Partitions. Booklet. $8\frac{1}{2} \times 11\frac{1}{2}$ in. 16 pp. Illustrated. Covers the field of folding partitions for churches, schools, hotels, clubs and public institutions.
 Rolling Partitions, Hygienic and Disappearing Door Wardrobes. Booklet. 6×9 in. 32 pp. Illustrated. Describes rolling partitions, particularly in churches and schools, and wardrobes as installed in schools and public institutions.

PARTITIONS, WIRE

- Page Steel & Wire Company**, Bridgeport, Conn.
 Page Standard Panel Partition. Booklet. $8\frac{1}{2} \times 11$ in. 6 pp. Illustrated. Uses and advantages of Wire Partition, with Page Standard Panel Specifications. Valuable to architects.

PIPE

- American Brass Company**, Waterbury, Conn.
 Illustrated pamphlet giving tables of weights and price-lists devoted to Brass and Copper Pipe in iron pipe and plumbers' sizes.
A. M. Byers Company, 235 Water St., Pittsburgh, Pa.
 Bulletin 26-A. "What is Wrought Iron?" $8 \times 10\frac{1}{4}$ in. 40 pp. Illustrated. Descriptions of materials and processes employed in manufacturing Byers genuine wrought iron pipe. Factors influencing corrosion. Gives table of pipe sizes, weights, dimensions, tests, etc., and tabulated records of the life of iron and steel pipe in various kinds of service.
 Bulletin 30. An Investigation of Pipe Corrosion in Hot Water Service. $8 \times 10\frac{1}{4}$ in. 20 pp. Illustrated. Shows service records of iron, steel and brass pipe used for hot and cold water supply lines in 129 Pittsburgh Apartment Buildings.
 Bulletin 32. Corrosion of Wrought Iron, Cast Iron and Steel Pipe in House Drainage Systems. $8 \times 10\frac{1}{4}$ in. 32 pp. Illustrated. Data obtained through investigations conducted in New York and Chicago by Dr. Wm. F. Gerhard, C.E., and Thomas J. Claffy, Asst. Chief San. Inspector, city of Chicago.
 Bulletin 38. The Installation Cost of Pipe. 32 pp. $8 \times 10\frac{1}{4}$ in. Illustrated. Cost analyses of 20 different pipe installations, in power and industrial plants, office buildings, hotels, residences, etc.
Clow & Sons, James B., 534 S. Franklin Street, Chicago, Ill.
 Catalog "A." $4 \times 6\frac{1}{2}$ in. 706 pp. Illustrated. Shows a full line of steam, gas and water works supplies.
National Tube Co., Frick Building, Pittsburgh, Pa.
 National Bulletin No. 11, History, Characteristics and Advantages of National Pipe. Catalog. $8\frac{1}{2} \times 11$ in. 48 pp. Illustrated.
Reading Iron Company, Reading, Pa.
 Reading Genuine Wrought Iron Pipe in the Making and in Service. Bulletin No. 1. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. History of the Reading Iron Company. Origin of wrought iron—description of each process of manufacture of both butt-weld and lap-weld pipe—Reading Pipe in various fields.
 Book of Standards. Booklet. 5×7 in. 48 pp. Illustrated. Complete tables showing dimensions, tests and list prices on each of the 552 different kinds of Reading Tubular goods. Two simple tests for distinguishing genuine wrought iron pipe.
 The Painted Molecule. Booklet. 4×9 in. 8 pp. Illustrated. A brief, non-technical description of the reasons for the longer life of Reading Iron Pipe, with instances of actual service.
 The Ultimate Cost. Booklet. $5\frac{1}{4} \times 7\frac{1}{4}$ in. 24 pp. Illustrated in two colors. A comparison in actual figures of the initial cost and the ultimate cost of plumbing and heating systems in several kinds of homes.

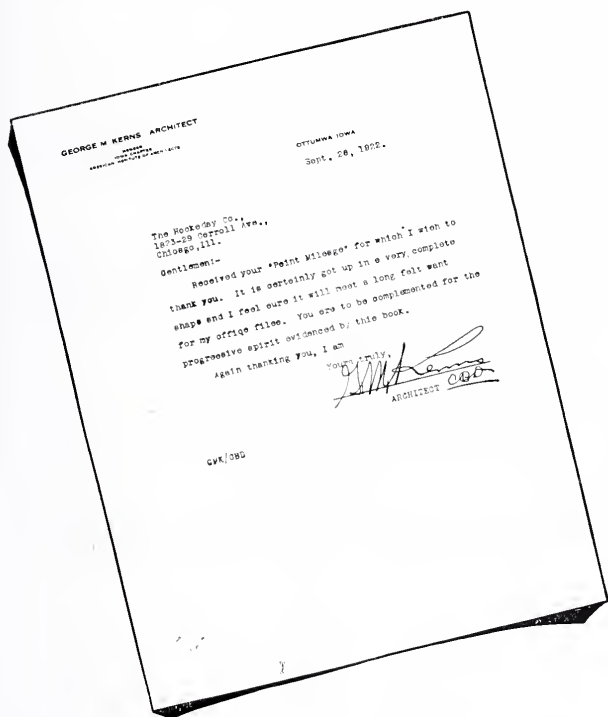
PLUMBING EQUIPMENT

- American Brass Company**, Waterbury, Conn.
 Benedict Nickel. Illustrated pamphlet descriptive of Benedict Nickel White Metal for high-grade plumbing fixtures.
A. P. W. Paper Company, Albany, N. Y.
 The Onliwon Cabinet and Paper. Booklet. $5\frac{1}{2} \times 3\frac{3}{4}$ in. 24 pp. Illustrated. Contains descriptions, illustrations and specifications of cabinets for serving Onliwon toilet paper and Onliwon paper towels.
Bridgeport Brass Company, Bridgeport, Conn.
 Plumbing Supplies. Booklet. $10\frac{1}{2} \times 8$ in. 20 pp. Illustrated. Describes a few of the different plumbing supplies manufactured by the Bridgeport Brass Company.

"Paint Mileage"

Heartily Welcomed by Architects—

*The New Hockaday Book
of Painting Facts Is Meeting
With Splendid Response*



IT is indeed gratifying to have an architect write us that our new book, "Paint Mileage" is filling "a long-felt want." We are very proud of this new book which has been so carefully compiled by a paint expert. You can rely on its being absolutely authoritative.

"Paint Mileage" will help you with your interior paint specifications. It will help you solve many paint problems—and you will find yourself referring to it time and time again. Then, too, it tells the story of Hockaday—the washable finish for all interiors—the interior paint which architects find to be giving mighty satisfying results.

"Paint Mileage" Will Be Sent You Gratis

There is no charge for this splendid book—your request on your letterhead will bring it promptly. If you are at all interested in interior painting problems by all means send for "Paint Mileage." Like Mr. Kerns, we'll warrant it will "meet a long-felt want" in your office.



The Hockaday Co.

1823-1829 Carroll Ave., Chicago, Illinois

What Other Architects Say About "Paint Mileage"

"Your book, 'Paint Mileage,' is a very fine book . . . as it contains some very useful information."

Smith, Hinchman & Grylls
Detroit, Mich.

" . . . The book appears to contain very complete instructions for taking care of various paint problems."

Proudfoot, Bird & Rawson
Des Moines, Iowa

"It's fine!"

Meyer J. Sturm, Chicago, Ill.

"It furnishes us a great deal of valuable information and is useful for our specification writers."

Schack, Young & Myers
Seattle, Wash.

" . . . it will be of material help in painting specification work."

Russ & Karges, Evansville, Ind.

HOCKADAY

THE WASHABLE FINISH FOR ALL INTERIORS

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — Continued from page 68

PLUMBING EQUIPMENT—Continued

- Brunswick-Balke-Collender Co.**, 623 S. Wabash Avenue, Chicago, Ill.
 Whale-bone-ite Seat. Booklet. $3\frac{1}{2} \times 6\frac{1}{4}$ in. 4 pp. Illustrated.
 Whale-bone-ite Seat. Booklet. $3\frac{1}{2} \times 6\frac{1}{4}$ in. 8 pp. Illustrated.
Crow & Sons, James B., 534 S. Franklin Street, Chicago, Ill.
 Catalog "M." $9\frac{1}{2} \times 12$ in. 184 pp. Illustrated. Shows complete line of plumbing fixtures for Schools, Railroads and Industrial Plants.
Crane Company, 836 S. Michigan Avenue, Chicago, Ill.
 Crane Products in World Wide Use. Catalog. $5 \times 9\frac{1}{2}$ in. 24 pp. Illustrated.
 Plumbing Suggestions for Home Builders. Catalog. 3×6 in. 80 pp. Illustrated.
 Plumbing Suggestions for Industrial Plants. Catalog. $4 \times 6\frac{1}{2}$ in. 43 pp. Illustrated.
Eljer Company, 15 E. Van Buren St., Chicago, Ill.
 The Standardized Sixteen. Booklet. $3\frac{3}{4} \times 6\frac{3}{4}$ in. 32 pp. Illustrated. Describes fully the complete Eljer line of standardized plumbing equipment, with diagrams, weights, measurements and copious illustrations.
Kohler Co., Kohler, Wis.
 Kohler of Kohler. $5\frac{1}{2} \times 8$ in. 48 pp. Illustrated catalog. Shows complete line of plumbing fixtures.
Maddock's Sons Co., Thomas, Trenton, N. J.
 Highest Grade Standardized Plumbing Fixtures for Every Need. Catalog. $5 \times 7\frac{1}{2}$ in. 94 pp. Illustrated. Covers the complete line.
 Bathroom Individuality. Booklet. 6×9 in. 28 pp. Illustrated. Showing view of complete bathrooms with complete descriptions of floor plans.
 Specifications for plumbing fixtures. Booklet. 9×12 in. 8 pp. Tables of specifications for industrial buildings, schools, apartments, hotels, etc.
Speakman Company, Wilmington, Del.
 Speakman Showers and Fixtures. Catalog. $4\frac{1}{2} \times 7\frac{1}{2}$ in. 250 pp. Illustrated. Catalog of Modern Showers and Brass Plumbing Fixtures, with drawings showing layouts, measurements, etc.
 Toned Up In Ten Minutes. Booklet. $7\frac{1}{2} \times 10\frac{1}{2}$ in. 16 pp. Illustrated. Modern Showers and Washups for Industrial Plants, showing the sanitary method of washing in running water.
Wolf Manufacturing Company, 255 No. Hoyne Ave., Chicago, Ill.
 Plumbing Suggestions. Catalog. $3\frac{1}{2} \times 6$ in. 50 pp. Illustrated. Illustrating, describing and pricing Wolf Quality Plumbing Fixtures for residential installation.

PUMPS

- Goulds Mfg. Co., The**, Seneca Falls, N. Y.
 Set of Twenty Bulletins. $7\frac{1}{2} \times 10\frac{1}{4}$ in. 12 to 32 pp. each. Illustrated. Covers complete line of power and centrifugal pumps for all services.
 Catalog "K." 6×9 in. 216 pp. Illustrated. Covers complete line of smaller size pumps.

RAMPS

- Ramp Buildings Corporation**, 115 Broad St., New York, N. Y.
 The d'Humy Motoramp System of Building Design. Booklet. $8\frac{1}{2} \times 11$ in. 20 pp. Illustrated. Describes the d'Humy system of ramp construction for garages, service buildings, factories, warehouses, etc., where it is desirable to drive motor vehicles or industrial tractors under their own power from floor to floor.
 Storage Efficiency of Multi-Floor Garages. Leaflet. $8\frac{1}{2} \times 11$ in. 4 pp. Illustrated. A brief discussion of comparative storage efficiencies of elevator garages, ordinary ramp garages, and d'Humy Motoramp garages.
 Visibility. Pamphlet. $8\frac{1}{2} \times 11$ in. 2 pp. Illustrated. Discussion of visibility feature of d'Humy Motoramp System with reference to illustration of one particular installation.
 Series of Informal Bulletins on Garage Design. Sent upon request.

ROOFING

- American Brass Company**, Waterbury, Conn.
 Copper Products for Roofing Purposes. Illustrated price-list devoted to copper products, including sheets and rolls, for fabricating into leaders, gutters, flashings, shingles, etc.
American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
 Better Buildings. Catalog. $8\frac{1}{2} \times 11$ in. 32 pp. Describes Corrugated and Formed Sheet Steel Roofing and Siding Products, black, painted and galvanized, with directions for application of various patterns of Sheet Steel Roofing in various types of construction.
 Copper—Its Effect Upon Steel for Roofing Tin. Catalog. $8\frac{1}{2} \times 11$ in. 28 pp. Illustrated. Describes the merits of high grade roofing tin plates and the advantages of the copper-steel alloy.
Philip Carey Co., The, Cincinnati, Ohio.
 Architects Specifications for Carey Building Material. $8\frac{1}{2} \times 11$ in. 48 pp. Illustrated.
Copper & Brass Research Assn., 25 Broadway, New York, N. Y.
 Copper Roofing. Booklet. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Gives information regarding weights of various roofing materials. Describes up-to-date practice and methods of laying copper roofs; decorative effects and how to obtain them. Gives specifications and details. Flashings, reglets, gutters and leaders, cornices and copper-covered walls.
Cresco-Dipt Company, 1025 Oliver St., North Tonawanda, N. Y.
 Architectural Service Sheets. $8\frac{1}{2} \times 11$ in. Illustrated. Working drawings of construction, with standard specifications for design and construction of same.
Illinois Zinc Company, 280 Broadway, New York, N. Y.
 Corrugated Sheets of Pure Rolled Zinc. Booklet. $3\frac{1}{2} \times 8\frac{1}{2}$ in. 8 pp. Illustrated. Describes methods of application for Corrugated Zinc Sheets for roofing or siding. Weights per square. Comparative gauge lists.
 The Roof That's Always New. Booklet. $3\frac{1}{2} \times 6$ in. 12 pp. Illustrated. Story of Illinois Zinc Shingles, their everlasting and artistic qualities. Information regarding a complete zinc roof, shingles, starting piece, valley, ridge and hip piece.

ROOFING—Continued

- Ruberoid Co., The** (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.
 Instructions for Laying Built-up Roofs. Booklet. $8\frac{1}{2} \times 11$ in. Illustrated.
 Ruberoid Facts Worth Knowing. Booklet. 6×9 in. 16 pp. Illustrated.
 Ruberoid Strip-shingle. Booklet. $3\frac{1}{2} \times 6\frac{1}{4}$ in. 16 pp. Illustrated in color.
 Ruberoid Unit-shingle. Booklet. $3\frac{1}{2} \times 6\frac{1}{4}$ in. Illustrated in color.
N. & G. Taylor Company, 300 Chestnut Street, Philadelphia, Pa.
 Selling Arguments for Tin Roofing. Booklet. $6\frac{1}{4} \times 9\frac{1}{4}$ in. 80 pp. Illustrated. Describes the various advantages of the use of high grade roofing tin, gives standard specifications, general instructions for the use of roofing tin, illustrates in detail methods of application.

SAFETY TREADS

- Universal Safety Tread Co.**, 40 Court St., Boston, Mass.
 The Universal Safety Metal Tread. Booklet. $8\frac{1}{2} \times 11$ in. 16 pp. Illustrated. Describes Safety Treads, with lead inserts in steel base, suitable for use on iron, wood or concrete stairs. Also the flat type, with "Alundum" surface, as well as special ladder treads for ships, power-house and engine-room open string stairways.

SEWAGE DISPOSAL

- Kewanee Private Utilities**, 442 Franklin St., Kewanee, Ill.
 Specification Sheets. $7\frac{1}{4} \times 10\frac{1}{4}$ in. 46 pp. Illustrated. Detailed drawings and specifications covering water supply and sewage disposal systems.

SHEATHING

- Bishopric Manufacturing Co.**, 103 Este Ave., Cincinnati, Ohio
 For All Time and Clime. Booklet. 6×9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco base and Bishopric plaster base.

STEEL DRESSERS

- James & Kirtland**, 133-135 West 44th St., New York, N. Y.
 The White House Line. Booklet. $7\frac{1}{2} \times 5\frac{1}{4}$ in. 24 pp. Illustrated. Describes and illustrates in detail WHITE HOUSE Steel Dressers and some of the separate units. Also contains typical layout and list of some of our clients.
 Photographs. $5\frac{1}{2} \times 3\frac{1}{2}$ in. Views of actual installations in private residences, schools, etc., sent on request.

STONE, BUILDING

- Harrison Granite Company**, 200 Fifth Avenue, New York, N. Y.
 Harrison Granite Company, Clientele. $3\frac{1}{4} \times 8\frac{1}{4}$ in. 24 pp. Illustrated. A partial list of clients with illustrations of examples of monuments and mausoleums.
Indiana Limestone Quarrymen's Association, Box 766, Bedford, Indiana.
 Volume 3. Series A-3. Standard Specifications for Cut Indiana Limestone work. $8\frac{1}{2} \times 11$ in. 56 pp. Containing specifications and supplementary data relating to the best methods of specifying and using this stone for all building purposes.
 Vol. 1. Series B. Indiana Limestone Library. 6×9 in. 36 pp. Illustrated. Giving general information regarding Indiana Limestone, its physical characteristics, etc.
 Vol. 27. Series B. Designs for Houses of Indiana Limestone. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Being the best designs submitted in competition for a detached residence faced with Indiana Limestone conducted by *The Architectural Review*.
Tompkins-Kiel Marble Company, 505 Fifth Ave., New York, N. Y.
 Reproductions in natural colors of imported and domestic marbles and stone for interior and exterior uses.
 Bulletins, $9\frac{1}{4} \times 12\frac{3}{4}$ in., illustrating buildings of various types in which Tompkins-Kiel Marble Company's imported and domestic marbles and stone have been used.

STORE FRONTS

- Brasco Manufacturing Company**, 5025 So. Wabash Ave., Chicago, Ill.
 Brasco Catalog No. 26. $8\frac{1}{2} \times 11$ in. 28 pp. Illustrated. Catalog illustrating and describing members of the Brasco and Brasco-Hester Construction. Includes copper-covered Brasco moulding and the Hester all metal moulding. The wood core of the Brasco has been creosoted and will last as long as the building.
 Full-size Details Brasco Copper Store Front Construction. $8\frac{1}{2} \times 11$ in. Complete in every particular. Show practical installation of the construction.
 Full-Size Details Brasco-Hester Copper Store Front Construction. $8\frac{1}{2} \times 11$ in. This type is all metal or hollow. Has a dust regulator at the base of the plate which does not stick.
Kawneer Co., The, Niles, Mich.
 Kawneer Solid Copper Store Fronts. Catalog "K." $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Information about various members used in the pioneer Kawneer construction.
 A Collection of Successful Designs. Catalog. $9\frac{1}{4} \times 6\frac{1}{2}$ in. 64 pp. Illustrated. Showing by use of drawings and photographs many types of Kawneer Solid Copper Store Fronts.
Zouri Drawn Metals Co., B. J. 10, Chicago Heights, Ill.
 Architects' Catalog. $8\frac{1}{4} \times 11\frac{1}{4}$ in. 86 pp. Illustrated. Showing a true copy of the approval of the Underwriters' Laboratories. Showing a proper glazing specification, based on the Underwriters' Report.
 Catalog B. J. 8. 6×9 in. 68 pp. Illustrated. Key to Getting the People In.



Broad Street Hospital

William Neal Smith, Architect

Equipped with HASTINGS ROLUP Screens

The Practical Features of Hastings Rolup Screens

AFTER three years of careful study and extensive experimentation we offer the architectural profession a practical, durable and simple rolling window screen. Wound on a specially designed roller the HASTINGS ROLUP Screen is easily adjusted to any desired position. It rolls into an inconspicuous zinc box, at the head of the window, which is finished to match the trim and when pulled down it is held in place, thereby closing every crack and crevice. It will not fly up. It stays in any desired position.

The screen cloth is made of Monel Metal, which is rust proof, and *continuous rolling does not harden and crack it.*

Flexible strips of German silver are fastened along the sides of the screen. These act as a strong selvage and protect the delicate edge of the screen cloth. These German silver strips also take all the strain when the screen is being rolled up and down.

Inconspicuous rails finished to match the trim are attached to the sides of the window and into these rails the screen is automatically locked as it rolls up and down.

The HASTINGS ROLUP Screen *will not pull out at the sides.* It will stay in any position and is held firmly in place—it cannot bulge, buckle or fly up. The box may be concealed at the head and the guide rails encased in the stop if desired.

HASTINGS ROLUP Screens fit any type of window; are installed inside or out and are never taken out of the window. They are the ideal screens for casements and their many advantages make them most desirable for all types of windows.

Ask for a list of installations

A request on your letterhead will bring more specific information and detailed drawings



ROLUP SCREEN COMPANY - 410 East 32nd Street, New York City

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — *Continued from page 70*

STUCCO BASES

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.
For All Time and Clime. Booklet. 6 x 9 in. 48 pp. Illustrated.
Describing the use of Bishopric stucco base and Bishopric plaster base.

STUCCO, MAGNESITE

American Magnestone Corporation, Springfield, Ill.
Catalog. 13 pp. Describes the quality, beauty and strength of Magnestone.
American Materials Company, 101 Park Avenue, New York; Weed Street and Sheffield Avenue, Chicago, Ill.
Elastica, the Stucco of Permanent Beauty. Catalog. 8½ x 11 in. 32 pp. Illustrated. Treatise on composition and application of Elastica Stucco.
Muller & Co., Franklyn R., Waukegan, Ill.
Everlastic Magnesite Stucco. Booklet. 8½ x 11 in.
United States Materials Co., Weed Street and Sheffield Avenue, Chicago, Ill. See American Materials Co.

TELEPHONE SYSTEMS

Federal Telephone & Telegraph Company, 1738 Elmwood Ave., Buffalo, N. Y.
Catalog No. 610. Booklet. 8½ x 10 in. 24 pp. Illustrated. Interior telephones for home, office, factory, hotel and apartment-house use.

TERRA COTTA

Atlantic Terra Cotta Co., 1170 Broadway, New York, N. Y.
Questions Answered. Booklet. 7½ x 5½ in. 32 pp. Illustrated.
A synopsis of questions most frequently asked by architects in relation to terra cotta, with brief but complete answers; contains many illustrations.
National Terra Cotta Society, 1 Madison Avenue, New York, N. Y.
Standard Construction, Indexed, bound volume. 10½ x 16 in. 90 pp. 70 Illustrations. Standard forms of terra cotta construction with short article.
"The School." 10½ x 13½ in. 34 pp. 92 Illustrations. Types of school buildings with short descriptive articles. Volume I, brochure series.
"Better Banks." 10½ x 13½ in. Illustrated. Banks of various sizes, with short descriptive articles.
"Terra Cotta Defined." 10½ x 13½ in. Complete description of Terra Cotta and its uses.
The New Jersey Terra Cotta Co., Singer Bldg., New York, N. Y.
Store Fronts in Architectural Terra Cotta. Booklet. 8½ x 11 in. 44 pp. Illustrated. Photographs, measured drawings, designs and illustrations of decorative motifs make up an interesting booklet which will be forwarded upon request.
Northwestern Terra Cotta Co., The, 2525 Clybourn Ave., Chicago, Ill.
Booklet. 8½ x 11 in. 77 pp. Illustrated. Showing in a concise way the usefulness of terra cotta.

THERMOSTATS—See Heating Equipment

TILE, FLOOR AND WALL

Associated Tile Manufacturers, The, Beaver Falls, Pa.
Bring the Crowds to Your Market. Booklet. 8½ x 11 in. 16 pp. Illustrated. The use of Tile for the modern sanitary market.
Swimming Pools. Booklet. 8½ x 11 in. 32 pp. Illustrated. A handbook on swimming pools and their construction.

TILE, HOLLOW

Hollow Building Tile Association, Dept. 1812, Conway Bldg., Chicago, Ill.
Handbook of Hollow Building Tile Construction. 8½ x 11 in. 104 pp. Illustrated. Complete treatise on most approved methods of hollow tile building construction and fireproofing.
National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.
Standard Wall Construction Bulletin 174. 8½ x 11 in. 32 pp. Illustrated. A treatise on the subject of hollow tile wall construction.
Industrial Housing Bulletin 172. 8½ x 11 in. 14 pp. Illustrated. Photographs and floor plans of typical workmen's homes.
Nateco on the Farm. 8½ x 11 in. 38 pp. Illustrated. A treatise on the subject of fire safe and permanent farm building construction.
Fireproof Buildings of Nateco Hollow Tile. Booklet. 8½ x 11 in. 16 pp. Illustrated. Showing the use of Nateco Hollow Tile for private residences.

VALVES

Crane Co., 836 S. Michigan Ave., Chicago, Ill.
No. 50 Steam Pocket Catalog. 4 x 6½ in. 775 pp. Illustrated.
Describes the complete line of the Crane Co.
Jenkins Bros., 80 White Street, New York.
The Valve Behind a Good Heating System. Booklet. 4½ x 7¼ in. 16 pp. Color plates. Description of Jenkins Radiator Valves for steam and hot water, and brass valves used as boiler connections.
Jenkins Valves for Plumbing Service. Booklet. 4½ x 7¼ in. 16 pp. Illustrated. Description of Jenkins Brass Globe, Angle Check and Gate Valves commonly used in home plumbing, and Iron Body Valves used for larger plumbing installations.

VENETIAN BLINDS

Burlington Venetian Blind Co., Burlington, Vt.
Venetian Blinds Booklet. 4½ x 7¼ in. 32 pp. Illustrated. Describes the "Burlington" Venetian blinds, method of operation, advantages of installation to obtain perfect control of light in the room.

VENTILATION

Clarage Fan Company, Kalamazoo, Mich.
Catalog No. 52. 8½ x 11 in. 84 pp. Illustrated. Describes Clarage Kalamazoo Multiblade Fans and Heaters for use in schools, churches, hospitals and industrial plants. Engineering data, capacity tables and dimensions included.

WALL BOARDS

Carey Co., The Philip, Cincinnati, Ohio.
Carey Board for Better Building. Catalog. 6 x 9 in. 32 pp. Illustrated.
United States Gypsum Company, 205 West Monroe St., Chicago, Ill.
Walls of Worth. Booklet. 8½ x 11 in. 24 pp. Illustrated. Describes Sheetrock, the fireproof wall board, its advantages and uses.

WATERPROOFING

Ruberoid Co., The, 95 Madison Ave., N. Y.
Impervite. Circular. 8½ x 11 in. 4 pp. Illustrated. An integral waterproofing compound for concrete, stucco, cement, mortar, etc.
Sandusky Cement Co., Dept. F., Cleveland, Ohio.
Medusa Waterproofing. Booklet. 6¾ x 9 in. 38 pp. Illustrated.
The Truscon Laboratories, Detroit, Mich.
Science and Practice of Integral Waterproofing. 4 x 9 in. 33 pp. Illustrated. Discusses why concrete requires waterproofing and properties an integral waterproofing must possess. Full specifications for waterproofing mass concrete, cement stucco and cement plaster coat.

WATER PURIFIERS

Wallace & Tiernan Company, Newark, N. J.
Protecting N. Y. Water Supply. Booklet. 10 x 7 in. 24 pp. Illustrated. Describes the chlorinating equipment used for sterilizing N. Y. City water supply; also equipment suitable for sterilizing water supplies of municipalities, industrial plants, private residences, etc.

WATER SOFTENERS

Permutit Company, The, 440 Fourth Ave., New York, N. Y.
Permutit-Water softened to No (Zero) Hardness. Booklet. 8½ x 11 in. 32 pp. Describing the original Zeolite process of softening water to zero hardness. An essential for homes, hotels, apartment houses, swimming pools, laundries, textile mills, paper mills, ice plants, etc., in hard water districts.

WINDOW HARDWARE

American Chain Company, Inc., Bridgeport, Conn.
American Sash Chain. Booklet. 3½ x 6 in. 8 pp. Illustrated. Describes and illustrates American Sash Chain and Sash Fixtures.
The Kawneer Company, Niles, Mich.
Kawneer Simplex Windows. Catalog. 8½ x 10½ in. 16 pp. Illustrated. Complete information, with measured details, of Kawneer Simplex Weightless Reversible Window Fixtures, made of solid bronze. Shows installations in residences and buildings of all sorts. Detail Sheets and Installation Instructions. Valuable for architects and builders.
Samson Cordage Works, Boston, Mass.
Catalog. 3½ x 6½ in. 24 pp. Illustrated. Covers complete line.
Smith & Egge Mfg. Co., The, Bridgeport, Conn.
Booklet. 6½ x 9 in. 42 pp. Illustrated. Covers a complete line of chains, hardware and specialties.

WINDOWS, CASEMENT

Crittall Casement Window Co., 2703 East Atwater Street, Detroit, Mich.
Catalog No. 18. 9 x 12 in. 56 pp. Illustrated.
Hoffman Mfg. Co., Andrew, 900 Steger Building, Chicago, Ill.
Hoffman Casements. Architects' Portfolio. 8½ x 11 in. Loose-leaf. Large scale working details for mill-work and installation.
F. S. Details 20 x 23 in. and 15 x 22 in. Working details for mill-work and installation.
Hoffman Casements Catalogue. 7 x 8½ in. 16 pp. Illustrated.
Hope & Sons, Henry, 103 Park Avenue, New York.
Catalog. 12½ x 18½ in. 30 pp. Illustrated. Full size details of outward and inward opening casements.
International Casement Company, Jamestown, N. Y.
International Casements. Catalog. 8½ x 11 in. 224 pp. Illustrated. Valuable book, containing photographs and measured drawings of all types of buildings, showing casement windows.
David Lupton's Sons Co., Allegheny Ave. and Tulip St., Philadelphia, Pa.
Lupton Service—Products No. 11. Book. 8½ x 11 in. 192 pp. Illustrated. The full line of Lupton products described and illustrated. Separate chapter on Designing Service. Many new types of steel sash for apartments, hotels, etc., shown.
Catalog No. 110. 8½ x 11 in. 72 pp. Illustrated. A condensed version of the No. 11 or general catalog. The new Lupton Projected Sash completely described.
Casements and Double Hung Windows. Catalog. 8½ x 11 in. 44 pp. Illustrated. Shows new Lupton Casements and Double Hung Windows, with profuse illustrations and full details.
Air and Light in Machine Shops. Booklet. 6 x 9 in. 42 pp. Illustrated. The proper building layout and selection of the right types of steel sash for best results in daylighting and ventilating in machine shops.

WIRE

Page Steel & Wire Company, Bridgeport, Conn.
American Ingot Iron Wire, Electrical and Mechanical. Booklet. 4 x 6½ in. 32 pp. Illustrated. Presents in convenient form data and tables pertaining to the properties of American Ingot Iron Wire. Listed in parallel columns for ready comparison with other commercial wire.



Insulating Papers For Residences

You can make sure that the insulating and building papers you specify fulfill their purpose during the *entire life* of the building when Ruberoid Papers are chosen.

There are no insulating and sheathing papers superior to Ruberoid.

They meet every requirement for effective and permanent insulation. They are made in two grades—saturated and coated (Giant Brand) and saturated only (Hercules Brand).

These papers are odorless, and will not disintegrate. They provide permanent, air-tight, moisture-proof insulation for every building. Here are some of the problems you can solve by the use of Ruberoid Papers.

- | | |
|--|--|
| 1. Back of stucco | 5. Between floors |
| 2. Around window-frames | 6. Lining storage rooms in cellars |
| 3. Behind clapboards | 7. As cold storage insulation |
| 4. Underneath wooden shingles or slate | 8. Temporary siding |
| | 9. For covering screen-doors in winter |

The RUBEROID Co.

95 Madison Avenue, New York
Chicago Boston

Ask for architects' samples of Ruberoid Giant and Hercules Insulating Papers, as well as descriptive folders. They are in convenient size for your files and will be sent upon request.

RUBER-OLD

Insulating and Building PAPERS

Special Lighting Equipment for Monumental Buildings

Two of these beautiful bronze standards, of Corinthian design, 12 feet in height, illuminate the main entrance of Missouri's great Capitol Building in Jefferson City.

The large globe at the top is 19½ inches in diameter. The smaller globes are 10 inches in diameter. The base is 6 feet in diameter. The State seals are cast bronze with stars and figures in open work, backed with glass and equipped for illumination at night. Each of the two fixtures contains 2,400 pounds of Government specification bronze.

In building special fixtures, we are glad to work in closest co-operation with the architect so as to preserve the architectural character and harmony of the work in hand and at the same time secure the necessary quantity and quality of illumination to produce the most artistic effects and the most efficient working conditions possible.

We are prepared to make any style or design of fixture that may be desired — and for any purpose. Our Designing and Engineering Departments are at your service, without obligation, for any special requirements.

THE BRASCOLITE COMPANY, ST. LOUIS, U. S. A.

Division of the St. Louis Brass Manufacturing Co.

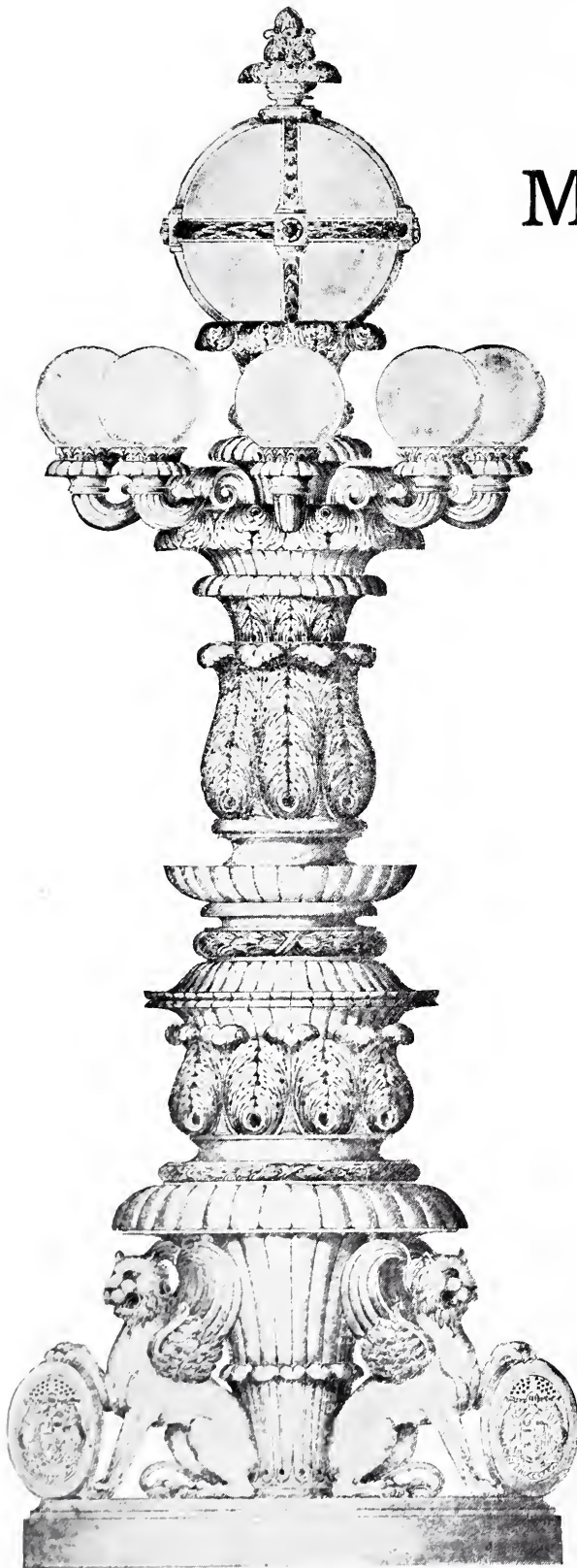
BRANCH OFFICES:

(Sales and Service)

Atlanta	Boston	Chicago	Cincinnati	Detroit	Philadelphia
	Los Angeles	Minneapolis	New Orleans		
		New York	Omaha		

Canadian Distributor: Northern Electric Co., Ltd., Montreal

When in St. Louis, visit our galleries, where reproductions of our many specially designed lighting fixtures are on display.



Made by the manufacturers of

BRASCOLITE

PATENTED AND TRADE MARK REGISTERED



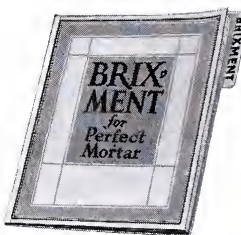
Suppose you had to prepare your lather three hours before you could shave

How much could you accomplish before lunch time? Just as important as promptness in executing the morning shave is the ability to supply the men on the wall with mortar ready for use as soon as the whistle blows.

Then's when Brixment is appreciated.

For Brixment is ready for the trowel the minute it's mixed. No slaking necessary—no sloppy, wasteful mortar beds.

One part Brixment, three parts sand, sufficient water for proper consistency—and you have a mortar as smooth and plastic as butter and eventually stronger than the brick itself.

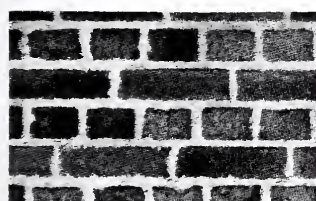


Send for this descriptive handbook, 8½ in. by 11 in., with handy tab for filing

Less likely to freeze, requires less mortar color, may be retempered—all features that contribute to the utmost in strength and economy.

Sold through dealers.

LOUISVILLE CEMENT COMPANY, *Incorporated*, Louisville, Ky.



Whatever the style of joint, Brixment's obedience to the trowel assures the best in architectural effects. Does not fade mortar colors

BRIXMENT



View of Counters, Evenly Lighted by Frink Bank Screen Reflectors, Guaranty Trust Co., N. Y.

Harmonious, even, counter lighting

Bank lighting must not only be efficient, it must unite with the design and proportions of the banking room in expressing the dignity and power of the institution.

Each Frink installation is especially designed to meet these two conditions. Every surface, whether of counter or desk, is studied to secure illumination of maximum efficiency with minimum of eye strain.

Frink lighting systems are readily adapted to any form of structure or architectural motif.

For these reasons, co-operation between the architect and the Frink Engineering Department cannot be too early established, that the Frink Lighting System may be made an integral part of the plan.

Frink Lighting is a feature of such institutions as:

National City Bank	New York
Continental & Commercial Nat'l Bank	Chicago
Union Trust Company	New York
First National Bank	Boston
Hibernia Bank	New Orleans

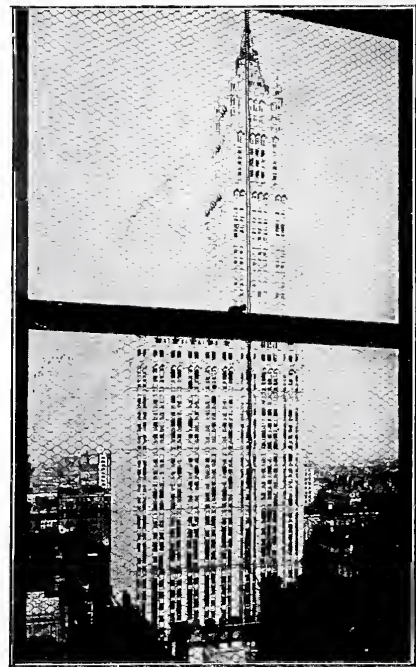
Write for our Special Bank Catalog, No. 421, covering Frink Screen Reflectors, Desk Reflectors, Upward Diffusers and Polaralite Signs.

I.P. FRINK, Inc.

24th Street and 10th Avenue, New York

CHICAGO, ILL. Monadnock Bldg.	SAN FRANCISCO, CALIF. 77 O'Farrell St.	PHILADELPHIA, PA. Franklin Trust Bldg.
BOSTON, MASS. 161 Summer St.	CLEVELAND, OHIO 336 The Arcade	CINCINNATI, OHIO 17 Greenwood Bldg.
DETROIT, MICH. 125 State St.	SEATTLE, WASH. 609 Seaboard Bldg.	LOUISVILLE, KY. 415 West Main St.

Montreal, Canada
Associated with Robert Mitchell Co., Ltd., 64 Bellaire Avenue



THE WOOLWORTH BUILDING

Cass Gilbert, Architect

Thompson-Starrett Co., Contractors

A Wire Glass installation from the Western Union Building through a Polished Wire Glass installation.



MISSISSIPPI WIRE GLASS CO.

220 Fifth Avenue, New York

St. Louis

Chicago

The builder of the George Washington Hotel, Washington, Penn., could tell you of many advantages and savings obtained through the use of Carney.

Architect: W. L. Stoddard, New York City.

Contractors: The John W. Cowper Co., Buffalo, N. Y.



Ask the

Contractor who has used Carney

YOU can do the contractor a favor by specifying Carney. If he doesn't use Carney it is simply because he does not know its advantages. That's why you are doing him a favor by specifying it. Ask the contractor who uses Carney. Here is his story:

"Carney enables me to submit lower bids. You see, it costs less than other cements. I do not have to buy and handle lime, because Carney requires no lime. The mixing is easier and consequently takes less labor. There is no waste, for left-over Carney mortar can be used in the morning by adding water.

"Best of all, Carney relieves me of

worry and bother. The simple formula prevents mistakes. Men on the wall like it because it works easier and better. They lay more brick or tile per man and per day. Then too they can lay approximately 1000 brick to a barrel. I have yet to see a stronger wall than a Carney-laid wall."

These are the contractor's recommendations. In view of these advantages it is a favor to the contractor to specify Carney. And at the same time you will build walls that will please your clients.

Send for the Carney Catalog

Send for the Carney Catalog that describes these advantages in detail. At the same time we will send the names and addresses of contractors and architects using Carney.

Carney Cement Company

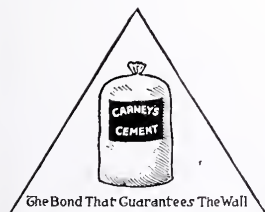
Cement Makers Since 1883

Mankato, Minn.

District Sales Offices:

Leader-News Bldg., Cleveland; Chamber of Commerce Bldg., Chicago; Omaha National Bank Bldg., Omaha; Syndicate Trust Bldg., St. Louis; Book Bldg., Detroit; Builders' Exchange, Minneapolis

Specifications: 1 part Carney, 3 parts sand; no lime



CARNEY'S CEMENT

For Brick and Tile Mortar

FRENCH'S PEERLESS MORTAR COLORS

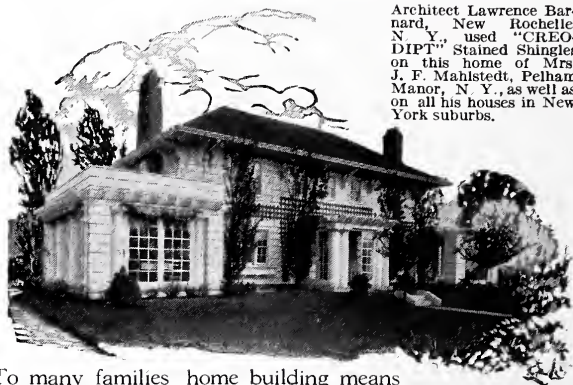
Write us for Descriptive
Booklet and Color Card, the
Original PULP Mortar Colors

Samuel H. French & Company

PHILADELPHIA

Established 1844

Incorporated 1920



Architect Lawrence Barnard, New Rochelle, N. Y., used "CREO-DIPT" Stained Shingles on this home of Mrs. J. F. Mahlstedt, Pelham Manor, N. Y., as well as on all his houses in New York suburbs.

To many families home building means years of planning that they may build wisely.

"CREO-DIPT" Stained Shingles have come to be known, through their use by prominent architects, as one of the most satisfactory and economical building materials for side walls as well as roofs.

You save cost of material, time in construction, and painting and repair bills. "CREO-DIPT" Stained Shingles are made of straight grained red cedar of first quality, stained with earth pigments in pure linseed oil carried into the wood with creosote oil. The open market does not afford such quality in either shingles or stain.

If you are going to build or remodel, send 6c. to cover postage for Portfolio of Fifty Large Photographs of Homes by Prominent Architects with color samples. Also ask about our Special Thatched "CREO-DIPT" Stained Shingles for Thatched Roof Effect; 24-in. Dixie White Side Walls for the true Colonial White Effect.

CREO-DIPT COMPANY, Inc.

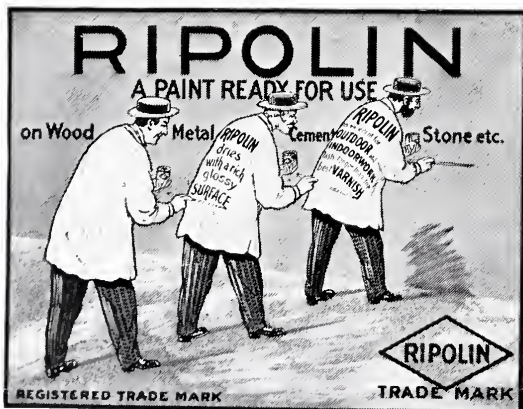
1075 Oliver Street, North Tonawanda, N. Y.

Sales Offices in Principal Cities. Many Lumber Dealers Carry Standard Colors in Stock. Plant at Minnesota Transfer, St. Paul, for Western Distributors.

Portfolio
of Homes



"CREO-DIPT" Stained Shingles



Ask any architect or painter what he thinks of Ripolin Enamel. Their endorsement as a class is the best proof of the superiority of Ripolin.

RIPOLIN

THE ORIGINAL HOLLAND ENAMEL PAINT

E.S.
1827
& CO.

Nearing the Century Mark in VARNISH MAKING

Our products have been specified by architects *continuously for ninety-five years*. What endorsement could be greater?

Specify Enamel of Superior Grade

Highest grade materials enter into our Enamels. Each brand is created for a *specific use*. Each gives full ser-

vice. This is why they satisfy architect and owner—why we are able to offer a strong guarantee.

Trade **Rex White Enamel** Mark
(Interior semi-gloss)

Beautiful in its whiteness. Rich in its eggshell effect. Durable. Easy working. Covers perfectly. Out of dust within a few hours.

Trade **Matte White Enamel** Mark
(Interior flat finish)

Dries with a soft, velvet-like finish. Needs no rubbing down. Dependable. Effective.

Other of Edward Smith & Company's standard products embrace Varnishes, Floor Finishes and Floor Sheens.

Have you our Booklets? Send for finished panels

EDWARD SMITH & CO.

West Avenue, 6th and 7th Streets, Long Island City, N. Y.
P. O. Box 76, City Hall Station, New York, N. Y.
Western Branch, 3532-34 South Morgan Street, Chicago, Ill.



THE smooth working properties of Tiger Finish mean even wall surfaces, perfect corners and angles.

See Sweet's for full particulars about using Tiger Finish—the lime which "Spreads like warm butter."

The Kelley Island Lime & Transport Co.
 World's Largest Producer of Lime
 Leader-News Building
 CLEVELAND

"Spreads like warm butter"

Cut Brass Roofing Nails

The coating of a galvanized nail wears or flakes off. The nail rusts and rots the wood. The life of the roof is shortened

Eagle Brand Cut Brass Roofing Nails are a permanent protection against this prevalent form of roof failure. They never rust, are easy to drive, and are not expensive.

Eagle Brand Cut Brass Roofing Nails can be used with economy on all kinds of roofing, except the cheaper grades that will not withstand weather wear.

Specify Eagle Brand Cut Brass Roofing Nails. May we send you more complete information?



**Taunton-New Bedford
Copper Company**
Taunton, Mass.

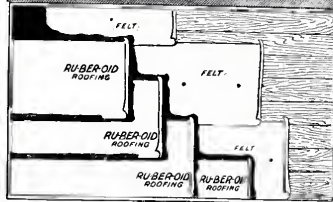
MILLS:

Taunton and New Bedford, Mass.

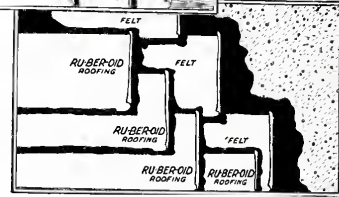
WAREHOUSES:

35 Howard St.
New York

61 Batterymarch St.
Boston, Mass.



On Wood



On Concrete

A part of the 1100 squares of Ruberoid Built-up on the buildings of the Union Stockyards, Omaha, Nebraska.

RUBEROID

A Lifetime of Service

Ruberoid Built-up Roofs will render service for a lifetime. The proof? Single layers of Ruberoid Roofing laid twenty years and more ago are still giving excellent service. Consider, then, what you may expect from a Ruberoid Built-up Roof, consisting, as it does, of two layers of the same material—Ruberoid Roofing—plus a layer of Ruberoid Asphalt-saturated Felt and two layers of Ruberoid Solid Bitumen. The question answers itself.

Ruberoid *does* last. Thousands of roofs laid with Ruberoid fifteen, twenty, twenty-five, and up to twenty-nine years ago bear witness to this fact. You are not trying out something new.

Specifications, samples, and descriptive literature will be gladly furnished on request.

The RUBEROID CO.

95 Madison Avenue, New York

Chicago

Boston

RU-BER-OLD
BUILT-UP ROOFS



Barrett Flashing Block with Flashing installed in brick wall

Barrett ROOF FLASHINGS

At last-Standard Flashings



Metal Flashing Form with Flashing installed in concrete wall

Leaks—the fault of defective flashings

REALIZING from our sixty years' experience in the roofing business that complete roof-satisfaction was impossible without efficient flashings, we determined to work out a definite solution of flashing problems.

Barrett Flashing Block and Barrett Flashing Form, in combination with Barrett Flashings, are the result. They insure practical, durable, inexpensive flashings, permanently watertight and absolutely free from maintenance expense. When used with Barrett Specification Bonded Roofs and installed subject to our inspection, they are guaranteed for ten years.

place and are thoroughly watertight under all conditions.

Roof Flashing Handbook

This new "Roof Flashing Handbook" gives detailed specifications for all three types of Barrett Flashings and much other valuable flashing data never before available. When requested on business letter-head, copy will be sent free of charge.

For general distribution, Architectural Service Sheets Nos. 7, 8, and 9 show these flashings in detail.

Our Service Department will also be pleased to help you with any roof flashing problems. Address our nearest branch.

New Flashings for Old Roofs

Barrett Flex-Lock Flashings carry no guarantee. They are designed especially for replacing worn-out metal flashings on old buildings. They take care of expansion and contraction, remain securely in

The Barrett Company



New York	Chicago	Philadelphia	Boston	St. Louis
Cleveland	Cincinnati	Pittsburgh	Detroit	New Orleans
Birmingham	Kansas City	Minneapolis	Dallas	Syracuse
Peoria	Atlanta	Duluth	Salt Lake City	Bangor
Washington	Johnstown	Lebanon	Youngstown	Milwaukee
Toledo	Columbus	Richmond	Latrobe	Bethlehem
Elizabeth	Buffalo	Baltimore	Omaha	Houston
Denver		Jacksonville		San Francisco

THE BARRETT COMPANY, Limited: Montreal Toronto Winnipeg
Vancouver St. John, N. B. Halifax, N. S.

Barrett Flashing Block

Installed in brick wall to form flashing groove. Section within circle is magnified.

Flashing Block
Point up Flashing Groove with Plastic Elastigum

Barbed Roofing Nails Through second Flashing Strip 12" o.c., 6" from wall.

Plastic Elastigum
Flashing Strips

Barrett Specification Felt & Pitch Roofing

Planking
Barrett Specification Roofing

WOOD DECK ROOF SECT

Guaranteed for Ten Years

As proof of our confidence in the Barrett Flashing when installed in Barrett Flashing Block and the Barrett Flashing Form, we guarantee it for Ten Years against all repair expense, when used with Barrett Specification Bonded Roofs and installed under our supervision.

While not guaranteed when used with other roofs, they may be employed to great advantage with any type of bituminous roof construction.

Barrett Flashing Form

Installed in concrete wall to form flashing groove.

Section within circle is magnified.

Flashing Form

Plastic Elastigum

Flashing Strips

Barrett Specification Felt & Pitch Roofing

Concrete Cant

CONCRETE ROOF SECTION showing FLASHING FORM



*Pete Croatch:
Roofers*



ZINC SHINGLES

"THE ROOF THAT'S ALWAYS NEW"

WE take particular pleasure in calling to your attention this photograph of Pete Croatch, roofer.

Mr. Croatch is one of an increasing number of good roofers in this open minded land of ours who not only knows a good thing when he sees it—but uses it and cashes in on it.

The business like angle of his pipe, hatchet and snips—the significant angle of the overlapping flange on the Illinois Zinc Shingles tucked under his right arm—all are part of the

picture of business—good business—that Pete and other alert roofers are getting.

Illinois Zinc Shingles are artistic—made into a shingle with a butt end just like a heavy slate. These shingles offer the limitless wearing quality of zinc and its fire safeness. With a favorable first cost and absolutely no upkeep cost, they will not warp, crack, split or rot. As Pete Croatch says: "All you've got to do is to lay it and leave it."

ILLINOIS ZINC COMPANY

332 So. Michigan Ave., Chicago, Ill.

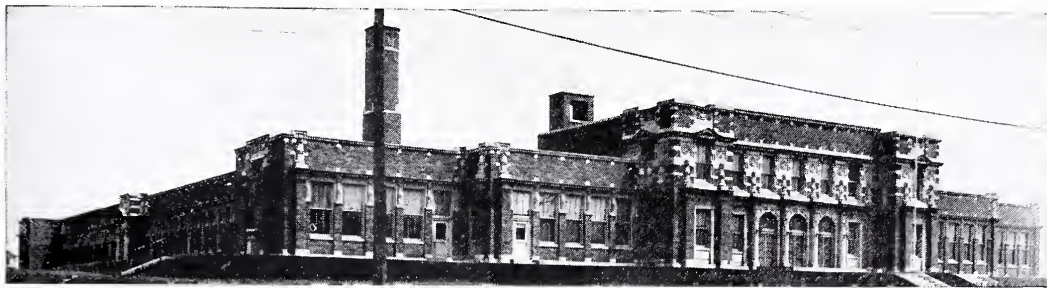
280 Broadway, New York City

1331 Filbert St., Philadelphia, Pa.

Smelters and Rolling Mills, Peru, Ill.

Established 1870

*Corrugated Zinc Sheets for Roofing and Siding—Illinois Zinc Shingles—Strip or Ribbon Zinc—Slab Zinc (Spelter)—Wide Zinc Sheets
Producers of Electrolytic Slab Zinc guaranteed 99.99% pure zinc. The highest grade of Slab Zinc produced in the world.*



Elmer R. Webster School, Pontiac, Mich. Architects: Perkins, Fellows & Hamilton, Chicago

SCHOOL buildings are designed for long service at low up-keep cost. The walls must be kept dry to insure the good health of the children. Therefore, the building must have a weather-proof roof.

The architects of this building chose a Carey Asphalt Built-Up Roof, because they wished to protect it permanently. Asphalt is conceded to be the longest-lived bituminous waterproofing material and Carey Asphalt Built-Up Roofs contain the highest grade asphalts, refined and compounded in the Carey refineries.

For detailed specifications or samples, write

THE PHILIP CAREY COMPANY

504-524 Wayne Ave., Lockland, Cincinnati, O.

Branches and Distributors in sixty leading cities

Carey
BUILT-UP ROOFS
REG. U.S. PAT. OFF.

TARGET *and* ARROW for BUILDINGS of



IREM TEMPLE, WILKES BARRE, PA.
Roofed with 15,000 Sq. Ft. of TARGET & ARROW
Roofing Tin

THE surrounding pictures give some idea of the types of "buildings of distinction" roofed with Target and Arrow Roofing Tin.

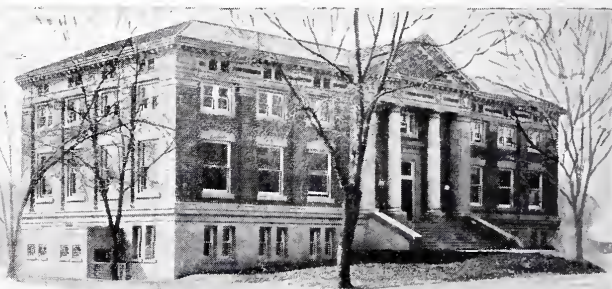
Most of the roofs shown are "ribbed," a strong architectural effect attained by laying the roofing tin over heavy wooden battens. Their beauty has been further enhanced by finishing them in appropriate shades of gray, brown or green.

Target and Arrow is particularly desirable for roofing high-class buildings because it *lasts as long as the building it covers*—a statement amply sustained by numerous records of properties protected by Target and Arrow for fifty, sixty and even seventy years with countless records of perfectly satisfactory service for thirty years and more with this material still on the building and fit to render service for many years to come.

The long life of Target and Arrow Roofing Tin is due



FIRST CHURCH of CHRIST, SCIENTIST, SEATTLE, WASHINGTON
BEBB & MENDEL, Architects



CARNEGIE LIBRARY, HOWARD UNIVERSITY
WHITFIELD & KING, Architects New York City



UNION STATION, DENVER, COLORADO
GOVE & WALSH, Architects



MASONIC TEMPLE, WASHINGTON, D. C.
WOOD, DONN & DEMING, Architects

ROOFING TIN DISTINCTION

to its method of manufacture, for it is a truly hand-made roofing tin, made by an old Welsh process in which each sheet is repeatedly soaked and dipped by hand in pots of boiling palm oil and molten metal, consuming thirty-five minutes' time to coat each sheet and insuring an amalgamation of the coating with the base plate that cannot be done in any other way.

Target and Arrow Roofing Tin will solve more roofing, valley, gutter and flashing problems than any other roofing material on the market today. Full information and details of application on request.

N. & G. TAYLOR COMPANY

Offices: 304 CHESTNUT ST., PHILADELPHIA
Mills: CUMBERLAND, MD.

Headquarters for Good Roofing Tin since 1810



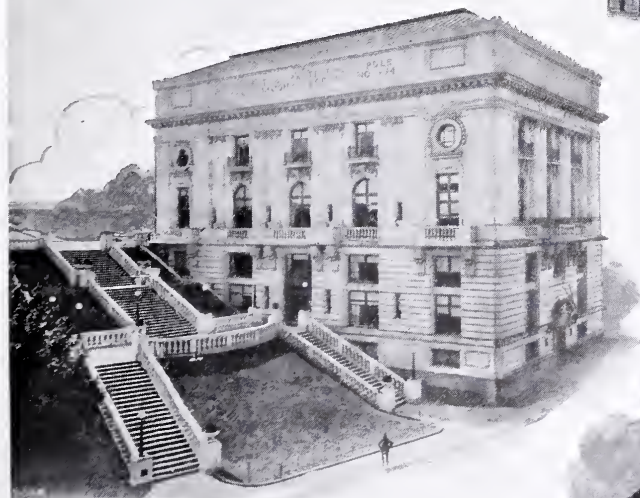
*CITY CLUB, AUBURN, N. Y.
WILKINSON & MAGONIGLE, Architects
New York City*



*ALUMNI MEMORIAL HALL, UNIVERSITY of MICHIGAN
DONALDSON & MEIER, Architects, Detroit*



*74TH REGT. ARMORY, BUFFALO, N. Y.
Roofed with 200,000 Sq Ft. of
TARGET & ARROW Roofing Tin*



*ELKS TEMPLE, TACOMA, WASHINGTON
E. F. CHAMPNEY, Architect*



*ALBANY-NEW YORK
STATE COLLEGE for
TEACHERS*

CYPRESS "The Wood Eternal"

has no equal for porch construction. It seems to be pretty fully demonstrated that for all porch construction, porch floors, porch columns, steps and rails, the rot-resistant quality of "The Wood Eternal" gives it unequaled *investment value* for this class of work. Cypress is famous for "staying put."

Let our "ARCHITECTS' DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel. We invite Correspondence with a serious purpose in it.

Southern Cypress Manufacturers' Association

1234 Poydras Building
New Orleans, La

1234 Graham Building
Jacksonville, Fla.

INSIST ON TRADE-MARKED CYPRESS AT YOUR LUMBER DEALER'S. IF HE HASN'T IT, LET US KNOW IMMEDIATELY

PUMPS

Industrial—Agricultural—Municipal—
Residential

*A type for every
service*

Bulletins on request

THE GOULDS MANUFACTURING CO.
SENECA FALLS, N. Y.

GOULDS



Section of Outside Wall of House, Showing Wood Between Studding

Mineral Wool for Building

Mineral Wool has superseded all other materials used for similar building purposes because it does "a great work at little expense." A house lined with Mineral Wool has an indestructible, fire-proof and vermin-proof guard; it protects the entire household. In the winter time it keeps the cold air out, facilitating proper heating and economy in fuel. In the summer it keeps the heat out.

This material, being of fibrous, inelastic composition, acts as a deadener and muffles all sound. It is considered the best insulator material on the market, making it a perfect refrigerating machine.

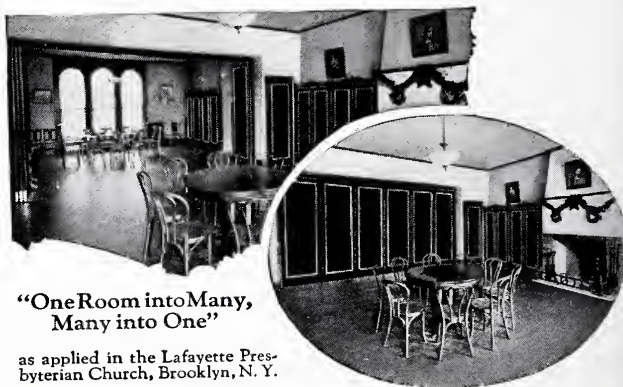
Mineral Wool makes life-long friends of all its users. If you are skeptical as to its power, let us demonstrate. We can prove all claims. Write us today.

U. S. Mineral Wool Co.

280 Madison Avenue, New York



Section of Sound-Proof and Fire-Proof Partition



"One Room into Many,
Many into One"

as applied in the Lafayette Presbyterian Church, Brooklyn, N. Y.

Clark & Arms, Architects

WILSON

Standard for Forty-six Years

Sectionfold—PARTITIONS—Rolling

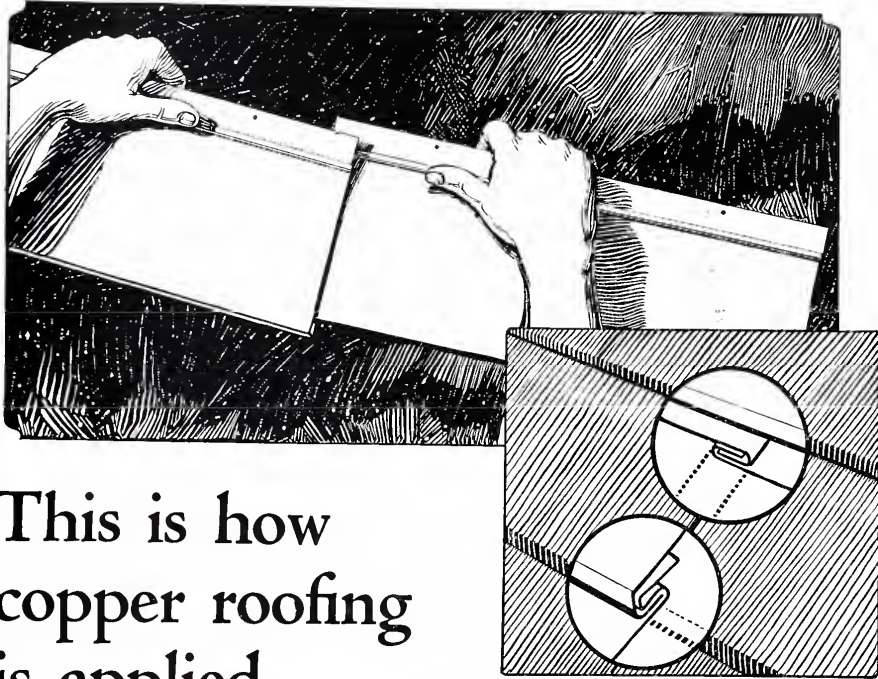
FOR SCHOOLS, CHURCHES, OFFICES
HOTELS, CLUBS, PUBLIC BUILDINGS

Easy and instant subdivision of large rooms. Harmonize perfectly with interior decoration. Prices reduced.

Specifications in Sweet's Catalogues
Write for Illustrated Booklets

THE J. G. WILSON CORPORATION
GENERAL OFFICES, 1 EAST 36th ST., N. Y.

Branch Offices in Principal Cities



This is how copper roofing is applied

ANACONDA Copper Roofings are so simple in construction that installation costs are most moderate. They are laid in courses, with deep butts and an entire absence of stiff mechanical lines.

Though free to expand and contract, Anaconda Copper Roofings are so firmly interlocked by patented joints that the roof is

permanently weather-proof.

The rich coloring or patina of copper, usually associated with age, is immediately available through a special pre-oxidization process.

Anaconda Roofs are beautiful, easy to apply, light in weight, moderate in price, and entirely free from upkeep costs.

LIST OF COLORS—Red, *Autumn*; Brown, *Russet*; Green, *Olive*; Green, *Verdi*; Green, *Emerald*; Green, *Blue*; Blue, *Peacock*

Write for illustrated booklet, specification sheets and detailed data.

Manufactured by ANACONDA COPPER MINING COMPANY

Distributed by ANACONDA SALES COMPANY, Metal Roofing Department
25 BROADWAY, NEW YORK

THE GLIDDEN COMPANY, CLEVELAND, OHIO, and its affiliated Companies

Heath & Milligan Manufacturing Company, Chicago
Adams and Elting Company, Chicago
Campbell Paint & Varnish Company, St. Louis
Campbell Paint & Varnish Company, Dallas
The A. Wilhelm Company, Reading, Pa.
T. L. Blood & Company, St. Paul, Minn.
The Glidden Co. of California, San Francisco

American Paint Works, New Orleans
Twin City Varnish Company, St. Paul, Minn.
The Forest City Paint and Varnish Company, Cleveland
Nubian Paint and Varnish Company, Chicago
The Glidden Company of Massachusetts, Boston
The Glidden Company of Texas, Dallas

In Canada: The Glidden Company, Limited, Toronto, Ontario

RICHARDS & COMPANY, 125 BEVERLY ST., BOSTON, MASS.

ANACONDA

COPPER ROOFINGS

THE PROBLEM OF CONCRETE STAIRS

—answered by Universal Safety Treads

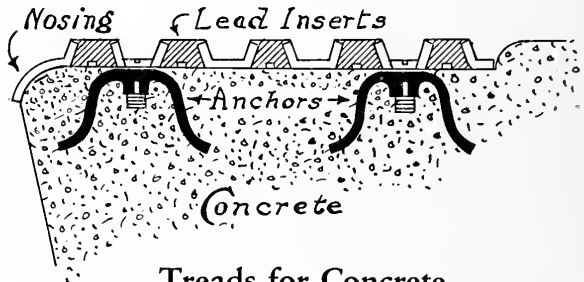
SAFETY on concrete stairs must be provided. Also an effective means of protecting the edges from being chipped and broken must be found.

A special type of *Universal Safety Tread* has been devised that meets both conditions and is installed with the least possible effort.

The Concrete Stair is not complete without this protection and the added necessity of providing safe travel conditions should induce architects to give serious attention to this important detail.

Universal Safety Tread Co.

40 Court St., Boston, Mass.



Treads for Concrete

THE safety wearing surface is provided as in our usual tread by non-slip lead inserts that extend completely through a steel or brass base plate and are permanently interlocked.

Special anchors with wide projecting flanges are attached to the under side of the treads with machine screws and the treads then embedded in the concrete before it sets. The anchors cannot work loose and the steel nosing gives a strong protection for the weakest part of the step.

An EVANS VANISHING DOOR Product FOR SCHOOLS



That Pays for Itself With FLOOR SPACE SAVED

WARDROBES, Class A

made with panel Backs, Ends and Divisions, and with doors that swing—not slide—on double pivoted arms, no guides, tracks or rollers, no rattle or squeak; they rate 100% in conservation of space, easy and noiseless operation, perfect sanitation and ventilation. Doors cannot stick or bind. Hardware can be purchased separately.

*More than a Million hang their wraps
in Evans Vanishing Door Wardrobes*

Trade Mark
VANISHING DOOR
U. S. Reg.

Catalog
"PICTURES THAT TALK"
Sent on Request

W. L. EVANS

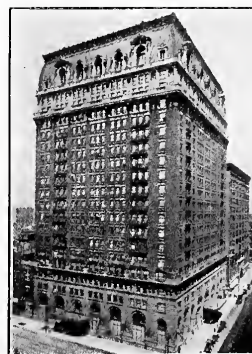
709-711 East Main Street

Washington, Ind.

"Giant Metal," "Red Metal" and Steel SASH CHAINS



CABLE CHAIN



"Giant Metal" Sash Chain is made of a phosphor bronze mixture controlled by us, and is entirely free from zinc or any impurities. Its tensile strength and durability have never been surpassed for Sash Chain purposes.

"Red Metal" Sash Chain is also made from a special composition, and, with the exception of "Giant Metal," will out-test, gauge for gauge, any other chain on the market.

Steel Sash Chain manufactured by us is made from the best cold rolled steel obtainable, and can be furnished in various finishes, such as copper plated, sherardized or galvanized.

Cable Chains made in copper and steel are an outgrowth of our connection with the building trade. They are manufactured in eight different sizes and are especially adapted for use where heavy weights are employed.

See page 1191, Sweet's Catalog

The Smith & Egge Mfg. Co.
BRIDGEPORT, CONN.
ORIGINATORS OF SASH CHAINS

HIGGIN

ALL METAL

WINDOW SCREENS

Good Samaritan Hospital, Cincinnati, O., Gustave Drach, Architect. Constructed in two units. Completion of building program withheld until expansion is required. Higgin Screens throughout.



Why Are Noted Hospitals Screened With Higgin Screens?

The first investment in the best hospital screening is a considerable amount, but upkeep and replacement of poor screening is much more costly.

Therefore well-managed and well-built hospitals invest in permanent, all-metal Higgin Screens because they are non-rusting, rot-proof, exact in fit, rigid, re-wireable and practically indestructible.

The first cost of Higgin All-Metal Screening is the last cost.

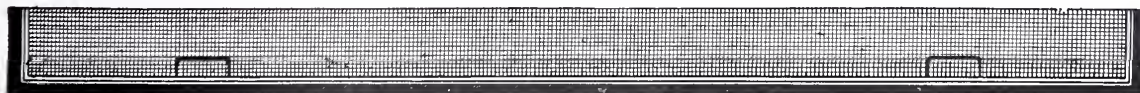
Higgin Service Offices are Maintained in most cities to co-operate with Architects and builders. Higgin Screens are installed by Higgin fitters and every installation is guaranteed.



The **HIGGIN** *Mfg. Co.*
Newport, Ky.
Toronto, Canada.

Service offices in all principal cities in the United States and Canada.

Look in your telephone or city directory for the address of your local Higgin service office.





SARGENT
HARDWARE

HOTEL McALLISTER
Miami, Fla.

FRANK V. NEWELL
Architect

IT is probable that the insistent requirements of modern hotel buildings tax the resourcefulness of hardware manufacturers as greatly as do those of buildings belonging to any class. Artistic appearance combined with absolute security are prime essentials.

SARGENT

Locks and Hardware

have equipped many of the most modern hotels.

SARGENT & COMPANY

NEW HAVEN, CONNECTICUT

NEW YORK

CHICAGO

SARGENT products have created standards in hardware for more than sixty years

Good Buildings Deserve Good Hardware



Corbin Automatic Exit Fixtures

Applied to doors opening outward. The doors can be opened from the inside, even when locked against entrance. The slightest push on the exit bar exerts powerful leverage, which immediately releases the latch bolts and swings the door open.

YOU can't afford to take a chance with exit fixtures.

You know what happens when exits don't work in critical situations. A fire or panic in a school, theatre or public building gets front-page scare heads every time.

—and who is blamed? The owner, of course. But whom does the owner blame?

No architect who is professionally conscientious will fail to see that any building he designs for the use of many people is equip-

ped with automatic, unfailing exit fixtures. To slight this detail can damage a reputation.

The hundreds of schools, theaters, churches, office and public buildings, loft buildings and factories in which Corbin Automatic Exit Fixtures stand guard over human life, are the very best evidence of the merit of these fixtures.

Corbin Exit Fixtures have the characteristics that you always associate with a Corbin product—they work, and can be absolutely relied on in an emergency.

P. & F. CORBIN SINCE 1849 **NEW BRITAIN CONNECTICUT**

The American Hardware Corporation, Successor

NEW YORK

CHICAGO

PHILADELPHIA



More Book and Less Pencil

PLANNING a garage entrance can be a simple matter of selecting one of the many types of doors illustrated and described in the booklet—"McKinney Complete Garage Sets."

For any dimensions of entrance width or space allowance there is a swinging, sliding-folding or around-the-corner door to fit. Beside each type of entrance illustrated is shown the particular McKinney Complete Garage Set to be used in its installation. Simple working plans for the erection of the door are also given.

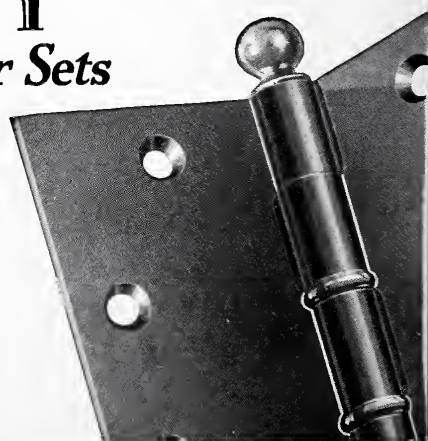
The McKinney Garage Sets are made according to the McKinney standard—quality always. Each set is packed complete in a single box, and numbered. Specify this number on the plan and the purchaser of the hardware cannot make any mistake.

Builders will find this booklet helpful, too, when called upon to advise garage owners what kind of an entrance to construct, and to select the hardware for the erection of the doors. We will be glad to send this booklet to any Architect or Builder.

McKINNEY MANUFACTURING CO., PITTSBURGH
 Western Office, Wrigley Bldg., Chicago Export Representation

McKINNEY *Complete Garage Door Sets*

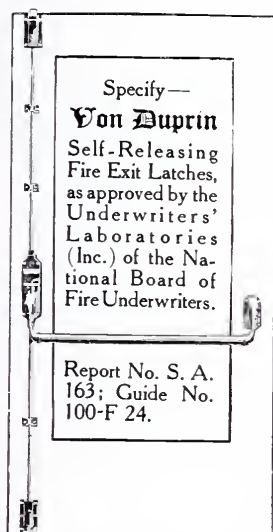
Also manufacturers of hinges and butts, door hangers and track, door bolts and latches, shelf brackets, window and screen hardware, cabinet hardware, steel door mats and wrought specialties.



Von Duprin

Self-Releasing Fire Exit Latches

On Duty



Day after day, night after night, during the entire life of the building, the **Von Duprin** latches you install on the doors are on duty.

Their vigilance is mechanical—and never-ceasing.

During the time the building is in active use, they make door operation simpler and easier.

And at all times they guard and protect the lives of those who work or sleep or play in the building. They keep out intruders, yet are always ready to release the inmates instantly, easily, automatically—at the mere touch of hand or body on the cross bar.

The services of these **Von Duprin** "watchmen" cost very little—and are worth much.

Ask us to send Catalog 12-F, or see "Sweet's," pages 1323-1327.

VONNEGUT HARDWARE CO.
Indianapolis, Ind.

*Christian Science Church, Lakewood
Ohio*

Charles B. Faulkner, Chicago, Architect

*C. R. Cummings Construction Co.
Cleveland, Contractors*



Economical

BY specifying Brasco Copper Store Fronts you make a real and worth-while saving for your clients. Brasco costs less than any other similar product of equal quality. Quantity production makes Brasco less expensive to use, but does not in any way lessen Brasco quality.

Besides being most economical Brasco Copper Store Fronts excel in endurance, safety to glass, and utmost satisfaction through long service.

Creosoted cypress—the wood eternal—encased in lake copper coverings—insures absolute safety to the glass and makes a vibration-free setting of great permanence.

We have for you a Portfolio of full size details of Brasco Store Fronts—also of the Hester type all-metal fronts with a regulator that actually functions. May we send you a copy?



See our advertisement on page 928 of Sweet's

Brasco

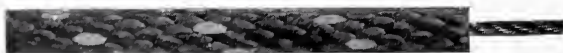
BRASCO MANUFACTURING CO.
5031 SOUTH WABASH AVENUE, CHICAGO, ILLINOIS

Samson Spot Sash Cord



Made of extra quality stock, carefully inspected, and guaranteed free from all imperfections of braid or finish. Can be distinguished at a glance from common cord by our trade mark, the Colored Spots.

Samson Wire Center Sash Cord



For heavy windows, or where for any reason a metallic device is required. A special quality enameled steel wire cable, with a braided cotton cover of the same quality as Spot Sash Cord with the same trade mark. Many times more durable than unprotected metallic devices, noiseless and attractive in appearance. Send for tests, samples and full information.

Samson Cordage Works
Boston, Mass.

STANLEY "Detail Manual"

Showing correct application of

STANLEY { Butts
Bolts
Blind Hardware
Storm and Sash Hardware
Garage Hardware

and telling "How to Specify" in every case

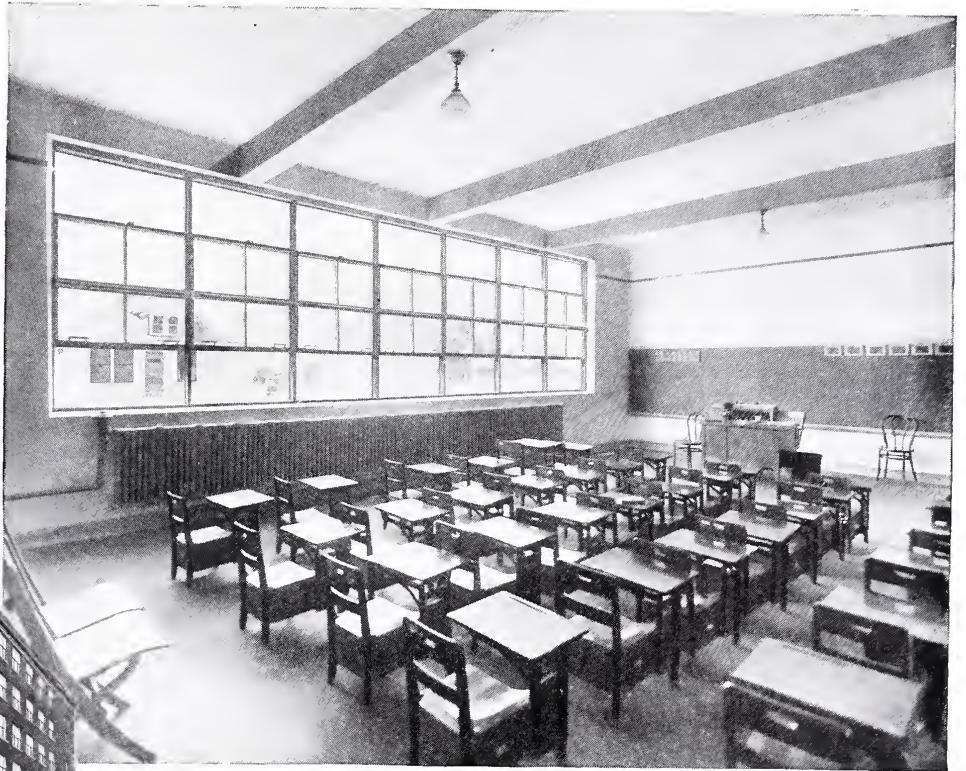
Ask for "Detail Manual, AF-5"



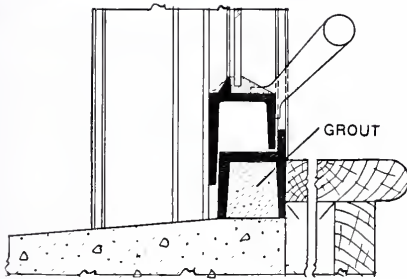
THE STANLEY WORKS
New Britain, Conn.

New York Chicago San Francisco
Los Angeles Seattle

Liberty School, Highland Park, Mich.
Wells D. Butterfield
Architect
Lupton Counterbalanced Sash used. Note location of shade rollers at middle of window's height



Midvale Steel & Ordnance Co. offices
Philadelphia
Thos. B. Lippincott
Architect
Lupton Counterbalanced Sash used



Lupton Counterbalanced Sash

Steel Windows
for all types
of buildings

Ventilation Made Certain

Lupton Counterbalanced Sash was first suggested by the fact that most persons don't bother to open the upper sash. Their heels get fresh air, but their heads don't.

In Lupton Counterbalanced Sash, the upper and lower sash are hung over one set of pulleys so that they open or close together. Uniform air renewal is thereby made certain. Large offices and schools, and high-grade industrial buildings, are especially benefited by this semi-automatic provision for ventilation.

Sash members and frame are heavy, solid steel sections; corners of sash are oxy-acetylene welded. For schools and offices, zinc weathering is recommended. Sill is of special design minimizing the horizontal surface exposed to weather, and is of copper-bearing steel for still further protection.

Standard sizes and full data are in Catalogues No. 110 and No. 111—in your files. Owing to its simple design, the manufacturing cost of Lupton Counterbalanced Sash is unusually low for a window of such high intrinsic quality.

DAVID LUPTON'S SONS COMPANY

Witte & Tulip Sts., Philadelphia

*Chicago
*Cleveland
*Warehouses in these cities

New York
*Detroit

Pittsburgh
*Buffalo

Boston
Baltimore

St. Louis
*Atlanta

Agents in other cities

Canadian Manufacturers: The A. B. Ormsby Co., Ltd., Toronto

Lupton

INVESTMENT VALUE

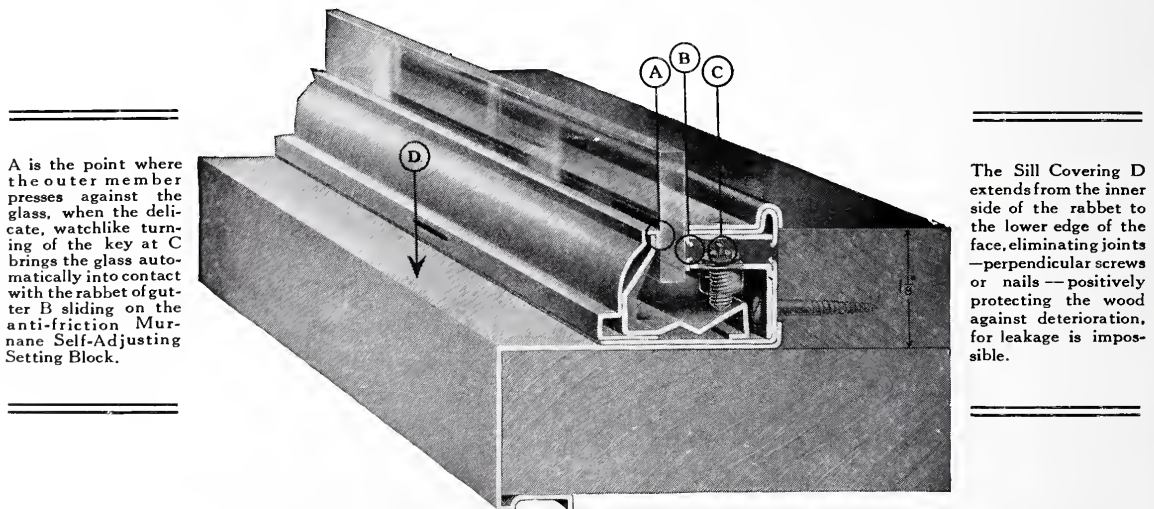
Your Share in Saving Millions!

Insurance statistics show that plate glass breakage due to faulty setting runs up a huge bill totaling millions of dollars a year. This great sum does not include the merchant's loss of time and show window space.

Here is a flagrant national waste which can be ended. When plate glass is correctly set the chief cause of breakage is eliminated. You can do your share in saving these millions by seeing that all your store front specifications include the following

Glazing Specification

All Metal Sash, Corner Bars, Division Bars and Self-Adjusting Setting Blocks Used in Store Fronts Must Be Listed by the Underwriters' Laboratories



No. 110 Zouri Combination Key-Set Sash and 705 Sill Covering

The financial burden of plate glass breakage is borne alike by insurance company, manufacturer, merchant and consumer. By far the greater part of such breakage can be prevented by the installation of Zouri Key-Set Construction.

The Underwriters' Laboratories have listed all Zouri Key-Set Sash, Corner, Division Bars and Self-Adjusting Blocks.

Zouri Drawn Metals Company

Factory and General Offices

1630 EAST END AVENUE

CHICAGO HEIGHTS, ILLINOIS

DAHLSTROM



A Corridor in the Mail Service Building, New York City, Showing Dahlstrom Hollow Metal Doors, Picture Moulding, Borrowed Lights, Etc., all of which help to make this truly a fireproof building.

WARREN & WETMORE,
Architects,
JAMES STEWART & CO.,
Gen. Contrs.

DEMANDS AND POSSIBILITIES

A striking example of Dahlstrom possibilities as well as the demand for Dahlstrom doors and trim was recently clearly shown.

In addition to the above installation, six other contracts for New York City buildings alone, together with other work for all over the world, were being fabricated in the Dahlstrom plant at the same time.

DAHLSTROM METALLIC DOOR COMPANY

425 Buffalo Street, Jamestown, N. Y.

New York Office
25 Broadway

Detroit Office
1331 Dime Bank Building

Chicago Office
19 So. LaSalle St.

Representatives in All Principal Cities

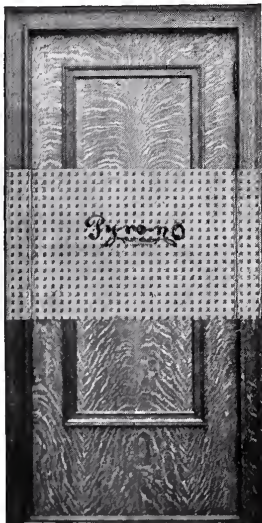


FIREPROOF VENEERED DOORS

AND

TRIM

Magnified
section be-
fore veneer
is applied



Showing
asbestos
sheathing
indented
into core

PYRONO doors and trim are recommended for use in office buildings, hotels, hospitals, apartments, schools and similar types of buildings for the openings to stairways, elevators, pipe shafts, corridor and room partitions and wherever ornamental, fireproof doors are desired. Pyrono doors and trim are furnished in any design desired and in any cabinet wood. They are installed by carpenters just as regular hardwood doors and trim are installed.

A Few Notable Installations

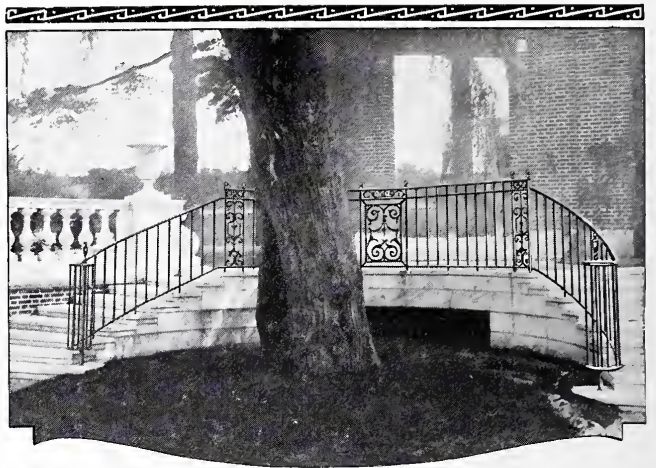
Federal Reserve Bank Building, Chicago
Federal Reserve Bank Building, Kansas City
Drake Hotel, Chicago
Hanna Building, Cleveland
Cunard Building, New York City
Commodore Hotel, New York City

Full information with details of construction will be furnished architects upon request

The Compound and Pyrono Door Co.

Factory and General Offices
St. Joseph - Michigan

Representatives in All Principal Cities

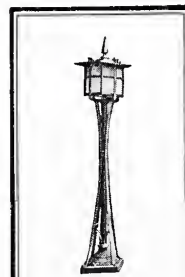


*A. I. Dupont Residence
Roslyn, Long Island*

*Carrere & Hastings
Architects*

Why Architects Can Depend on Fiske

ARCHITECTS — yes, and builders, too — have learned by long experience that when they want ornamental metal work of whatever kind done superbly well, it is safer to turn to Fiske.



One example of
Fiske lamp posts.
Send for catalog.



A Fiske ornamental grille. Many other designs. Send for catalog.

They know that faithful execution of instructions, from either rough suggestions or finished designs, is a cardinal principle with Fiske, that is never violated.

Fiske produces every sort of ornamental metal work in iron, brass, or bronze, elaborate or simple,— fences, railings, grilles, gates, lamp posts, fountains, memorials, etc.

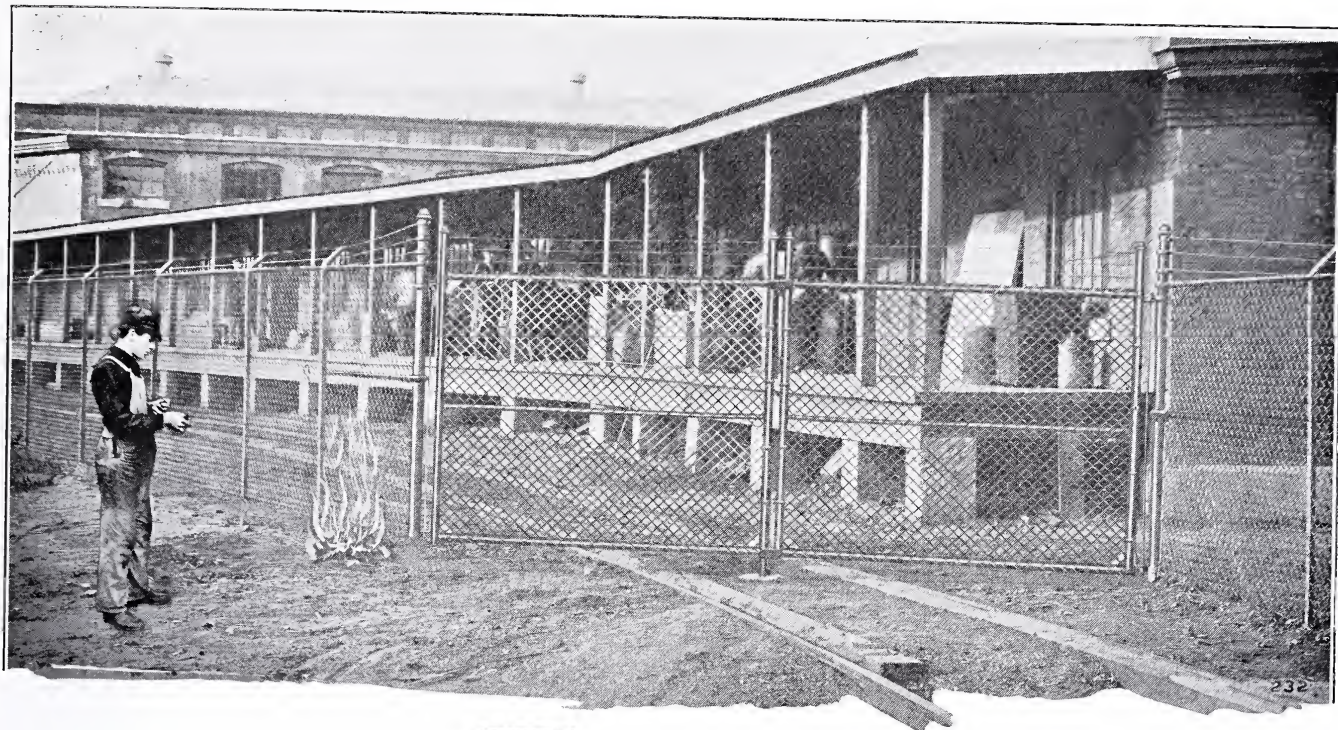
Also, other kinds of metal work,— woven wire fences, fire escapes, spiral stairs, gratings, etc.

More than sixty years' experience is back of all Fiske work.

Fiske will contract to do the installation work, or will furnish plans and blueprints, together with complete erecting instructions.

Send for Fiske Catalog 311.

J.W. Fiske IRON WORKS
ORNAMENTAL IRON WORK
80 Park Place ~ New York
ESTABLISHED 1858



Fence

Is Part of the Plant

No. 5—It decreases the hazard of fire to buildings and stored materials, from the carelessness of the "passer-by," and the evil intent of the trespasser and the firebug, and makes the storage of materials safe both in and out-of-doors. In some instances it has effected reduced insurance rates. Ask your Broker.

The above installation typifies the permanent protection, afforded by an Afco Fence and Gates, against deliberate or accidental danger of fire from without. Here, thousands of dollars' worth of petroleum products can be stored on the loading platform without overnight

hazard or need of constant watching. This Barrier of Steel has reinforced the company's watchmen and fire brigade to a point where the former fire hazard has been cut in two. It has eliminated the danger from outside sources, always the most difficult to control.

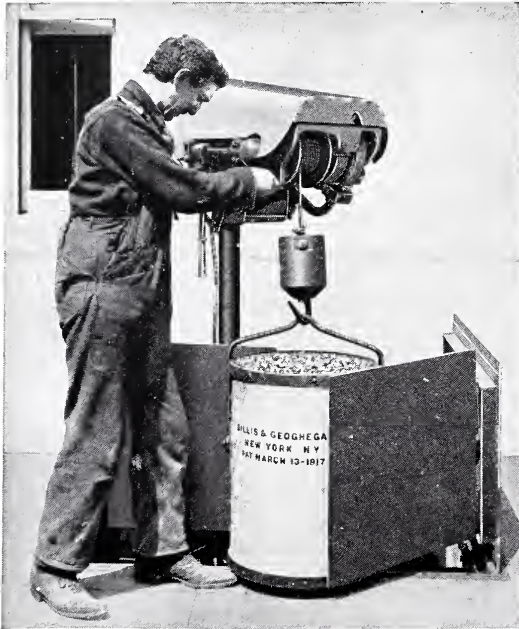
*To provide storage space,
reduce fire hazard,
prevent theft,
control traffic and
eliminate trouble,*

protective fence is an essential part of the plant.

*We shall be glad to have our Fence Engineers consult and advise with you
Factory Fence Catalog No. 21A will interest you*

American Fence Construction Company
130 West 34th Street
New York

Barriers of Steel
Afco Fences



Raises Filled Cans Electrically Lowers Empty Cans by Gravity WITH MAXIMUM SAFETY

THIS G&G Model E Electric Telescopic Hoist saves time and labor. Its economy in operation over less efficient methods for ash removal is important—but even more important than operating economy is its operating safety.

Note how the sidewalk opening is enclosed. The doors are automatically locked in position and cannot be closed except by operator when he is lowering hoist after work is completed. The spring guard gate through which the can is passing, swings shut after can has cleared it. Not only are passers-by protected against stumbling into the opening, but the operator is likewise protected.

This special protection is available with all models of the G&G Hoist. When ordering, just be sure to say, "With Complete Equipment." Such equipment includes:

Hoist, Sidewalk Doors, Spring Guard Gates, Automatic Door Opening and Closing Device, Operator's Iron Ladder, Electric Warning Bell, Swing Bail Ash Cans, Ash Can Truck.

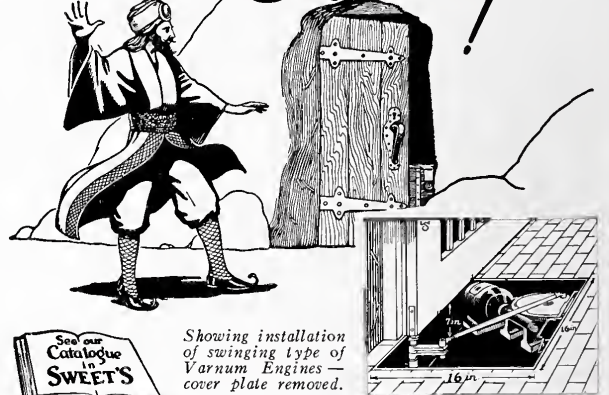
*Specifications in Sweet's and American
Architect Specification Manual*

GILLIS & GEOGHEGAN
544 West Broadway - New York



Telescopic Hoist
With Automatic Stop and Gravity Lowering Device

Open Sesame Varnum Door Engine



VARNUM Door Engines are now used by all but one of the Los Angeles Banks. They are used for the opening, closing and locking of grille doors and gates of safety deposit vaults. They operate silently and surely upon the momentary depression of an electric button. They add considerably to banking service and assure greater safety.

Varnum Door Engines are also in use on the Gateways of Country Estates and the Garage Doors of City Homes. Their utility is inestimable. Send for the Varnum Catalogue and blue prints.

VARNUM DOOR ENGINE CO.
949 West 16th Street Los Angeles, Calif.

Stewart's IRON FENCE STANDARD OF THE WORLD



Our distinctive designs harmonize with the lines of the building, whether it is a town house, suburban home, country estate, bungalow or other property.

Book of Designs "B" sent upon request

We also manufacture grilles, balconies, partition railings, folding gates and miscellaneous iron and wire work.

Architects' Designs carefully executed in strict accordance with their specifications

THE STEWART IRON WORKS COMPANY
INCORPORATED
CINCINNATI, OHIO, U.S.A.
"The World's Greatest Iron Fence Builders"



He has no other standard

The city man who builds a country home remote from central power station service still wants light of city brilliance and steadiness, and lots of it. He expects to use all the familiar city appliances—and more.

He balks at assuming the endless care of costly storage batteries. In short, he asks for the nearest possible approach to the only standard he knows—the simple convenience of city electricity.

Fortunately for him and for the architect with the problem of

designing the country home with all city comforts, there is the Kohler Automatic. It delivers 110 volt current (city standard) direct from the generator—not through storage batteries. Its full 1500 watt capacity (2 electrical horsepower) is always ready. It starts and stops automatically. It is quiet, economical, easy to care for.

Let us tell you why the Kohler Automatic is so singularly well adapted for country estate and similar installations. May we send you our booklet?

KOHLER OF KOHLER

Kohler Co., Founded 1873, Kohler, Wis. Shipping Point, Sheboygan, Wis.

ATLANTA

BOSTON

CHICAGO

McCormick Bldg.

DETROIT

HOUSTON

INDIANAPOLIS

KANSAS CITY

MINNEAPOLIS

NORFOLK

NEW YORK

20 W. 46th St.

OMAHA

PHILADELPHIA

PITTSBURGH

ST. LOUIS

SAN FRANCISCO

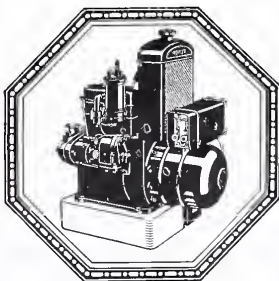
SEATTLE

LONDON

MANUFACTURERS OF KOHLER ENAMELED PLUMBING WARE

KOHLER AUTOMATIC POWER & LIGHT

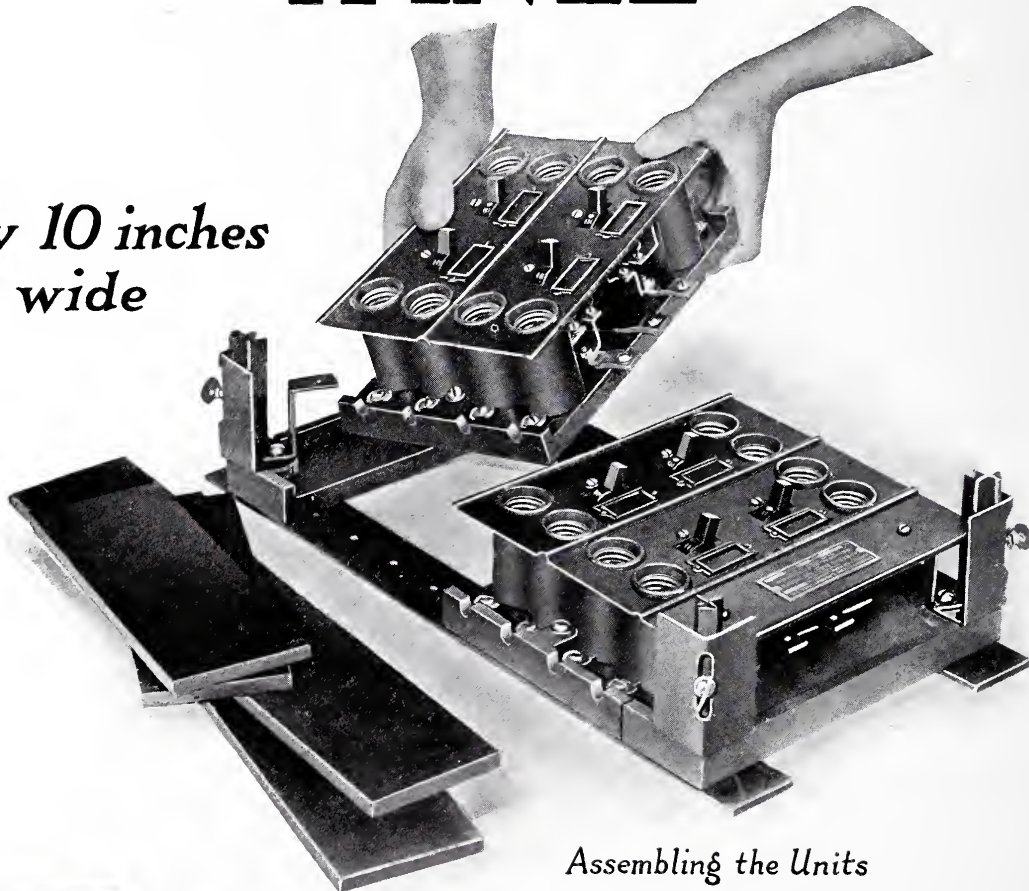
110 VOLT



D. C.

THE NEW SPRAGUE NARROW-UNIT PANEL

*Only 10 inches
wide*



Assembling the Units

**More Compactness - Lower Cost
Quicker Shipments**

Write for Bulletin N° 67900

Branch Offices

ATLANTA
BALTIMORE
BOSTON
CHICAGO
CINCINNATI
CLEVELAND
KANSAS CITY
MILWAUKEE
PHILADELPHIA
PITTSBURGH
ST. LOUIS

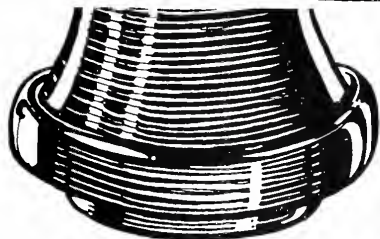


SPRAGUE ELECTRIC WORKS
Main Offices Of General Electric Company
527 W. 34th St. New York

Branch Offices
in Principal Cities

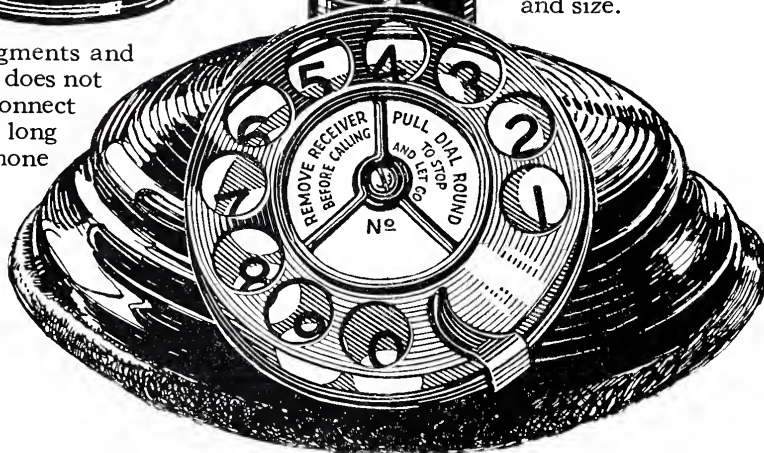
Pacific Coast
Representatives

LOS ANGELES
PORTLAND, Ore.
SAN FRANCISCO
SEATTLE
SPOKANE



The P-A-X augments and completes, but does not supplant nor connect with, local or long distance telephone service.

The P-A-X is similar to the famous Automatic telephone equipment which is being adopted for city service all over the world. But the P-A-X is engineered and adapted especially to the needs of financial, commercial and industrial organizations of every type and size.



The P-A-X Pledge to Architect and Client

WE both have a great deal at stake whenever you specify the P-A-X. You have your good name and reputation—so have we. You are responsible to your client — we are responsible to *you and your client*.

In initial cost the P-A-X might not be the lowest. But when you specify the P-A-X, your client gets all he pays for — and more. It not only fulfills his immediate inter-communicating requirements — but it meets all possible electrical signaling needs as changing conditions demand them.

It is recognized as the most highly developed and complete inter-communicating service in the world. The responsible organization back of the P-A-X guarantees its perfect performance.

This is a pledge and a protection to you.

We will be glad to supply you with detailed information for your immediate or future reference. Write or telephone our nearest office.

Automatic Electric Company

ENGINEERS, DESIGNERS & MANUFACTURERS OF THE AUTOMATIC TELEPHONE IN USE THE WORLD OVER
HOME OFFICE AND FACTORY, CHICAGO, U. S. A.

NEW YORK, 21 E. 40th St.
PHILADELPHIA, The Bourse Bldg.
BOSTON, 445 Tremont Bldg.
WASHINGTON, 905 Munsey Bldg.
ROCHESTER, 612 Mercantile Bldg.
PITTSBURGH, 608 Fulton Bldg.
CLEVELAND, 415 Cuyahoga Bldg.
CINCINNATI, 1913 Union Central Bldg.

COLUMBUS, O., 518 Ferris Bldg.
DETROIT, 525 Ford Bldg.
KANSAS CITY, 1001 New York Life Bldg.
SAN FRANCISCO, 37 California St.
LOS ANGELES, 238 San Fernando Bldg.

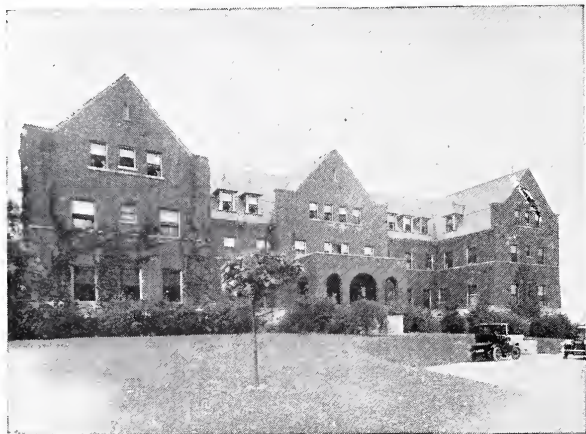
Abroad — Address
International Automatic Telephone Co.,
Ltd., 60 Lincoln's Inn Fields,
London, W. C. 2, England

In Canada — Address
Northern Electric Co., Ltd.,
121 Shearer St., Montreal, P. Q.

In Australia — Address
Automatic Telephones,
Australasia, Ltd.,
207 Macquarie Street,
Sydney, Australia

P-A-X (TRADE MARK) **THE PRIVATE AUTOMATIC EXCHANGE**

(More than a private telephone exchange—the Automatic Electric Services of the P-A-X include and co-ordinate interior telephony, code call, conference, watchman service and all other inter-communication needs)



Miami Valley Hospital
Dayton, Ohio

Architects: Pretzinger & Musselman, Dayton, Ohio
Electrical Contractor: Leshner Electric Co., Dayton, Ohio

Holtzer-Cabot

Signaling and Protective Systems

*For Hospitals, Industrial Buildings,
Hotels, Schools, Factories, etc.*

For over forty years leading architects and engineers have specified Holtzer-Cabot signaling and protective systems.

The Holtzer-Cabot Electric Company specialize in the manufacture of "Hospital Signal" and fire alarm systems suitable for all classes of service.

Each system is designed especially for the type of building and the particular service for which it is required.

Holtzer-Cabot installations have been developed and perfected and contain many absolutely exclusive features.

They are simple, safe and reliable.

Architects and engineers are invited to write for brochures published in their interest, "Hospital Signal Systems" and "Signaling Systems for Schools"

The Holtzer-Cabot Electric Co.
ELECTRIC SIGNALING SYSTEMS

Home Office and Factory: 125 Amory St., Boston, Mass.

Branch Offices

Chicago, Ill., 616-65 So. State St. Cleveland, Ohio, 517 Union Bldg.
New York, N.Y., 101 Park Ave. Philadelphia, Pa., 807 Otis Bldg.
Baltimore, Md., 1104 Union Trust Bldg.
San Francisco, Calif., 408 Claus Spreckles Bldg.
Detroit, Mich., 4051 Book Bldg.
Minneapolis, Minn., 627 Metropolitan Life Bldg.

Safe to Specify Safe to Buy

"R"
TYPE

The new Triumph Type "R" Safety Type Residence Panel Board is destined to find its way into hundreds of homes. The architect's technical knowledge will reveal to him the practicability and economy of "R" Type sectional unit construction and convince him that it is safe to specify.



The home-builder learning of the absolute safety of the "R" Type that makes its location on the first or second floor at the center of distribution possible, where even the woman of the house can replace fuses, will feel that it is safe to buy.

Write today for the "R" Type Bulletin containing complete details and architects' specifications. It is a valuable addition to any architect's library.

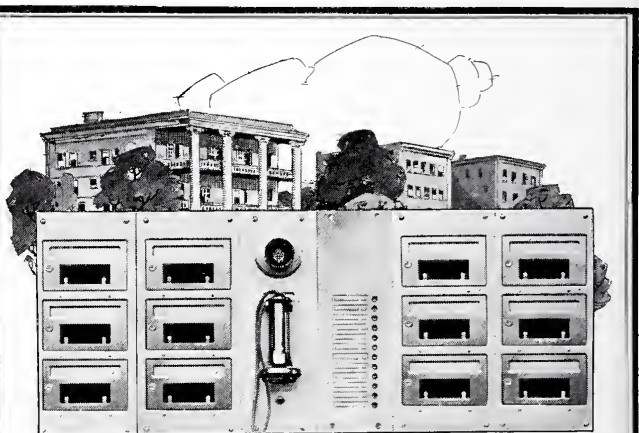
Frank Adam
ELECTRIC COMPANY
ST. LOUIS

District Offices

Detroit, Minneapolis,
Dallas, Kansas City,
Cincinnati, Cleveland,
New Orleans, Chicago,
San Francisco, Seattle,
Los Angeles.

Other "F-A" Products

Major System of Theater Lighting Control; cabinets; knife switches; safety switches; hanger outlets; reversible-cover floor boxes; A. C. and D. C. Distribution Switchboards.



Stromberg-Carlson Apartment House Telephones

SYSTEM NO. 5A

A simple system for small apartment houses. One way telephone service from vestibule to apartments and door opener service from all apartments to vestibule.

SYSTEM NO. 5B

An elaboration of the above, for apartments where janitor is always in attendance. Vestibule telephone calls any apartment or janitor. Janitor may also be called from any apartment. Electric door opener service.

Other systems for apartment dwellings of all sizes and types. Write for Bulletin No. 15 giving further information.

Stromberg-Carlson Telephone Mfg. Co.
Rochester, N. Y.

Chicago

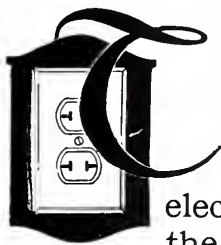
Kansas City

Toronto



Convenience and Business Efficiency

John Hancock Insurance Co. Building, Boston, Mass.—equipped with G-E Tumbler Switches. Parker, Thomas and Rice, architects. French and Hubbard, consulting engineers.



THE added convenience afforded by the G-E "Standard" Twin Convenience Outlet makes for greater efficiency in any office. Considering the growing use of electrically driven office equipment, the G-E Twin Convenience Outlet should be used wherever an outlet is desired. The double duty which every outlet will be called upon to perform sooner or later, amply justifies the original installation of this modern device, particularly since the cost is practically no more than that of a single outlet.

Thoroughly representative of G-E quality, the Twin Convenience Outlet is mechanically and electrically correct.

G-E RELIABLE WIRING DEVICES

can be furnished by any qualified electrical contractor or address Merchandise Dept., General Electric Co., Bridgeport, Conn.

G-E. National Advertising to prospective home builders is creating a new appreciation of the comforts of a completely wired home—stimulating desire for added refinements.

General Electric Company

General Office
Schenectady, N.Y. Sales Offices in
all large cities

Cash in on the "Nuisance Value" of old style plug fuses



You know how it is to fumble around in a cutout box full of plug fuses

—and squint vainly at the fusible strip showing dimly through the mica "windows"

—and get yourself shocked and your fingers jammed between the flaring metal tops

—while you unscrew every plug in the box

—and finally have to test them all

—and then discover that the blown fuse is the first one you touched.

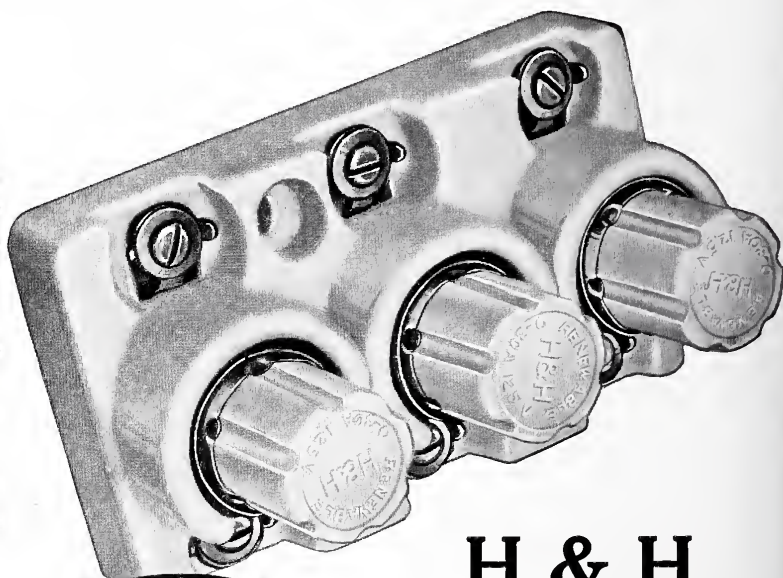
* * *

You know how it is

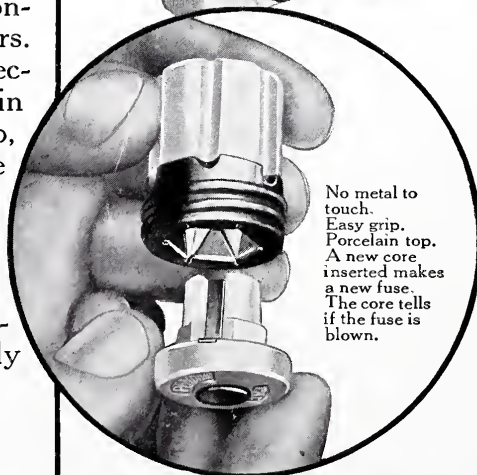
And you know how easy it would be to sell a really good fuse plug that would end this nuisance. That's why you should start in *now* to cash in on the "nuisance value" of the old style fuse plugs, by stocking the

Paiste Wiring Material

Paiste Wiring Material affords a complete service to current consumers, electrical dealers and contractors, architects and builders. Every wiring requirement for electrical convenience and service in the home, office, store or shop, can be perfectly met by a Paiste product. Whether you specify, recommend, sell or install wiring material for client or customer, or purchase for your own account, you may be sure that Paiste Service and Quality will perfectly protect your interests.



H & H FUSE PLUG



No metal to touch.
Easy grip.
Porcelain top.
A new core inserted makes a new fuse.
The core tells if the fuse is blown.

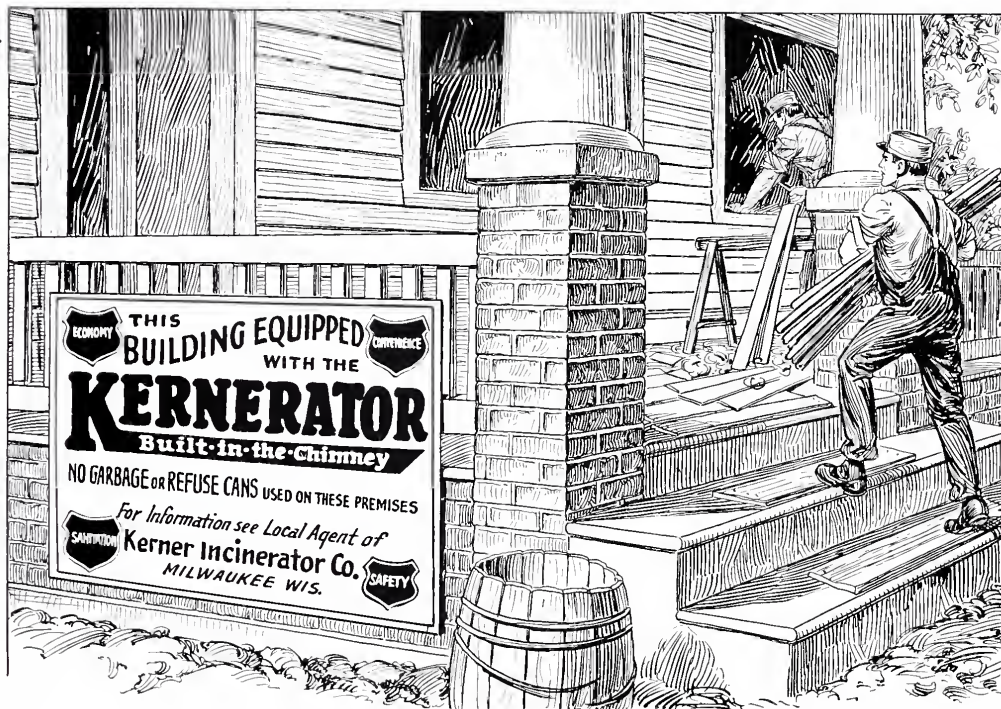
When an H & H blows
It's easy to tell —

That's one reason why
They're so easy to sell.

Another reason is their straight, porcelain tops. No metal for users to fear. Plenty of room between the plugs; gives a good grip; makes it easy for the user to screw them in and out of sockets. And they're refillable. To refill, just unscrew the plug, pull out core, and insert new core.

Write for details and prices

The Hart & Hegeman Mfg. Co., **Hartford Conn.**



A Sign of Foresight

HOW frequently one sees this Kernerator sign on fine residences and apartment buildings now under construction! This sign tells the story of Kernerator success, its nation-wide acceptance by builders and homeowners. But more than this it shows the thoughtfulness of a growing number of architects who have come to appreciate the value of the Kernerator in the home.

Many architects consider this modern system for disposing of household waste as essential to comfort and convenience as first-class plumbing or an efficient heating plant. They appreciate how the Kernerator saves steps, how it eliminates the health menace of the insanitary garbage can, how it reduces the fire hazard by making unnecessary the accumulation of refuse.

The Kernerator is of simple construction, yet it lasts as long as the building in which it is installed, with *no expense* for repairs or upkeep. It consists of a brick incinerator, built into the base of the chimney when erected, and hopper doors in the flue on the floors above. It disposes of all household waste *without cost* because the refuse itself is the only fuel required. Every few months the ashes and non-combustibles are removed from the ash-pit.

*For complete information, see
page 2124, Sweet's 1922 Catalog*

KERNER INCINERATOR CO.

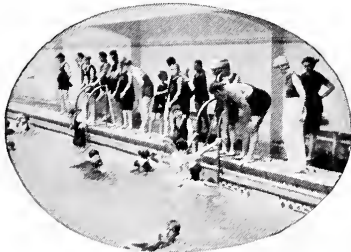
1015 Chestnut Street - Milwaukee, Wis.

KERNERATOR

Built-in-the-Chimney

Reg. U. S. Patent Office

The word *service* in this company's name applies to the installation of the Johnson Pneumatic System of Temperature Regulation by no one other than the Johnson Service Company. It implies the efficient performance of the apparatus following installation. It includes the company's guarantee of attentive interest in the installed apparatus as long as it exists. It embraces the superior benefits derived from The Johnson System, in its various applications: alone unequally advantageous, and especially so with the foregoing comprehensive elements of strict supervision. *Service*, indeed.



Seattle, Washington, Natatorium, where W & T apparatus is keeping the water pure

Pure Water for Swimming Pools

Sanitation is the most important phase of swimming pool operation and design.

The most elaborate pool is a failure if it is allowed to become a breeding place for disease germs.

The W & T Process of chlorination is used by nearly two hundred pools in the United States. It is the standard equipment for swimming pool sterilization.

W & T Equipment also sterilizes over four billion gallons of drinking water every day.

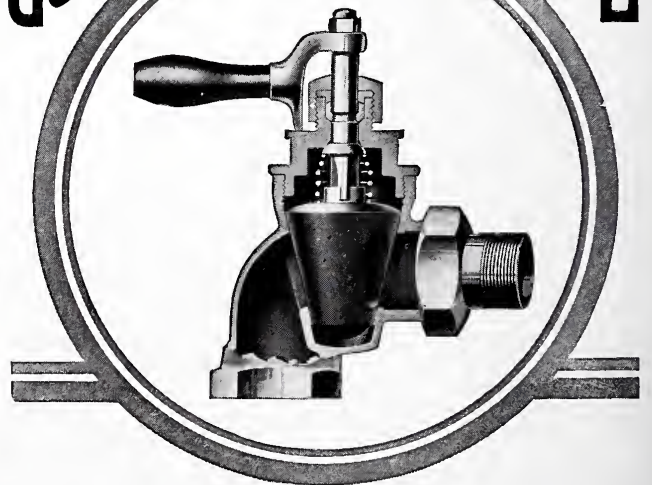
Our booklet, "Pure Water for Swimming Pools" will be sent to any address on request.



WALLACE & TIERNAN
COMPANY, INCORPORATED
NEWARK, NEW JERSEY
SAN FRANCISCO KANSAS CITY CHICAGO
PITTSBURGH KNOXVILLE DALLAS
MINNEAPOLIS TORONTO, CAN.



GORTON QUARTER TURN VALVE

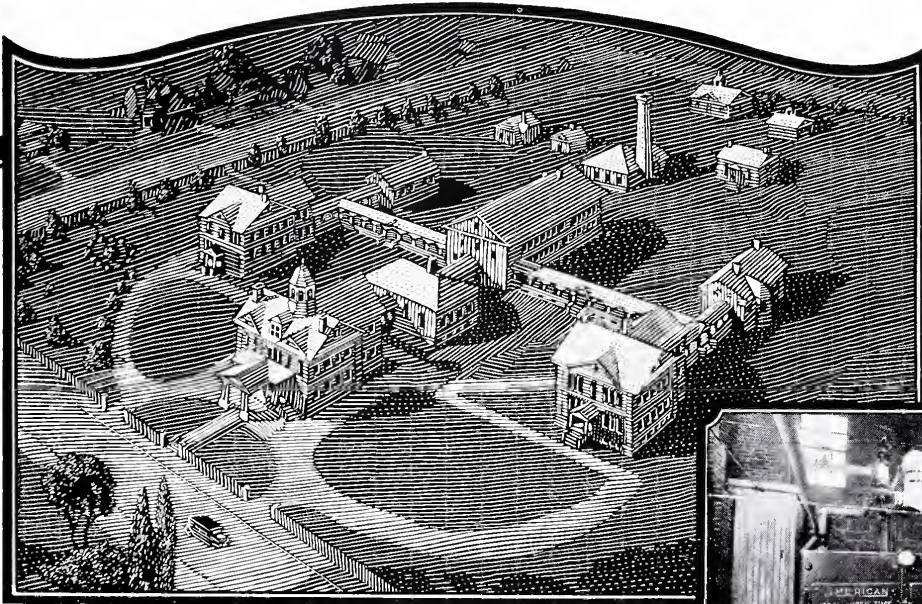


A Quarter Turn of the Wrist Opens or Closes this Valve

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

GORTON & LIDGERWOOD COMPANY

96 LIBERTY STREET, NEW YORK, N. Y.
Fisher Building, Chicago, Illinois



The Schenectady County Poor Farm, Schenectady, N. Y., is warmed by a central heating plant. A battery of two Ideal 79-inch Water Tube low pressure boilers are connected with 8150 feet of radiation. The installation was made by the Carl Frank Co., Schenectady, N. Y.



Poor in pocket—Rich in warmth

THOUGH poor in pocket the tenants of the Schenectady County Poor Farm, Schenectady, N. Y., now enjoy better warmth than the owners of too many first-class homes.

And the County, last Winter, saved 50 tons of coal!

The Poor Farm consists of several buildings, distributed over a city block, and warmed from a central heating plant.

Though the old heating plant carried a constant load of from eight to ten pounds of steam, it failed to deliver adequate warmth. So the old boilers were replaced by two IDEAL 79" Low Pressure Boilers.

This is what the superintendent, Mr. Chisholm wrote at the end of the winter:

We are gratified with the change to the IDEAL 79" Boilers. Instead of carrying eight to ten pounds of steam, the entire system of 8150 feet of radiation now warms quickly on three to four pounds. And from November to April we have saved easily fifty tons of coal.

IDEAL 79" Water Tube Boilers have many new and interesting points of construction; every Architect or Heating Engineer interested in adequate heating equipment, for apartments, schools, hospitals, hotels, theatres, banks or office buildings, should have the booklet describing them.

Your name on your letterhead will bring it at once.

AMERICAN RADIATOR COMPANY

IDEAL Boilers and AMERICAN Radiators for every heating need

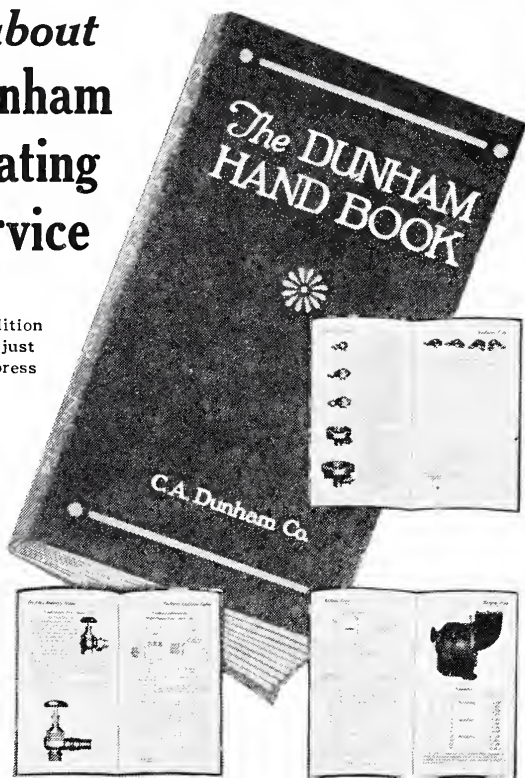
104 West 42nd Street, Dept. 117
NEW YORK

AMERICAN IDEAL
RADIATORS BOILERS

816 So. Michigan Ave., Dept. 117
CHICAGO

This Book Will Tell You about Dunham Heating Service

New Edition
No. 214, just
off the press



—and in addition, give you heating facts arranged in concrete form for quick reference. Here are a few of the subjects discussed in the Dunham Hand Book.

“Designing Heating Systems”

“Calculating Radiation”

“Piping and Pipe Sizes”

“Heat Values of Fuels”

The Dunham Hand Book is pocket size and was compiled for your personal use. It will be sent to executives of concerns who write for it on their letterheads.

C. A. Dunham Company

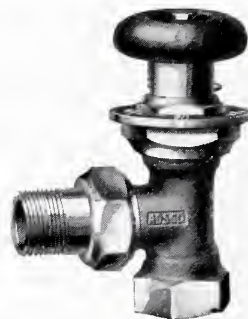
230 East Ohio Street, Chicago

57 Branches and Local Sales Offices in the United States and Canada

Foreign Sales Offices in London and Paris

The DUNHAM
REG. TRADE-MARK
HEATING SERVICE

You can
Save more
Steam—
Fuel—
Money
with the



Packless

AdSCO Graduated Radiator Valve

Closest graduation.
Full nickel plated.
Plain nickel letters on black dial.
Non-rising stem; always free-moving; always steam-tight.
Removable insert—valve fits any size radiator 20 to 200 sq. ft.
Sold to heating contractors on merchandise basis at uniform price.
Write for special folder.

Ask about AdSCO Heating of building groups from Central Station Steam Plant, Bulletin No. 20-AF; for individual buildings, Bulletin No. 158-AF.

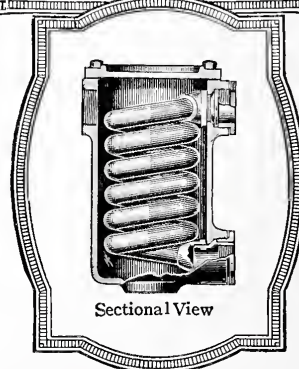
AMERICAN DISTRICT STEAM COMPANY

GENERAL OFFICES AND WORKS

NORTH TONAWANDA, N.Y.

Offices: New York Chicago Seattle Pittsburgh St. Paul

ADSCO HEATING



Send for Free Booklet!

**Tells how to have abundant hot water,
without gas bills, during the heating season**

Steady advertising in *Saturday Evening Post*, *American Magazine* and *Good Housekeeping Magazine* is stimulating wide-spread interest in Excelso Method of Heating Water. Are you fully posted on advantages of this method, whereby “Water Heats Water”?

Excelso Method is adaptable to any heating plant.
Send today for free booklet.

See our Catalog in Sweet's

EXCEL SO SPECIALTY WORKS, 204 Excelso Bldg., Buffalo, N. Y.

EXCEL SO WATER HEATERS
Sold by All Plumbers and Steamfitters



Residence of Mr. Edward Bok, Merion, Pa.

Kelsey Health Heat

THE residence of Mr. Edward Bok, at Merion, Pa., is heated by two Kelsey Warm Air Generators. The fact that this large residence can be thoroughly heated by two of them is evidence of their unusual adaptability for homes of this class.

One of the most valuable features of the Kelsey is its system of circulation and ventilation. The warm air is delivered in large volumes at a velocity which insures constant circulation, while the used air is drawn off through vents at the floor line. The automatic humidifier supplies a normal

amount of moisture to the air, preventing the dryness which causes furniture and floors to shrink. This combination of warm, humidified air, perfect circulation and ventilation, provides a heating system which promotes good health. Its cost of operation is phenomenally low, due to its scientific design and heavy, durable construction.

The Kelsey system has also just been installed in Mr. Bok's winter home at Mountain Lake, Florida, E. M. Parsons & Company, architects, Boston, Massachusetts.

Our Engineering Department offers the architect its fullest cooperation, furnishing detailed plans and specifications. Write for "Kelsey Achievements," and any other heating information you desire

NEW YORK OFFICE
565-F Fifth Ave.
(Corner 46th Street)

THE KELSEY
WARM AIR GENERATOR
(Trade Mark Registered)

251 James Street, Syracuse, N. Y.

BOSTON (9) OFFICE
405-F P. O. Sq. Bldg.



THERE ARE MANY REASONS "WHY" THE

HUMPHREY
AUTOMATIC GAS WATER HEATER

SHOULD BE INCLUDED IN YOUR PLANS
AND SPECIFICATIONS

They provide the easiest, cheapest and most convenient means of securing HOT WATER.

There is no requirement that cannot be met with a HUMPHREY AUTOMATIC GAS WATER HEATER, large or small.

They are QUALITY BUILT, giving service that is lasting and cheap, and have earned their HIGH REPUTATION.

They are universally known as SUPREME in value, durability and dependability.

They are an ABSOLUTE NECESSITY to cleanliness, health and comfort.

The Humphrey Architects' Manual

with Service Specifications contains all the information on the subject of HEAT WATER WITH GAS, such as: the proper size and type heater for any need; the capacity of all types and sizes; number of gallons per minute each type delivers at various temperatures.

It is a reference and text book that should be at your finger tips at all times. If you did not receive a copy, write for it. IT IS FREE.

HUMPHREY COMPANY - - - KALAMAZOO, MICHIGAN

Div. Ruud Mfg. Co.

Home of
Frank H. Woods
Lincoln, Neb.
Paul Hyland
Architect
Chicago, Ill.



Be Prepared

YOU can easily write specifications for an electric light, water supply or sewage disposal system if you have our 46-page bulletin entitled "Specifications" in your files. It gives you full information and data regarding the 150 styles and sizes of Kewanee Light and Water Supply Systems and simplified instructions for selecting the proper one for your client no matter what his requirements. Your copy of "Specifications" is waiting. Send for it today.



PRIVATE UTILITIES COMPANY

442 S. Franklin Street Kewanee, Illinois

THE CUTLER MAIL CHUTE

Reduced costs and increased volume of business enable us to maintain our high standard of quality at a material reduction in price.

Specify Model F. standard equipment.

CUTLER MAIL CHUTE CO.
OFFICES AND FACTORY
ROCHESTER, N. Y.



And in Grand Rapids!

STEP from the street into the Empress Theatre during a hot, sultry day—immediately you become aware of the cool, refreshing atmosphere. Go to this theatre on winter's coldest night and you will find it comfortably warm—and the air clean and pure.

A well designed, perfectly operating ventilating system is the assurance of ideal air conditions in the Empress, both in winter and in summer.

Some little credit for this continuous supply of fresh, pure air justly belongs to the two Clarage Fans, which have given exceptionally good service for seven years. Not once since their installation have these fans required repairs. Not once have they demanded attention, except an occasional oiling.

Records like this have caused a great number of the leading architects to specify Clarage Kalamazoo Multiblade Fans. Are you familiar with the Multiblade Fans? Let us send you catalog No. 52.



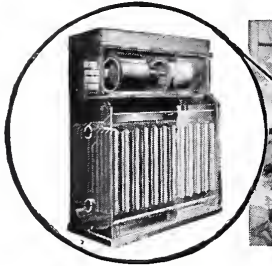
CLARAGE FAN COMPANY, Kalamazoo, Michigan
BRANCH OFFICES IN ALL PRINCIPAL CITIES

CLARAGE Multiblade Fans

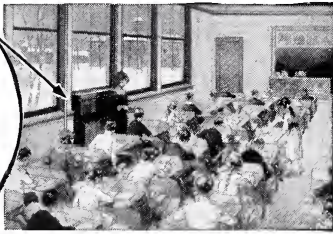
—KALAMAZOO

UNIVENT

"LIVE OUTDOORS-INDOORS"
(TRADE MARK)



Phantom view



Fresh heated air from the window

What the Jamestown and other school boards found out about the Univent

In 1914 the Board of Education of Jamestown, New York, made a thorough study of ventilating systems. As a result they approved and accepted the Univent idea for ventilating a school.

They did this because the Univent permitted each and every room to be ventilated independently of any other room. Instead of a system of long, uncleanable ducts and flues, each Univent took fresh air directly from outdoors, heated it, and thoroughly diffused it throughout the rooms.

This was their ideal of perfect ventilation—as simple and more positive than opening the windows—without cold, dangerous drafts.

They found the absence of ducts saved space, lowered building costs and assured each room of its own individual supply of fresh air. When only one room was being used, only the Univent in that room was used. This saved operating cost. So, in 1920, when a big school building program was decided upon, the Jamestown School Board installed the Univent system in five more large schools.

In 1913, Utica, New York, tried out the Univent. Today nine schools in Utica are Univentilated.

School authorities, everywhere, from New York to California say the Univent makes class room air as fresh as outdoors. This perfect ventilation increases mental alertness and decreases sick leave.

The Univent is designed for schools and all buildings requiring mechanical ventilation; it may be installed in old or new buildings.

Having determined upon a Univent system the Architect can prepare his preliminary sketches without further thought to heating and ventilating, knowing that he will not have to tear down his building to install it, or be handicapped in meeting his estimate cost by addition of space or expensive construction.

Send for a copy of our 72-page Architects' and Engineers' edition "Univent Ventilation" or, better still if you have a ventilation problem, send us sketches or blue prints and let us make specific recommendations and estimate of cost. No obligation.

THE HERMAN NELSON CORPORATION
Dept. B, Moline, Illinois



NO. 6 SCHOOL, JAMESTOWN, N. Y.
HAS COMPLETE UNIVENT INSTALLATION
C. C. Pedersen, Architect, Jamestown, N. Y.



ARNOLD & NORTH

Incorporated

124 East 41st Street

New York

REPRODUCTIONS OF EARLY AMERICAN
AND ENGLISH MANTELPIECES AND
FIREPLACE ACCESSORIES

Booklets on Request

HOPES'

CASEMENTS.

103 PARK AVENUE, NEW YORK.

205 YONGE STREET, TORONTO.



RESIDENCE OF A. R. ERSKINE, ESQ., SOUTH BEND, IND.

AUSTIN & SHAMBLEAU, Architects

TWO W-408 SUPER-SMOKELESS BOILERS

L. H. PRENTICE CO., Heating Contractors

For Smokeless *and* Low-Cost Heating of Fine Residences *equip with—* UTICA-IMPERIAL SUPER-SMOKELESS BOILERS

MANY large Residences, Apartments and Hotels are now heated with Utica-Imperial SUPER-SMOKELESS Boilers. These boilers burn the cheapest grades of soft coal without smoke and with remarkable efficiency, making possible substantial economies in the cost of heating all large buildings.

It is the patented application of the Bunsen Burner Principle that makes SUPER-SMOKELESS Boilers so highly efficient and smokeless in operation. At the very heart of the fire, additional oxygen is mixed with the combustible gases, transforming the heavy smoke into intensely hot, clean flames, which swirl forward and back through the boiler, imparting maximum heat units to all the flue surfaces.

Recurring scarcity of fuel need never prevent the operation of SUPER-SMOKELESS Boilers, as they will operate successfully with any type of fuel. Although designed to burn the cheapest grades of soft coal, either hard coal, coke, gas or fuel oil may be used if desired.

*A special bulletin devoted to the heating of Residences,
Apartments and Hotels will be sent to you upon request*



UTICA HEATER COMPANY, Utica, N. Y.

218-220 W. Kinzie St., CHICAGO 707 Union Bldg., CLEVELAND 5620 Grand Central Term'l, N. Y.

Atlanta
Birmingham
Boston
Buffalo
Cedar Rapids

Chattanooga
Cincinnati
Columbus
Denver
Detroit

Grand Rapids
Indianapolis
Louisville
Milwaukee
Minneapolis

Nashville
Oklahoma City
Omaha
Philadelphia
Pittsburgh

Richmond
St. Louis
Springfield, Ohio
Toledo
Washington, D. C.



TRADE
JENKINS
MARK

Another Jenkins Standardization

—what it means

There are many and obvious reasons why STANDARDIZATION OF JENKINS is true valve efficiency and economy—the six most distinct are:

- (1) An assured valve service—for Jenkins Valves have strength and proportion to meet the most severe conditions.
- (2) Operatives can easily acquaint themselves with the simple construction of Jenkins Valves. They do not have to worry about the actions and peculiarities of valves of widely varied manufacture.
- (3) Reduced inventories of replacement parts, as it is not necessary to carry a scattered assortment of parts—which is the case where valves of many and various makes are used.
- (4) Parts are interchangeable, made so by careful and standardized manufacture. "Veteran" valves can always be supplied with parts that "fit"
- (5) Nation-wide distribution, through supply houses everywhere, carries Jenkins Valves and their parts to every locality.
- (6) Money is saved, for Jenkins Valves go into service and stay—a quality which, alone, would make them the most economical.

Jenkins service can only be expected from genuine Jenkins Valves—specify Jenkins "Diamond Mark" Valves, and avoid imitations.

JENKINS BROS.

New York
Montreal

Boston

Philadelphia

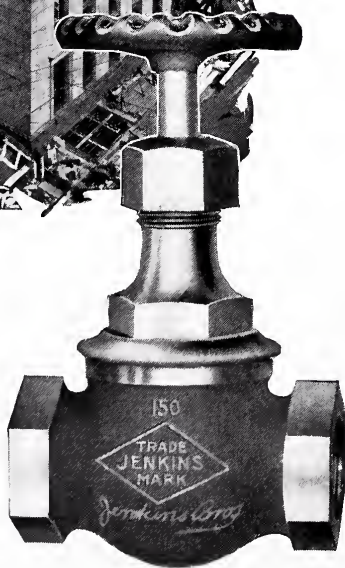
Chicago
London

FACTORIES: Bridgeport, Conn.;
Elizabeth, N. J.; Montreal, Can.

Jenkins Valves, and Jenkins Only, are installed throughout the new First National Bank Building, Jersey City

Architect: Alfred C. Bossom, New York City; Plumbing and Heating Contractors: W. W. Farrier & Co., Jersey City

Fig. 106, Standard Brass Globe Valve, one of the many types of Jenkins Valves used




Jenkins Valves
SINCE 1864



Send for booklets showing results of actual service tests.

Keystone quality products have proved their claims for excellence.

SEVERE Service Conditions

demand better material. The metal which goes into the roofing, siding, and structures of great steel mills and industrial plants, must *resist rust* to the highest possible degree. Keystone Copper Steel Sheets and Roofing Tin Plates give *maximum service and rust-resistance* not only for industrial uses, but for residences, public buildings, and all forms of construction work to which sheet metal is adapted.

The high reputation of our products is recognized wherever sheet metal is used. Each brand of our manufacture has behind it a service—the scope of which has a tangible value to every architect and builder. This service begins with the planned care and skill in the making, which is carried through to the thorough system of distribution which keeps these products obtainable in every part of the country.

For roofing, siding, gutters, spouting, eaves trough, sheet metal and tin work, use Keystone Copper Steel Galvanized Sheets and Roofing Tin Plates—best for both builder and property owner. Sold by leading metal merchants, and used by leading roofers and contractors.



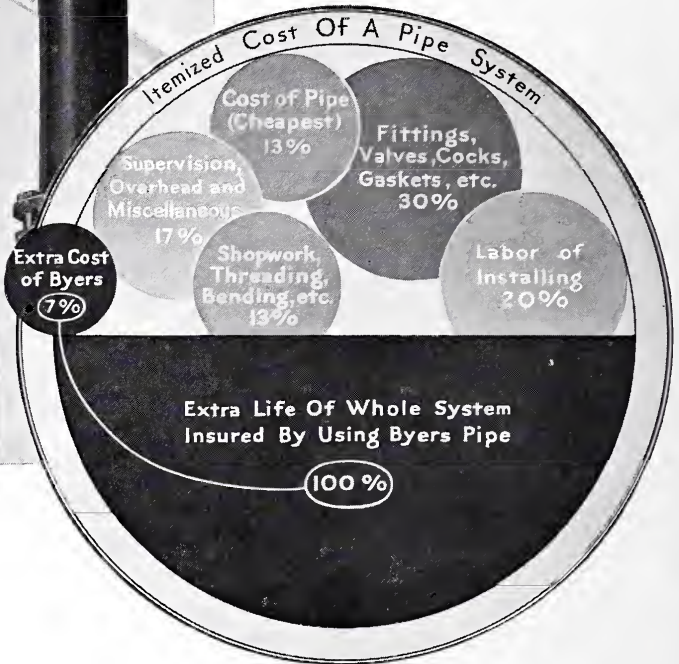
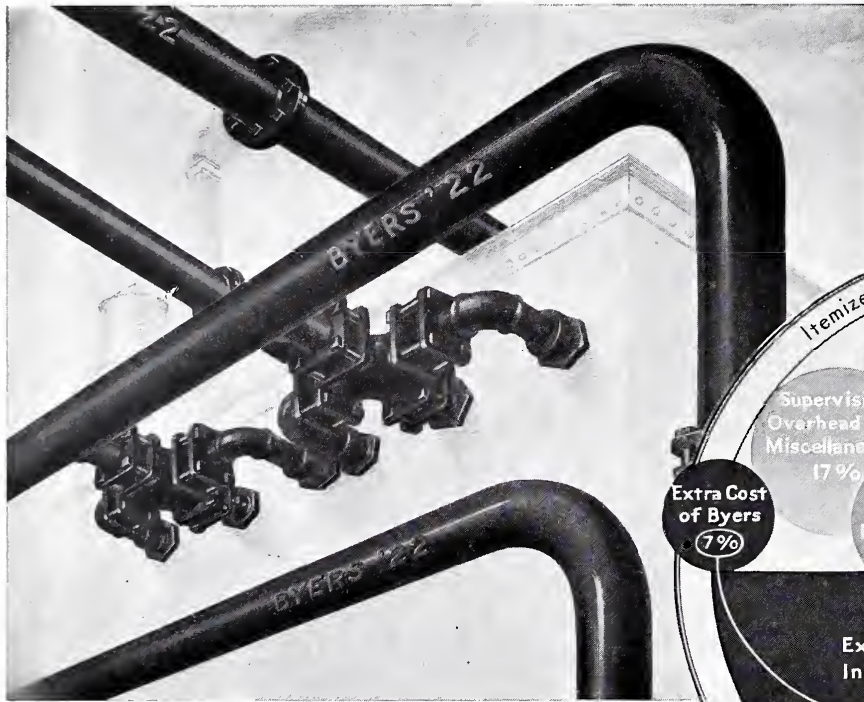
Keystone Copper Steel is an alloy made by the addition of a certain percentage of Copper to well made Steel, thereby greatly increasing its lasting and rust-resisting qualities under actual service conditions. It has been scientifically developed and tested—and its use is strictest economy.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle



Saving \$100.00 For Every \$7.00 Invested

The value of rust-resisting pipe like Byers is never better demonstrated than when comparing its extra cost with the saving it effects. For it is not only a question of replacing the pipe itself if it rusts out, but the heavy cost of labor, ruined fittings, and other items in the system. (See diagram).

No pipe system can long survive if made of pipe lacking the required rust-resistance. Pipe is but a small part of the cost of such a system, yet it is the *one* part which is most subject to destruction.

This is so because of the large surfaces of thin metal exposed to continuous corrosive attack. And when destroyed by rust, the pipe pulls the whole system down with it, causing a replacement expense exceeding the cost of the entire first installation.

Byers Bulletin No. 38, "Installation Cost of Pipe," contains cost analyses of a variety of plumbing, heating, power and industrial pipe systems, with notes on corrosive effects in different kinds of service. Send for a copy.

A. M. BYERS CO ; PITTSBURGH, PA.

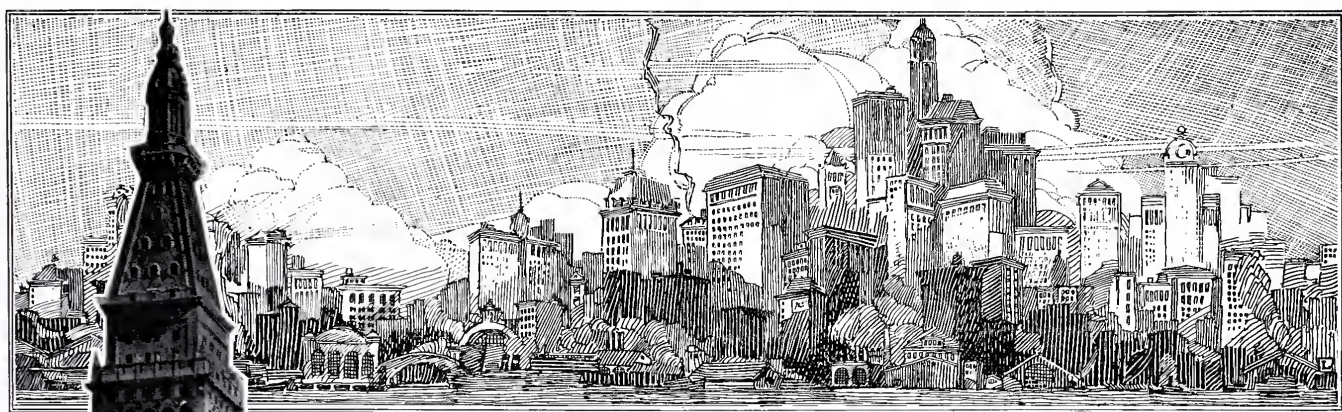
Established 1864

New York Philadelphia Boston Cleveland
Chicago Houston Tulsa Los Angeles

BYERS PIPE

GENUINE WROUGHT IRON

Look for the Name and Year rolled in every length



How the Metropolitan Life Protects its Investments

A BIG insurance company such as the Metropolitan is obligated to protect the interests of its policy holders in every possible way. There must be no chance of loss or risk of principal.

While real estate mortgages are properly considered the best of investments, the Metropolitan, through its Real Estate Department, makes its investments in them doubly safe by insisting upon the use of building materials which prolong the life of the building and insure low maintenance costs. Mr. D. Everett Waid, Consulting Architect of the Metropolitan Life Insurance Company, passes upon the plans and specifications before the loan is made and insists upon the use of Genuine Wrought Iron Pipe, as against steel pipe, for all the plumbing lines. You will find millions of feet of Reading Pipe in buildings erected with the aid of funds from the Metropolitan.

Whether your client's interest lies in a modern skyscraper or in a residence to house his family, the proper pipe for heating and plumbing lines is a matter of serious concern. Good pipe is a protection of his investment—poor pipe, a source of constant trouble and expense.

Reading Genuine Wrought Iron Pipe is the pipe that endures. The best proof of that lasting quality can be found in the large office buildings, hotels, schools and hospitals throughout the country. Here it has been selected because time after time Reading Genuine Wrought Iron Pipe has proven its ability to resist corrosion and serve three times longer than steel pipe. And, since the installation expense is constant, regardless of the kind of pipe used, Reading Pipe should not add over 5 per cent to the pipe bill. Figured in terms of the ultimate cost, Reading Genuine Wrought Iron Pipe is far and away the most economical.

*Send for our instructive booklet, "The Ultimate Cost"
It contains much useful pipe information*

READING IRON COMPANY, Reading, Pa.

World's Largest Makers of Genuine Wrought Iron Pipe

BOSTON
NEW YORK
PHILADELPHIA

BALTIMORE
PITTSBURGH
CINCINNATI

CHICAGO
FORT WORTH
LOS ANGELES

*Home Office, New York City,
of Metropolitan Life Insurance
Co., Reading Pipe installed.*

*Below—Reading
Genuine Wrought
Iron Pipe in service
for 22 years.*

*Above—Steel Pipe 8
years in service*

READING
GUARANTEED GENUINE
WROUGHT IRON PIPE



New No. 40 Sash

Announcing The Latest Development

IN

Kawneer
SOLID COPPER
STORE FRONTS

As the originators and inventors of resilient, solid copper settings for plate glass, we take pleasure in announcing a new sash in our Kawneer Store Front construction. It is our belief that because of its extra strength and pleasing architectural lines that this new No. 40 sash will make a strong appeal to architects and builders.

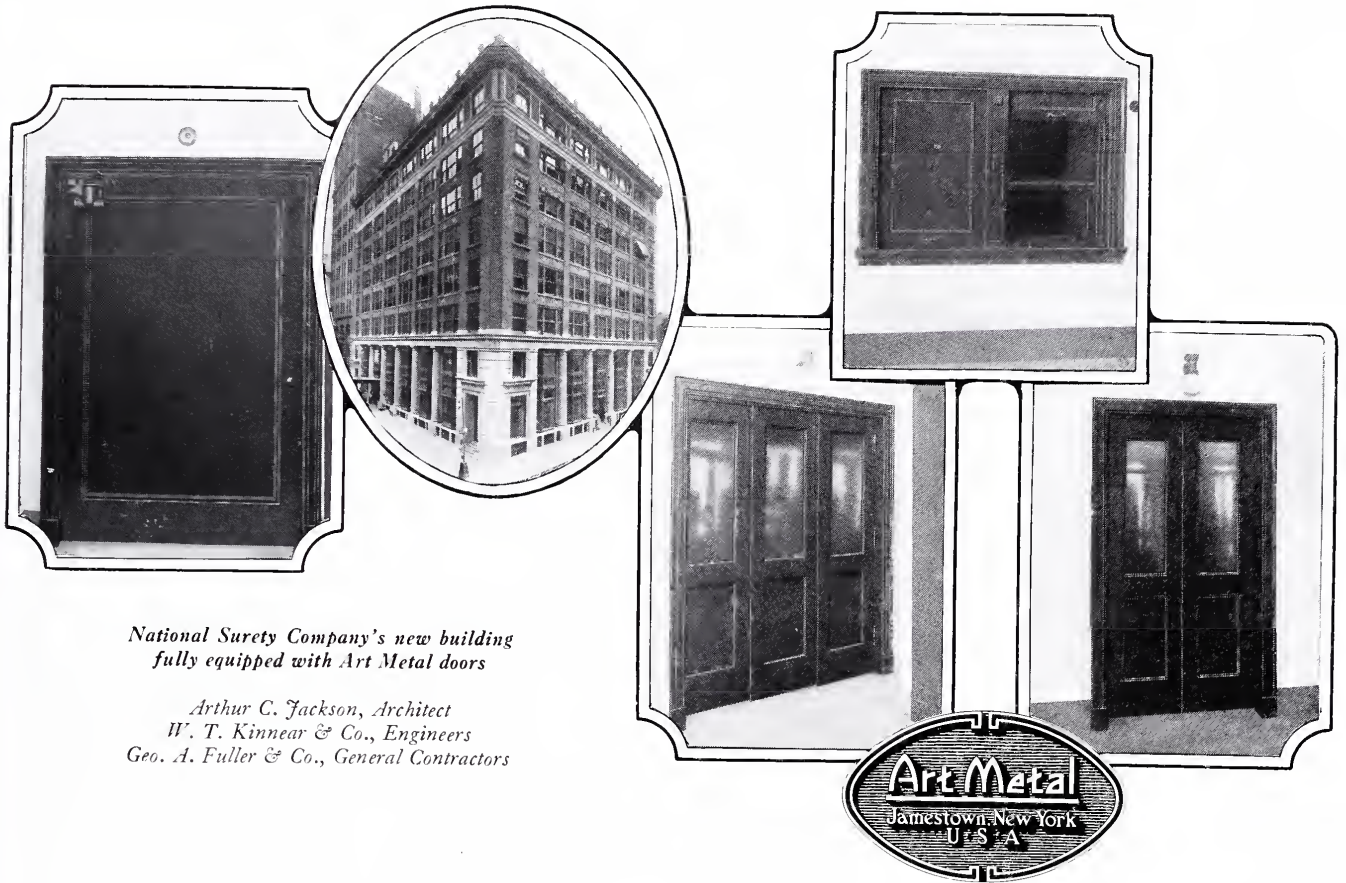
Extra heavy gauge metal used in this new sash enables it to be installed without backing, and with any kind of sill: marble, stone, tile or concrete.

Machine adjustment screws afford accurate control of the grip on the plate glass. Of course, Kawneer Resiliency is a basic feature. Ventilation and drainage controlled by slide in the gutter member may also be had when desired.

We are now distributing samples of this new sash to architects. Our new Catalog L containing full size details is just off the press. If you will drop us a line giving your office address we will gladly send both sample and catalog at once.

THE
Kawneer
COMPANY

2420 Front Street, Niles, Michigan



*National Surety Company's new building
fully equipped with Art Metal doors*

*Arthur C. Jackson, Architect
W. T. Kinnear & Co., Engineers
Geo. A. Fuller & Co., General Contractors*

Another Big New York Institution Adopts Art Metal Interior Equipment

THAT the best architects and construction engineers appreciate the greater effectiveness of Art Metal is again demonstrated in the new National Surety Building, just being completed in New York.

The entire equipment includes nearly two hundred doors built for various requirements,—for elevators, stalls, dumbwaiters and extra wide openings in halls. These last are 58 inches in width. They are hung on one and one-half pairs of heavy 5-inch butts—a *standard*

specification for all Art Metal door installations that meets even the unusual demand.

Art Metal combines exceptional engineering production and service facilities with a third of a century of experience in the design and fabrication of steel and bronze for interior equipment.

Art Metal is better than ever equipped to render the highest type of architectural hollow metal service. Let us submit details and estimates on your next installation.

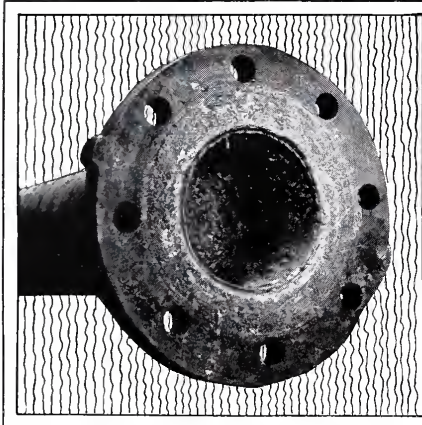
Art Metal

JAMESTOWN, NEW YORK

World's largest maker of steel and bronze interior equipment

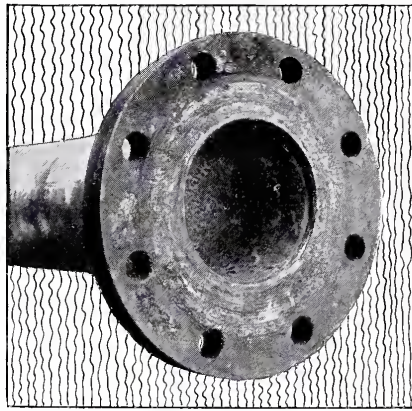
The story of a HOT WATER FEED PIPE

In Three Parts



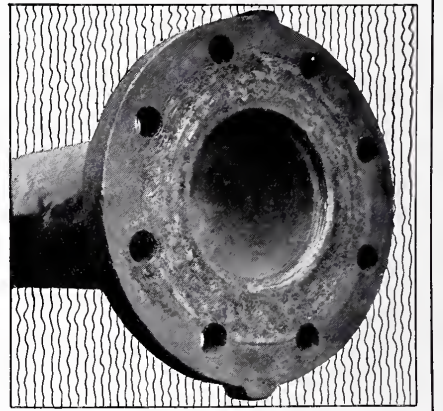
Part 1—Black Steel carried hot water at 200 degrees F. for eight years.

Worn down to threads; rough, pitted.



Part 2—Galvanized Genuine Wrought Iron carried hot water at 200 degrees F. for eight years.

Worn down to threads; projecting nodules of rust.



Part 3—Bridgeport Plumrite Brass Pipe carried hot water at 200 degrees F. for seven years.

No wear; surface smooth and clean.

Which is the best? —which do you use?

CONSIDER the relative amounts of friction in these three pipes—the color of the water delivered by the steel and iron pipes and their probable condition three years later. If experience counts they will be

worn out and replaced by Plumrite Brass Pipe.

Only in Plumrite Brass Pipe do you get the right combination of metals, evenly distributed, and correctly heat-treated to withstand severe service conditions.



BRIDGEPORT BRASS COMPANY, Bridgeport, Conn.

Bridgeport Plumrite *The Improved* Brass Pipe

REG. U. S. PAT. OFF.

If you are at all interested in the subject of water service piping, we shall be glad to send you, when issued, a copy of our book, "Brass Pipe and Piping." It deals with corrosion, its theory and prevention; dis-

cusses the advantages and disadvantages of the various pipe metals; and gives instructions for handling brass pipe, laying out installations and figuring costs. Copies are gratis on request—use this coupon.

Name _____

Firm _____

Address _____



*The Cunard Building located at Broadway
and Bowling Green, New York
Benjamin W. Morris, Architect
Lord Electric Co., Electrical Contractor*

Wired with Sherarduct



THIS splendid new home of the Cunard Steamship Company has its electric wiring system protected by SHERARDUCT—the incomparable Rigid Steel Conduit.

Sherarduct is specified and installed wherever electrical conduits of the highest quality are required. Its Sherardized and Enameled surfaces—both inside and out—make it the one conduit that resists rust.



National Metal Molding Co.
Pittsburgh, Pa.

RELIANCE FIREPROOF PRODUCTS



National Surety Building, Washington and Albany Streets,
New York City. Arthur C. Jackson, architect, George A. Fuller
Company, building contractors

The National Surety Building is typical of the modern type of business structures equipped with Reliance Fireproof Products. This notable building has Reliance Copper Kalamein Doors and Reliance Bay Windows throughout the first two stories.

Reliance doors, windows, partitions and trim are absolutely fireproof. Their attractiveness and permanence add that touch of refinement and character always sought for by those architects who seek to combine beauty with utility.

May we furnish estimates covering the work you now have in hand?

Reliance Fireproof Door Co.

47 Milton St.
Brooklyn, N. Y.



ELASTICA is the only magnesite stucco known that is shipped to the builder "*Complete in a Sack.*"

Furthermore, it is the only stucco of any kind on the market that is thoroughly **Waterproofed** and fully covered by manufacturers' **guarantee.**

For particulars write

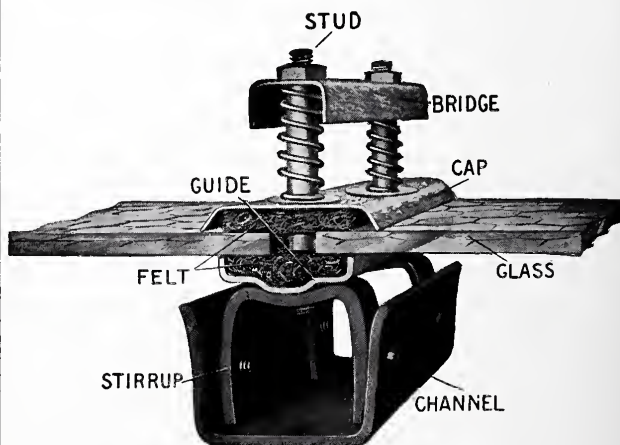
AMERICAN MATERIALS CO.
101 Park Avenue, New York, N. Y.
ART STUCCO MATERIALS CO.
12854 Oakland Avenue, Detroit, Mich.
WISCONSIN LIME AND CEMENT CO.
Conway Building, Chicago, Ill.
NORTH-WEST MATERIALS CO.
St. Paul, Minn.

ELASTICA

THE IDEAL EXTERIOR WALL COVERING

Copyright U. S. Materials Co., 1922

Skylights for Schools



Installations of "Anti-Pluvius" Puttyless Skylights are not limited to industrial buildings.

The Tsing Hua College, Peking, China, is an example of their use in schools. They have also been widely used in public and private buildings of all kinds.

Complete catalogue will be sent upon request.

THE G. DROUVÉ COMPANY
Bridgeport, Connecticut, U. S. A.

DAYLIGHT HEADQUARTERS

The Finest Office Building in the South Required 30,000 Yards of Kno-Burn for its Suspended Ceilings

THE specifications for the Magnolia Building in Dallas were drawn with great care by the architect, Mr. A. C. Bossom, of New York City, for it was determined that this office building should surpass any structure of the kind in the entire South.

Materials were selected with unusual discernment and as in so many other buildings of like character

Kno-Burn

METAL LATH

"The Steel Heart of Plaster"

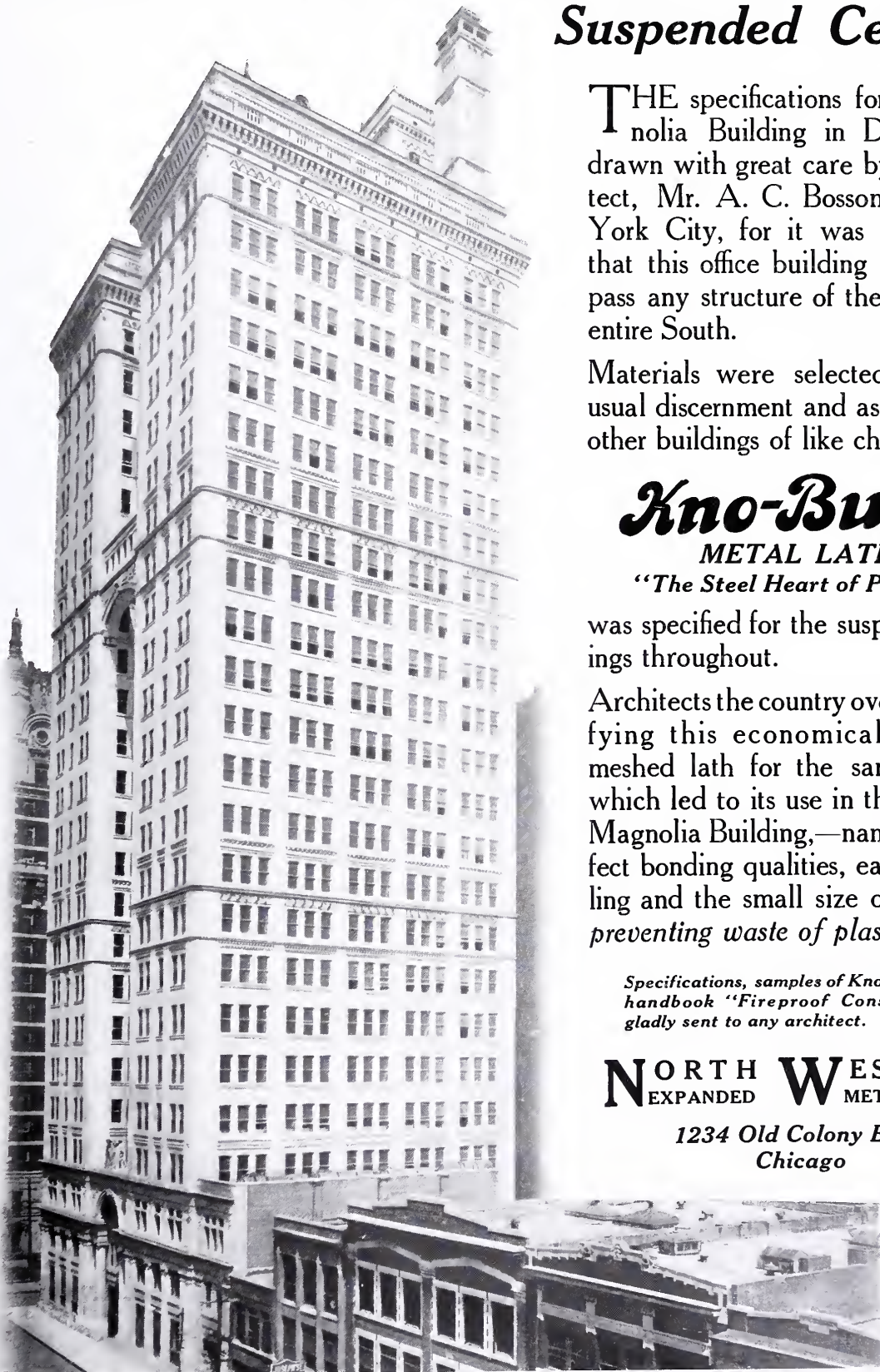
was specified for the suspended ceilings throughout.

Architects the country over are specifying this economical diamond meshed lath for the same reasons which led to its use in the beautiful Magnolia Building,—namely its perfect bonding qualities, ease of handling and the small size of its mesh, preventing waste of plaster.

Specifications, samples of Kno-Burn, and handbook "Fireproof Construction" gladly sent to any architect.

NORTH WESTERN
EXPANDED METAL CO.

1234 Old Colony Bldg.
Chicago

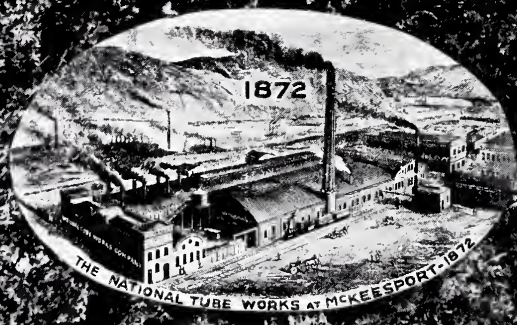


A Half Century



1922

**NATIONAL
WORKS,**
at McKeesport, Penn-
sylvania, one of the eleven
plants of National Tube Company,
recently observed its fiftieth birthday. This works
had its inception in East Boston, Mass., in 1868, so that
the history of "NATIONAL" Pipe now spans 54 years of
active Pipe Progress.



TUBE WORKS MARKS 50 YEARS' EXISTENCE

Officials and Men Observe An-
niversary of McKeesport
Company.

VETERANS STILL ON JOB

Officials and veteran employees of
the National Tube Company of Mc-
Keesport yesterday observed the

Plant Observes Fiftieth Anniversary
On Sept. 13, 1922, the first pipe was turned out at
the McKeesport, Pa., plant of the National Tube Co.,
and last Wednesday, the fiftieth anniversary of that
event was observed by officials and veteran employees.
Among the latter were two who were employed at the
plant at its opening and who still are in active harness,
Daniel Farley and Patrick Bilgh.
The first product of the plant was 2-in. boiler tubes.
Now the range of products includes all kinds of tubu-
lar goods, of sizes running from 3/4 in. to 30 in. in di-
ameter. The original plant occupied only four acres
and consisted of one small building. There are now
scores of buildings, one of which is the largest mill un-
der one roof in the world, while the plant as a whole is
the largest of its kind in the world.

National Tube Co. Fifty Years at McKeesport

*Largest Pipe Mill in the World Has Had Interesting History
Marked by Progressive Management and Successful Operation*
National Tube Co., Pittsburgh, manufacturer of
the universally known "National" pipe, celebrated on
September 13 the fiftieth anniversary of the opening
of its big McKeesport plant. Executives of the com-
pany, veteran employees and citizens of the city of Mc-
Keesport made the day a
memorable one. It is the
proud boast of the com-
munity that fifty years
ago the largest pipe mill
in the world was located
there, and that today it
can still make the same
claim.
It must be remembered
that the history of the
company antedates its
connection with McKes-
port, for in 1869 John H.
and Harry K. Flagler



National Tube Observes Fiftieth Anniversary

The fiftieth anniversary of the mak-
ing of pipe by the National Tube Co.,
McKeesport, Pa., was celebrated Sept.
13 by officials of the company and
its veteran employees. Men who
helped to make the first pipe are liv-
ing and several of them

"Great Oaks From Little Acorns Grow"

of Pipe Progress

AFTER FIFTY YEARS existence—whether it is a man's personal life, a great political movement, a notable industry or invention, this seems a natural point at which to stand and look back over the accomplishments and failures of the half century, and to balance the realization of today against the struggles of the passing years.

From a modest beginning in 1872, with a small plant and a few acres of ground, the history of National Works of National Tube Company has been one of continual progress, until today it stands unrivaled in its position of leadership among plants manufacturing tubular goods. Keeping abreast of the times, keeping faith with the consumer, and with a desire to serve in an ever-increasing measure, is the keystone upon which the progress and growth of the plant has been made.

This anniversary has attracted editorial attention throughout the country, and as typical of such the following is quoted from the *Journal of Commerce*, Philadelphia, September, 30, 1922.

"When one glances back over the pages of manufacturing and commercial pursuit during the past half century he will find much to interest him in the origin and inception of the leading concerns of the present day, for the onward and upward career of these enterprises in the majority of instances is merely the substantial fruit of success which usually comes to reward intelligent and energetic effort, no matter in what direction or in what capacity it may be applied.

Tracing the history of prominent and old established Pennsylvania enterprises it will be found that there is probably none which enjoys a wider prestige and reputation in its special line of activity than the National Works of National Tube Company located at McKeesport, Pa., which a few days ago had the pleasure and satisfaction of celebrating the 50th anniversary of its founding. It is one of the oldest concerns of the country and has developed to its present large proportions from a small beginning, but its growth and expansion have been consistent and gainful. The real secret of the continued success of the

firm will be found in the fact that its management has always proven it is fully in touch with the progress and trend of the times, studiously striving to place upon the market a line of products that would sell themselves through the efforts of their own merits and qualities.

The people of McKeesport are naturally proud of the past record, present stability and future promise of the city's representative commercial and manufacturing enterprises; proud of that integrity of business dealing and consistency of energy of purpose which successfully meet the commercial rivalry and competition, because of known quality of product and reliability of service; proud of that up-to-date spirit of effort and endeavor which makes the success of the past the foundation upon which to build and plan for still greater achievements in the future, and in all of these essentials the National Tube Company is typical of that commercial energy and enterprise which won for the United States a position of leadership among the nations of the world."



The Pipe that for more than fifty years has been
*The Recognized Standard
 of Wrought Pipe Quality*

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

General Sales Offices: Frick Building.

DISTRICT SALES OFFICES—

Atlanta Boston Chicago Denver Detroit New Orleans New York Salt Lake City Philadelphia Pittsburgh St. Louis St. Paul
 PACIFIC COAST REPRESENTATIVES: U. S. Steel Products Company San Francisco Los Angeles Portland Seattle
 EXPORT REPRESENTATIVES: U. S. Steel Products Company New York City



Store Building
Buffalo, N. Y.



Eli W. Goldstein
Architect

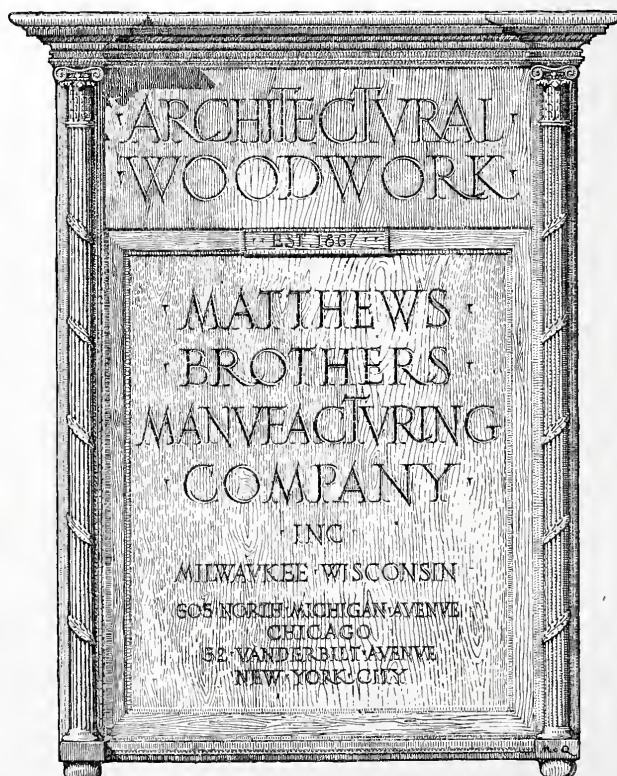
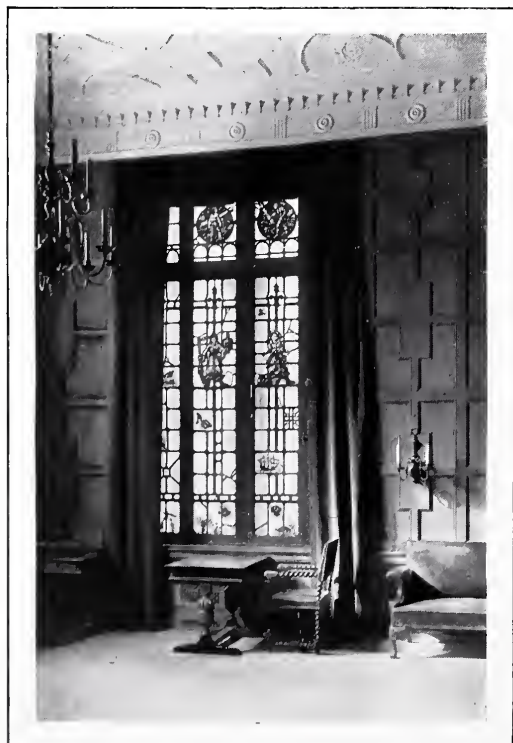
COPY OF OUR STORE FRONT BOOKLET SENT UPON REQUEST

THE NEW JERSEY TERRA COTTA COMPANY

OFFICE, SINGER BUILDING, NEW YORK CITY

ESTABLISHED 1888

WORKS, PERTH AMBOY, NEW JERSEY



BRISTOL COMPANY

Showroom:
154 East 55th Street

NEW YORK

Factory and Warehouse:
340-342 East 38th Street



A corner of the Bristol Paneled Room at the Art-in-Trade's Club exhibit held at the Waldorf Astoria

REQUISITES FOR UNUSUAL INTERIORS
ANTIQUES LIGHTING FIXTURES
PANELED ROOMS TAPESTRIES

FISH BRICK



The Gilbert Building
205-223 West 39th Street, New York City
Geo. & Edw. Blum, Architects J. E. Gilbert, Director
205 West 39th Street Co., Inc., Owner George Colon Co., Builder

Our Factory No. 1
Gray Smooth Face
Brick used for facade
of Gilbert Building.

A large selection
from which to choose,
varying both in tex-
ture and color, is of-
fered in Fish Brick.

"Fish Brick Service"
means the delivery
of brick "on the job"
on time.

Architects of large
building projects
which require im-
mense quantities of
face brick select Fish
Brick and Fish Brick
Service.

Samples and quotations supplied without obligation

Fish Brick Sales Company

Incorporated

25 West 45th Street, New York

Represented throughout the United States and Canada



Desert National Bank, Salt Lake City, Utah. Light Nebo Golden Travis Marble for columns, mezzanine and balustrade is superimposed in a Dark Golden Travis Base, sub-base and counter
Cannon & Fitzer, Architects



Mantel of Dark Nebo Golden Travis, in Governor's Reception Room, State Capitol, Salt Lake City, Utah. Also used in the Administration Building, Latter Day Saints, Salt Lake City. R. Klettering, Architect

A Golden Marble From the Golden West

FROM that part of the Golden West where the Great Salt Lake reflects the gold of the setting sun, comes Nebo Golden Travis Marble.

It is a sunlit marble.

For those of your decorative schemes that will allow of its rich variegated, sun touched colors, this marble can be had in two different tones.

Sunlight or strong artificial light makes them the more beautiful.

A faithful reproduction of it, in its natural colors, is in our folio of color prints.

A copy of this we would be glad to send you, or confer with you in detail on any marble problem you may have.

TOMPKINS-KIEL MARBLE COMPANY

505 FIFTH AVENUE
NEW YORK CITY



CHICAGO
PHILADELPHIA
SAN FRANCISCO

*By-pass valves in the
Deshler Bath Fixture
make it easy to put a
shower over the tub*

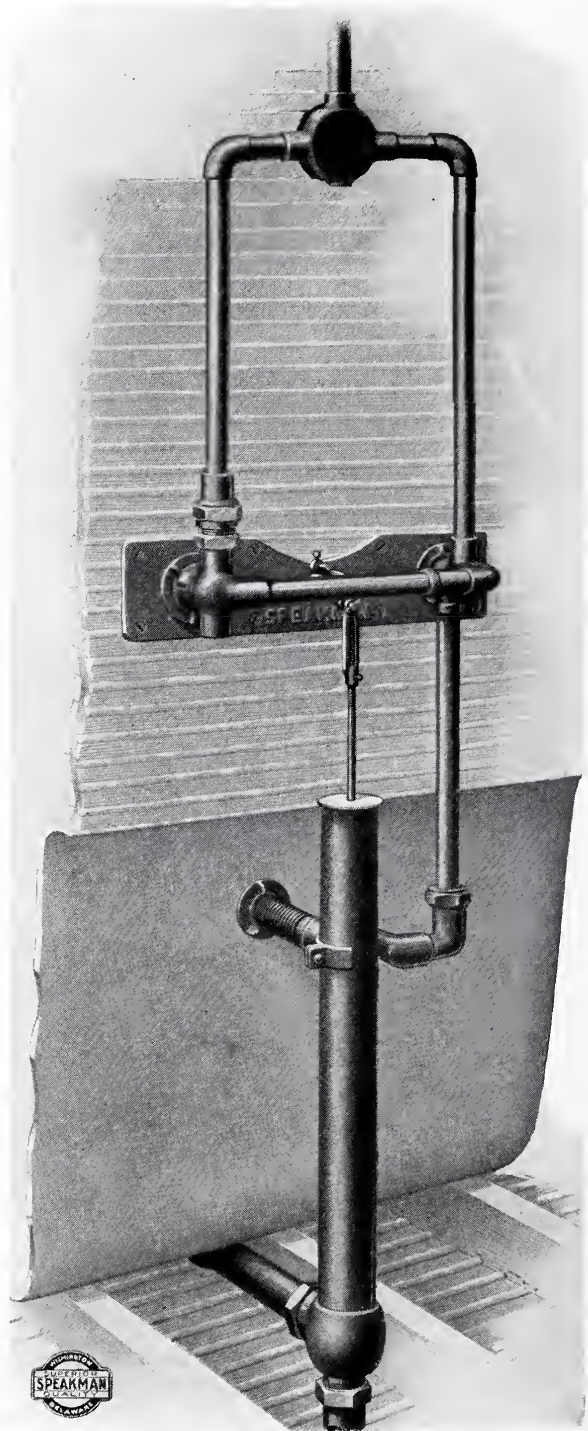
NOT only this, but there is a saving in fittings, labor and chances of leak. Then again, cutting of studding is eliminated when the Deshler Bath Fixture is used.

Valves in the Deshler Bath Fixture have *renewable* Hi-Seat — $1\frac{3}{8}$ " from the face of the wall instead of 3" as is the case ordinarily.

All Speakman Hi-Seat Valves (patented) have this same *renewable* feature.

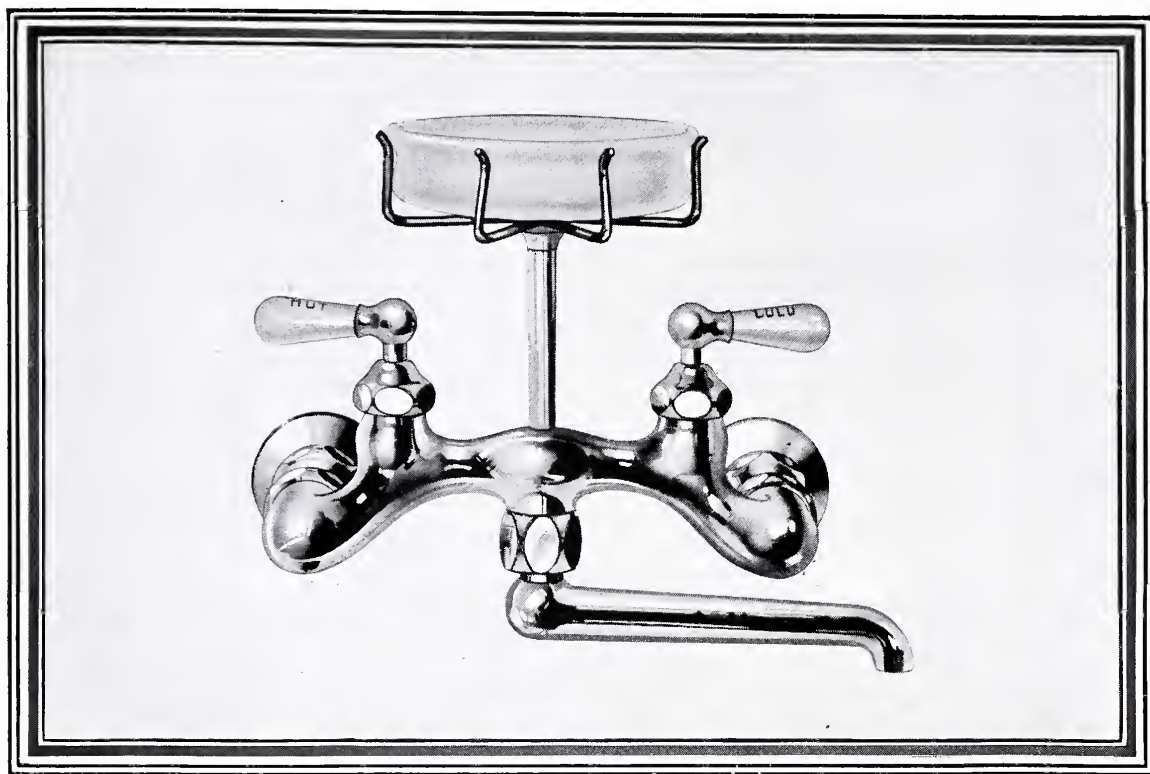
"Connecting the Shower" is a folder which tells of ten other features of the Deshler Bath Fixture. We'll gladly send you a copy. Also, if you wish, send our catalog H.

SPEAKMAN COMPANY
WILMINGTON, DEL.



Wash and Bathe in Running Water

SPEAKMAN SHOWERS



A COMBINATION SINK FAUCET, MADE OF RED METAL, HEAVILY NICKEL-PLATED

MAKING LIFELONG CUSTOMERS

The convenience, the attractive appearance and the durability of Crane brass faucets, stops and cocks make an emphatic appeal to every householder. Extra heavy design and construction in all fixtures and the absence of sharp edges and dirt-collecting grooves are visible assurance of their perfection. Non-

corrosive, tough red metal is used in their manufacture. Heavy nickel-plating provides a lasting finish. Substantial patterns and accurate workmanship make them withstand the hardest usage. The proper installation of Crane fixtures is a factor in building new trade and keeping your present customers satisfied.

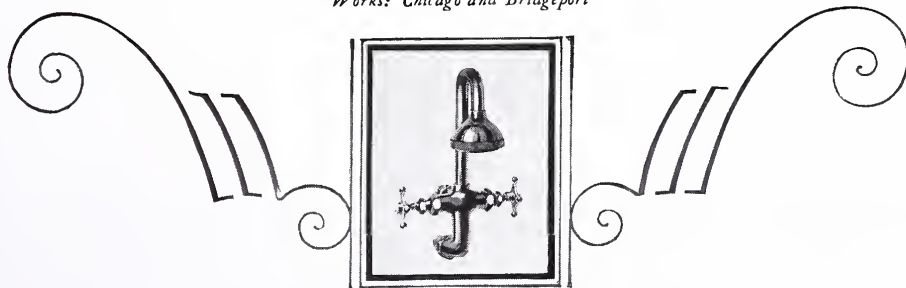
CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

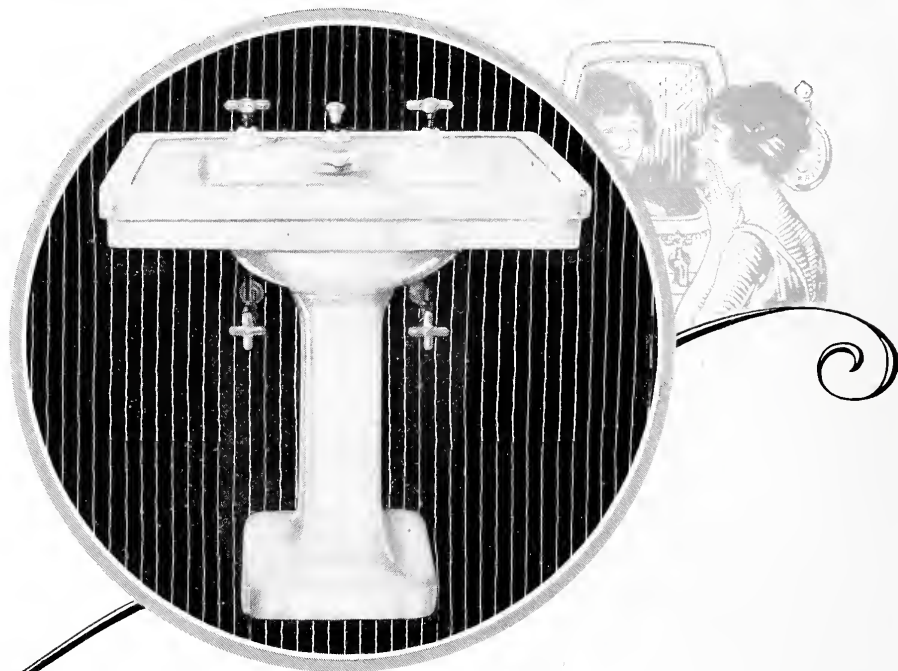
Branches and Sales Offices in One Hundred and Thirty-five Cities

National Exhibit Rooms: Chicago, New York, Atlantic City

Works: Chicago and Bridgeport



"Telsa" Wash Sink Faucet



The MADBURY

Vitreous China in plumbing fixtures is an assurance of SERVICE—service in labor saved and service in safeguarding health. Therefore, isn't it advisable to specify Vitreous China fixtures whenever and wherever possible?

SPECIFICATION:

White Vitreous China Straight Front Lavatory; Size (see below) with Integral Supply Nozzle, Cleansing Overflow Feature, Square Bowl, Hooded Overflow, Anti-splash Rim, Plain Square Pedestal and N. P. Brass Wall Brackets. Fitted with Compression Supply Valves with China Crossarm Handles and Escutcheon and Pop-up Waste with China Knob and Escutcheon with 1¼ inch or 1½ inch N. P. Brass Non-syphoning Trap to Wall and ¾ inch N. P. Brass Supply Pipes to Wall with China Handle Stop Valve and China Wall Escutcheons.

DIMENSIONS:

Lavatory, inches 20 x 24 22 x 27 24 x 30

THOMAS MADDOCK'S SONS CO.
TRENTON, N. J.

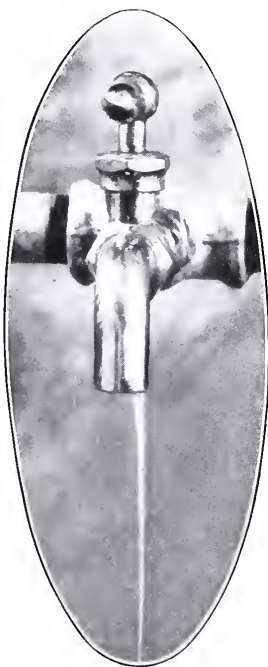
Plumbing Facts



Water Just Leaking Drop by Drop

15 gallons per day
105 gallons per week
5,475 gallons per year

Cost per day\$.00375
Cost per week02625
Cost per year 1.36875



Water Leaking Through One-Fourth Inch Aperture

17,425 gallons per day
121,975 gallons per week
6,360,125 gallons per year

Cost per day\$ 4.356
Cost per week 30.493
Cost per year 1590.031



Water Leaking Through One-Half Inch Aperture

70,488 gallons per day
493,416 gallons per week
25,728,120 gallons per year

Cost per day\$ 17.622
Cost per week 102.354
Cost per year 6432.03

NO other single item causes more trouble and repair bills for your client than does faulty plumbing. Think of your own personal experience.

The greatest cause of plumbing trouble and repairs is due to the use of cheap brass trimmings. Don't permit the use of anything but the

best in plumbing brass goods.

Clow Trimmings are of red metal, designed in every detail to stand hard usage and long wear. When you specify "Clow plumbing throughout" you insure your client against future troubles.

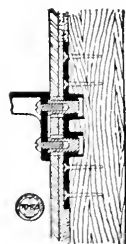
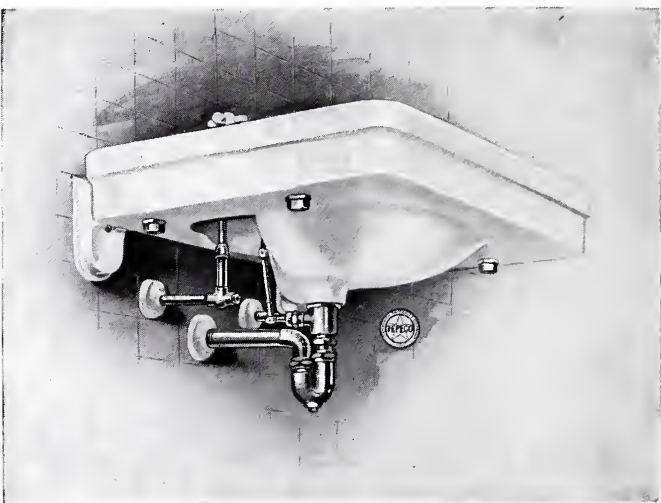
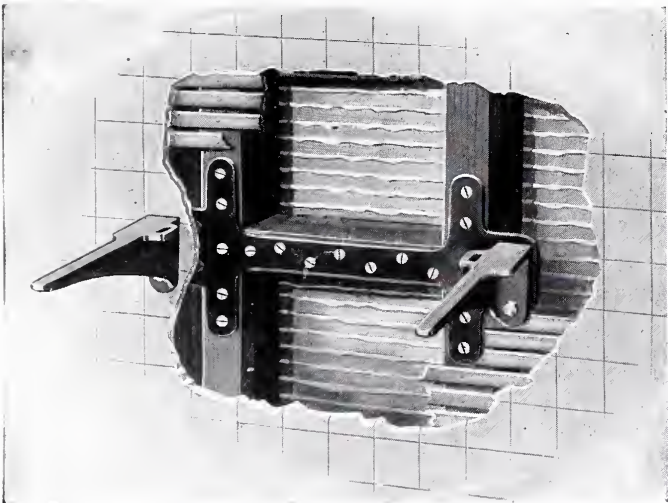
JAMES B. CLOW & SONS

General Offices: 534-546 South Franklin Street, Chicago
Sales Offices in the Principal Cities

CLOW

Tepeco Vitreous China Lavatories

Installed on Concealed Wall Carrier

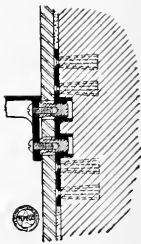


Cross Section showing how the Wall Carrier may be fastened to a stud partition, with screws.

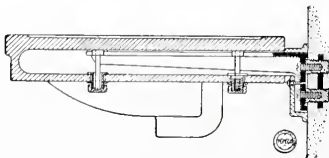
THE desire to cover the large bracket required in the installation of a wall-hung lavatory has resulted in various designs of bracket housings which not only present a clumsy appearance, but increase the cost of fixture considerably.

The above lavatory is made so as to conceal the bracket in between the lavatory and wall being covered by a china escutcheon. This eliminates both the bracket and housing from under the lavatory, which gives not only a much better-looking installation but accomplishes the object in a more economical manner.

The cross section below shows in detail the construction of bracket and how it is secured to the lavatory. Note the adjustment provided in the bolts locking the lavatory to bracket, which also provides for leveling of the lavatory.



Cross Section showing how the Wall Carrier may be fastened to masonry, with expansion bolts.



THE TRENTON POTTERIES COMPANY

TRENTON, NEW JERSEY, U. S. A.

BOSTON

NEW YORK

SAN FRANCISCO

World's Largest Makers of All-Clay Plumbing Fixtures

Our New Catalogue Shows these Details

If our new Catalogue R is not on your desk, by all means send for a copy. Architects who have seen it quite generally pronounce it the most completely comprehensive catalogue of plumbing fixtures in their experience. Not only are complete specifications given, but the detail drawings are invaluable in showing exactly how and when a certain type should be used.

Garage Layout Problems Disappear

When the *d'Humy Motoramps* are used

Arrange the cars ideally, as you would if the building were only one story high; then mark off the car rows into bays and place the d'Humy Motoramps wherever most convenient to connect any two of the car aisles.

Single track, up-and-down, d'Humy Motoramps subtract only eight car spaces per floor from the ideal one-story layout—and double track d'Humy Motoramps (desirable for buildings of more than 300 cars capacity) require only sixteen car spaces. That is why the use of the d'Humy Motoramp System invariably results in a building of the **LOWEST COST PER CAR**.

For example, in a certain five-story garage, 100 x 220 feet, costing \$2.25 per square foot, the building costs per car were found to be:

With ordinary ramps	\$600.00
With two elevators	537.00
With d'Humy Motoramps	493.00

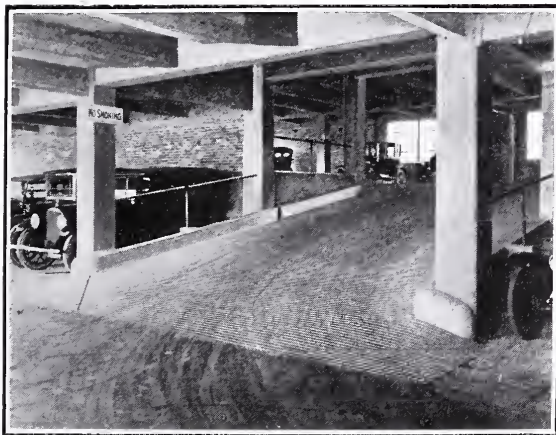
And, with a monthly rental of \$25.00 per car space, the comparative yearly income would stand:

With ordinary ramps (225 cars)	\$67,500.00
With two elevators (270 cars) and deducting elevator operating expense.....	77,100.00
With d'Humy Motoramps (280 cars).....	84,000.00

The earning power of the building is so greatly enhanced that it is easy to see why d'Humy Motoramps are specified by so many architects.

This system of design has the added advantage of affording the safest, quickest and most convenient form of interfloor travel. The half-length ramps give perfect "visibility"; they are never an inclined tunnel. d'Humy Motoramps assure the success of the enterprise because the building wins the good will and enthusiastic support of every motorist who uses it.

Ask us to prepare, without obligation, miniature sketch plans for that job on which you are now working, together with an analysis which will prove that the d'Humy Motoramp System will give the lowest cost per car and the highest investment return.

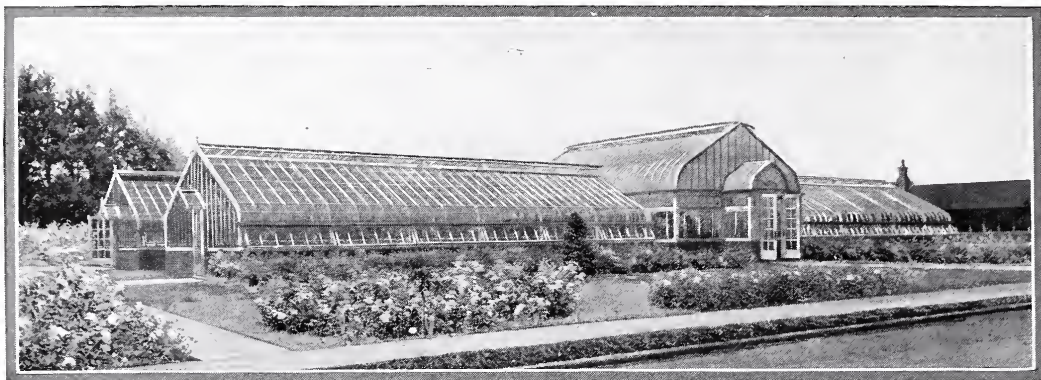


RAMP BUILDINGS CORPORATION

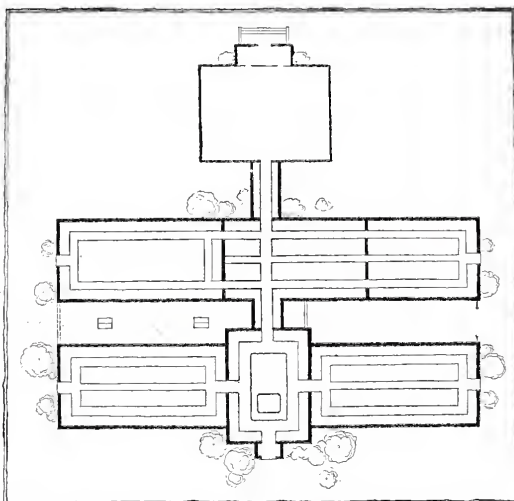
115 Broad Street, New York
Representatives in all Principal Cities

To extend its service more completely the Company desires a few additional structural engineers to act as representatives in certain territories still open.

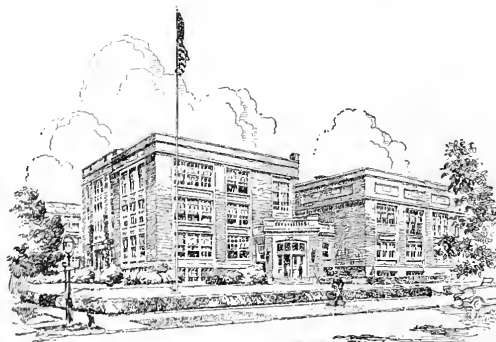
d'Humy Motoramps—a Patented System of Building Design involving a combination of ramps with staggered floors



Range of growing and experimental greenhouses erected for the West Technical High School at Cleveland, Ohio. It occupies quite the same relation to the courses of botany and horticulture, as does the laboratory to chemistry and physics. You will be interested to know that the Western States were the first to add greenhouses to their school equipment.



Its arrangement of parallel houses with central connecting passage house and adjoining workroom at the back is a layout that has over and over proved its practicalness. Not the least in its favor is the economy of heating and convenience in working.



West Technical High School, Cleveland, Ohio
Board of Education, Architects Central Dredging Co., General Contractors

Hitchings and Company

Greenhouse and Conservatory Builders

Home Office and Factory, Elizabeth, N. J.

New York
101 Park Avenue

Rochester
611 Commerce Building

Philadelphia
133 South 12th Street

Boston 9
294 Washington Street



No. 21-9

THE BRUNSWICK-BALKE-COLLENDER CO.
WHALE-BONE-ITE
 TOILET SEATS
 CLOSET SEATS

Whale-Bone-Ite Toilet Seats

WILL EQUIP

OMAHA'S NEW TECHNICAL and COMMERCIAL HIGH SCHOOL
 OMAHA, NEB.



FREDERICK W. and EDWIN B. CLARK, Architects, Omaha, Neb.
 H. GRUENWALD CO., Plumbers WOLFF MFG. CO., Jobbers

The Test of Time Demonstrates

Whale-Bone-Ite

Toilet Seats' Superiority

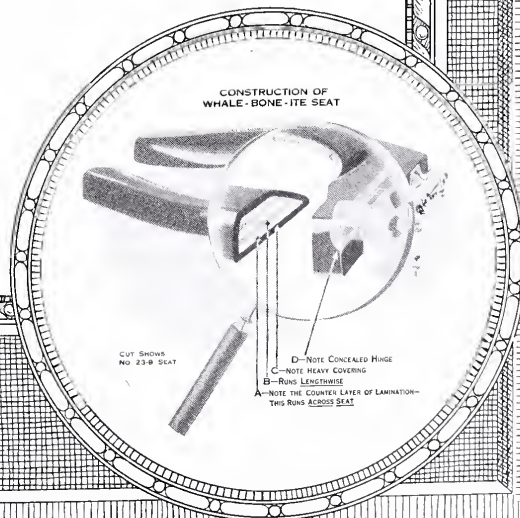
SPECIFIED BY LEADING ARCHITECTS, ENGINEERS
 AND OWNERS WHO WANT THE BEST

**SANITARY
DURABLE**

SOLD BY ALL JOBBERS

MADE BY

THE BRUNSWICK-BALKE-COLLENDER CO.
 1623 S. 50 WABASH AVE. CHICAGO



Manufacturers' Catalogs and Business Announcements

CATALOG REVIEWS

DAVID LUPTON'S SONS CO., Philadelphia. "Steel Windows." Catalog 110.

The attention which is being given to the windows used in buildings of many different types is one of the secrets of the buildings' success. This is particularly true of schools, where windows must nowadays often conform to certain well defined requirements, of factory buildings and sometimes of hospitals, where in order to admit the necessary light and air large wall areas are often given up to windows which must be easily manipulated in order to be practical. All this has meant the increasing use of steel sash, and their obvious advantages are now causing their wider use in residences, apartment houses, office buildings and for certain modern types of store fronts. The chief advantage of steel over wood for use in windows lies of course in its strength, making possible a slender steel muntin which notwithstanding its slenderness possesses far greater strength than a wood muntin many times its size, with consequent advantages for admitting light; the same strength and the fact that a steel sash is welded into one solid piece of rolled metal provide a rigidity which precludes the danger of its being blown in or twisted from its setting by the force of the wind; it is also close-fitting and free from rattle.

In this booklet the manufacturers of several types of steel windows emphasize the value of their products for buildings of different types, particular stress being laid upon their "projected windows" which are especially useful since they may be opened in several ways, secured in a number of positions, and easily reached for cleaning upon both sides. The booklet also contains detailed drawings illustrating the requirements where such windows are used in walls of wood, concrete or brick. Although chiefly devoted to the subject of "Steel Windows," more or less information is given regarding other products of the company, such as counter balanced sash, pivoted sash, pressed steel door frames, toilet partitions, shelving and factory equipment.

RUSSELL & ERWIN MFG. CO., New Britain, Conn. "Catalog of Hardware, Volume 13." 382 pp., 8 x 10 $\frac{3}{4}$ ins.

There are few details of interior finish which are more important in the average building than its hardware, which includes the locks and other metal fittings for doors and windows, wall fittings where electric bells and signals are required, hooks for closets and wardrobes and the metal letters and numbers which are useful for various purposes. This substantial volume is the latest of a series of catalogs which list for the convenience of architects and builders the many patterns and sizes in which the widely known "Russwin" products are made.

The growth of good taste in building is illustrated in the constant improvement in the design of the details which are used in building equipment, and is proved by the definite tendency toward the use of period design which is evident in this volume.

There are none of the historic styles of architecture likely to be used today for which well designed hardware is not illustrated, emphasis being placed upon patterns in styles sure to be the most used, such as the colonial, the Georgian and the Adam, and the simpler forms of Louis XVI.

It is necessary in correctly estimating the hardware for buildings to have a complete knowledge of the requirements, and essential, therefore, to have an accurate list or "schedule" of all the hardware needed. The contractor estimating this item is almost always obliged to compile such a schedule from the architect's blue prints and specifications, and in the preface to this catalog there are given some directions which should make for accuracy in compiling such schedules.

ANNOUNCEMENTS

Brentwood S. Tolan, architect, formerly of Fort Wayne, Ind., is now associated with De Curtins & Rawson under the firm name of De Curtins, Rawson & Tolan, with offices at 503 Opera House Block, Lima, Ohio.

Jacob Weinstein, architect, has removed his offices to the Metropolitan Bldg., State and Chapel streets, New Haven, Conn.

Wellington J. H. Wallace, Bartlesville, Okla., announces his appointment as architect for the Baptist Sunday School Board, of Nashville, where he will be located. Manufacturers' catalogs and samples relating to church and Sunday-school buildings are requested.

George Lawrence Smith, architect, announces the removal of his office to 5 Park street, Boston.

Harvey H. Warwick announces the removal of his office to 1108 Sixteenth street, N. W., Washington.

Norman Hatton announces that the partnership formerly known as Hatton, Holmes & Anthony has been dissolved. Mr. Hatton will continue the practice of his profession at the same address, 321-2 O. R. C. Bldg., Cedar Rapids, Iowa.

Smith, Hinchman & Grylls have moved their offices from the Washington Arcade Bldg. to the 8th floor of the Marquette Bldg., 243 Congress street, Detroit.

VAN RENSSELAER P. SAXE, C.E.

Consulting Engineer

STRUCTURAL STEEL
CONCRETE CONSTRUCTION

Knickerbocker Building

Baltimore, Md.

SONNEBORN PRODUCTS

Grind-Proof *and* Dust-Free Concrete Floors!

Perfect Concrete Floors *No Dusting—No Disintegration*

Safeguard yourself—forestall any chance of clients' dissatisfaction, due to concrete floor troubles.

Lapidolith, the liquid chemical, is now the standard specification for the dustproofing and wearproofing of old or new concrete floors.

Let us refer you to a lapidolized floor near you, or to architects of your acquaintance who know Lapidolith and who always specify it.

LAPIDOLITH

TRADE MARK

The Liquid Chemical Dustproofer and Wearproofer of Concrete Floors

Other Sonneborn Products:

HYDROCID

A black tacky material for waterproofing foundations and damp-proofing the interior of exposed walls. No furring or lathing necessary. Binds perfectly with plaster.

HYDROCID INTEGRAL

To be mixed with the cement for waterproofing mass concrete against water pressure. Powder or paste.

FERMO

A liquid chemical which hastens the set of concrete and mortar. Saves time—prevents freezing.

completes the hydration of the Portland Cement and makes the mass granite-hard for all time.

It also increases the density of the concrete, so that it becomes impervious to water and so is widely used in treating concrete tanks and swimming pools.

Lapidolith is the original concrete hardener—standard for twelve years.

Write to Technical Department for specification forms, sample and details.

L. SONNEBORN SONS, Inc.
Dept. 4 116 Fifth Ave., New York

SONNEBORN

Index to Advertising Announcements

Adam Electric Company, Frank.....	104	Kaestner & Hecht Co.Fourth Cover	
Alabama Marble Company.....	18	Kawneer Co., The.....	120
American Brass Company, The.....	65	Kelley Island Lime & Transport Co.....	79
American District Steam Company.....	110	Kelsey Heating Company, The.....	111
American Face Brick Association, The.....	15	Kensington Mfg. Company.....	41
American Fence Construction Co.....	99	Kerner Incinerator Co., The.....	107
American Lead Pencil Co.....	12	Kewanee Boiler Company.....	4
American Radiator Company.....	109	Kewanee Private Utilities Co.....	112
American Seating Company.....	44	Kewanee Mfg. Co.....	52
American Sheet and Tin Plate Co.....	117	Kohler Company.....	101
American Terra Cotta and Ceramic Co., The.....	8		
American Walnut Mfrs. Assn.....	47	Louisville Cement Co.....	75
American Window Glass Company.....	51	Lupton's Sons Company, David.....	95
Anaconda Copper Mining Company.....	87		
Angel, H. Reeve.....	52	Maddocks Sons Company, Thomas.....	134
Appalachian Marble Company.....	16	Marbleloid Company, The.....	18
A. P. W. Paper Co.....	12	Master Builders' Company, The.....	22
Arkansas Soft Pine Bureau.....	49	Matthews Brothers Mfg. Company.....	128
Armstrong Cork and Insulation Company.....	21	Maurer & Sons, Henry.....	14
Armstrong's Linoleum.....	42	McKinney Mfg. Company.....	92
Arnold & North, Inc.....	114	Medic Society of America, The.....	40
Art Metal Construction Company.....	121	Mississippi Wire Glass Co.....	76
Associated Tile Manufacturers, The.....	11	Moulding Brick Co., Thos.....	18
Automatic Electric Company.....	103	Muller & Co., Franklyn R.....	28
Barrett Company.....	81	Nairn Linoleum Company.....	19
Bishopric Manufacturing Co., The.....	34	National Fire Proofing Company.....	1
Brasco Manufacturing Co.....	94	National Lead Company.....	53
Brascolite Company, The.....	74	National Metal Molding Co.....	123
Bridgeport Brass Co.....	122	National Terra Cotta Society.....	5
Bristol Company, The.....	129	National Tube Co.....	126, 127
Brunswick-Balke-Collender Co.....	139	Nelson Company, The H. W.....	114
Burlington Magazine, The.....	40	New Jersey Terra Cotta Company.....	128
Byers Company, A. M.....	118	North Western Expanded Metal Co.....	125
		Northwestern Terra Cotta Co., The.....	9
Cabot, Inc., Samuel.....	52	Otis Elevator Company.....	29
Carey Co., The Philip.....	83		
Carney's Cement Company.....	77	Page Fence & Wire Products Ass'n.....	67
Carter Bloxonend Flooring Company.....	27	Peelle Company, The.....Third Cover	
Clarage Fan Company.....	113	Plate Glass Mfrs. Ass'n.....	48
Clinton Metallic Paint Co.....	14	Portland Cement Association.....	26
Clow & Sons, James B.....	135		
Compound & Pyrono Door Co., The.....	98	Ramp Buildings Corporation.....	137
Congoleum Company, Inc.....	45	Raymond Concrete Pile Company.....	3
Conkling-Armstrong Terra Cotta Co.....	8	Reading Iron Company.....	119
Copper & Brass Research Association.....	32	Reliance Fireproof Door Co.....	124
Corbin, P. & F.....	91	Ripolin Company, The.....	78
Crane Company.....	133	Rising & Nelson Slate Co., The.....	16
Creo-Dipt Company, Inc.....	78	Rogers, Inc., Charles P.....	50
Crittall Casement Window Co.....	46	Rolup Screen Company.....	71
Cutler Mail Chute Co.....	112	Rookwood Pottery Co., The.....	40
		Ruberoid Co., The (formerly The Standard Paint Company).....	73, 80
Dahlstrom Metallic Door Company.....	97	Samson Cordage Works.....	94
Drouvé Company, The C.....	124	Sandusky Cement Company, The.....	17
Dunham Co., C. A.....	110	Sargent & Company.....	90
		Schumacher & Co., F.....	43
Eljer Company.....	144	Simonds Company, The Elgin A.....	44
Evans, W. L.....	88	Simplex Wire and Cable Co.....	28
Excelso Specialty Works.....	110	Sloane, W. & J.....	19
		Smith & Co., Edw.....	78
Fairfacts Company, Inc., The.....	10	Smith & Egge Mfg. Co., The.....	88
Fish Brick Sales Company.....	130	Smith & Jones.....	46
Fiske Iron Works, J. W.....	98	Sonneborn Sons, Inc., L.....	141
French & Co., Samuel H.....	78	Southern Cypress Manufacturers' Association.....	86
Frink, Inc., I. P.....	76	Speakman Company.....	132
		Sprague Electric Works.....	102
General Chemical Company.....Second Cover		Stanley Works, The.....	94
General Electric Company.....	105	Stewart Iron Works Co., The.....	100
Gillis & Geoghegan.....	100	Straus & Co., S. W.....	54
Gorton & Lidgerwood Co.....	108	Stromberg-Carlson Telephone Mfg. Co.....	104
Goulds Manufacturing Co.....	86		
Guastavino Co., R.....	7	Taunton-New Bedford Copper Co.....	80
		Taylor Company, N. & C.....	84, 85
Hampton Shops.....	39	Todhunter, Arthur.....	40
Harrison Granite Co.....	16	Tompkins-Kiel Marble Company.....	131
Hart & Hegeman Mfg. Co.....	106	Trenton Potteries Company, The.....	136
Hess Warming & Ventilating Co.....	12	Truscon Laboratories, The.....	2
Higgin Mfg. Co.....	89	Truscon Steel Co.....	6
Hitchings & Co.....	138		
Hockaday Co., The.....	69	United States Gypsum Company.....	13
Hoffman Manufacturing Co., Andrew.....	50	U. S. Materials Co.....	124
Holtzer-Cabot Company.....	104	United States Mineral Wool Co.....	86
Hope & Sons, Henry.....	114	Universal Safety Tread Co.....	88
Humphrey Company.....	112	Utica Heater Company.....	115
Illinois Zinc Company.....	82	Varnum Door Engine Co.....	100
Improved Office Partition Company.....	36	Vermont Marble Company.....	20
Indiana Limestone Quarrymen's Association.....	31	Vonnegut Hardware Co.....	93
International Casement Co.....	50		
		Wallace & Tiernan Co.....	108
Jenkins Bros.....	116	Western Brick Company.....	14
Johnson Service Company.....	108	Westinghouse Electric & Mfg. Co.....	30
		Wilson Corporation, The J. C.....	86
		Wolff Manufacturing Co.....	143
		Zouri Drawn Metals Co.....	96

25%

Greater Heat Efficiency

THE heating principles and special design incorporated in this WOLFF Combination Gas Water Heater are the outcome of many years of manufacturing study and experience. We have *proved* its ability to produce

Hot Water *in Less Time*
with Less Gas

The *Double Disk* heating principle makes possible quicker operation, a *considerable saving* in gas and a welcome *reduction* in operating costs.

Always safe and dependable. No odor. Extremely durable. Delivers from the start. Six sizes—12 x 36 inches to 18 x 60 inches. Of that high quality for which WOLFF plumbing and fixtures have been known for 67 years.



WOLFF Quality
Combination
Gas Water Heater
Made in 6 Sizes

WOLFF

Makers of Quality
Plumbing since 1855

Branch or Distributor at Every Central Point

Sanitary Enamelware
Range Boilers :: Brass Goods
Potteryware :: Marble

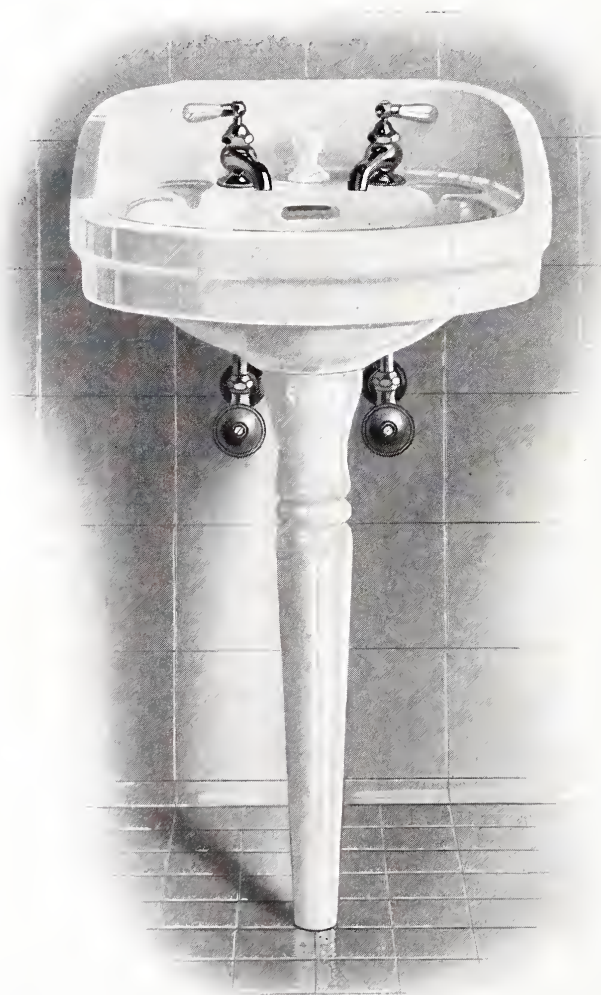


The presence of Wolff Quality Plumbing in a structure implies quality construction throughout

"AINSLEE"

Another Eljer Extra Value Lavatory

For
Hotels
Apartments
Offices



Highest
Quality
Genuine
Two-Fired
Vitreous
China

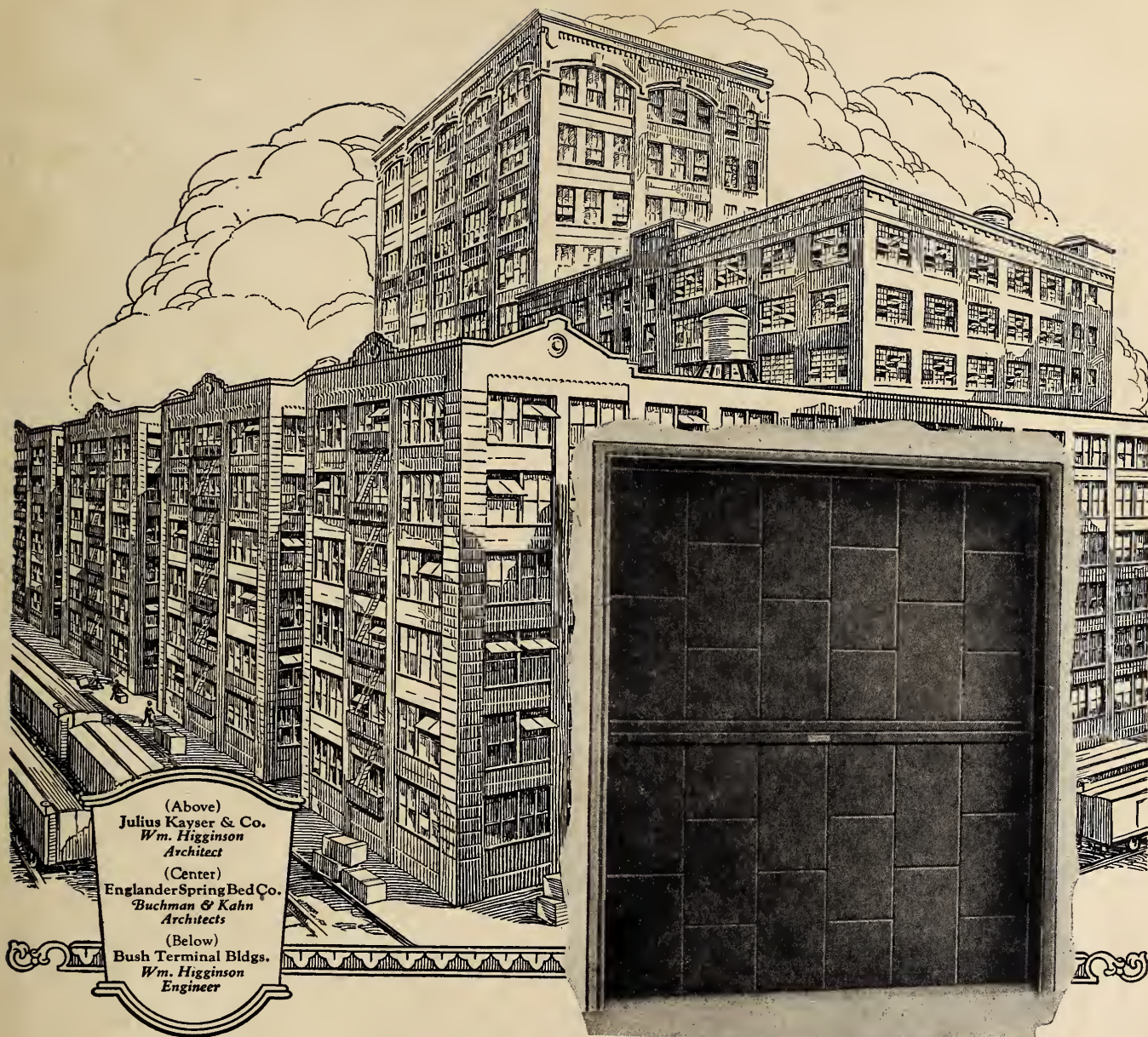
No. 268 (18" x 20")

The Ainslee is another distinctive Eljer Lavatory.
It serves every utility purpose of the Square Pat-
tern at a much lower cost.

The round front saves space.



ELJER CO. FORD CITY
PENNA.



(Above)
Julius Kayser & Co.
Wm. Higginson
Architect
(Center)
Englander Spring Bed Co.
Buchman & Kahn
Architects
(Below)
Bush Terminal Bldgs.
Wm. Higginson
Engineer

*Efficiency-
is one of the
reasons why
they are specified*

*Partial List of
Peelle Door Users*

Bloomington's Dept. Store
Studebaker Corp.
Huylers Candy Co.
Bayer & Co.
Johnson & Johnson
General Motor Corp.
E. W. Bliss Co.
Eagle Pencil Co.
Pictorial Review
Kenyon & Co.
Liggett & Meyers Co.
Willard Storage Battery Co.

PEELLE Counterbalanced Truckable Freight Elevator Doors are efficient, not because we say so, but because we make them so. Their ability to stay "on the job" year after year, is built into them. Exacting construction insures that brand of uninterrupted, untroubled service that may be rightfully called efficient.

Exclusive with Peelle Doors is the truckable feature which permits smooth passage between elevator and floor. Vertical operation gives full clearance, speeds up loading and unloading. The steel framed panels on Peelle Doors free elevator shafts of drafts and prevents fires from spreading.

Let us help you on your next door problem. A copy of "Elevator Door Efficiency" will be sent gratis upon request. It describes Peelle Doors for every purpose.

THE PEELLE COMPANY • Brooklyn • New York
BOSTON • CLEVELAND • CHICAGO • PHILADELPHIA • AND 12 OTHER CITIES

PEELLE Freight Elevator **DOORS**
Counterbalanced-Truckable





*The J. F. Wild & Company
Bank and Office Building,
Indianapolis, Indiana.
Fermor Spencer Cannon,
Architect.
Served by
Five K&H Elevators.*

"Variable Voltage Control" **Adopted by Another Fine Office Building**

The rapidity with which leading architects and building owners are adopting "Variable Voltage" as applied to K&H Elevators is a tribute both to the striking advantages of the "Variable Voltage" method of control, and to the superiority of K&H design and workmanship. "Variable Voltage Control" in K&H Elevators means improved performance, and lowered costs.

Kaestner & Hecht Co. • Founded 1863 • Chicago

Ask Your Architect

Kaestner & Hecht Elevators

DETROIT • BIRMINGHAM • MINNEAPOLIS • MILWAUKEE • INDIANAPOLIS • OMAHA
DALLAS • CLEVELAND • PITTSBURGH • PHILADELPHIA