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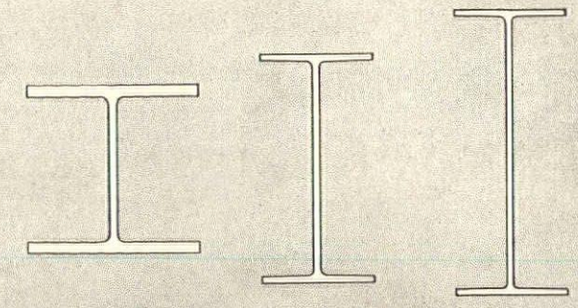
Unusual Brickwork

ARCHITECTURE

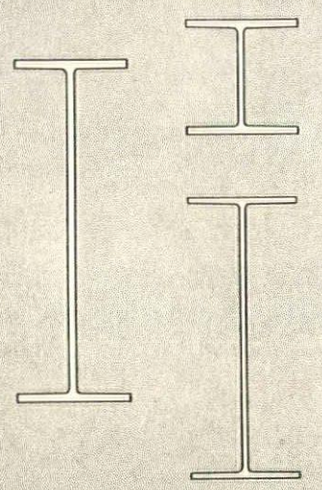
NOVEMBER, 1935
FIFTY CENTS

CHARLES SCRIBNER'S SONS

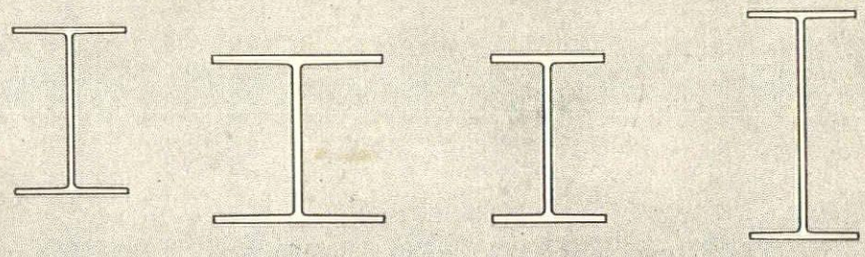
Where loads are light



BETHLEHEM LIGHT SECTIONS



bring important savings



WHEN a building is designed to meet live floor loads that are relatively light, the problem of using steel most economically is not solved by wider spacing of regular heavy sections. That would necessitate an unduly thick floor slab, adding to cost and creating extra dead load for the steel to carry.

Bethlehem Light Sections fill the need of designers for sections that, with the depth required for the span, can be spaced closely to provide economical thickness of floor slab, without using more steel than is needed to carry the load. Supplementing Bethlehem's line of heavier structural shapes, these light sections provide a far greater selection for working out economical, balanced designs.

Not only in floors do Bethlehem Light Sections find application. As purlins, as struts between columns, as well as for columns in upper stories where loads are lighter, these light sections open the way to more economical use of steel.

It is suggested that structural designs be reviewed thoroughly with an eye to the possibilities in Bethlehem Light Sections. The economies they offer are so substantial that it is important not to overlook any places where they might be used.

Bethlehem District Offices are located at Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Houston, Indianapolis, Kansas City, Milwaukee, New York, Philadelphia, Pittsburgh, San Antonio, St. Louis, St. Paul, Washington, Wilkes-Barre, York. *Pacific Coast Distributor:* Pacific Coast Steel Corporation, San Francisco, Seattle, Los Angeles, Portland, Salt Lake City, Honolulu. *Export Distributor:* Bethlehem Steel Export Corporation, New York.

BETHLEHEM STEEL

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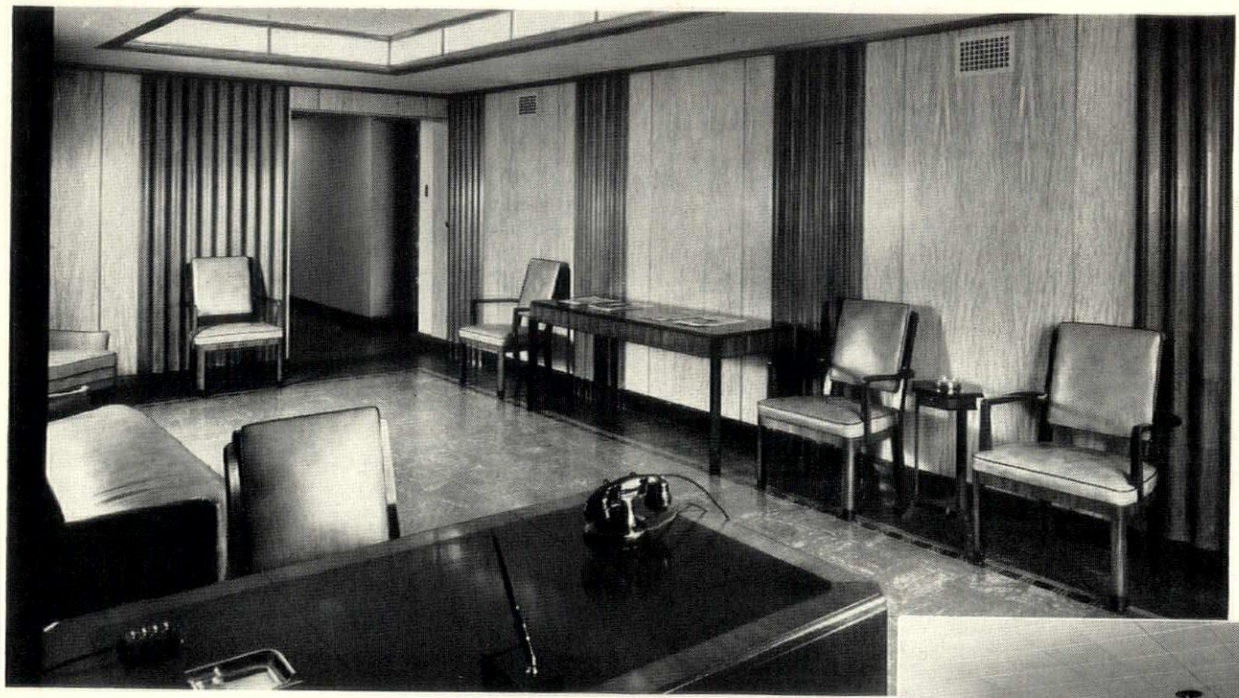
GENERAL OFFICES: BETHLEHEM, PA.

NEW OFFICES OF JOHNS-MANVILLE, NEW YORK CITY

Collaborators: W. & J. SLOANE



(ABOVE) *Eleventh floor reception room of the Johns-Manville offices*
(AT RIGHT) *Executive office with furnishings executed by W. & J. Sloane*

FOR this great manufacturer of building materials, only the best in architectural design would be satisfactory. The Johns-Manville offices show the progress that has been made in interiors . . . flexible arrangement, quiet atmosphere, good air and light, and furnishings that combine practicality with beautiful design. Shreve, Lamb & Harmon (also architects of the world-famous Empire State Building and many other important structures) say, concerning the reception room shown above: "The furniture, made by W. & J. Sloane, was well executed and has proved highly satisfactory."

The facilities of W. & J. Sloane . . . available to architects through the Sloane Contract Department . . . include furniture, draperies, office partitions, wall-covering or floor covering, and collaboration by Sloane consultants with architects on the decorating and furnishing phase of any project. Complete information sent on request.

•

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THE BULLETIN-BOARD

BUILDING CONSTRUCTION

THE building construction industry in September, as measured by the estimated value of permits issued for new work, alterations, additions and repairs, showed the first decline from the preceding month since last May. The decrease, though seasonal, was slightly more than usual, but comparison with the corresponding month of last year is still highly favorable.

Permit values for the 215 cities reporting regularly to Dun & Bradstreet, Inc., totalled $47,288,974 for the month of September, compared with $55,536,546 during August. This represented a loss of 14.8 per cent, against a usual seasonal drop of about 10 per cent. Last month's figure compared with $26,567,925 in September, 1934, or an increase of 78.0 per cent.

The group totals of building permit values for the 215 cities for September, this year and last, together with percentage changes, are shown in the following table:

Groups:	*September, 1935*	*September, 1934*	*Change per cent.*
New England....	$2,545,453	$2,693,160	— 5.5
Middle Atlantic..	14,050,765	8,714,157	+ 61.0
South Atlantic...	6,875,120	3,017,281	+128.0
East Central.....	8,990,538	4,916,737	+ 82.9
South Central ...	3,926,415	1,872,724	+109.7
West Central....	2,689,000	1,771,064	+ 51.8
Mountain.....	2,090,928	367,918	+468.3
Pacific.....	6,120,755	3,214,284	+ 90.4
Total U. S.....	$47,288,974	$26,567,925	+ 78.0
New York City..	$9,227,037	$5,809,457	+ 58.8
Outside N. Y. C..	$38,061,937	$20,758,408	+ 83.4

For the first nine months of 1935 building permits involved a total of $410,261,406, the largest amount recorded for any similar period since 1931, and comparing with $262,304,836 last year, or a gain of 56.4 per cent. All sections contributed to the rise, with the Mountain, South Central and Pacific groups reporting increases of over 100 per cent.

FOR GREATER LIQUIDITY OF MORTGAGES

A SIGNIFICANT development in the Federal Housing Administration program, of interest to those engaged in the manufacture and sale of building materials and supplies, is the recent action taken by the Reconstruction Finance Corporation.

The sum of $10,000,000 has been made available to the RFC Mortgage Company as a revolving fund, to be used for the purchase and sale of insured mortgages covering newly-constructed homes.

These insured mortgages will be purchased from financial institutions approved as mortgagees under Title II of the National Housing Act. Lending institutions may now grant this type of loan with the assurance that there will be a ready market for such of these mortgages as they may wish to convert into cash. The mortgages purchased by the company will be available for sale to approved mortgagees desiring to acquire them for investment.

It is expected that this action by the Reconstruction Finance Corporation will encourage the construction of new homes, where needed, and their financing under the favorable terms of the National Housing Act.

THE PRODUCERS' COUNCIL

THE Twelfth Semi-Annual Meeting of The Producers' Council, Inc., 19 West 44th Street, New York City, will be held in Detroit, Mich., on December 4 and 5, 1935. The two days' sessions will be devoted to a discussion of the increased co-operation between governmental agencies, financing institutions, architects, builders, and material manufacturers, to promote quality in the resurgent construction industry. The leaders in the above group have been asked to make addresses. The sessions will be open to the public.

POSTER CONTEST

A CONTEST for a poster to stimulate European travel, with prizes totalling $800 and a round-trip passage to Europe, is announced by the Institute of Foreign Travel, 80 Broad Street, New York City. The contest will be open to artists of the United States and Canada, and three prizes, the first $500 and a round-trip passage to Europe, the second $200, and the third $100, will be awarded.

Posters are to be in color and to scale to 23 inches by 36 inches. The art work is to be built around the phrase, "See Europe Next," and must be general enough in appeal to stimulate travel to Europe as a whole, by all steamship lines.

Charles T. Coiner, Byron Musser, Gordon Aymar, Edward F. Molyneux and Edwin Georgi have been selected as a jury of award by the Art Directors Club, which is co-operating with the Institute on the contest.

Entries must reach the Institute of Foreign Travel, 80 Broad Street, New York, not later than December 31, 1935, and additional information on the contest may be had by correspondence only from its contest director.

A. AND M. C. OF TEXAS

THE Department of Architecture of the Agricultural and Mechanical College of Texas announces the appointment of Maurice J. Sullivan, architect of Houston, Texas, as critic in design.

Mr. Sullivan is a member of the A. I. A., a past president of the South Texas Chapter, and has had a long and successful practice in Houston. Among the best known of his work is the Villa de Matel group in Houston.

The Department has also appointed to its staff Mr. Samuel B. Zisman, who for the last five years has been an instructor at the Massachusetts Institute of Technology. Mr. Zisman will be director of the elementary work in design.

A WATERPROOFING GUARANTEE

IN order to establish, for the benefit of owners, architects and waterproofing contractors, a form of guarantee that would be equitable, reasonable and reliable in connection with all waterproofing work, the waterproofing contractors, through their association, have adopted a Standard Guarantee, a copy of which may be had from the association, 2736 Grand Central Terminal, New York City.

For a long time this industry, the only one in the building lines, has been called upon to furnish guarantees in which the financial risk involved so far outweighed the possible profit, as to make the issuance of such guarantees poor business indeed. As protection, both from themselves and from unreasonable demands of architects and owners, the association has adopted this standard form of guarantee.

COLUMBIA'S SCHOOL OF ARCHITECTURE

A COMMITTEE of Administration has been appointed by the Columbia University Trustees to direct the work of the School of Architecture, it is announced by President Nicholas Murray Butler. Professor Leopold Arnaud is chairman. The other members are Professors Cecil C. Briggs and Jan Ruhtenberg, associates in architecture. The com-

(*Continued on page 16*)

ARCHITECTURE, published by CHARLES SCRIBNER'S SONS, 597 Fifth Avenue, New York, N. Y. November, 1935. Volume LXXII, No. 5. Published monthly on the 28th of the month preceding date of issue. Entered as second-class matter, March 30, 1900, at the Post-Office at New York, N. Y., under the Act of March 2, 1879. Yearly subscription rate to members of the architectural and allied professions, $3; to all others, $6; add $1 for Canadian postage and $2 for foreign postage. Single copies, $.50.

GLASS

FEATURES EFFECTIVE DESIGNS TO MODERNIZE MAIN STREET

L·O·F Polished Plate (plain and colored), Vitrolite, Tuf-Flex and Blue Ridge Figured and Wire Glass are generously employed.

Store modernization is now one of the most active and profitable fields of architectural endeavor. Millions of dollars are being spent in all parts of the country. Professional interest is indicated by the fact that more than 3,000 architects and designers entered the Modernize Main Street Competition sponsored recently by Libbey·Owens·Ford.

To stimulate modernization to an even greater degree, the fifty-two premiated designs in that competition are now being published in book form, for distribution to logical prospects for modernizing. They are, of course, clearly described as general suggestions only and the store operator or real estate owner is urged emphatically to retain his own architect for working out his own specific problem.

It is significant to note how generously the various kinds of L·O·F flat and structural glass are specified not only in the competition designs but wherever modernization is now being undertaken.

All glass made or distributed by Libbey·Owens·Ford (Quality Window Glass, Safety Glass and Aklo, the new heat absorbing glass, as well as the products mentioned above) is made to one undeviating standard of highest quality. The L·O·F label on every light guarantees your client's satisfaction as well as your own. Have contractors leave it on until final inspection.

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ARCHITECTURE

REG. U. S PAT. OFFICE

THE PROFESSIONAL JOURNAL

VOL. LXXII No. 5 — NOVEMBER 1935

CONTENTS

When changing addresses, subscribers must give four weeks' advance notice and both their old and new addresses

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NEW YORK: 597 FIFTH AVENUE AT 48TH STREET

THE BUILDING TREND

By E. L. Gilbert

RESIDENTIAL building in September revealed the strongest gain among the three main classifications, being nearly 140 per cent greater in dollar volume than for the same month of last year, almost 75 per cent higher than for September, 1933. Commercial, industrial and similar activity showed better than 10 per cent gain over September, 1934, and nearly a third better than the same month of 1933. A slight increase in other work brings the per capita total to $2.03, high point for the last four months. The steady upward trend in the Building Material Prices index figures seems to indicate that there is a sufficient volume of business being done to hold materials costs firm at the higher level, with possible further increases to be quietly consolidated between now and next Spring.

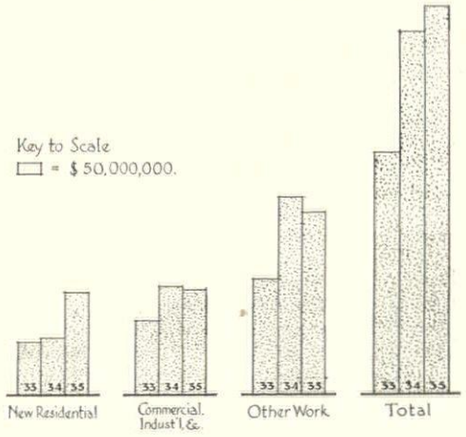
MONTH OF SEPTEMBER
(DOLLARS PER CAPITA, ENTIRE U. S.)

CLASSIFICATION	1933	1934	1935
New Residential	$.26	$.19	$.45
Commercial, Industrial, etc.	.34	.39	.45
Other Work	.76	.72	1.13
Totals	$1.36	$1.30	$2.03

Building Material Prices, U. S. Dept. of Labor, end of September*	83.2	85.3	86.1

* Index number based on 1926 = 100.

YEAR TO DATE



YOUNGSTOWN

SHEETS : PIPE : CONDUIT : REINFORCING : : BARS : :

IN YOUNGSTOWN'S laboratories scientists are constantly probing deeper and deeper into the uncharted areas of steel and metallurgy. From their tireless experiments are emerging new materials which simplify many an architectural problem.

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American Telephone & Telegraph Building,
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Architect, W. W. Bosworth

DOMESTIC COLONIAL ARCHITECTURE OF TIDEWATER VIRGINIA

By Thomas Tileston Waterman and John A. Barrows

With an Introduction by FISKE KIMBALL

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

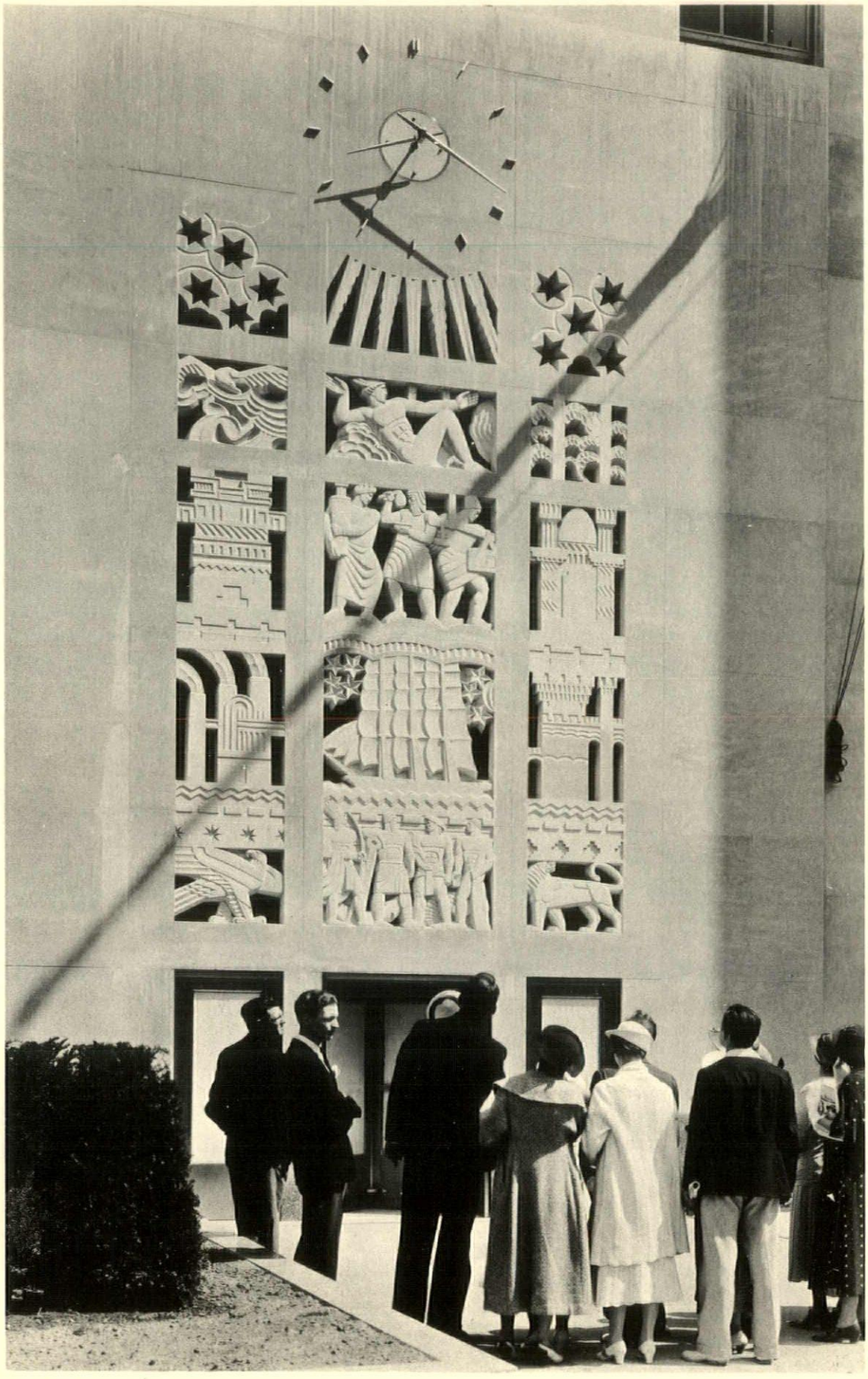
"A few houses, to be sure, fortunately placed near the growing urban centres, early attracted visiting students. Westover and Shirley owed their exclusive early fame little more to their own magnificence than to their being within reach from Richmond for a hasty trip with camera and rule. Blandfield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

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

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

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

CHARLES SCRIBNER'S SONS, New York



SOUTH DOORWAY OF THE NEW INTERNATIONAL BUILDING, ROCKEFELLER CENTER, NEW YORK CITY

REINHARD & HOFMEISTER; CORBETT, HARRISON & MacMURRAY; HOOD & FOUILHOUX, ARCHITECTS

LEE LAWRIE, SCULPTOR

Lee Lawrie, sculptor, conceived the panel and made a sketch model which Rene P. Chambellan enlarged to full size under his direction. Here are represented the four races of mankind; communication by water; art, science, and industry—the common attributes that have led all men to higher stages of civilization. The sculptor has represented the earth by the sun, the two hemispheres by the Big Dipper and Southern Cross; the dwelling places of the four races by a sea gull and whale's fluke for the North, palm trees for the South, a mosque for the East, and an Aztec temple for the West. The lion and the Norman tower symbolize the old order; the eagle and chimney stacks, the new

ARCHITECTURE
VOLUME LXXII NUMBER 5
NOVEMBER, 1935

A NEW CRAFTSMANSHIP IN CAST STONE

By Eugene Clute

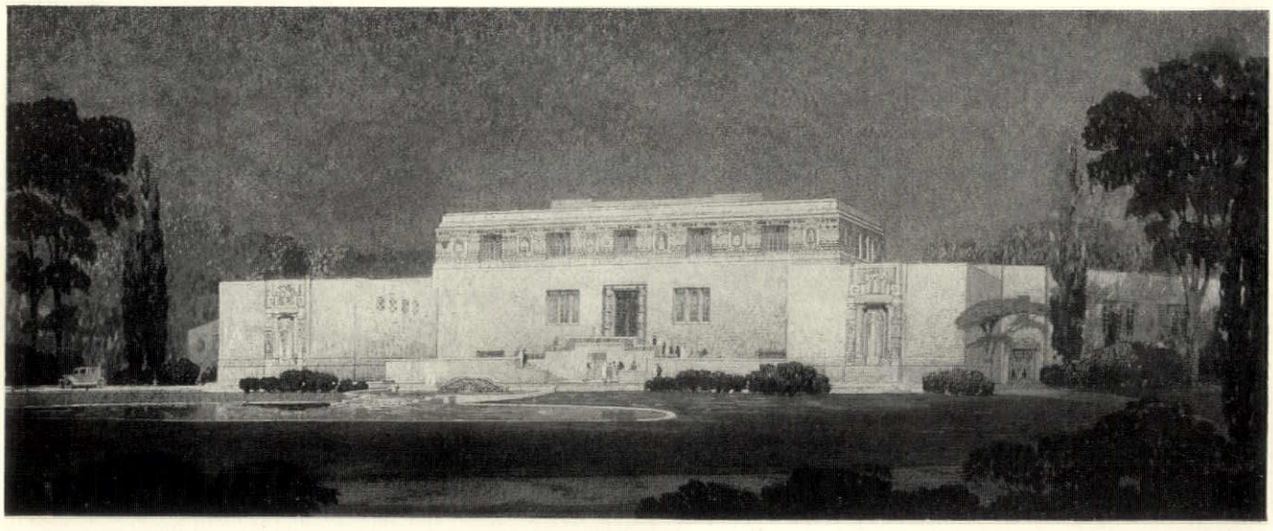
CAST stone is used as cast stone, and its possibilities are developed to an unusual degree, in the recently completed portion of the central unit of the Wichita Art Institute, Wichita, Kansas, of which Clarence S. Stein is the architect. The walls are faced with pre-cast slabs most of which measure 10 feet by 6 feet and are 5 inches thick. Each of these units weighs about 3500 pounds.

They were picked up by a travelling crane at the yard in which they were made and loaded on a truck which delivered them at the site of the building as they were wanted by the setters. There they were taken from the truck with a hand-power winch and a stiff-leg derrick and set in less time and at less cost than would have been required in facing the same surfaces with smaller units.

As each unit was put in place, it was anchored securely. Where the slabs come in contact with the concrete frame of the building, there are galvanized rings, cast in the back of the units, which engage pins cast in the concrete frame. Connection with the tile backing which fills in between the members of the frame is made with anchors for which 8-inch slots about 20 inches on centres were cast in the backs of the slabs. The locations of the rings and pins were shown on the setting drawings. They were placed accurately and the setting proceeded smoothly. The cast stone units fitted their places and no cutting was required. Handling was facilitated by rings cast in the back and top edge of each unit for this purpose. The bevels prevented chipping of the edges in transit or handling. These bevels also make a very neat finish at the joints—a smooth splay three-quarters of an inch wide by one-half of an inch deep at either side of a one-quarter-inch mortar joint.

To go back to the casting yard, these units were cast face downward in wooden molds, or forms, which were so constructed as to produce the irregular horizontal markings that give the surface of the stones an interesting texture in

Clarence Stein's perspective drawing of the Wichita Art Institute in its completed form. At present only a portion has been built, as shown on page 243



keeping with the scale of the building. Each form was large enough to take an entire stone. Though only three forms were used, no two stones have the same markings in the same place. This freedom from repetition is due to the way in which the forms were made and used.

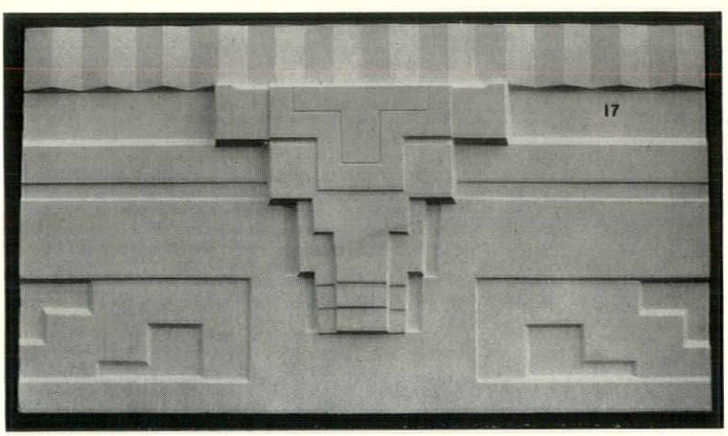
The bottom of the form, in each case, was composed of strips of yellow pine about 2 inches wide by 1¾ inches thick, laid side by side and held together by long threaded rods, or bolts, run through them from side to side of the form at intervals of 16 inches. To give rigidity to this assembly, cleats of two-by-four yellow pine were attached to the back 12 inches on centres, at right-angles to the strips. These cleats were secured to the strips by means of 4-inch lag bolts 6½ inches on centres, with their heads countersunk.

To form the strips, two-by-fours were sawn in half, lengthwise, on a band saw. In doing this, the work was guided so that a wave line was produced, instead of a straight saw cut. The undulating surfaces of the strips were so placed, in assembling the forms, that they came next to the face of the stone and thus gave it a considerable degree of irregularity.

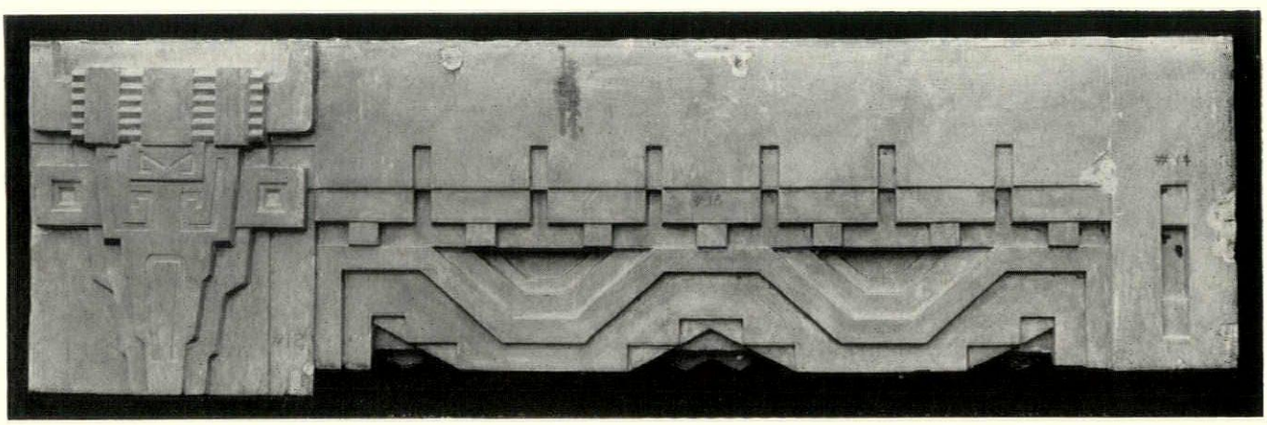
In order to produce the horizontal markings, ⅛-inch play was provided by boring ½-inch holes in the strips for the ⅜-inch cross rods. This caused the strips to form an uneven surface, and, as the molds were moved between castings, the arrangement of these lines was never twice alike. In many places adjoining strips happened to lie in the same plane, and no markings appear.

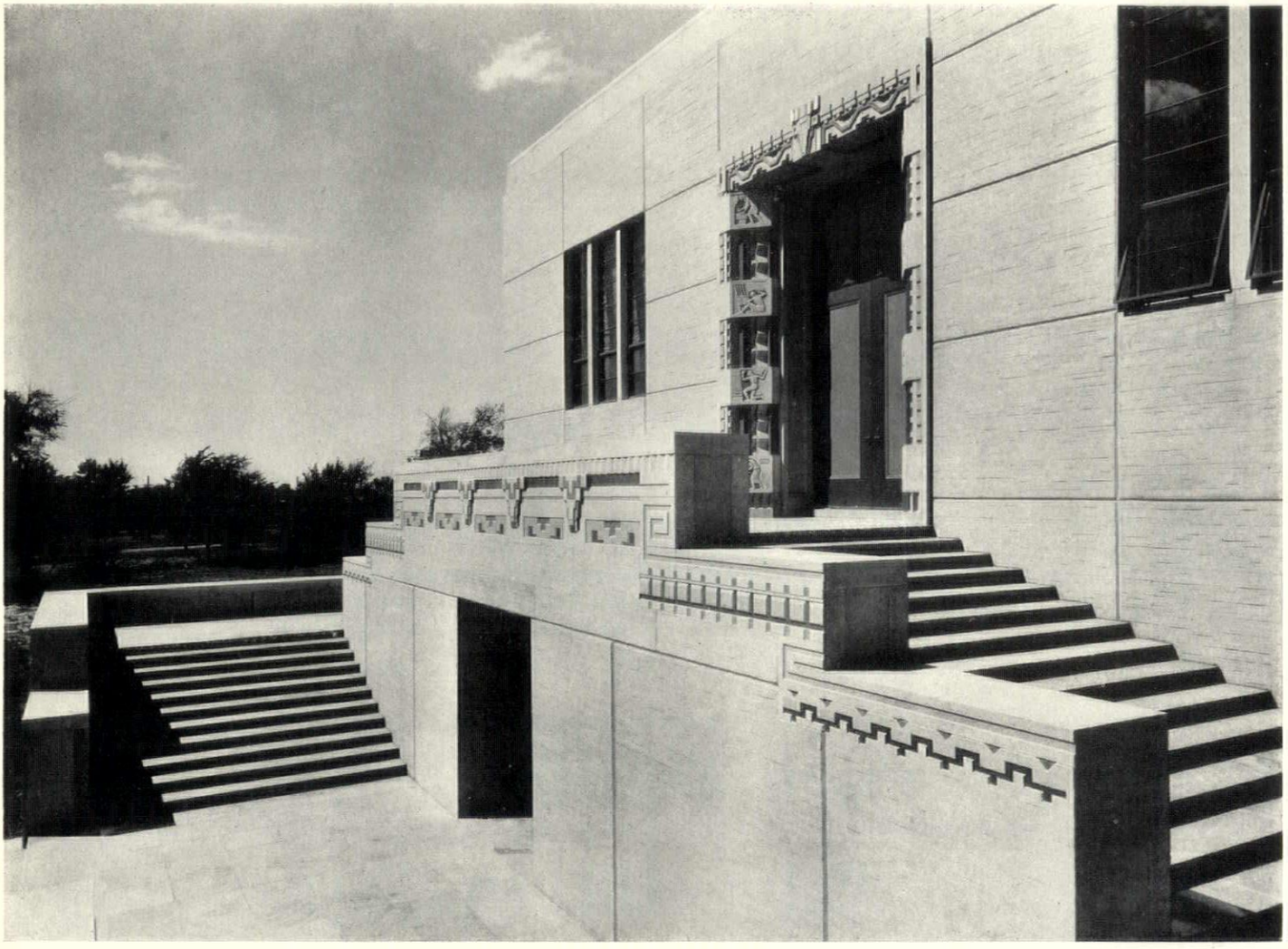
To insure sufficiently pronounced markings and to control them, small wooden wedges were inserted back of some of the strips, between them and the cleats, forcing these strips into greater prominence and making corresponding depressions in the face of the stone. These wedges were changed about at each casting.

Yellow pine was used for the strips forming the face of the molds because, being hard, it would resist wear and retain its wave lines and the sharpness of its edges. The two-by-fours from which these strips were cut were first straightened and sized to exactly 3½ inches and the material for the cleats was sized in the same way, so that the assembly might be made of uniform thickness throughout, excepting for



Lee Lawrie's plaster models of the main entrance: at right the capping motif of the front terrace wall; below, the lintel. Compare these plaster models with the finished doorway in polychrome





Of the building as projected, only the central portion, two stories in height, has been erected. The texture of the wall slabs is a very subtle variation of planes, as the photograph indicates

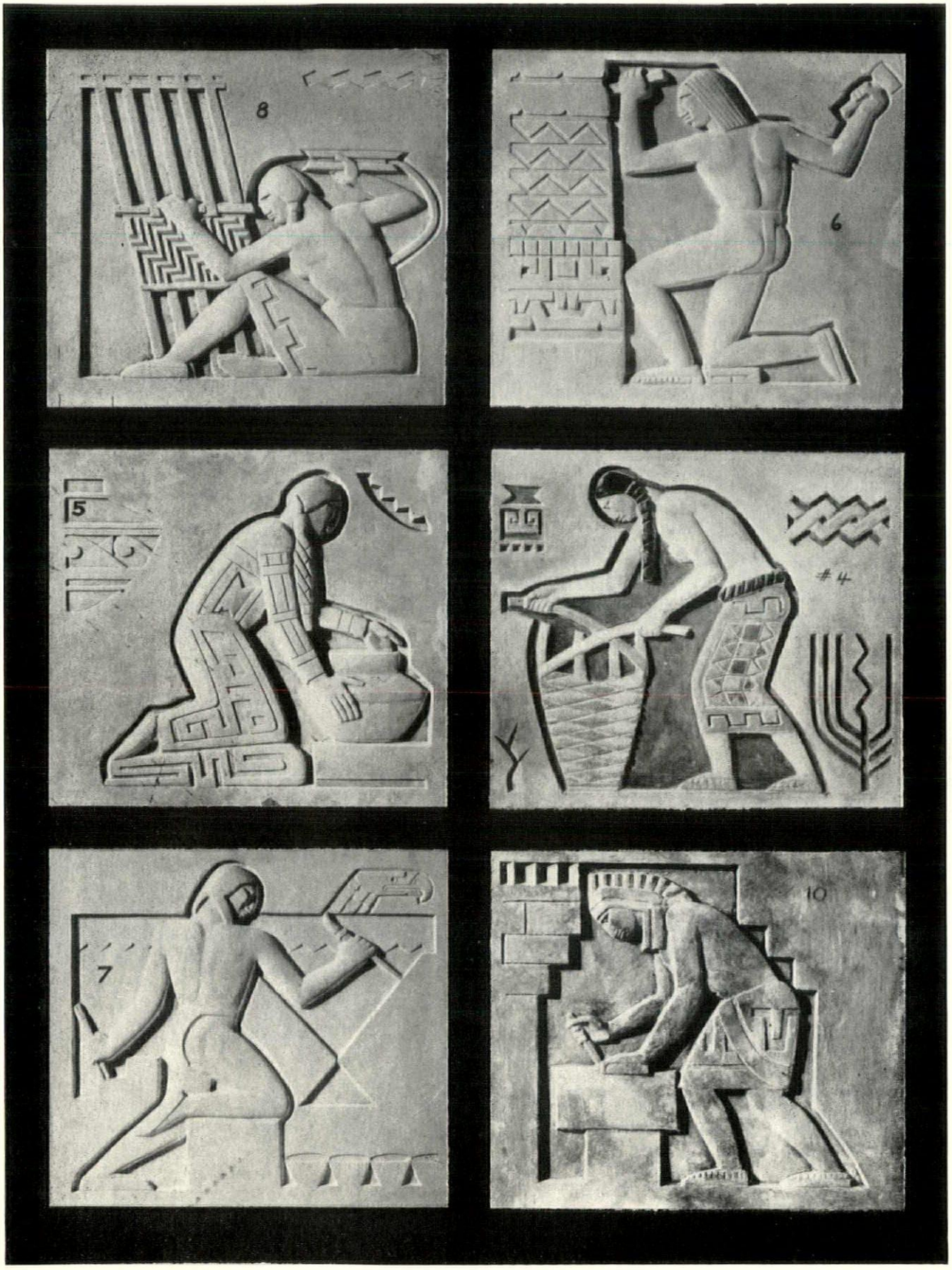
the desired undulations of the surface. After the strips were sawn, they were put in a jig and the holes were bored through them for the cross rods. Then they were given three coats of hot linseed oil and assembled tightly together, care being taken to make the face of the mold the same width at both ends and in the centre. In assembling, not more than ⅛ of an inch deformation was permitted. The sides of the forms, 5 inches high, were each made from a 2-inch and a 1-inch white pine board nailed together, with cleats between to hold them rigid. The molds were lubricated with form oil, a petroleum product.

A concrete floor large enough to accommodate these molds was laid to a straight-edge and ground down with a terrazzo floor grinder to a true plane, and everything was in readiness for the casting.

The mix for the face of these cast stone units was as follows: 150 pounds yellow concrete sand, having a modulus of 300; 150 pounds coarse river gravel, through ¾-inch and ¼-inch screen; 100 pounds white cement; 1 pound dark yellow cement color; 2 pounds water-proofing; 5½ gallons water.

The cement and the color were first ground together in a ball machine until they were so thoroughly mixed that they did not show yellow streaks when placed on a board and struck with a trowel. The facing mix was placed by vibration and worked over the entire face of the mold —by means of an especially made vibrator paddle using a 2-inch stroke air vibrator—to a thickness of about 1 inch.

The backing was then vibrated into place with the same apparatus. The backing mix

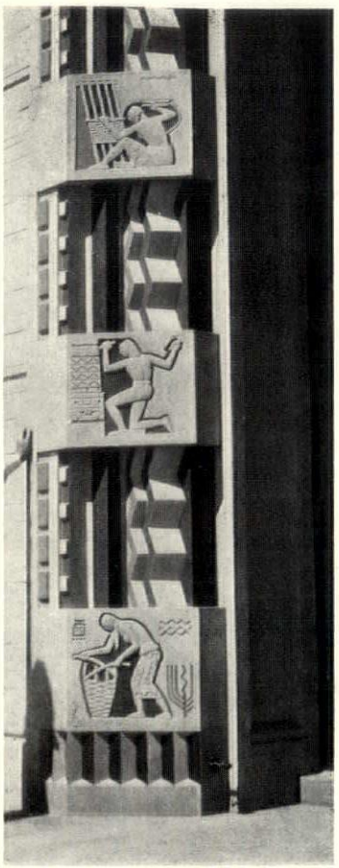


Lee Lawrie's plaster models of various Indian arts, which, cast in stone and colored, form part of the main entrance

was as follows: 220 pounds coarse concrete sand, with fineness modulus of 300; 220 pounds ¾-inch Joplin stone; 100 pounds gray cement; 10 pounds hydraulic cement; 4½ gallons water.

In casting, the forms were always laid out so that the tops of the stones were toward the north, so that there might not be any uncertainty as to which was top in handling them. The lifting rings, the rings for anchoring, and the anchor slots were all carefully placed in accordance with the drawings.

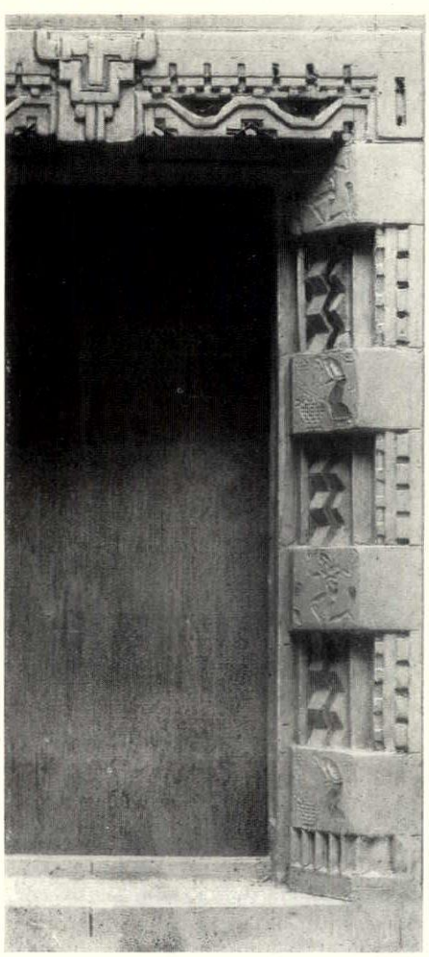
Stones made one day were picked up the next day by the travelling crane and placed in the sand bins, where they were covered with wet sand and kept wet for twenty days, after which they were wet only occasionally. When the stones were ready for delivery, they were set up and sand-blasted, to cut the film of cement off the surface. Though one-half of the facing mix consisted of ¾-inch and ¼-inch gravel, none of this was exposed by the sand-blasting, for the vibration had worked the finer material and sand into the face of the stone. The mixes



Jambs and lintel of main entrance. At right the cast stone in place, shown before and after the color had been applied in the form of penetrating silicates. Below is the model of lintel and jamb shown beside the finished product

and the process of placing produced a cast stone that is said to have a compressive strength of more than 5000 pounds. The craftsmanship in cast stone for this building was executed by The Lusco Brick and Stone Company, and the work was executed under the direction of B. F. Krehbiel.

The color of the facing units is a very pleasing light buff, warm and of a slightly golden cast. The grain of the stone is close, but vibrant and rich in appearance. Its texture, including the effect produced by the horizontal markings, is characteristic of the material, due to the method by which it was made, and not an imitation of any other material. It is sufficiently bold to be effective at a distance and it has refinements that make it satisfactory at close range. It



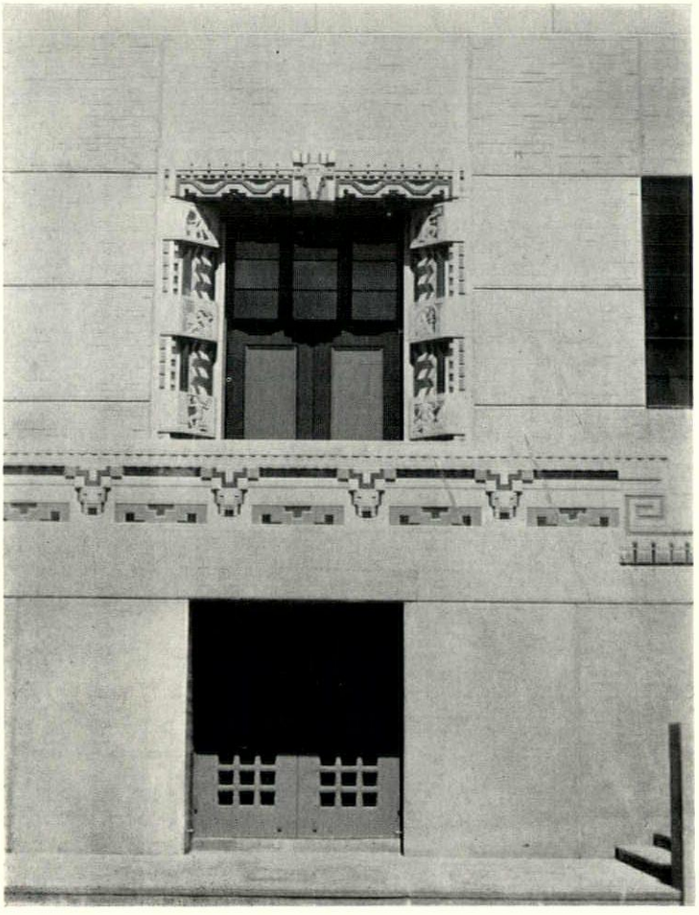
is in keeping with the monumental character of the building.

That the units are applied to the walls with the vertical joints directly above one another emphasizes the fact that this cast stone is a facing—a curtain. There is no attempt to create the impression that this is natural stone or masonry construction—quite the reverse. It is, frankly, cast stone used in a thoroughly modern manner.

The ornamental cast stone detail of the sculptural enframement of the main entrance and the detail of the parapet of the terrace were made in much the same way as the wall facing units, excepting that the molds were partly of plaster and partly of wood, the sculptural detail being in plaster while the plain parts were of wood. The casting of the ornament was accomplished with ease, as the sculptor's models were all made with due consideration for the technique of cast stone and there were no undercut portions calling for the use of piece-molds.

Lee Lawrie was the sculptor. He has carried out the architect's intention with great distinction, presenting abstract designs in which effective use is made of rectangular planes set at angles to produce a lively and well-studied play of light and shade that is essentially architectural. Together with these are forms that recall characteristic motives of American Indian ornament. Also, there is an abstraction of an ox skull, reminiscent of the early days on the great plains. Then, as accents standing out from this ornament, he has shown in relief, upon projecting blocks of stone in the splayed reveals at the sides of the entrance, representations of American Indian arts and crafts, four on either side. These relief figures are remarkable for their simple beauty and sincerity. In the sculptural enrichment of this building the spirit of the great people that once occupied the wide reaches of our country is expressed with rare ability.

Below, the main entrance as seen above and behind the terrace wall

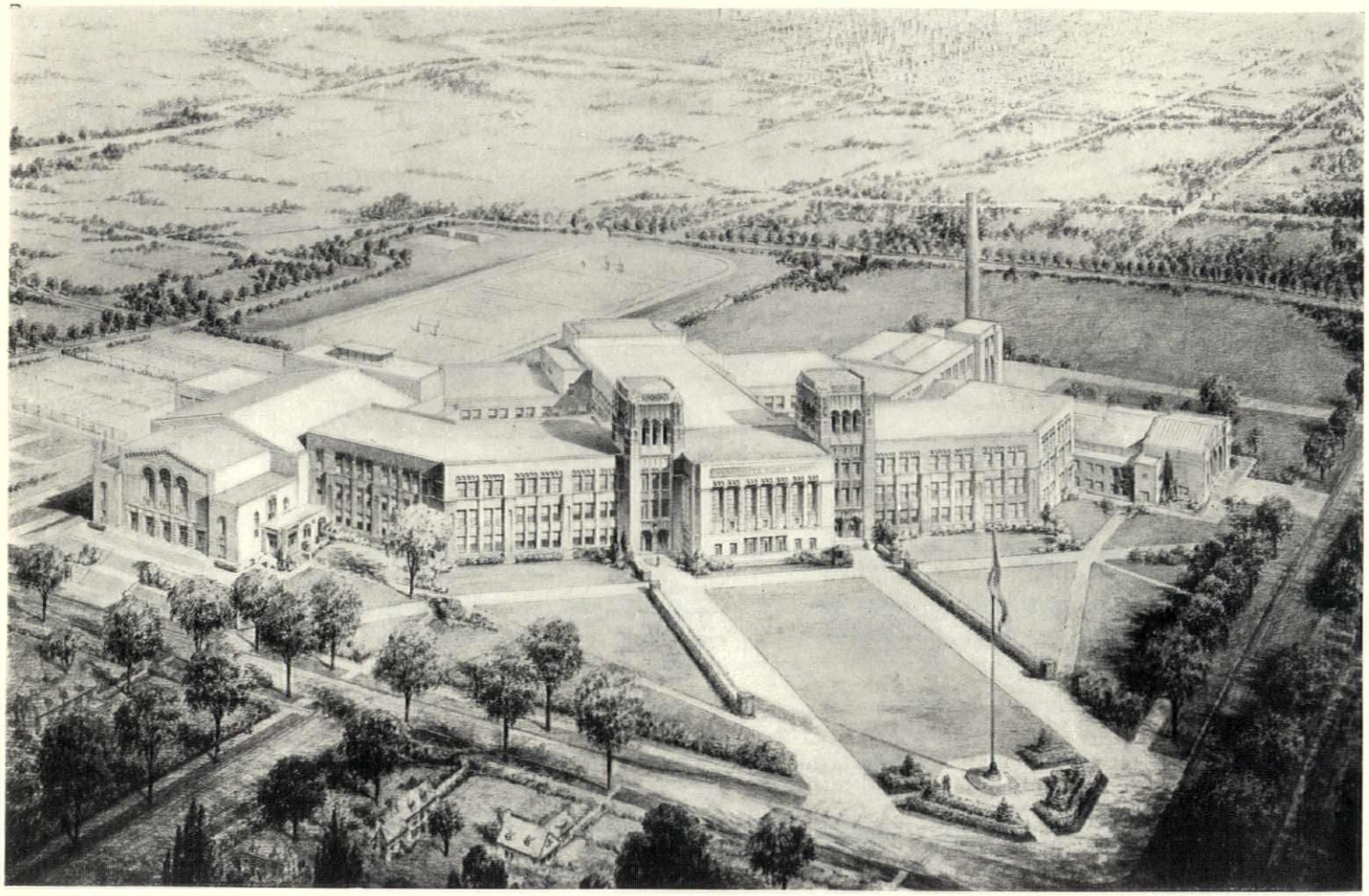


This sculpture is in polychrome, which greatly enhances its effectiveness and beauty. It was modelled with the thought that it was to be colored; the treatment with color was not an after-thought. The colors are a rich Pompeiian red, a deep lapis lazuli blue, and a fine golden yellow. They are lasting, for they are mineral colors combined with a vehicle that, together with the pigments, forms silicates in the pores of the stone and they contain no perishable material. This technique in polychromy is the same that was employed upon the sculpture of the main entrance to the R.C.A. Building in Rockefeller Centre, New York City.

The final development of the Wichita Art Institute is shown in the water-color rendering of the architect's design, which is reproduced here. The portion of the building that is completed consists of only the first and second stories of the central unit, to which another story is to be added, and extensive wings as well. The stones that finish the top of the present wall will ultimately form the belt course below the third story.

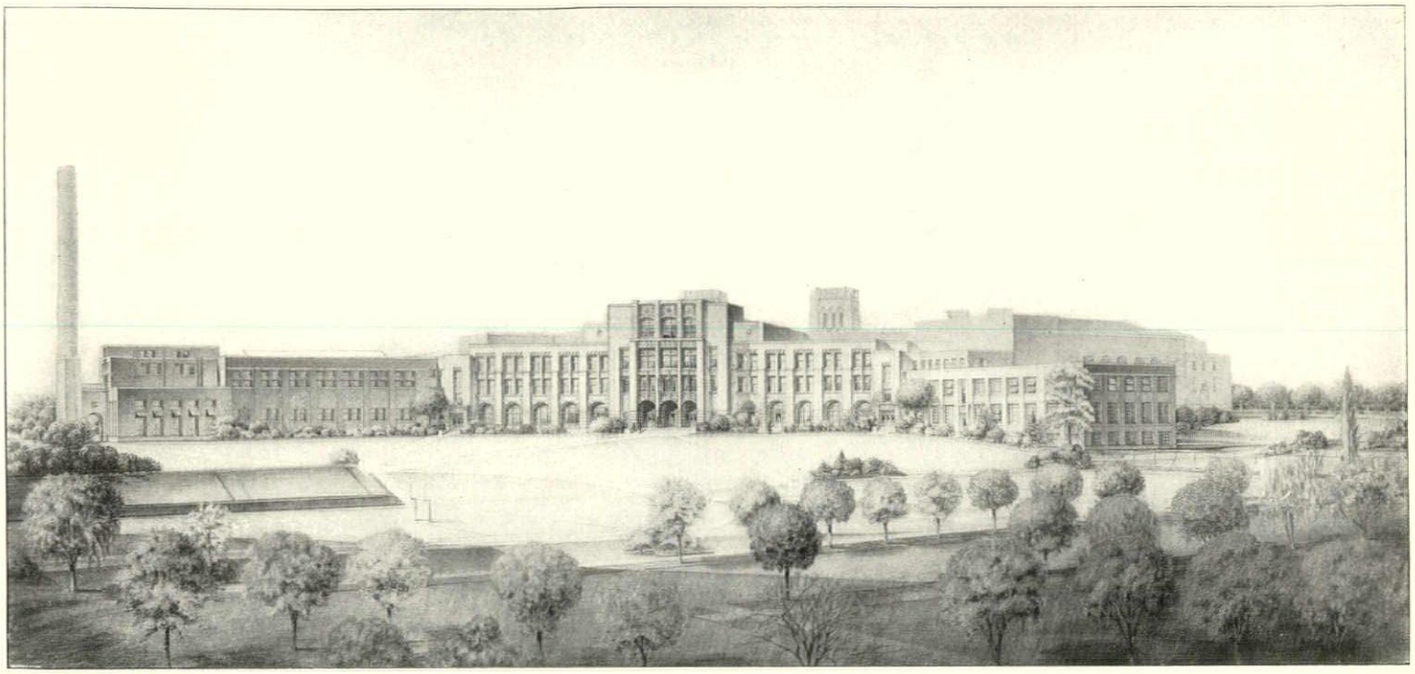
Facilities for educational work and for showing travelling art exhibitions and loan collections are featured more strongly than museum facilities in the plans of the Wichita Art Institute, and a lecture hall occupies the greater part of the first floor of the completed section, with an entrance at the ground level. Monumental staircases at the right and left of this doorway lead to the terrace at the second-floor level and the main entrance of the building.

Cast stone has been used to imitate natural stone so commonly, and it has been cheapened so often and in so many ways that its really great possibilities are seldom recognized. The manner in which it has been used in this building commands new respect for this material.

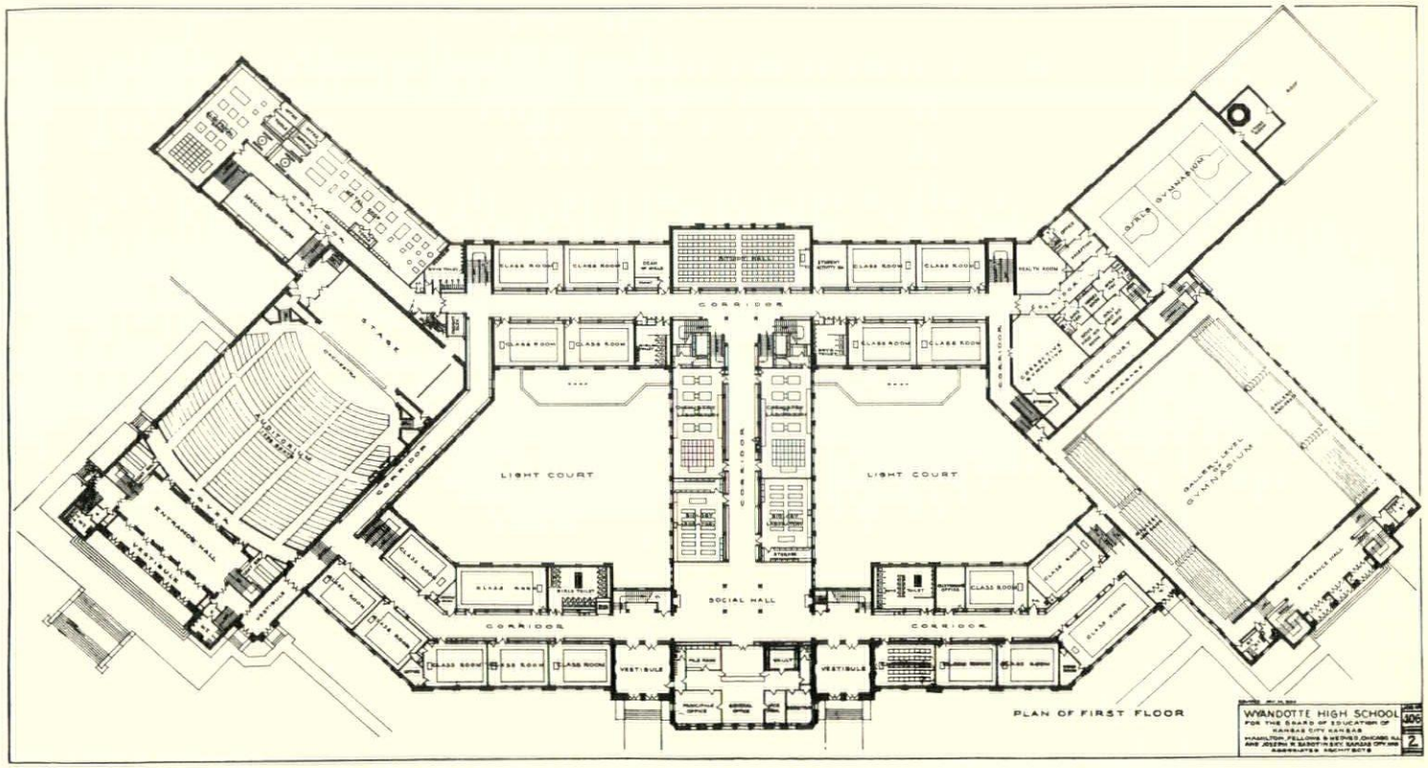


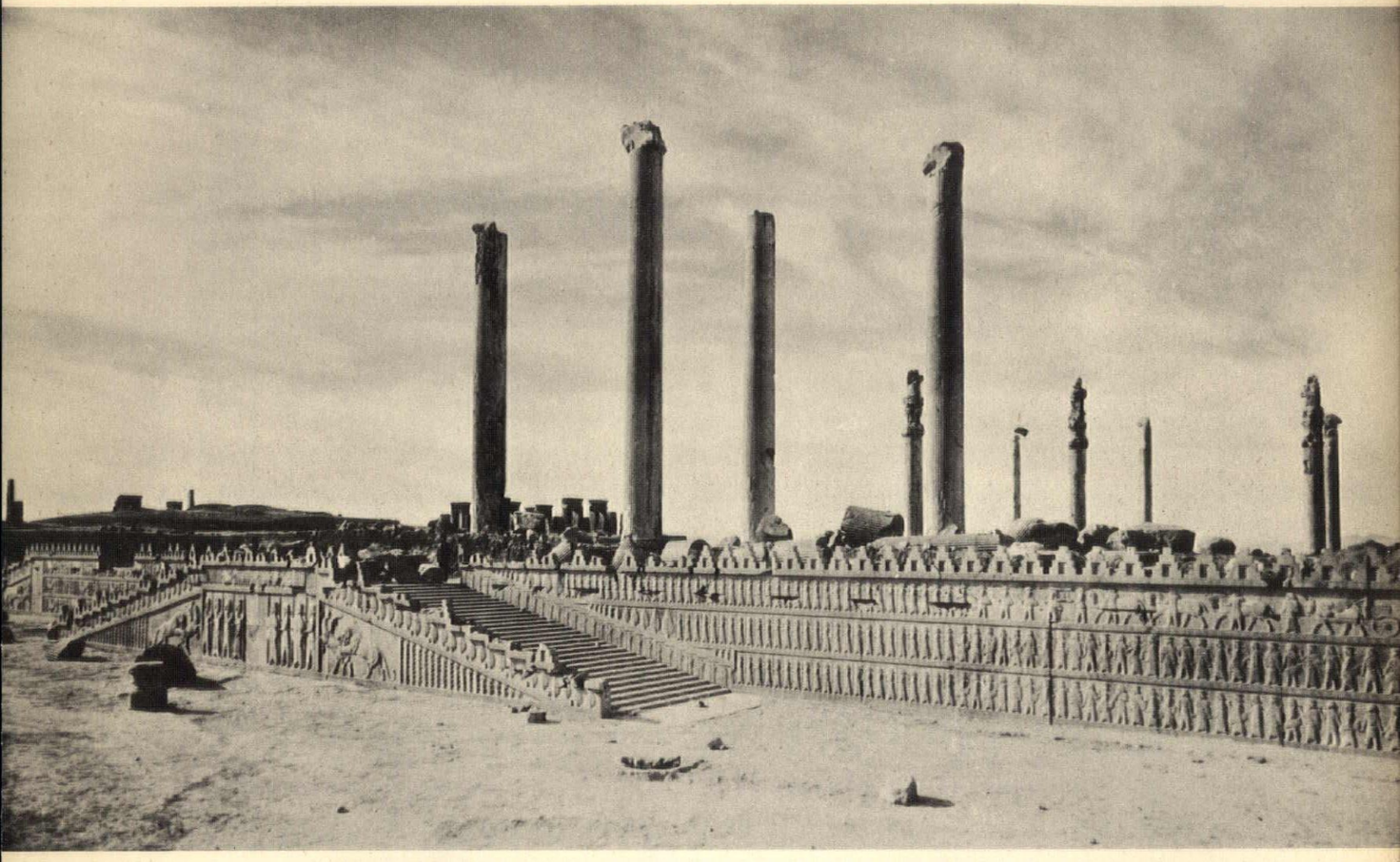
Construction contracts were awarded early last summer for the Wyandotte High School, now being erected in Kansas City, Kan. The site is a sloping one comprising over twenty-seven acres. Upon it has already been built an athletic field and a concrete stadium. The high-school building and its equipment will cost about $2,000,000. It is expected that the school will be ready for use in January next. Hamilton, Fellows & Nedved; Joseph W. Radotinsky, associated architects

A THREE-YEAR HIGH SCHOOL FOR 3000 PUPILS



In the plan of the first floor, shown below, the laboratories for chemistry and biology flank the central corridor, with study hall at the end opposite the entrance. To the right is the equipment for physical training and hygiene; to the left the auditorium with its stage, and the shops for metal work and electrical apparatus. In the horizontal connections are the classrooms, each lighted from one side

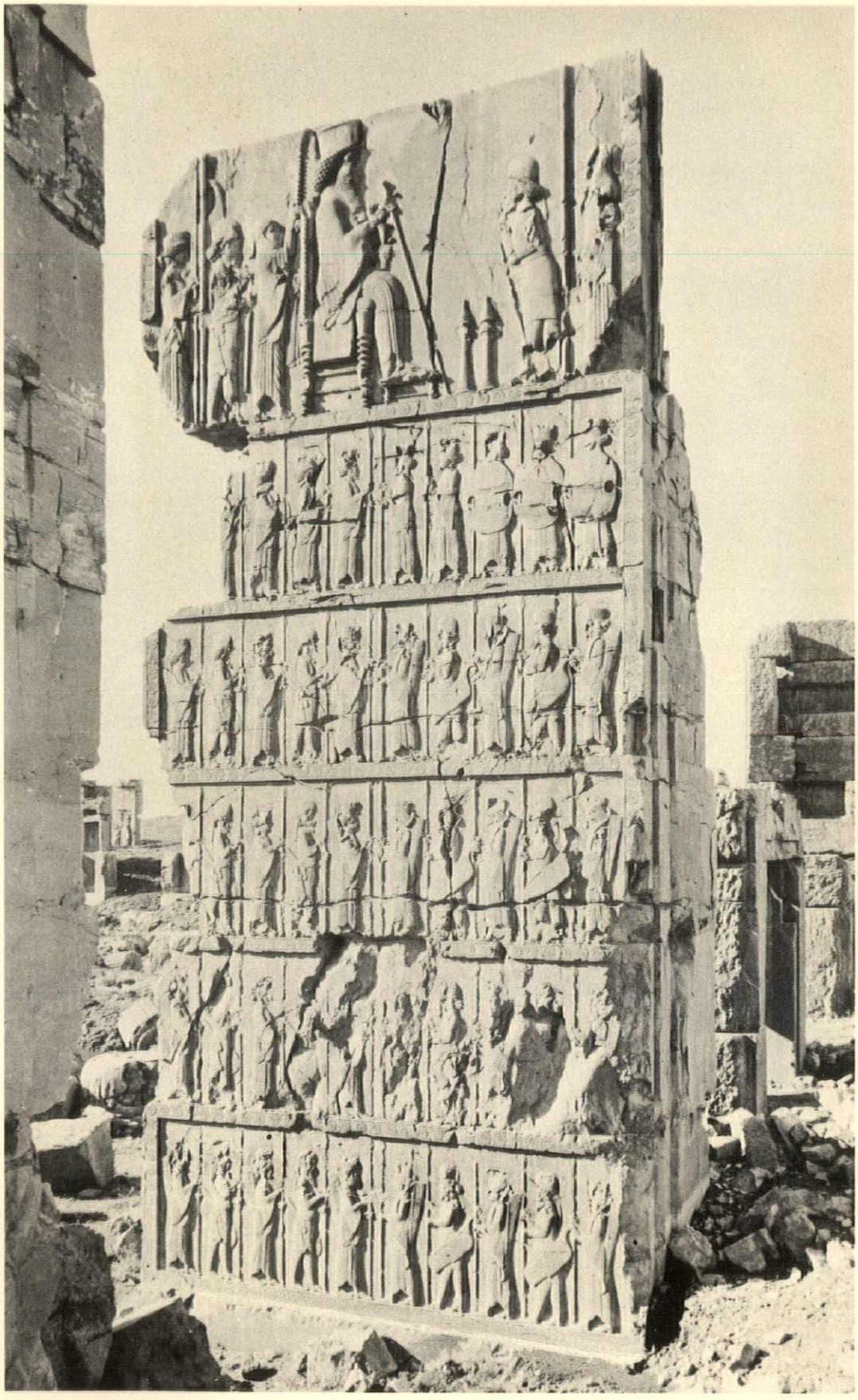




The photographs on this and the five following pages record in part some of the researches and explorations of the Oriental Institute of the University of Chicago, an organization, as described by its director, Dr. James H. Breasted, "for the study of the rise of man from savagery to civilization." A motion picture for educational purposes has been prepared under Dr. Breasted's direction with the title, "The Human Adventure," from which these photographs are selected.

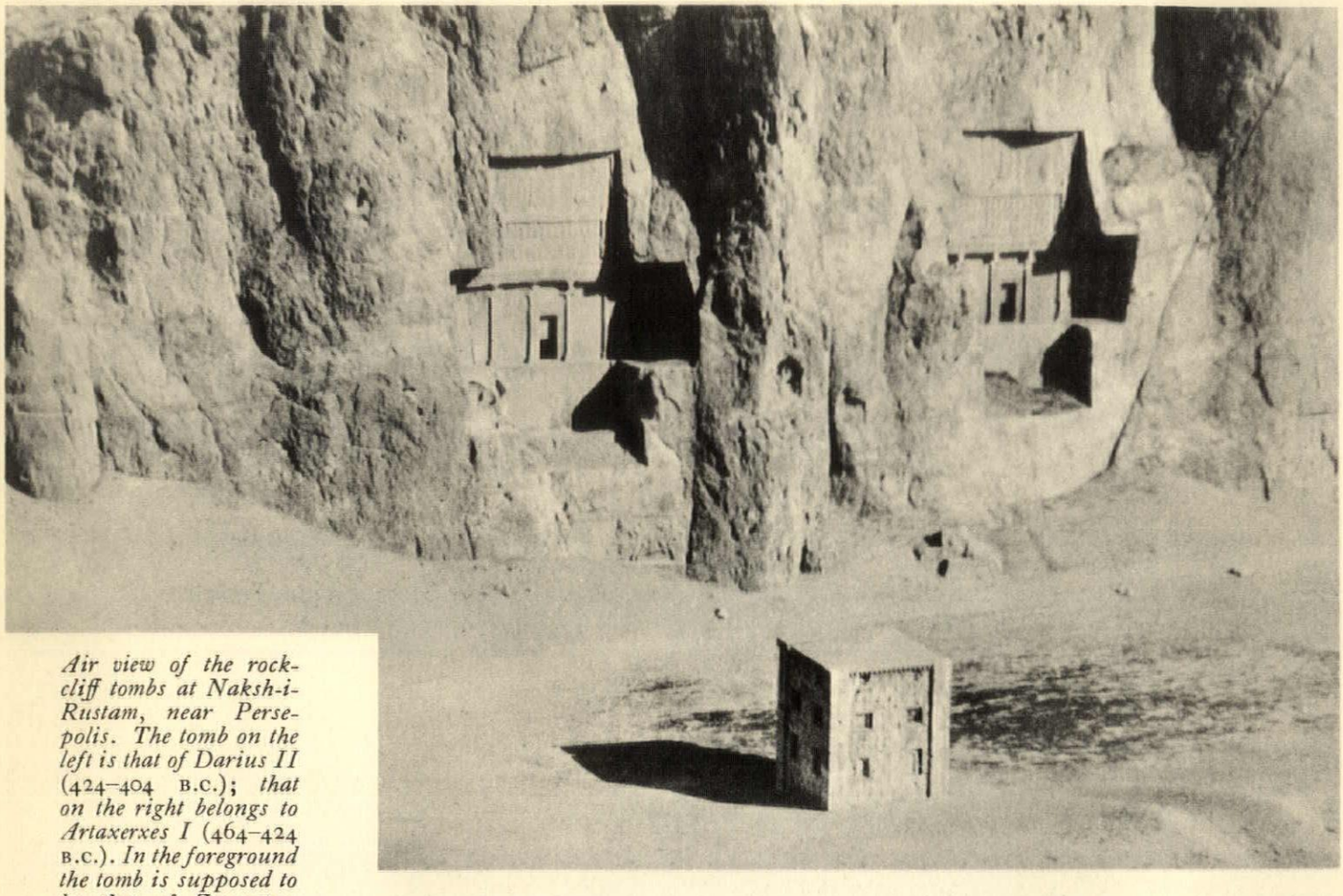
Above, the audience hall, constructed by Darius and Xerxes at Persepolis. The great double stairway records in sculpture a New Year celebration. On the right are shown Persian and Median guards; on the left, foreign peoples bringing their gifts to the Persian emperor. On the advanced cheek wall of the stairs in the left foreground are figures symbolic of Persian power. These stairs were used for the procession on the occasions of the New Year festival of the Persian emperors

UNEARTHED AT PERSEPOLIS



A face of one of the doorways leading to the "Hall of One Hundred Columns" on the terrace at Persepolis. The Persian Emperor Xerxes (485–465 B.C.), seated on the throne, reviews his troops

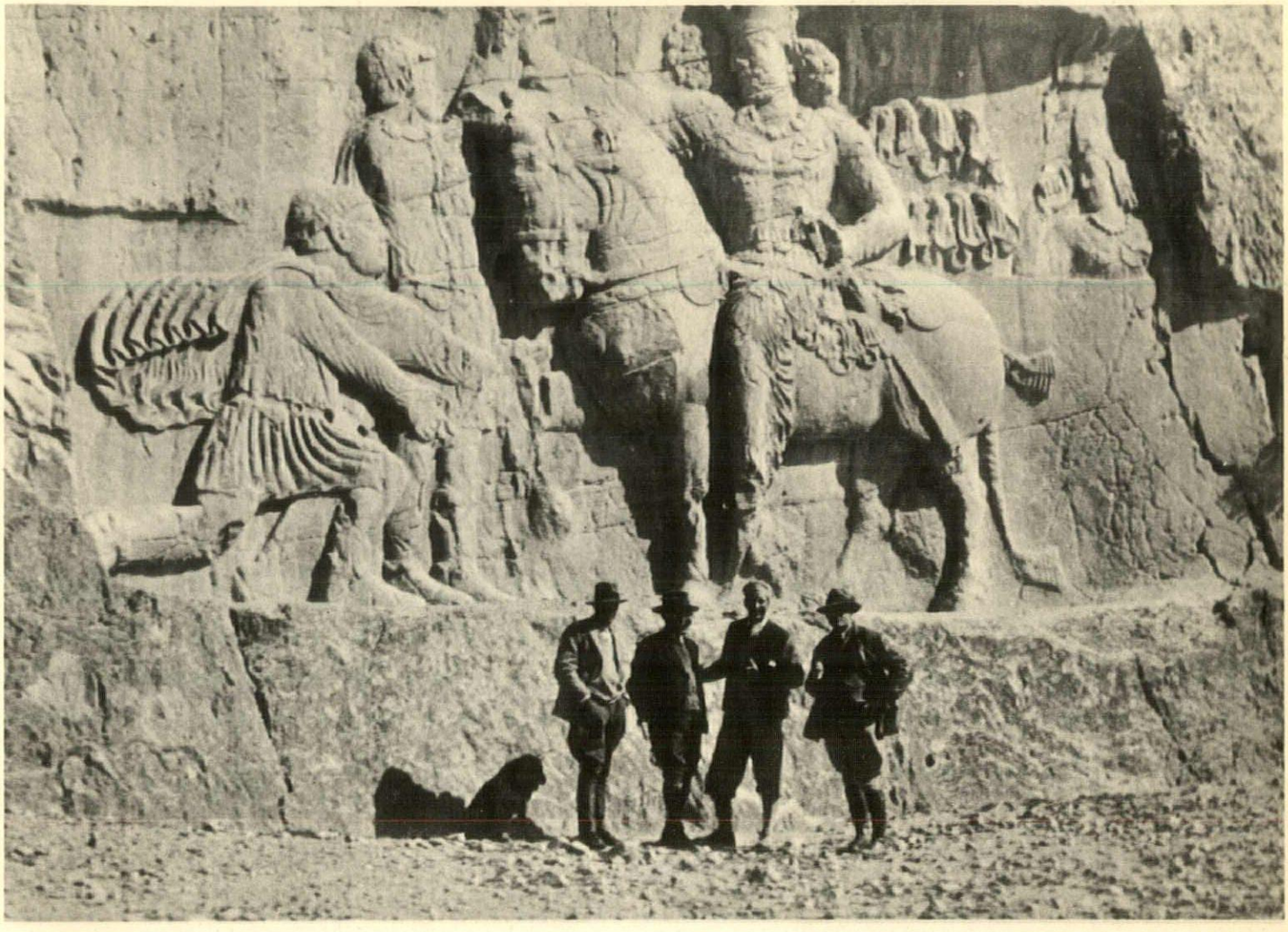
To reach the terrace containing the series of palaces at Persepolis, one ascended the monumental stairway and passed through an entrance gateway which was flanked on either side by a colossal winged bull. The doors and columns of this entrance, built of stone, still stand. The adjoining structure of wood and brick was destroyed when Alexander the Great burned Persepolis in 331 B.C.



Air view of the rock-cliff tombs at Naksh-i-Rustam, near Persepolis. The tomb on the left is that of Darius II (424–404 B.C.); that on the right belongs to Artaxerxes I (464–424 B.C.). In the foreground the tomb is supposed to be that of Zoroaster, founder of the old Persian religion

At right, a detail of the sculpture shown in the photograph on page 249, representing part of the procession of envoys from twenty-three subject nations, bringing New Year gifts to the Persian emperor. Here the Cilicians are bringing prize rams

On the facing page: These columns are the surviving elements of a great audience hall of the Persian emperors on the terrace at Persepolis. Inscriptions indicate that the hall was begun about 515 B.C. by Darius the Great, and was completed by his son, Xerxes, requiring about forty years to build



A detail from the rock-cliff wall of Naksh-i-Rustam, of which a more inclusive photograph is shown at top of page 253. This bit, the scale of which is indicated by the archæologists, is just to the right of the tomb of Artaxerxes I. The Persian king, Shapur I, seated on his horse, is receiving the submission of the defeated Roman Emperor Valerian who reigned from 253 to 260 A.D.

BOOK REVIEWS

THE HEART OF ENGLAND. By IVOR BROWN. Foreword by J. B. PRIESTLEY. 120 pages, 5½ by 8½ inches. Illustrations from photographs, with color frontispiece. Printed in Great Britain. New York: 1935: Charles Scribner's Sons. $2.75.

A recent addition to The English Countryside Series. It is not particularly architectural, nor does it emphasize, as most of the other volumes have, the pictorial aspect of the British Isles. Here, instead, is an introduction to more personal matters—the markets and mills, education, recreation, the seaside, the suburb. The illustrations, as throughout this series, are especially good and plentiful.

MODERNIZING THE KANSAS HOME. By H. E. WICHERS. 133 pages, 6 by 9 inches. Illustrations from drawings and photographs. Bulletin No. 32. Pamphlet binding. Manhattan, Kan.: 1934: Kansas State College.

REPORT ON SIGNIFICANCE OF TESTS OF CONCRETE AND CONCRETE AGGREGATES. Foreword by R. W. CRUM, A. T. GOLDBECK, and F. H. JACKSON. 123 pages, 6 by 9 inches. Illustrations from graphs. Pamphlet binding. Philadelphia: 1935: American Society for Testing Materials. $1.25; $1 to A. S. T. M. members.

An effort to meet the need for an effectual summation of the significance of tests concerning concrete and aggregates—tests which have been made by many authorities and in rapidly growing numbers during recent years.

STONES OF RIMINI. By ADRIAN STOKES. 264 pages, 5¼ by 8 inches. Illustrations from photographs. Printed in Great Britain. New York: 1935: G. P. Putnam's Sons. $3.

A sympathetic appreciation of Agostino's sculpture in the Tempio Malatestiano at Rimini, as an accompaniment to the theme that carved limestone expresses more fully, perhaps, than any other single thing, the spirit of Mediterranean art and life.

HARVARD CITY PLANNING STUDIES.

8. BUILDING LINES AND RESERVATIONS FOR FUTURE STREETS. Their Establishment and Protection. By RUSSELL VAN NEST BLACK. Assisted by MARY HEDGES BLACK. Preface by THEODORA KIMBALL HUBBARD and HENRY VINCENT HUBBARD. 243 pages, 7 by 9¾ inches. Illustrations from plans and photographs. Cambridge, Mass.: 1935: Harvard University Press. $3.50.

It would not perhaps be seriously questioned if one said that the crux of all city planning in this country has to do with the unsnarling of our horse-and-buggy street system. The present volume, therefore, concerns itself with this question of building lines and the relative merits of procedures against these, based on eminent domain and the police power, with summaries and analyses of significant court decisions.

LABORATORY TESTS OF THREE-SPAN REINFORCED CONCRETE ARCH SLENDER PIERS. By WILBUR M. WILSON and RALPH W. KLUGE. 134 pages, 6 by 9 inches. Illustrations from diagrams, graphs, and photographs. Bulletin No. 270. Pamphlet binding. Urbana, Ill.: 1935: University of Illinois. $1.

MODERNIZING BUILDINGS FOR PROFIT. By KENNETH KINGSLEY STOWELL. 231 pages, 9 by 12 inches. Illustrations from photographs and plans. New York: 1935: Prentice-Hall, Inc. $6.50.

A case history of modernization in the present tempo, when improvement and economics go hand in hand. There are check lists of items to be considered in the various classes of buildings to be modernized, analyses of financial set-ups, procedure, and the case histories themselves of specific projects, freely illustrated before and after. Much of the material has appeared in *The Architectural Forum*, *The Architectural Record*, and *Hotel Management*.

ATMOSPHERIC EXPOSURE TESTS ON NONFERROUS SCREEN WIRE CLOTH. By G. WILLARD QUICK. 35 pages, 6 by 9¼ inches. Illustrations from graphs and photographs. Research Paper RP803. Pamphlet binding. Washington, D. C.: 1935: U. S. Department of Commerce. 10 cents.

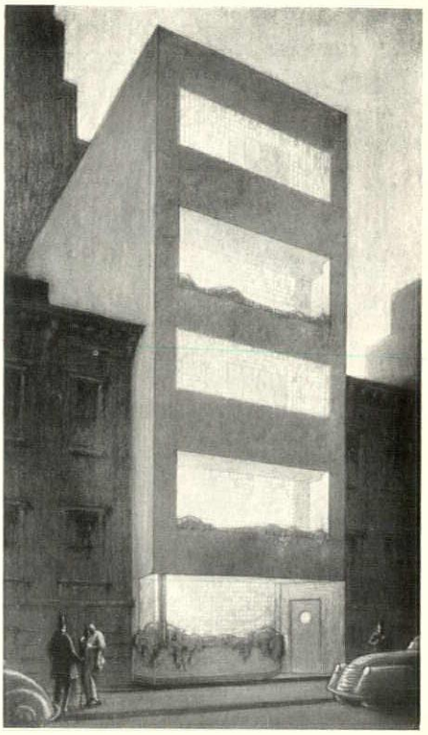
THINGS TO MAKE AND HOW TO MAKE THEM. By WILLIAM W. KLENKE. Illustrations from photographs and working drawings. Pamphlet binding. Vol. 1, 63 pages, 7½ by 10 inches; Vols. 2, 3, and 4, each 32 pages. Peoria, Ill.: 1935: The Manual Arts Press. Vol. 1, 75 cents; Vols. 2, 3, and 4, 50 cents each.

A series of booklets designed for the use of the amateur craftsman. The series consists at present of four booklets: *The Home Workshop* (1), *Things to Make for the Camp and Game-Room* (2), *Things to Make for the Lawn and Garden* (3), *Things to Make for the Home* (4). No. 1 of the series contains specific instruction for the home craftsman, and advice as to the most up-to-date equipment in tools and apparatus.

LEWIS' NEW AIR CONDITIONING FOR COMFORT. By SAMUEL R. LEWIS. 277 pages, 5½ by 8½ inches. Illustrations from diagrams, graphs, and a folding psychrometric chart. Chicago: 1935: Kenney Publishing Co. $2.50.

The author is a consulting engineer in air-conditioning work and a past president of the American Society of Heating and Ventilating Engineers. His book is the second edition, rewritten and enlarged, of the volume published in 1932. It is written not only as a textbook for school use, but a reference and handbook for the architect and engineer. The procedure of designing systems for residential use or for larger buildings is shown in detail.

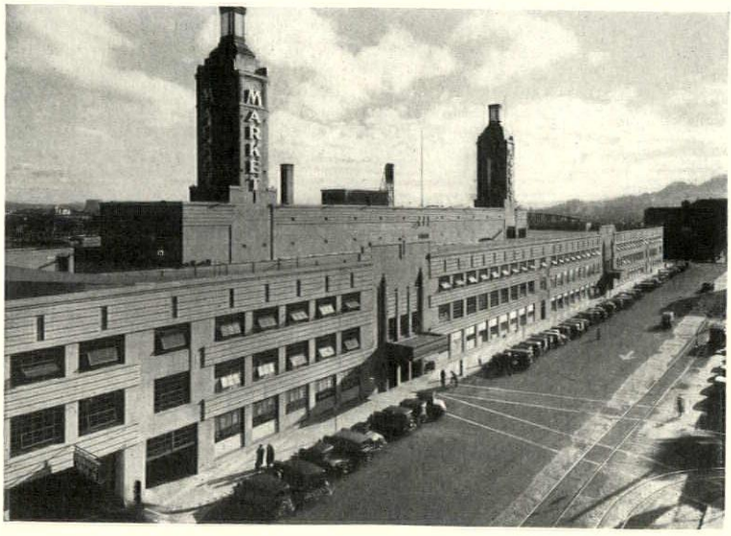
An unflattering photograph of Philadelphia's new $5,000,000 post office, begun in 1932 and recently finished. It is said to be the only post office in the world that can be reached by air, land and water. Rankin & Kellogg; Tilden, Register & Pepper, architects



Now nearing completion on East 10th Street, New York City, is this apartment building of glazed blue brick and glass brick. Morris B. Sanders, architect —and he will occupy half of it

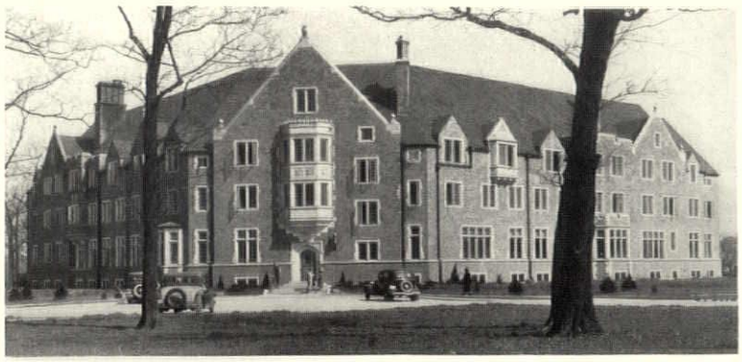
ARCHITECTURAL

Ecclesiastical work has not been entirely missing from our depressed building activity, as witnessed by the new East Liberty Presbyterian Church in Pittsburgh. Cram & Ferguson, architects



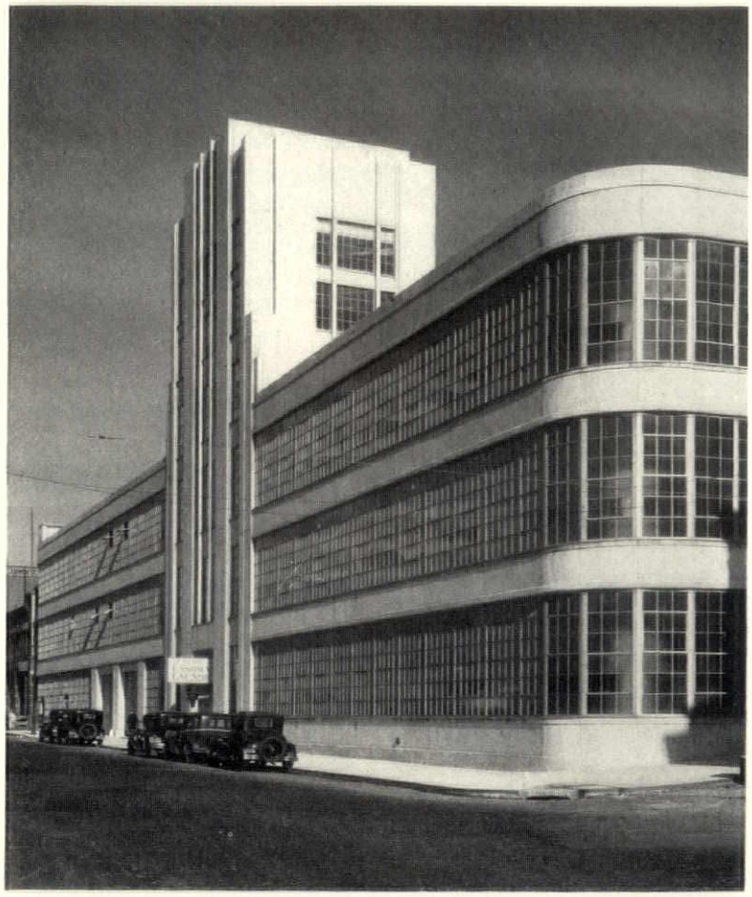
One of the first R. F. C. projects in the Northwest — the Portland Public Market, Portland, Ore. It cost, with fixtures, about $900,000. Lawrence, Holford & Allyn, architects

And now the police information booth takes up bright metal and corner windows in a serious way. It is in Canton, Ohio, and was presented to the city by a group of manufacturing and equipment concerns



One of the P. W. A. educational projects — a fireproof girls' dormitory for Purdue University, West Lafayette, Ind., for which the allotment from P. W. A. was $178,000. Walter Scholer, architect

NEWS *in* PHOTOGRAPHS



The new Cashman Laundry, New York City, in which the supporting piers are set back from the front walls. Russell G. and Walter M. Cory, engineers

While we are holding conferences on the subject of housing, England is building it. The photograph shows an aerial view of a detached-house group near London. It is bisected by the Kingston By-pass Road

Classification of Buildings	Aug., 1915	Aug., 1920	Jan. 1, 1921	Aug. 1, 1921	April 1, 1922	Dec. 1, 1922	Jan. 1, 1924	Feb. 1, 1925	Feb. 1, 1926	Feb. 1, 1927	Jan. 1, 1928	Jan. 1, 1929	Jan. 1, 1930	Jan. 1, 1931	Jan. 1, 1932	Jan. 1, 1933	Jan. 1 1934	Jan. 1935
FACTORIES AND WAREHOUSES:																		
Fireproof (Under 300,000 cu. ft.)	.14	.31½	.23	.18	.17	.21	.24	.23	.22½	.23	.22	.22	.22	.16½	.15	.14	.16	.16½
Fireproof (Over 300,000 cu. ft.)	.12½	.29	.21	.17	.16	.19½	.23	.22	.21½	.22	.21	.21	.21	.16	.14½	.12½	.14	.15
Mill Construction	.10	.22½	.15½	.12	.11	.14	.16½	.16	.16	.16½	.15¾	.15¾	.15½	.11½	.11	.10	.11½	.12
Ordinary	.09	.21	.15	.12	.10½	.13½	.15	.14½	.14	.14½	.14	.14	.13½	.10	.09½	.08½	.09½	.10
Frame	.07½	.17	.12	.10	.08	.11½	.13	.11	.10½	.10½	.10	.10	.10	.07½	.07	.07	.08	.08½
STORES:																		
Fireproof	.23	.52	.39	.31	.30	.36	.41½	.40	.39	.39½	.38	.38	.38½	.30	.29½	.26	.30	.31
Ordinary	.16½	.37½	.26½	.21	.19	.24½	.28	.26½	.26	.26½	.25½	.25½	.25	.20	.19	.16½	.20	.21
Flats (Above Ordinary)	.22	.48½	.34	.27	.23	.30½	.31	.29	.28	.28½	.27½	.27½	.27	.22	.21	.18½	.21	.22
Ordinary without Basements	. .	....	....	.16¾	.16	.18½	.21	.19	.18	.18	.17½	.17½	.17	.14¼	.14	.12	.14	.15
CHURCHES AND THEATRES:																		
Fireproof	.18	.40½	.35	.28	.27	.32½	.37½	.36	.35¼	.36	.34¾	.34¾	.35	.27	.26	.22½	.26	.27
Ordinary	.15½	.35	.24½	.19	.18	.22	.28½	.27½	.27	.27½	.26½	.26½	.26	.20½	.19½	.18½	.21	.22
OFFICE BUILDINGS:																		
Fireproof	.30½	.68½	.54½	.44	.35	.51	.54½	.52	.51	.51½	.49¾	.49¾	.50	.39	.37½	.32½	.37½	.39
Ordinary	.22	.48½	.34	.27	.25	.30½	.35	.33½	.32¾	.33¼	.32	.32	.32	.25	.24	.21½	.25	.26½
HOTELS:																		
Fireproof	.33½	.75½	.58½	.45	.37	.52	.59½	.57	.56	.57½	.55½	.55½	.56	.42¾	.42	.37½	.43	.45
Ordinary	.29½	.66½	.46½	.37	.26	.43	.43	.34	.32	.32½	.31¼	.31¼	.31	.25½	.24	.21½	.25	.26½
SCHOOLS:																		
Fireproof	.22	.48½	.40½	.32	.30	.37	.45½	.43½	.42	.43¼	.40	.40	.40	.32	.30	.27	.31½	.33
HOSPITALS:																		
Fireproof	.32	.72	.54	.32	.33	.37	.45½	.43½	.42	.43¼	.45	.45	.45	.32	.32	.27¾	.32	.33½
ALL STEEL BUILDINGS:																		
Under 20,000 cu. ft.	.12	.25	.21	.17	.15	.19½	.20	.14	.13½	.13½	.13	.13	.13	.11	.11	.10	.11½	.12
20,000 to 100,000 cu. ft.	.08	.18	.15	.12	.10	.14	.14½	.12	.11	.11	.10½	.10½	.10½	.10	.10	.09	.10	.10½
Over 100,000 cu. ft.	.06½	.14	.13	.10	.08	.11½	.11½	.10	.09½	.09½	.09	.09	.09	.07	.07	.06½	.07	.07½
APARTMENTS:																		
Fireproof	.35	.78	.54	.43	.36	.50	.55	.52½	.51	.52	.50	.50	.50	.39	.37½	.34	.39	.41
Protected	.29½	.66½	.46½	.37	.30	.43	.48	.46	.45½	.46	.44¼	.44¼	.45	.34½	.34	.30	.34½	.36
Brick (Ordinary)	.28	.63	.43	.34	.23½	.39½	.34	.32	.30	.30½	.29½	.29½	.29	.24	.23	.22	.25	.26½
Brick (Veneer)	.24	.54	.37	.30	.22	.34½	.32	.30	.29	.29	.28	.28	.28	.22½	.22	.21	.24	.25½
RESIDENCES:																		
Brick	.30½	.68½	.48	.38	.33	.45	.48	.46	.45	.45½	.44	.44	.44½	.34½	.33½	.25½	.29	.31
Brick (Veneer and Stucco)	.24	.54	.37	.30	.24	.34½	.34	.32½	.32	.32	.30¾	.30¾	.30½	.24	.23	.22½	.24½	.25
Frame	.21½	.48½	.34	.27	.19	.30½	.30	.26½	.25	.25	.24	.24	.24	.20	.19	.19	.21	.21½
Frame (Not over 25,000 cu. ft.)	....	....	....	....	....	....	....	....	....	.20	.20	.20	.20	.15	.15	.14	.16	.17
Cinder Concrete Block	....	....	....	....	....	....	.41½	.39	.38	.38	.36¾	.36¾	.37	.29	.28	.22½	.26	.27
GARAGES:																		
Gas & Service Sta.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.21½	.25	.26½
Fireproof	....	.30	.23	.18	.17	.21	.24	.23	.22½	.23	.22¼	.22¼	.23	.17	.17	.15½	.17½	.18
Mill Construction	....	.20	.15	.12	.11	.14	.16	.15	.14	.14½	.14	.14	.13½	.11	.11	.10	.11½	.12
Ordinary	....	.17	.14	.11	.10	.13	.15	.13½	.12½	.13	.13	.13	.13	.10	.10	.09	.10	.10½
Frame	....	.14	.12	.09	.08	.10½	.12	.10	.09½	.09½	.09	.09	.09	.08	.07	.06½	.07½	.08
SHEDS WITHOUT HEAT:																		
Enclosed Without Floor (Frame)														.04¾	.04½	.04	.04½	.05
Enclosed (Frame)														.06	.06	.05	.06	.06½
Enclosed (Ordinary Construction)														.09½	.09¼	.09	.09½	.10½
Enclosed Without Floor (Ordinary Construction)														.09¼	.09	.08	.09½	.10
Enclosed (All Steel)														.04½	.04½	.04	.04½	.05
Enclosed Without Floor (All Steel)														.03½	.03½	.03¼	.04	.04
Open Shelter (Frame Construction)														.03	.03	.03	.03	.03½

UNIT COSTS

The figures represent cost per cubic foot in cents. Annually since 1915 the Detroit Real Estate Board has compiled these schedules, the present one revised as of January 1, 1935. Costs include architects' fees and contractors' profits and represent the minimum for fairly good building, economically designed, constructed under favorable circumstances, within the Detroit district

BETTER PRACTICE

By W. F. Bartels

RENOVATIONS

IN modernization or renovation the architect is confronted with one of the most interesting phases of his profession. Yet from the point of view of his client's pocketbook it is the most uncertain. He must treat the problem in a way that will not only appeal to the owner's æsthetic sense, but will also appeal to his pecuniary sense. Owners of old buildings do not care particularly about drawings and specifications as an end in themselves, and unless the architect can produce a plan and financial set-up which shows an income from the investment, there is no reason why the owner should put more of his money in it. It is well to remember that on a new building a profit is taken for granted, while on a renovation it must be proven that a profit is to be had.

While it is desirable for the architect to stay in his own field and not venture into that of the realtor, as some have done to their sorrow, it is incumbent upon him to be ready at all times to give unbiased views to the owner. He may have to deprive himself of a commission by admitting that the building does not warrant the proposed expenditures, or that it may be cheaper and more expeditious to build an entirely new one in place of the old. He must have the ability to perceive what will appeal to the type of tenant it is intended to attract, and incorporate these features into his building.

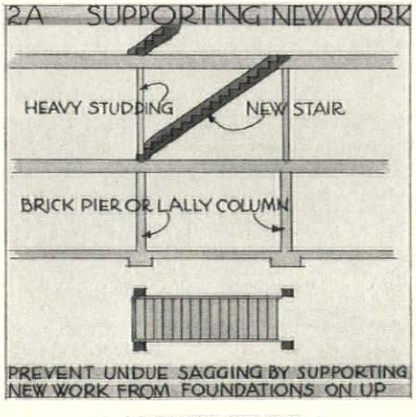
Too many architects treat the problem of renovations too academically. Unless the problem is met in a realistic, practical manner, the builders will take it out of the architects' hands just as they did small houses. Even now it is questionable whether this has not started.

Perhaps one of the best ways to approach the problem of renovations is for the architect to imagine he has inherited an old building and to go about its renovation as though he were paying for it himself, with the future rentals his only source of income.

Much work is necessary to prepare an adequate set of plans and specifications for any renovating job, and if the architect is to confine himself in many cases to what has been termed "the standard percentages," he is apt to find when he has completed the work that this is entirely too small an amount to pay him a living wage. It might be suggested that when the calculation of a fee is difficult if not impossible, the architect may find it more profitable to do the work on an hour or day basis, the owner paying all costs, such as draftsman's time and blue prints, plus a certain stipulated amount toward office overhead, etc.

1—SPECIFICATIONS

A complete specification is more necessary in a modernization job than it would be on a new one. Many items must be taken into consideration which would be taken for granted in new work. The trades must be united in order that the building be finished completely as planned, and that there be no overlapping of trades or work omitted. It is out of place to call for the highest grades of material when the building itself is of mediocre type. The competition for work in this class is very keen, and the chances are that substitutes would be furnished for the high-priced articles anyway. The architect, in order to afford the greatest saving to his client, must consider the use of material salvaged from the job, but at the same time must be assured that it will be suitable and will in no way detract from the work when the job is finished. Such items as the amount of plaster to be replaced must be considered before completing the specification, but this is difficult to compute; not only is the architect faced with the need of describing the extent of new work to be done, but also that which may prove unsound upon further examination, not to mention that which may fail during the course of construction due to vibration, etc. Whenever possible, phrasing should be explicit and not such as: "Pipe to be of sufficient size to give ample supply of water at all times." Pipe sizes should be given definitely. Other pipes, such as existing ones for leaders, smoke stacks, etc., should be carefully investigated to make certain that they are of sufficient thickness and will not have to be replaced for a reasonably long time.



2—STRUCTURAL

Many buildings now considered obsolete are perhaps physically more sound than some erected in the boom years. However, precautionary steps should be taken to prevent any sagging or any undue deflections when new weight is added. This new weight may consist of new iron stairs, tile floors and insulation, or new plastered partitions. The weight of these in many cases may be supported by a brick pier or lally column in the cellar, and heavy studding carried up through the rest of the building (Fig. 2A).

Many old beams will be found to be in good condition except that they may be seriously weakened by mortises.

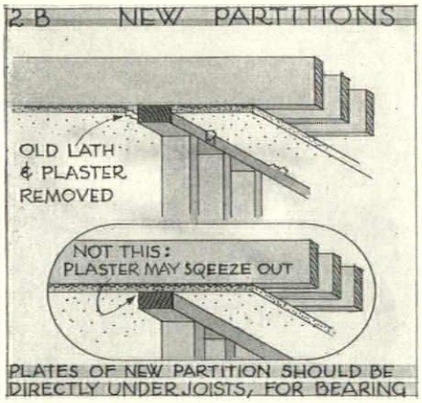
Partition work in cellars or basements should be confined to brick or terra-cotta; gypsum block should not be used here because of the effect dampness has upon it.

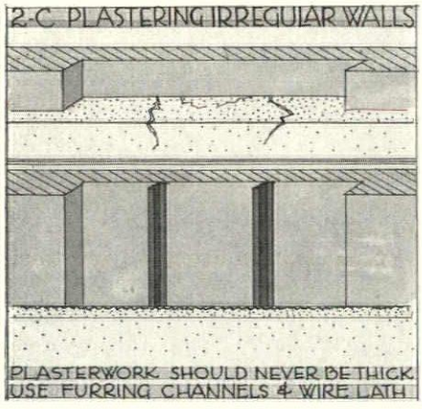
Where new beams are used for filling an opening created by alteration work, they should be supported by bridle irons. Where plates are used for new partition work it is preferable that they be placed in direct contact with the beams, and not under the plastered ceiling, as is done in many instances. If done in the latter manner the partition is no support to the floor above, because the plaster would squeeze out if any weight were imposed upon it (Fig. 2B).

Where it is impossible to fill out brick walls or other masonry work with brick or split furring, it is more

desirable that furring channels be used and wire lath and plaster be applied. This is better than having a considerable thickness of plaster on the brick wall (Fig. 2C).

When new steel stairs are installed they should be set on steel plates on the beams, and in no case should they be shimmed up with wood. New openings, such as those for disappearing steps to attics, etc., should be properly framed with doubled headers and trimmers spiked together, the headers and tail beams to be in bridle irons.

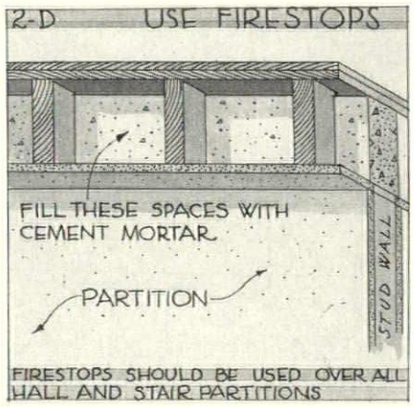




Where halls and stairs are fire-retarded, such as are required for the old-law tenements in New York City, it must be remembered that fire stops must be included in order to prevent the spread of any fire in the partition. This is generally done by filling in these spaces with incombustible material (Fig. 2D). Where the hall side of the partition is to be cement-plastered or wire-lathed, and the space between filled with mineral wool, care should be taken in removing the outer coat of plaster to see that the key of the plaster on the apartment or inner side of the partition is not injured.

Where head-room is low, or it is desired to conceal pipes in the corner, a furred beam effect may be resorted to if the pipe is properly covered and supported; and if the furred portion is properly wire-lathed there is no reason why it should not be satisfactory (Fig. 2E).

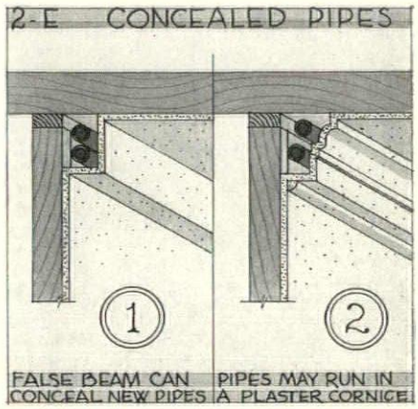
Every effort should be made in laying out new work to get the doors as wide as possible. This is particularly true of apartment entrance doors, where failure to observe this may prevent furniture from being moved in. As one architect has said: "It is often a problem to get furniture in, but any installment house will be able to get it out." Should the architect permit old doors to be used, he must see to it that doors of only one type are allowed in one apartment. Where floors have sagged, it is often possible to bring down the trim without seriously disturbing the framing of the door (Fig. 2F). Where steel bucks are used in connection with new work, they should be set down to the rough flooring if possible. Thus they may be more securely anchored at the bottom than would be possible if they were merely set on the finished floor (Fig. 2G.)



Where any carpentry work is done in a house or apartment it is advisable to see that all sash and frames are in good working order. It must be kept in mind in apartment-house work that the window openings bear a direct relation to the floor area, and that this proportion of 1 to 10 must be carefully observed if one is to avoid trouble with the local ordinances. Should the floor area exceed this proportion, a closet carried to the ceiling will of course cut down floor area and so render the room properly within the law.

Marble bases set in halls and bathrooms should be set on the rough and not on the finished floor. In the latter position they are apt to work loose. Old fireplaces and flues must be carefully inspected before they are allowed to be used, because in many cases they may have developed countless void spaces between the bricks; in but few cases were old flues properly lined with tile, and thus they always present a danger from fire. Furthermore, many times they are used for other supporting members, a condition which should be rectified.

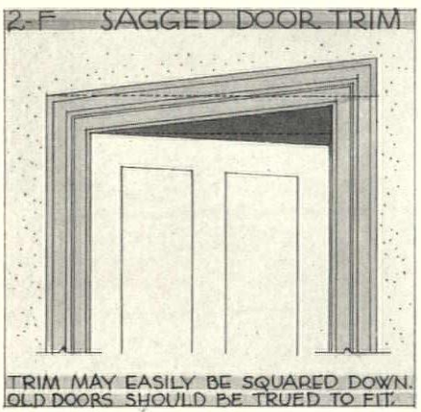
The roofs, before being recovered, should be properly repaired so that they pitch away from bulkheads and skylights. Many old buildings have low or even no parapet walls; in such cases they should either be built up, or guard rails put across the edge of the roof to prevent any one from falling down. The old-fashioned, cumbersome cornices on many buildings have become outmoded and present difficult and expensive features to repair. Many architects have found that these may advantageously be removed and parapets properly built up and water-proofed at a cost less than the repair of the old cornices.



3—HEATING, PLUMBING, AND ELECTRIC WORK

Probably one of the most common conditions the architect has to correct in a rehabilitation job is that of revamping the steam system so that the occupants of the building will be comfortable in winter. All too often the steam job was put in by a speculator, or by a person not having sufficient knowledge of steam, with the result that the old work will not be properly laid out. Hence it is doubly necessary that the archi-

tect should be careful in awarding this contract. Too often an owner, annoyed by complaints of insufficient heat, will put devices on his furnace such as blowers, regulators, etc., when the real cause may be a boiler that is too small, an undersized flue, trapped lines, insufficient radiators, or one of the many other elusive causes resulting in a lack of heat. The architect may not only help his client save money, but also enable the building to produce a better income, by providing an efficient heating system. It is well for him first to check up to see if the rated capacity of the boiler is equal to, or better than, the amount of standing radiation, plus about 25



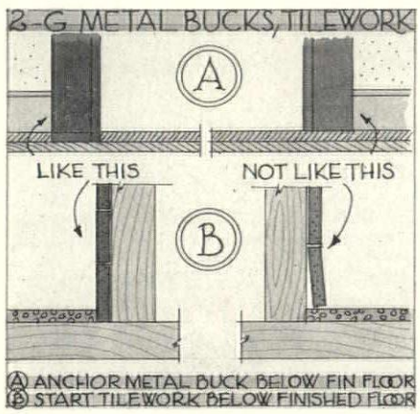
per cent for piping, etc. If this is not the case, no amount of gadgets will make an efficient job. Any so-called "coal-saving" device used on a small boiler may not only fail to save money, but in all probability it will waste fuel by forcing the gases up the chimney before they have been completely burned.

Cellar lines should be checked to see that they have the proper pitch. Should it develop that there is sagging, with the possible presence of a water trap, the line may be broken, dripped and vented, thereby rectifying this condition (Fig. 3A). In doing this, only unions and flanged connections should be used. New return lines should not be buried in solid partitions or in concrete. They must be allowed to move freely and should be in an exposed place so that repairs may be made quickly. Where rising lines are carried up through a building, the architect should insist that circular saws be used, so that as little damage as possible be done to the old work (Fig. 3B).

Where swings in piping are made they should be in the floors as well as in the run-outs.

Radiators should not be connected from what might be termed the "wrong side," even at the risk of putting the valve in an inconvenient position, or of using a radiator of different size (Fig. 3C). Radiators should not be installed against walls or partitions where it is at all possible to get them under windows.

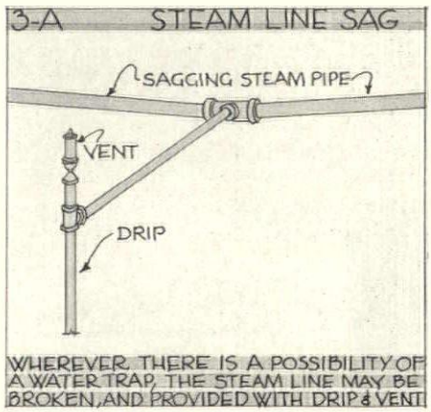
In the installation of new steam plants, there is always the temptation for the owner to install a steel flue at one-third the cost of a tile-lined brick one. The architect should warn him that the cost will be more in the long run. The steel soon rusts out, and its inefficiency

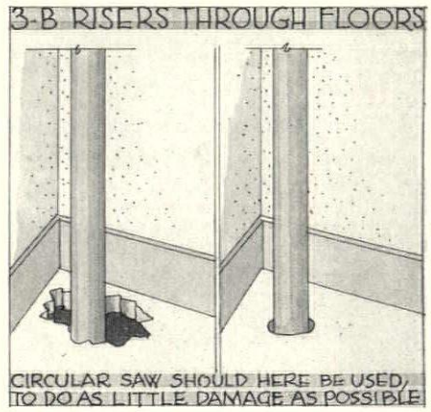


due to chilling causes excess use of fuel. If a steel flue must be used it should be of such gauge that it will last a reasonable length of time.

An important provision for the architect to include in the plumbing contract is one requiring the plumber to clean out all area drains and traps, and to install proper drains in areaways and at the bottom of steps open to the weather. Most old drains are filled with sediment and probably would cause trouble in a short time.

New soil lines should be securely joined to old ones by means of the proper fittings. One of the cheaper and less expensive methods is often used by unscrupulous plumbers. This consists of putting a saddle on the old line and running the new one into it at this point (Fig. 3D). The danger lies in the fact that waste matter may catch on the rough edges, which it would not do if the proper fitting were used. The danger of stoppage is also prevalent where galvanized lines are used on 2" wastes, more particularly where the fixtures are back to back. If the galvanized line is not properly reamed, a stoppage will soon occur, with the embarrassing situation of water going into one apartment from the other when tubs are emptied (Fig. 3E). The architect should investigate to see whether it would be cheaper to tear out old soil, waste and vent lines if new fittings are contemplated, because these lines may not be heavy enough to stand cutting. The open ends of all soil lines in exposed places, such as on roofs, should be covered by wire netting, or preferably goose necks,





so that nothing can be thrown down them that will cause a stoppage.

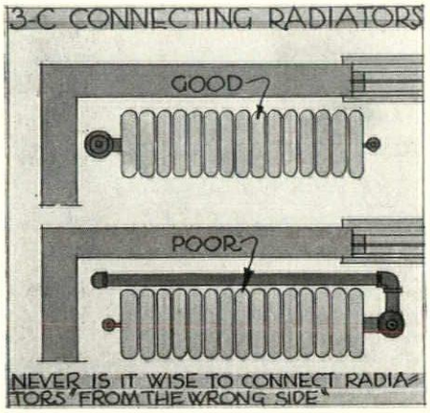
Where new toilets are installed against exterior walls in alteration work, the old windows may be low, with the result that if a low-down tank is used it may project in front of the window (Fig. 3F). This bad feature may be eliminated if flushometers are used, but these do not always result in a perfect solution either. It must be ascertained what the water pressure is in the street, and then deduct approximately 5 pounds per story to arrive at the pressure on this valve on the top floor. If this is near the capacity of the flush valve, care should be taken, because if a toilet is being used on

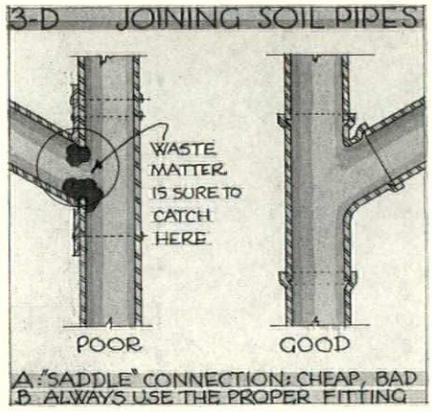
the lower floors it means that the top flush valve will not function.

If space is limited in a bathroom, the architect should remember that lavatories only 15" wide are now on the market. These must be securely fastened to the wall, so that leaning on them will not tear them loose. As long as the tile floor is level, ring safes are more desirable for toilets than are slabs which project beyond the foot of the bowl and either stain or give a dark appearance. However, it is advisable to use them only in fireproof buildings or where bathroom floors are on a concrete arch.

The architect should not overlook ventilation. No house or kitchen today is complete without an electric fan, and no city house of tomorrow will be complete, probably, without air conditioning. If the air-conditioning mechanism is not provided, ducts at least should be provided for its future installation. Where exhaust fans are placed in the kitchen, it is better that they be placed in a box in the wall, the inside and outside of which can be closed at will. A switch should be conveniently located to turn the motor on or off.

Electric outlets should not be spared. By arranging them back to back, they are much less expensive. Electric wiring should be entirely renewed if the installation is very old. Even the slightest bending of very old wires will crack their insulation and make possible a short circuit or fire.





4—PROTECTION AGAINST ELEMENTS

The architect should impress upon his client the necessity for raking out and pointing up weathered brick joints. The cost will be repaid, because rain and dampness will be prevented from penetrating the interior of the building. Where brick and cement joints have become porous, it may be desirable to protect them with a coat of mastic. This is now available in color instead of the unsightly black that was formerly its only available color. Often a brush coat or two of Portland cement may be used where excessive pointing would otherwise be required.

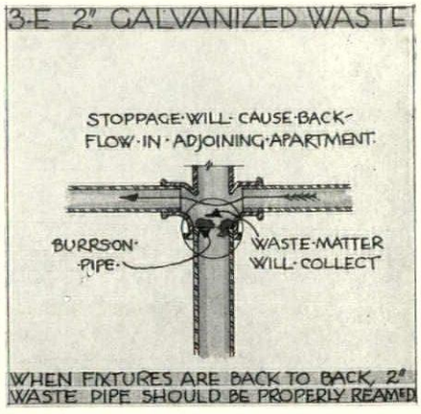
The proper calking of windows is another item which should not be neglected. This is best done in most cases by use of a compressed-air gun, which forces the material deep into the crack or opening. At the same time the coping should be carefully inspected to see whether or not it is necessary to calk these joints. Should there be face brick on the front and common brick on the side walls, it may even be desirable to calk the joints where the two meet.

When weather-stripping is put on the windows, it is advisable to adjust the old stops, so as to reduce air leakage. At the same time that the weather-stripping is installed, it may be advisable to install new sash cord or chain. A considerable saving can be effected if this is done at the same time as the weather-stripping is added, because there is but little additional work involved in installing new chains once the sash are taken out.

5—MISCELLANEOUS

Redecorating the exterior of a building probably is one of the most essential features of renovation. It may be done by painting or cleaning. The cleaning may consist of sand-blasting, or one of the other methods of washing, such as by hand or with steam. The architect must see to it that no reagents are used which will damage the surface of the building. Due care must be exercised when sand-blasting is used so that a gloss surface is not destroyed and a porous one left instead. Where a building has been painted before, it is seldom that sand-blasting will be satisfactory, unless great care is used to remove all particles of paint.

There is no doubt that the decorative effect of a building is an important factor. Lighting fixtures, closets, painting, etc., are among the least expensive items entering into the building, yet at the same time they produce the greatest comfort. Sufficient closet space, with commodious shelving, should be furnished. Radiators should be set in recesses wherever possible under windows. This can often be done in old buildings by removing the wood panel under the window-sills. New doors should preferably match the old ones, while the latter should be replaced by uniformly designed new ones. Excessive cornices over doors and windows should be removed and finished off with a small molding to give a trim effect. Cupboards can in many cases be modernized by replacing the glass with flush wood doors.



HOW SHOULD WE TEACH ARCHITECTURE?

By Dwight James Baum, F. A. I. A.

A PRACTISING ARCHITECT'S APPRAISAL OF THE NEW CURRICULUM AT SYRACUSE UNIVERSITY SCHOOL OF ARCHITECTURE

DURING the winter of 1872–73 a series of lectures was given under the auspices of Syracuse University on the Fine Arts, by Dr. George Fisk Comfort, a remarkable young man who, after several years of study abroad, implanted in this country the idea which finally culminated in the organization of the Metropolitan Museum in New York City. After this organization he returned to Syracuse, his native city, and, through the series of lectures before mentioned, created enough interest so that in the fall of 1873 there was inaugurated at Syracuse University the first College of Fine Arts in America. In June of that year the following paragraph was printed in a local paper:

FIRST ANNOUNCEMENT

THE COLLEGE OF FINE ARTS.—We are pleased to know and are no less pleased to announce that the above College will soon be instituted in connection with the University. Plans therefore are being developed and it is confidently expected that the College will be in operation within a year. It is already well known that the first course of lectures upon the Fine Arts ever instituted in the country was the one we had the pleasure of listening to last winter. Prof. Comfort is really getting to himself great credit for the energy with which he is consummating his plan of making Syracuse University the foremost of the American Colleges in the department of Art. Yale has its Art Building, but ntil this year there have been no particular efforts to give its students systematic instruction in æsthetics. Here we have had curriculum lectures all the year and these have been supplemented by a very interesting spec a public course. Art is destined to receive more attention in College curricula than it has hitherto. The time is coming when Art Departments will be considered as necessary as any other department of a University. We say then to Prof. Comfort and to all who are interested in this movement toward the higher cultivation of æsthetic taste, let us have the course of Art enlarged and a College of Art established as soon as possible.

In October the following article was printed in *The University Herald:*

INAUGURATION

THE FINE ARTS COLLEGE.—The inauguration of the first College of Fine Arts in this country took place in the College Chapel Thursday evening, Sept. 18th. The Chapel was well filled with a fine and appreciative audience and the speeches were exceptionally good. The speakers were Rev. George Lansing Taylor, Revs. Calthrop and Beard of the city, and the Chancellor.

Owing to the suddenness with which this College was organized and the short time since its inception, nothing very definite can be given as to its prospects. We are informed, however, that the number of students will be fully as large as its projectors anticipated. Only the departments of Painting and Architecture are in working order at present; others will be added next year or before.

It is interesting to note that at that time the trustees commended this new college to the patronage of those interested in the progress of art, and hoped that it might become an agency in promoting the cultivation of fine arts which "have so much influence upon the culture, refinement and health of a nation." The courses first organized included Architecture and Painting. It is interesting to note that back in 1873 the College stated, in listing its first curriculum, that it included systematic and progressive instruction in the theory, history and practice of architecture and painting, and in those branches of science, philosophy, etc., which bear most intimately upon these arts, and without a knowledge of which success in the higher domains of art is impossible.

A four-year course in Architecture was established, giving a degree of Bachelor of Architecture, and this was the first degree of the kind given in this country. Many years have passed since this important inauguration, and yet this school has continued, with of course varied success, through the years in turning out students, many of whom have become well known, especially in the courses of Painting, Music and Architecture.

In this day of various "isms," the curricula of various schools of architecture have been changed in one way and another, sometimes in a manner to leave the poor student entirely bewildered. In some cases students have started school with a certain line of thought advanced by the faculty, and then were compelled practically to readjust most of their work, past and present. In endeavoring to teach so-called functionalism, which some instructors feel is new and yet really is old, radical arts have been implanted, and the fundamental principles of design have been so neglected that the poor student graduates with his head filled with "isms" and his background so meager that the four years he spent in college is practically a loss.

Having this in mind, and a desire for certain important changes in the department of architecture at the Syracuse College of Fine Arts, a new curriculum has been devised that seems to me the most sane and logical of any yet presented. Among the important features of this new program is a five-year curriculum incorporating a unified basic four-year academic program, and this is climaxed with a fifth year which forms a liaison between the school and practice. The fifth-year student presents an original program based upon realistic conditions.

Procedure on these problems is exactly as in a commercial office, considering the questions of site, finances, etc., as a part of his program. He really sets up a little office, playing at architectural practice, with direction of the proper sort, so that when he applies for a position after graduation he is familiar with office procedure and practice.

The major subjects taught are carefully grouped so as to enhance the efficient progress of the student to a degree of training which has not heretofore been accomplished in the accepted undergraduate curriculum. Another important change is that design and materials of construction are arranged in combination courses, and the latter study is strengthened by strong fundamental courses in

engineering, and subjects relating to materials. During design criticism the construction staff also criticizes the problems. The work in freehand and cast drawing courses is to be of a creative nature, working in the arts and crafts, using architectural motives instead of just drawing from the cast. Courses in the theory of architecture are carefully planned to parallel strong supplementary courses in economics, sociology, business and finance. This curriculum, I believe, is unique and original in its philosophy, and carries through the modern progressive trend in teaching.

The department of architecture at Syracuse University has been aware of the necessity of keeping abreast of the times in architectural education and training. Recently Professor L. C. Dillenbeck, formerly head of design at the University of Illinois and head of design at Columbia, resigned from this latter connection and became head of design at Syracuse University. The director of this school, Professor Frederick W. Revels, and Professor Dillenbeck have been mostly responsible for this important revision in architectural teaching. Through the Dean of the College of Fine Arts and the faculty, this curriculum has been approved and goes into effect with the present fall session.

The development of architecture from the earliest times has been a continuous progression through the centuries, and architecture must be taught in the same manner, not throwing away the past, but carrying on the great traditions. It should not study the past in order merely to copy the forms and expressions, but to comprehend the spirit of the great architects and builders. It should use the past as a vehicle. Work today should express the spirit and interest of life as it is being lived. The new curriculum at Syracuse realizes that the architect must be the most fully trained man of the learned professions, because of the wide knowledge he must possess. Therefore the courses stress not only artistic ability but also the need of good construction and the conduct of professional practice in a businesslike manner. Both social and economic aspects of the many problems that he must meet are brought before the student, stressing the important position he must play in public life.

I have studied with considerable interest other architectural school programs, and later read criticisms of them and smiled over their subsequent apologies. I feel that the program instituted at Syracuse is probably outstanding among the new school curricula. Here are considered not only fundamentals, but the study of new methods in both design and construction which new modes of living and new materials have made necessary.

Here follows the new Syracuse curriculum:

ENTRANCE REQUIREMENTS

For five-year program:	UNITS
English	3
One Foreign Language	2
Plane Geometry	1
Solid Geometry	½
History	1
Elem. and Inter. Algebra	1½
Trigonometry*	½
Drawing (Fhd. or Mech.)	1
Physics	1
Total	†11½

* Trigonometry and Physics have been added to the entrance requirements.

† Three and one-half additional units (approved) must be offered from list of regular high-school subjects.

COURSE I
ARCHITECTURE

Leading to the Degree of Bachelor of Architecture

1st SEMESTER *First Year*

Major Group I	HOURS
a. Elements of Design and Theory of Architecture	3
b. Introduction to Construction	1
Architectural Graphics (Des. Geom.)	3
Analytic Geometry	3
English I	3
French *or* Elective	3
Freehand Drawing	2
Total	18

2d SEMESTER:

Major Group I	HOURS
a. Elementary Design and Theory of Architecture	3
b. Introduction to Construction	1
Architectural Graphics (S. and S., Persp.)	3
Mechanics for Architects	3
English I	3
French *or* Elective	3
Freehand Drawing	2
Total	18

1st SEMESTER: *Second Year*

Major Group II	HOURS
a. Design	4
b. Materials of Construction	3
Theory of Architecture	1
Mechanics of Materials	3
History of Architecture I	2
French *or* Elective	3
Freehand Drawing	2
Total	18

2d SEMESTER:

Major Group II	HOURS
a. Design	4
b. Materials of Construction	3
Theory of Architecture	1
Mechanics of Materials	3
History of Architecture	2
French *or* Elective	3
Freehand Drawing	2
Total	18

1st SEMESTER: *Third Year*

Major Group III	HOURS
a. Design	4
b. Materials of Construction	3
Theory of Architecture	1
Graphic Statics (Trussed Roofs)	3
History of Architecture II	2
Sociology I	3
Freehand Drawing	2
Total	18

2d SEMESTER

Major Group III	HOURS
a. Design	4
b. Materials of Construction	3
Theory of Architecture	1
Graphic Statics	3
History of Architecture II	2
Sociology I	3
Freehand Drawing	2
Total	18
Summer Work*	
NOTE: Total credit hours	180
* Summer work as assigned	4
Total required hours	184

1st SEMESTER: *Fourth Year*

Major Group IV	HOURS
a. Design	6
b. Materials of Construction	1
Reinforced Concrete	3
History of Ornament	1
Sanitation	1
Economics I	3
Modeling	2
Freehand Drawing	1
Total	18

2d SEMESTER:

Major Group IV	HOURS
a. Design	6
b. Materials of Construction	1
Spec. and Contracts—Superintendence	2
History of Ornament	1
Illumination and Electrical Installation	2
Economics I	3
Modeling	2
Heating and Ventilation	1
Total	18

Summer Work as assigned

1st SEMESTER: *Fifth Year*

	HOURS
Architectural Practice	10
Office Administration	1
Business of Real Estate	3
History of Greek Civilization	3
Philosophy of Architecture	1
Inspection trip with no credit	0
Total	18

2d SEMESTER:

	HOURS
Architectural Practice and Thesis	13
Office Administration	1
Money and Banking	3
Nineteenth and Twentieth Century Architecture	1
Total	18

DESCRIPTION OF THE COURSES

MAJOR GROUP I (*a* and *b*).

Elements of Design and Theory of Architecture. First semester, three credit hours. Lectures and drawing.

A study and analysis of the elements of classic architecture. Lectures covering the explanation and form of columns, entablatures, walls, doorways, windows, vaults, etc., combined with graphic presentations, rendered in India-ink washes.

Second semester, *Elementary Design* (Analytique) 3 credit hours.

Composition of the elements of classic architecture with the application of lectures on theory and the introduction of basic structural forms. Minor problems of two weeks duration are followed by major problems covering a period of four to six weeks. Several nine-hour sketch exercises are included within the semester assignments.

Introduction to Construction. One hour credit each semester.

The structural properties, methods of manufacture and the artistic expression of the basic material groups are considered. Lectures, drawings, field trips.

MAJOR GROUP II (*a* and *b*), Prerequisite, Major Group I.

Intermediate Design (*Class B*). Four credit hours each semester.

A series of carefully arranged exercises in sequence, covering the planning of simple buildings. Application of the courses in theory and materials of construction with collaborative criticism by the instructors in design and construction. This work to be supplemented by research, lectures and group discussions. Several minor problems of two weeks duration, followed by major problems of four to six weeks duration. Several nine-hour sketch exercises are included within the semester assignment.

Materials of Construction. Three credit hours each semester.

Lectures on the physical properties, technical data and details of woods, concrete and concrete products, mortars, stones, brick, terra-cotta, gypsum, waterproofing, etc., including their application in detail to current design problems.

Construction design is studied in the making of dimensioned working drawings, together with the necessary calculations of current design projects. Field trips.

MAJOR GROUP III (*a* and *b*), Prerequisite, Major Group II.

Intermediate Design (*Class B*). Four credit hours each semester.

A continuation of Major Group II.

Materials of Construction. Three credit hours each semester.

Lectures on characteristics, technical data and uses of newly developed and synthetic materials. Structural systems of steel and concrete. Interior finishes and materials.

Application in detail to current problems. Field trips.

MAJOR GROUP IV (*a* and *b*), Prerequisite, Major Group III.

Advanced Design (*Class A*). Six credit hours each semester.

A continuation of design with the composition of larger plan subjects, involving both utilitarian and imaginative conception. Several collaborative exercises with painting and sculpture. Application of the courses in theory and construction. Criticism by instructors in construction combined with the critics in design. Major and minor problems. Several nine-hour sketch exercises are included within the semester assignment. Research, lectures, group discussions and visits to buildings.

Materials of Construction. One hour credit each semester.

Consideration of structural problems and details, and the calculation of typical and unusual structural forms found in current problems. Lectures, notes and drafting-room criticism.

ARCHITECTURAL PRACTICE. Ten credit hours, first semester.

Prerequisite, Major Group IV.

A transition between the school and practice. A complete correlation of all major subjects with a consideration of the individuality of each student. Realistic problems chosen by the student with faculty approval, solved and executed with respect to completeness in design, construction, finance, superintendence and office administration. This work is to be supplemented with a number of nine-hour sketch exercises. Special competition problems, such as the American Academy in Rome, Paris Prize, etc., may be substituted for regularly scheduled assignments. Field trips.

ARCHITECTURAL PRACTICE AND THESIS. Thirteen credit hours, second semester.

The work of the second semester is a continuation of that outlined for the first semester. The latter part will be devoted to the preparation of a thesis problem. The program will be developed and written by the student but approved by the faculty. This will call for a building of some importance, occupying a real site, and will be fully presented by plans, elevations, sections, detail drawings, and specifications of construction and finish.

The layout of all mechanical installations will be included. As a further evidence of the full understanding of the problem, the student will be required to defend his thesis by an oral examination before all members of the faculty.

Conferences, discussions, field trips.

Theory of Architecture. One credit hour each semester.

Prerequisite, Major Group I.

The primary principles of plan composition and interrelation of their various parts. Program analysis. Exercises in meeting program requirements. Lectures, notes and drawings.

During the second semester consideration will be given to the plan and its relation to space. Composition and elements of façade. Sketch exercises and the correlation of the course in its entirety to the work in design. Lectures, notes.

Theory of Architecture. One credit hour each semester.

Prerequisite, Major Group II, Intermediate Design.

A study of composition and structure and their relation to types of buildings. Sociology in architecture with respect to contemporary problems. Sketch exercises and correlation of the course in its entirety to the work in design. Lectures, notes.

Second Semester

Grand composition and group planning. Study of imaginative and contemporary projects, supplemented by graphic exercises. Lectures, notes.

Freehand Drawing, Elementary. Two credit hours each semester.

Pencil and charcoal drawing from simple architectural casts and models. Concours.

Freehand Drawing, Antique and Life. Two credit hours each semester.
Prerequisite, the above.
Drawing from the antique. Life drawing, Concours.

Freehand Drawing. Water-color. Two credit hours each semester.
Prerequisite, the above.
Outdoor sketches and creative studies. Summer work.

Freehand Drawing. Pencil. Sketches and Creative studies. One credit hour, first semester.
Prerequisite, Freehand Drawing, Elementary and Antique and Life. Summer work.

Modeling. Plastic and Architectural. Two credit hours each semester.
Prerequisite, Freehand Drawing, Elementary and Pencil.
Technique applied to modeling architectural forms. Various methods of constructing models of buildings.

Architectural Graphics. Descriptive Geometry. Three credit hours, first semester.
The principles and theory of all projection drawing, so important to the architectural draftsman, are fully presented by lectures, conferences, drawings and models.

Architectural Graphics. Shades and Shadows, Perspective.
Prerequisite, the above. Three credit hours, second semester.
The first half of the semester is devoted to the study of methods for the rapid and accurate casting of shades and shadows or architectural forms.
The second part of the semester is given to the scientific and practical presentation of the principles of linear perspective, which includes various methods and short cuts. Reflections and shades and shadows in perspective are considered.

Mechanics of Materials. Three credit hours, each semester.
Prerequisite, Mechanics for Architects.
A course showing the application of mathematics and the principles of mechanics in the fundamentals of construction: forces, stresses, resistance of materials, design of beams, girders, columns, etc. The student is required to make graphical and analytical solutions of various problems such as encountered in practice. Text, lectures, recitations.

Second Semester: Advanced problems. Problems applying to theory, design and laboratory tests on steel, cast iron, wood, concrete mixtures, reinforced concrete beams and columns, brick, tile, stone, etc. Lectures, notes, testing laboratory.

Graphic Statics. Trussed Roofs, Arches, etc. Three credit hours each semester.
Prerequisite, the above.
The development and application of the principles of graphic statics to various forms of architectural construction. Beams, trusses, sway bracing, retaining walls, piers, arches, etc., are considered from both the structural and the artistic viewpoint. Practical problems selected from current projects and other sources are solved. Lectures and drafting periods.

Reinforced Concrete. Three credit hours, first semester.
Prerequisite, Mechanics for Architects.
Principles of reinforced concrete. Theory of beams, slabs and columns and application to ordinary structures. Text, lectures, problems.

History of Architecture. Two credit hours each semester.
First Semester: A study of the development of Egyptian, Assyrian, Greek, Roman and Byzantine architecture.

Second Semester: Romanesque and Gothic occupies the entire semester. Lectures (illustrated), notes and research drawings.

History of Architecture. Two credit hours each semester.
Prerequisite, the above.
First Semester: Architecture of the Renaissance and to the beginning of the nineteenth century in Europe.

Second Semester: Nineteenth-century architecture in Europe. Development of Colonial architecture in the United States. Lectures (illustrated), research and drawings.

Nineteenth- and Twentieth-Century Architecture. One credit hour, second semester.
Prerequisite, the above.
A seminar course dealing with the development of American architecture in the nineteenth and twentieth centuries, with a review and discussion of the work of contemporary architects.
Discussion, research.

History of Greek Civilization. Three credit hours, first semester.
Prerequisite, Second-year History of Architecture.
See Greek Archæology 130 (L.A.). This course is to be modified and supplemented for architects.
Lectures (illustrated), research and notebook. Conferences.

History of Ornament. One credit hour each semester.
Prerequisite, Second-year and Third-year History of Architecture.
Classification of man's impulses that inspired ornament, and the forms and processes resulting in basic types. The evolution of these motifs from the primitive to the most modern forms. The purpose of this course is to design and use ornament in an artistic and appropriate manner. Lectures, research, notes, drawings.

Sanitation. One credit hour first semester.
Principles of sanitation in general. Sanitation of buildings. Arrangements of sanitary plumbing and drainage systems. Plans and specifications. Text, lectures, drawings, field trips.

Heating and Ventilation. One credit hour, second semester.
Principles of heating and ventilation and their application to hot air, steam and hot water installations. Air conditioning and modern appliances. Lectures, drawings, field trips.

Illumination and Electrical Installations. Two credit hours, second semester.
Methods of control, light sources, reflection and computation of illumination, and general design illustrated by typical problems. Fundamental electricity, typical apparatus and application in design. Control of electric distribution systems for buildings. Lectures, field trips.

Specifications and Contracts, Superintendence. Two credit hours, second semester.
Specifications and specification writing. Contracts and contract law are duly considered. Specifications for a building are required.
The second half of the semester is devoted to superintendence methods, and visits to buildings under construction. Lectures, conferences, field trips and reports.

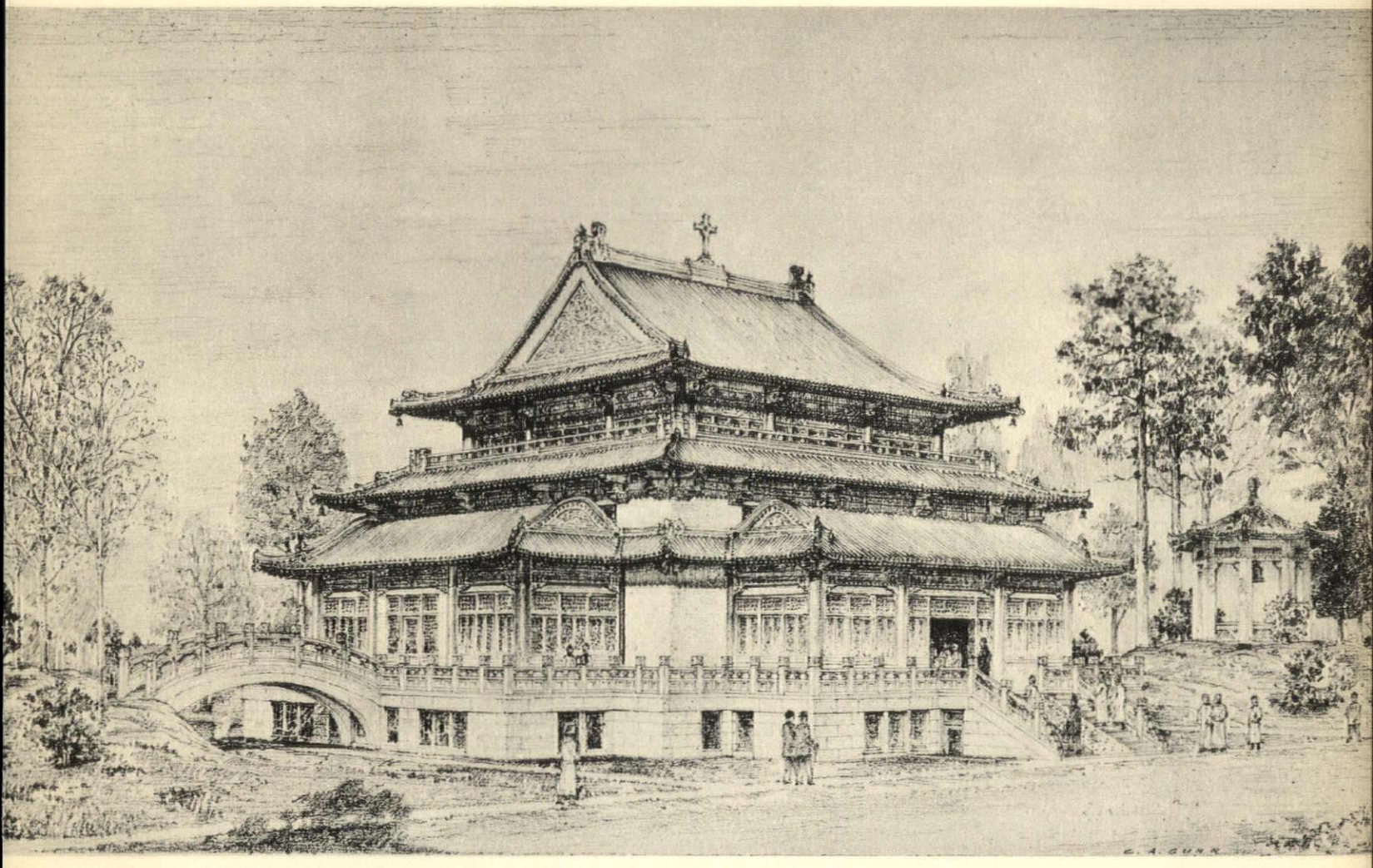
Office Administration. One credit hour each semester.
Prerequisite, the above.
Presentation and discussion of methods of office administration and practices. Professional ethics, competitions, preliminary costs, etc. Special lectures by practicing architects on phases of this subject will be given at intervals. Lectures and notes.

Philosophy of Architecture. One credit hour, first semester.
A seminar course covering the æsthetic, sociological and economic relationships to architecture.
Discussions and research.

Summer Work. Four credit hours.
Students are advised to spend each summer vacation during the course in offices of reputable architects, or in part on construction projects of some importance.
Candidates for graduation must present a certification from employers that they have had office or field experience equivalent to summer vacations (sixteen weeks). Approved research along architectural lines will be accepted as part of the above requirement.

Inspection Trip. No credit.
Several days' faculty-conducted inspection trip to a metropolitan center required of each student registered in Architectural Practice and Thesis.

Courses of Instruction in other Colleges of the University.
Several technical courses, such as Mathematics, Mechanics of Materials, Reinforced Concrete, Heating and Ventilation, are taught in the College of Engineering.
Non-Technical subjects, such as English, French, Sociology, Economics, History and certain electives, are taught in the College of Liberal Arts.
Real Estate and Finance are given in the College of Business Administration.

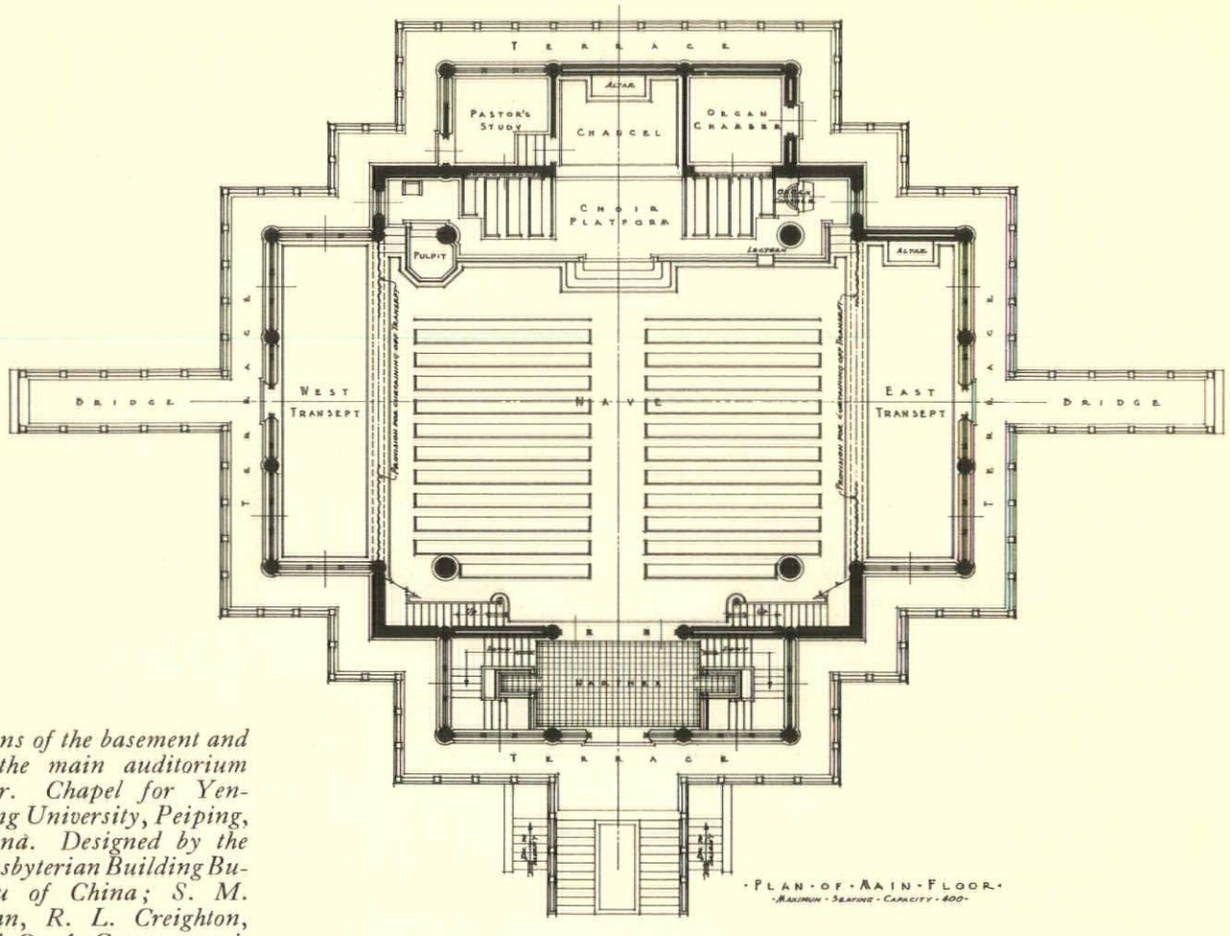


Yenching University at Peiping, China, is about to erect a chapel of which we show a preliminary perspective above and, on the following pages, some of the plans, a section, and a sheet of detail drawings.

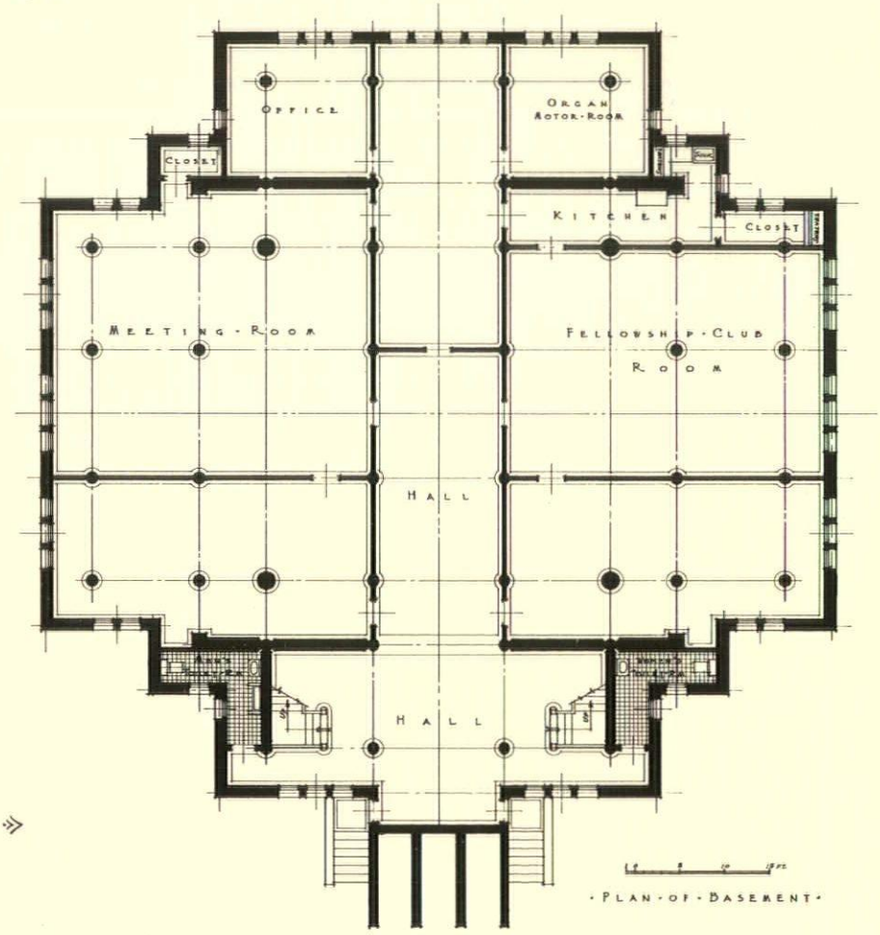
As Christian churches in this style are rare, and moreover, as Western influences in the East usually seek to impose their own ideas of art and architecture upon Eastern peoples, this example is a refreshing exception to the general rule.

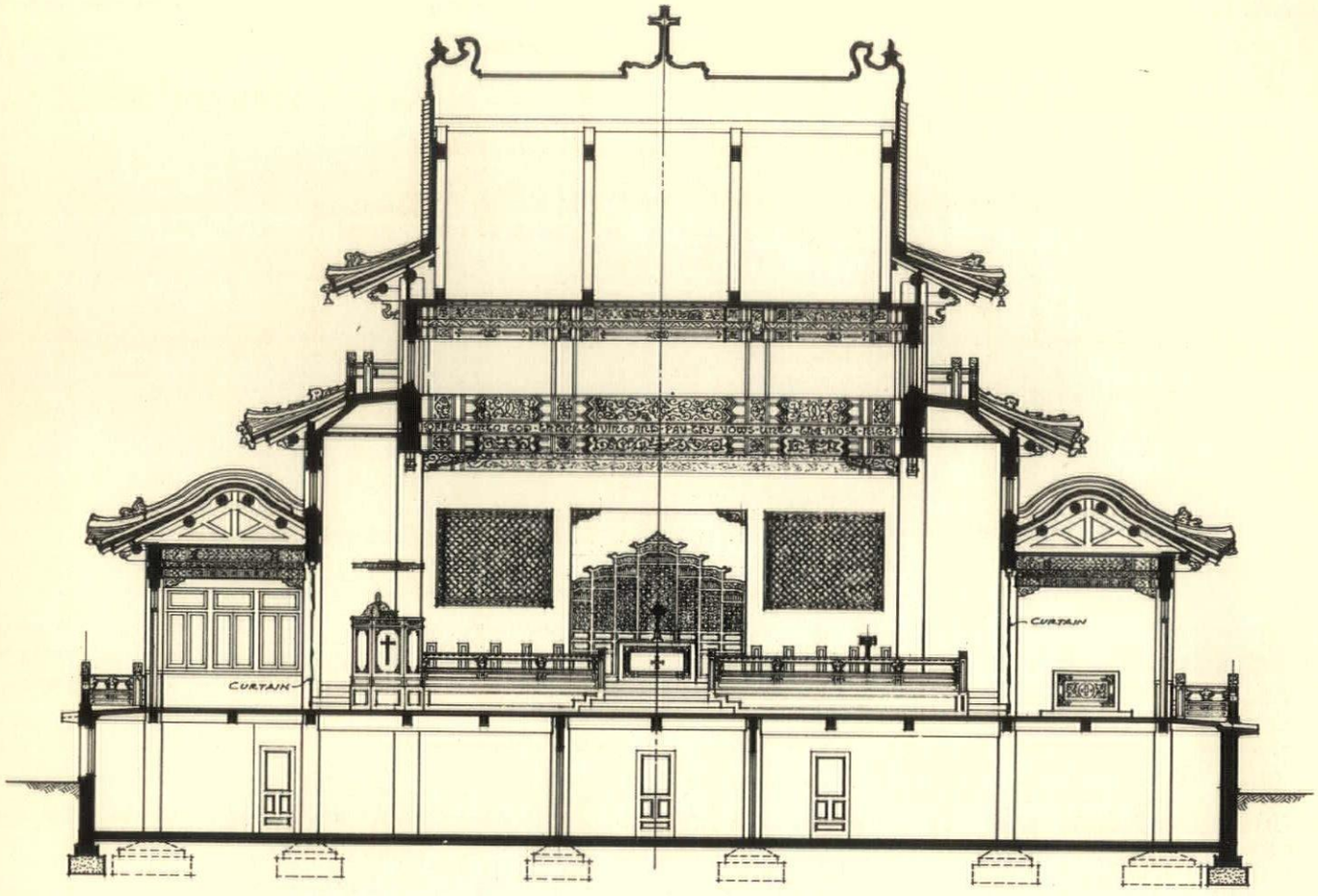
Designed by the Presbyterian Building Bureau of China; S. M. Dean, R. L. Creighton, and C. A. Gunn, associates

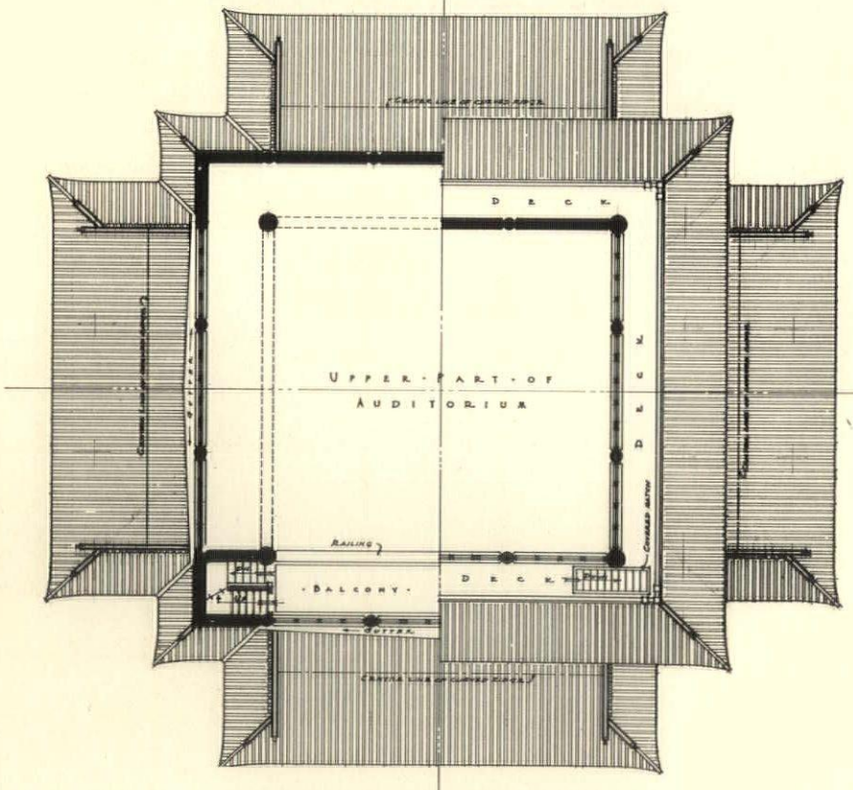
A CHAPEL FOR YENCHING UNIVERSITY PEIPING, CHINA



Plans of the basement and of the main auditorium floor. Chapel for Yenching University, Peiping, China. Designed by the Presbyterian Building Bureau of China; S. M. Dean, R. L. Creighton, and C. A. Gunn, associates

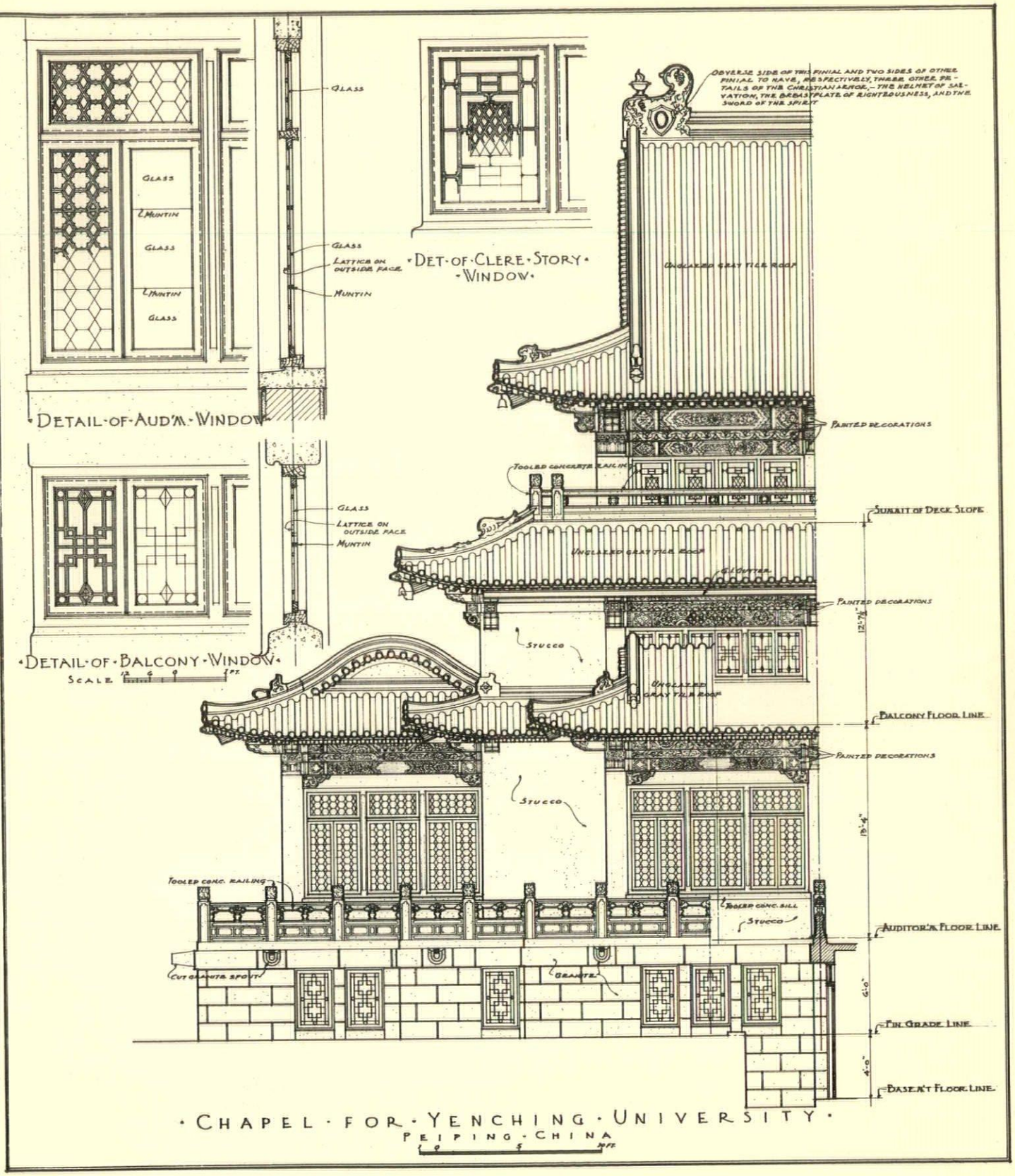






Above, a transverse section; to the left, plan of the balcony and deck levels. Chapel for Yenching University, Peiping, China. Designed by the Presbyterian Building Bureau of China; S. M. Dean, R. L. Creighton, and C. A. Gunn, associates

ONE HALF PLAN AT BALCONY LEVEL · ONE HALF PLAN AT DECK LEVEL



Miscellaneous details. Chapel for Yenching University, Peiping, China. Designed by the Presbyterian Building Bureau of China; S. M. Dean, R. L. Creighton, and C. A. Gunn, associates

RECENT DEVELOPMENTS *in* DWELLING CONSTRUCTION

TECHNICAL REPORT NO. 1, AS PREPARED BY THE TECHNICAL DIVISION, FEDERAL HOUSING ADMINISTRATION

The building industry, particularly in the realm of dwelling construction, is a seething cauldron of experiment and development. What is to come out of the pot, to change our ancient methods, few men have the temerity to predict. Meanwhile, in spite of the old saw— "a watched pot never boils"—architects will want to keep a wary eye out for what may emerge. The Technical Division, FHA, herewith presents a general survey. In the issues immediately to follow we purpose examining, without prejudice and without protagonism, some of the individual systems now aborning.—EDITOR.

THE subject of prefabricated houses is one of the foremost in popular discussion today. Innumerable articles have appeared in the periodicals and newspapers and questions about prefabricated construction have been pouring into this Administration. It would appear that an impression is being made in the public mind that the problem of building better houses at a lower cost, and with great ease and rapidity, has been solved or is about to be solved by the prefabricated house and that the mass production of such houses is a new industry with all the possibilities of, for example, the automobile industry.

It is true that, during the period of inactivity which for the past four years has encompassed the construction industry, the industry itself has not been asleep. The period has been characterized by a wide interest in the technical problems arising from the design and construction of houses. This interest has taken its impetus from a recognition of the facts that new dwellings have in the past been built only for a very limited class, and that under existing methods of construction and of industrial organization it is not likely that this limited market can be greatly extended.

Recognizing that a marked lowering of dwelling costs or a radical change in accepted materials and design would have an influence upon the level of value of existing property and upon the rate of obsolescence of existing dwellings, the Technical Division of the Federal Housing Administration has undertaken to accumulate information concerning new developments in dwelling construction. It has sent a questionnaire to all known experimenters and manufacturers of new housing. It has gone over a large amount of material brought forth by this questionnaire and obtained from other sources, and it has, where possible, conducted personal inspections. In its work it has received assistance from the National Bureau of Standards and the Bureau of Foreign and Domestic Commerce, both of the Department of Commerce; the Forest Products Laboratory, of the Department of Agriculture; the Tennessee Valley Authority; Albert Farwell Bemis; the Pierce Foundation; the Portland Cement Association, and others who have been making studies along these lines, which assistance it wishes gratefully to acknowledge.

This report presents the following:

1. The approach which is being made to the problem of better construction at lowered costs, and an evaluation of the work which has been done, together with tentative conclusions as to its probable effect on the dwelling market.

2. Brief descriptions of the different methods and materials of construction which are being tried out, together with lists of the individuals and concerns who have been engaged in such work. This includes some methods developed and used in Europe.

While every effort has been made to make this report comprehensive, the widespread experimentation now taking place, together with the secrecy with which it is frequently characterized, makes any assurances on this score impossible. The same reservations must be made for any conclusions drawn from the data, since there is no way to gauge either the rate at which developments may proceed or the degree of popular acceptance that may be gained for them. Although the opinions stated are based upon the best engineering judgment that may be applied to the situation as it stands at present, no permanent quality can be claimed for them. Subsequent reports may present opinions of a contrary nature.

The New Approach

For centuries houses have been built of wood, brick, stone, mortar, and plaster. The wood, brick, and stone have been brought to the site of the building operation in comparatively small sizes and there cut and trimmed by hand to fit the requirements of the particular building and then put together piece by piece—studding, beams, sheathing, siding, bricks, lath, and plaster—usually by hand. The newer mechanical work has followed a similar procedure.

This has necessitated the employment at the site of a large amount of hand labor, much of it skilled and highly specialized. For the specialist, the amount of work on a single job is limited. To avoid having idle men on the pay roll, the employment period has been the hour or day, men being laid off as soon as their services are not needed. This has resulted in a large amount of idle and unpaid-for time and, to compensate for this, an hourly or daily wage high in proportion to that paid in other lines of work.

The attack on the problem of building better and more cheaply is being made on four fronts: purchasing materials and equipment in larger quantities from fewer sources; factory fabrication of larger units and units combining more than one purpose so as to lessen the work of assembly and erection on the job site; the use of materials supposedly better suited to their function and to factory fabrication; and employment of labor by the week instead of by the hour with a lower hourly wage in return for steadier employment. It is with the development of factory fabrication and with the materials and methods of assembly used in such fabrication that this report is concerned.

Factory Fabrication or Ready-to-Erect Construction

To take advantage of the spread between wholesale and retail prices, a new middleman is appearing in the field. This new middleman is really a manufacturer of houses. He employs architects and engineers to design his houses, to study available materials and work out new methods of assembling them. He contracts in advance, usually directly, with manufacturers for his anticipated material and equipment requirements, based on his decisions to use certain materials and equipment in certain ways to produce a definite product. He then offers for sale, not his services as do architects and contractors, not a piece of property consisting of house and land as do operative builders, but a house more or less complete and with varying degrees of standardization, which in a sense is a trade-marked product, and which is ready to erect on land owned by the purchaser. Erection may be handled by the manufacturer through local representatives, perhaps using their own erection crews, with local subcontractors for foundations and mechanical work, or the purchaser may make his own arrangements for erection.

Only a few concerns have adopted the practice of marketing a complete housing assembly. Many new types of structural enclosures and new methods of building them, however, have been prepared for commercial production.

The phrase "ready-to-erect" is used to define the practice of ordering by plan a structural enclosure or a complete house, with delivery made by one concern of all parts ready to fit into their proper places without the usual cutting and trimming. In this report, ready-to-erect construction has been considered as either "Complete Housing Assemblies" which include heating, plumbing, and electrical piping and equipment, or "Structural Enclosures" in which the mechanical equipment and materials, and sometimes the interior finish, is supplied by the purchaser.

The factory-fabricated house—or as it is often called, the prefabricated house—is a misnomer. Our transportation facilities do not provide for the economical delivery, from factory to site, of a completed house.

In the usually accepted meaning of the words, the structure of the prefabricated house is made in the factory in large panels, which are assembled and fastened into place on the site without the usual hand work of cutting, fitting, and fastening together a number of pieces of wood, laying brick on brick, and mixing and spreading mortar and plaster.

The purposes of prefabrication are to transfer to the factory as much as possible of the work of putting together a house, to reduce the time needed for its erection, and so through the greater efficiencies of mass factory production to utilize power and machines, concentrated planning and purchasing, and the reduction of waste, to effect economies which will reduce the cost of construction. To what extent this aim has been attained and what may be expected from the development of this new technique in building construction, it is the purpose of this article to examine.

All building in this country today, with the exception of adobe or rammed earth structures, is done with factory fabricated units. Some of these units are as small as a nail or a grain of cement. The new technique calls for panels as large as can be conveniently and economically transported and handled and as will permit the advantages of standardization and interchangeability. These have reached the size of an entire side of a house but are usually of a size which is more easily handled.

Prospects for Prefabrication

A study of the many new methods of construction and assembly, and of the materials used in them, leads the Technical Division to the following conclusions:

The present is definitely a period of experiment. Urged on by the desire to be ready to meet the anticipated demand for new homes, manufacturers are almost daily putting out new forms of materials and new methods of using them. These are still in the exploratory stage. Experience records in their use are so limited that it is too early to tell which have definite merit and will result in the hoped-for better construction and lowered costs.

The newer techniques in building construction have not yet resulted in lowered costs, and an immediate lowering of cost is not to be anticipated. Comparative cost studies made between quoted prices for ready-to-erect houses and houses built in the usual way, equivalent in size, plan, durability, fire resistivity, insulation, and quality of finish and equipment, show no cases where the ready-to-erect construction has resulted in a saving in total cost. In almost every case such construction has been more costly and, compared with wood frame construction, it has usually been appreciably more expensive.

The higher cost limits sales to those few who are attracted to this type of construction, and who do not know or do not mind that the cost is higher.

There are many obstacles in the way of obtaining the mass production on which most of these methods base their hopes for lowered costs. The immediate demand is small and it is difficult to gauge the coming market. This limits volume of manufacture and the planning of production is almost impossible.

In this country the public has been slow to favor the modern International style of architecture so largely used in the newer construction. The materials and large panels of this construction lend themselves readily to this style of architecture and designers have favored it, believing that the public will accept it. Stimulated by the example of the recent Chicago "Century of Progress," people have become interested in modern design and it seems reasonable to believe that it will gradually obtain the widespread favor which it has obtained in Europe. The complaint against standardization is unfounded—as evidenced by examples of skillful treatment—and fairly pointless when the dreary monotony of our low-priced subdivisions is considered. Still this feeling tends to defer widespread public acceptance. The question of modern architectural design has been treated at greater length in Technical Report No. 2, entitled "Modern Design."

Since, in its ultimate development, the assembly of all the parts of the factory-fabricated house above the foundations could be handled by a few skilled mechanics, it is evident that craft distinctions now existing in the building trades would be broken down and that many of the men now engaged in building construction would have to look to the factories for employment. The labor organizations in the building trades are fighting hard to prevent the introduction of methods which will reduce the amount of job labor.

This attitude is in many ways retarding the introduction of factory-fabricated units.

Building in urban localities has varying and often rigid building codes. In many places building codes and building officials are slow to recognize new materials and methods of construction. The introduction of any revolutionary development in building construction must await considerable code revision.

Thus faced with a fourfold handicap of high cost, unfamiliar appearance, labor opposition, and unfavorable building codes, the widespread adoption of considerable changes in our methods of constructing dwellings is not to be immediately anticipated. Such obstacles, however, may not be insurmountable, and the apparently ample capital available for experiment and the increasing ingenuity being displayed by inventors leave little doubt that the effort to overcome them will be vigorously pursued.

The handicap of cost is the most critical. If a method were devised which would result in the construction of houses at appreciably lower cost than at present, public acceptance would doubtless be forthcoming in spite of the tendency to cling to the familiar, and the resistance due to craft practice and building codes would gradually be broken down. While, as has been said, this prospect does not seem to be immediate, the advantages of rapid erection, flexibility, convenience, comfort, and low maintenance which several of the new systems seem to offer, will probably, in the meantime, create a slowly expanding market.

In considering the possible reductions in costs which might be obtained through the development of ready-to-erect construction, the following figures showing the approximate distribution of costs will be helpful. The selling price of the average new home is made up of the costs of land, its improvements, and the utilities which serve the building, the construction cost of the building, financing and selling expenses, and profits. Of this total, the construction cost of the building is about 70 per cent, divided into 50 per cent for the structure and its finishes and 20 per cent for equipment and accessories. Only about 25 per cent of the total selling price goes to direct labor on the job.

The reduction in cost to be anticipated from the use of factory-fabricated methods must largely be found in savings in the labor of erecting the structural enclosure. This saving, together with additional economies, which may be made through efficient and concentrated management and purchase of materials, may reduce the total selling price in the neighborhood of 15 per cent. Such savings would, however, at the present stage of development, seem to be offset by unfamiliarity of labor and management with this type of construction, the higher cost of the materials used, the tendency to increase equipment and accessories, and the distribution of overhead expenses over a very limited production.

In the present inconclusive stage of development, only a few months' time may make a considerable difference in the prospect. The situation is, therefore, one which merits close and continued attention.

Materials and Methods of Construction

Steel and Other Metals

Light structural shapes, for use in dwellings and other low buildings where great strength is not required, are being developed and put on the market by the manufacturers of structural steel.

Built-up framing members such as bar joists have been in use for some time for floor construction. Similar members have been brought out for walls and roof rafters.

Strip-steel framing members of around 12 gauge to 16 gauge are obtaining increasing use. These are light in weight, easy to handle, and can sometimes be nailed into with a special nail designed for this purpose.

Strip-steel frames used in wall construction are made by welding together in the shop, framing and bracing members to form rectangular frames which, when bolted together on the job, act as wall framing.

Framing of tubular steel members, which has been tried in Europe, is beginning to receive some attention in this country. This type of construction has been in common use here for scaffolding.

In frameless steel construction, panels are shop-fabricated of a series of cells, or of large sheets with the vertical edges bent inwardly, usually called pans.

Cellular panels have been used for some time for sub-floors usually laid over structural steel framing in large buildings. These have now been adapted for bearing wall construction and for floors, so that no framing is required. Panels of sizes to fit any plans may be made by welding the cells together in the shop.

The pans—or plates with the edges bent inwardly—are usually so made and fastened together as to form structural units for bearing walls. They are sometimes used for sloping roofs or as forms for reinforced concrete floors.

In frameless steel construction, the steel is sometimes used as the exterior or interior surface, finished except for painting; or any desired material may be used over the steel, such as brick, stucco or plaster on lath, etc.

Sheets of various metals, such as steel, copper, and aluminum, are used for exterior and interior surfaces. These are secured to steel or wood framing.

Steel must be painted to protect it against corrosion. Protection as well as decoration is sometimes obtained by an enamel finish baked on to steel plates.

Metal walls and roofs should be backed with insulating materials to retard heat conductance.

A large number of houses have been built in Europe with steel pans and with steel frames and sheets. The sheets and pans have usually been of heavier gauges than used here.

A good many houses have been built using structural and strip-steel frames. Only those which depart in some way from ordinary framing methods have been listed here.

Aluminaire House, Syosset, Long Island. Exterior walls of ribbed aluminum sheets secured to steel frame. One house built at Syosset, Long Island, N. Y. Experimental.

American Houses, 480 Lexington

Avenue, New York City. Steel frame of specially shaped studs and trussed floor joists. Exterior walls between studs are panels of insulating material covered both sides with asbestos cement. Sub-floors and partitions are of gypsum plank. This concern markets and erects a complete housing assembly and has built over forty houses.

Bemis Industries, Inc., 40 Central Street, Boston, Mass. Experiments with steel construction of various kinds.

Berger Manufacturing Company, Division of Republic Steel Corp., Canton, Ohio. Rectangular strip-steel wall frame units of 16-gauge channels and bracing welded together, and strip-steel channel floor joists. Two houses built near Washington, D. C.

Columbian Steel Tank Company, 1401 West 12th Street, Kansas City, Mo. Structural enclosure with 18-gauge galvanized steel pan walls, strip-steel frames for partitions, and floors and roof of ordinary wood frame construction.

Copper Houses, Inc., 10 East 40th Street, New York City. Structural steel frame. Exterior walls and roof covered with copper sheets. Two houses built near Washington, D. C.

Corkanstele, 270 Madison Avenue, New York City. Structural enclosure with a structural steel frame covered on the exterior with an insulating sheathing of cork slabs; subflooring of a precast slab of concrete with a cork aggregate and partitions of the same material. A number of such houses have been built.

General Houses, Inc., 220 South State Street, Chicago, Ill. Structural enclosure with 14-gauge steel pan walls, carrying load and acting as exterior finish. Steel floor and roof joists. Complete housing assembly furnished with interior finishes. About a dozen houses built. Also experimenting with a house having a steel frame of specially shaped steel studs and 16-gauge steel roof joists, with wall and roof panels composed of two sheets of plywood glued to a light wood frame with insulation contained between plywood sheets. This concern markets and erects a complete housing assembly.

Housing Company, 40 Central Street, Boston, Mass. (See Bemis Industries, Inc.)

Houses, Inc., 480 Lexington Avenue, New York City. A holding and financing organization to promote the use of General Electric equipment. Now behind American Houses, Inc.

Insulated Steel Construction Co., Crawford Street, Middletown, Ohio. Structural enclosure of panels made of 19-gauge rectangular steel cells. Steel may or may not be left exposed as wall surface. Several houses built by this method.

Edwin M. Lurie, Metal Lath Manufacturers Assoc., 208 South LaSalle Street, Chicago, Ill. Structural enclosure having a structural steel frame; inner and outer wall surfaces formed with furring channels and metal lath to receive stucco and plaster; metal lath and plaster ceilings, ribbed lath and concrete subfloors.

Martin-Parry Corporation, York, Pa. Structural frame of strip-steel members which slide together and are secured by clips, eliminating bolts. Interior finish secured by special mouldings.

McKay Engineering Company, Builders Exchange Building, Cleveland, Ohio. A standard structural steel frame enclosed within double walls of any standard materials. Attached by special clips.

National Houses, Inc., Grand Central Palace, New York City. Structural enclosure of 14-gauge steel pan walls; steel frame partitions, steel joists for floors and trusses for roof.

Palmer Steel Buildings, Inc., Los Angeles, Calif. Sales and engineering service for structural enclosure of Robertson Keystone cellular steel panels. One or two such houses built in Los Angeles.

Reynolds Corporation, 19 Rector Street, New York City. Framing members of galvanized strip steel in hollow shapes filled with a cement composition to hold nails. "Ecod Fabric"—a wire lath combined with paper which is sometimes backed with aluminum foil, is also put out by this company as a backing for stucco, brick veneer, and plaster, and recommended by them for use with this frame. They propose to furnish specifications for a complete housing assembly and to arrange for mortgage money.

H. H. Robertson Company, Grant Building, Pittsburgh, Pa. Panels of keystone-shaped steel cells which can be used for wall and floor construction. In use for sub-flooring for some years.

Soulé Steel Company, 1750 Army Street, San Francisco, Calif. Rectangular steel wall frame units of pressed steel studs welded to transverse steel members. Trussed steel floor joists.

Steel Housing Corporation, 134 North LaSalle Street, Chicago, Ill. Structural enclosure with walls of special strip-steel shapes holding steel plates in three layers with air spaces between; partitions similar with two plates; floors of "I" beams, plates and pans. Panel heating by warm air circulating in hollow walls and floor construction, wall and ceiling plates acting as radiators.

Steelasco System (R. F. Berryman), Orlando, Fla. 28-gauge steel sheets for walls, sub-floors, and roof, on wood framing; sheets are covered with bituminous protective coating.

Steelox Company, 59 West Austin Avenue, Chicago, Ill. Walls and sloping roof of 20-gauge galvanized iron interlocking pans. Material for complete housing assembly is furnished. One house at Middletown, Ohio.

Stran-Steel Corporation, 6100 McGraw Avenue, Detroit, Mich. Strip-steel framing members, usually channels, with webs crimped and spaced slightly apart to receive nails.

Structo, Inc., 1015 East 63d Street, Kansas City, Mo. Structural enclosure of 14-gauge steel pan walls; steel frame partitions, steel floor joists and roof trusses.

Walter H. Stulen, Carnegie Institute of Technology, Pittsburgh, Pa. Structural frame of specially cut strip-steel units welded to light steel channels. Experimental.

C. L. Van Ness, Akron, Ohio. Tubular steel wall columns and 14-gauge strip-steel channel floor joists. Inner and outer walls, floors, and ceilings of 20-gauge steel pans. Hollow wall and floor construction used for air ducts and as radiating surface. Experimental.

Variplan, S. S. & G. H. Godley, 307 East Fourth Street, Cincinnati, Ohio. A complete housing assembly using a steel frame and steel sheets for exterior finish.

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This Report continues next month with a consideration of detailed efforts in houses of Wood, Concrete, Gypsum and Other Plastics, Reinforced Brick, with a brief glance at Foreign Practice.—EDITOR.

The Editor's Diary

Monday, September 2.—Most of the larger architectural offices have their own systems of symbols for the indication of various materials and other elements on working drawings. Possibly no two of them, however, have the same system. What then are the instructors in the architectural schools to teach the students in mechanical drawing classes? If this is something of a problem in the architectural schools, it is perhaps more in machine design, and the engineering courses. However, Dean Franklin DeR. Furman, of Stevens Institute of Technology, chairman of a committee appointed by the American Standards Association, has endeavored to compile a graphical dictionary of drawings. There are sub-committees on Specifications for Paper and Cloth, Methods of Indicating Dimensions, Lettering, Drawing Layout, Line Work, and Graphical Symbols, so perhaps we shall soon all be working under a uniform system of graphical representation.

Wednesday, September 4.—Artificial lighting must have made tremendous strides in widespread acceptance during the last generation. The citizen of the United States uses slightly more than five lamp bulbs per year, with Denmark the next most enlightened nation, using about 1.75 lamp bulbs per person per year. Most of the European countries use about 1.5 lamps per person.

Thursday, September 5. — Lunched with Albert C. Schweizer, who is helping to produce architects at New York University. We were discussing some new evidence of the fact that architecture is the mother of all the arts. Students who intend to follow some specialized branch of industrial design are coming, Professor Schweizer tells me, in increasing numbers to take the architectural course. He mentioned two instances of photographers who intend to specialize in architectural photography, and who are acquiring, as a foundation, a training in architecture. After all, when you come to think of it, the architectural student is the only one who is taught the fundamental bases of design. One might go to an industrial or vocational school, and learn something about textiles, metal working, and what not, but without acquiring the broad foundation that forms the basis of architecture. In a word, the architectural schools ought to be turning out not only the men who will practice architecture, but the industrial designers in all branches.

Saturday, September 7.—There is a new building for the Kress stores going up on Fifth Avenue on the site of the old Wendell mansion. Curiously enough, the layman seems to be getting more architecture-conscious, for a number of observing men have asked me why it is that there are so few windows in the building. Obviously, we are rapidly moving into a period when the stores will place less and less dependence upon daylight, and more upon artificial lighting. With the rapid improvement made recently in combining the blue-green mercury vapor light with the yellowish tungsten-filament light, an approximation of daylight seems easily available at low cost. Of course, it is far more dependable than daylight, particularly in portions of the store more distant from the windows, and moreover does not vary with the hours of the day or weather conditions. In fact, with the aid of light-regulating equipment, this artificial light may be increased or decreased as the daylight fades or grows, so as to preserve a level degree of illumination at all times.

Monday, September 9.—Even if we are not building a great deal of low-cost housing these days, we are learning some pertinent facts. Some of these appear in a recent report of the New York State Housing Board. The Board has had under its supervision during the past year eleven low-cost housing projects on which cost figures have been carefully kept. These show that maintenance costs alone average $3.70 per room per month—the cost of water, fuel, electricity, janitor service, and other necessary operating expenses aside from interest and taxes.

On an average construction cost of, say, $1200 per room, interest and amortization together at 5 per cent would add another $5 to our fixed charges, and there is still to be reckoned in the cost of land and taxes. All of which makes the goal of low-cost housing for the lower income groups seem very far away.

Wednesday, September 11.—Air conditioning is coming along in the world, now having been made the subject of a university course at Columbia. It is beginning very modestly with two evening sessions a week in the Department of Architecture. John Everetts, Jr., will direct the study of air mixtures, refrigerating equipment, and other elements of the new science.

Friday, September 13.—After months of talk, the Mayor of New York City has put upon a new basis the distribution of architectural commissions for municipal works. It seems to be the dawn of a new day. Heretofore, architectural commissions for schools and other public buildings have been distributed with at least a suggestion of political favoritism. There have been those who have advocated the adoption of the principle that all public works should be the subject of competition. There are others who feel no less strongly that competition is a slow and wasteful method of selection. What the Mayor of New York has done is to ask the various professional societies each to collaborate in a jury of three outstanding architects who themselves would be *hors concours*, and who would select an approved list of fifty outstanding architects who, by experience and ability, are best qualified to design and build the city's architectural work. The jury is not to bestow individual commissions—that will be done by the various heads of departments involved, with the Mayor's approval, limiting the choice to names upon the approved list. Each year, it is proposed that the list be brought up to date by additions and deletions to keep it representative. The jury of three selected by the various professional societies consists of I. N. Phelps Stokes, Ralph Walker, and Kenneth Murchison, with William A. Sanders as alternate. The jury is about to start its work by sending a questionnaire to all registered architects in the city on the basis of which replies they hope to draw up the list of fifty approved architects.

Saturday, September 14.—One hears too little these days among the architects of opportunities developed under the National Housing Act and its "loans up to $50,000." There was plenty of talk in the early days of the National Housing Act, when the amount of credit available was limited to $2,000 for modernization. Now that it has been raised to $50,000, opening the door to a wide field of opportunity for the architect, one would have expected more of a fanfare. The number of instances in which money could profitably be used today for remodelling apartments, stores, hotels, and the like, is beyond count or even estimate. As Andrew J. Eken pointed out in the October ARCHITECTURE's installment of "Rebuild America," it will soon be widely recognized by the public that most of its more expensive apartment buildings are obsolete in that they do not provide the amenities afforded by even our low-cost housing projects of today. There is an opportunity here for the architect, and a duty devolving upon him to reverse the march of obsolescence for clients present or prospective, and one way to do it is afforded through the National Housing Act.

Monday, September 16.—Time is a commodity with which we are coming to deal rather efficiently, it would seem. Leaving the office in New York at five o'clock, I dined with Pierre Blouke and

Donald H. McNeal in Washington at six-thirty. The apparent impossibility of this is due to the combination of plane and the gain of an hour between the daylight system here and the standard time of Washington. Both of these men are with the Home Owners' Loan Corporation, having to do with the reconditioning of homes, chiefly, of course, of small size. It is difficult to visualize the extent of operations of this kind, amounting at the present time to three hundred thousand separate projects scattered from coast to coast and from Canada to the Gulf.

Tuesday, September 17.—The Cosmos Club at luncheon time today seemed almost like the headquarters of an A. I. A. convention. Lorimer Rich, Thomas Ellett, William Dewey Foster, Wesley S. Bessell, Eric Kebbon, Edwin Bateman Morris, and I were joined by Dean Cornwell, who had just brought down from New York his competition sketches for the new Post Office Building murals. At an adjoining table was Frederick V. Murphy entertaining Frederic Hirons of New York.

I wish Major Gilmore D. Clarke, the landscape member of the Fine Arts Commission, would get together with Harry Hopkins to put some of the nation's spare labor at the job of at least keeping the grass trimmed around the bases of our public buildings in Washington. We have spent many millions on the new buildings in the Triangle, but in front of Mr. Farley's new post-office there is a hay field, and along Constitution Avenue, what should be grass plots are, for the most part, hard-packed clay that would do no credit to the slums. In striking contrast is the superb condition of the planting about the Folger Library.

Wednesday, September 18.—I went up to the Capitol this afternoon to refresh my memory of the much discussed hangover of the dome above the east portal. Excepting for an encounter with a large Capitol rat under the front steps, the visit was uneventful, and merely strengthened my impression that this so-called æsthetic defect of the dome must be diligently sought out before it becomes visible.

Although I sincerely hope that nothing will be done to change the exterior of the Capitol, I found myself decidedly lukewarm about the interior. So far as my vote is concerned, Statuary Hall could have a lot of things done to it without hurting my respect for tradition and the value of early associations.

Thursday, September 19.—There seems to be just a suggestion of a lull in the visitors' activities in Building F—the place where the guest architects do their designing for the Procurement Division. It is probably just as well that there is this partial lull in the storm, for these men have each been turning out post-offices at the rate, I should say, of six or eight a year, which is a lot of post-offices for one man to design in that time. Back to New York by plane before noon.

Friday, September 20.—Up to the Park Department's architectural and engineering offices to select, with Aymar Embury and Joseph Hautman, some details of the Prospect Park Zoo. The Department's offices are in a large loft building, with three or four large floors filled to overflowing with architectural engineers and landscape men. It was reminiscent of a glimpse through one of our largest architectural offices in the far distant 1929, to see sixty or seventy-five men busily engaged, table to table. And the Park work that is being turned out by this organization under Robert Moses, with Aymar Embury and Gilmore D. Clarke as the designing heads, is of a very high standard indeed.

Saturday, September 21.—The Real Property Inventory made some months ago reveals a number of startling facts. For instance, of the 23,000,000 dwellings in this country that are not farm houses, 17 per cent are structurally unsafe; 13 per cent have no toilets whatever; 20 per cent have no bathing facilities; 15 per cent are being used in an overcrowded condition. Nor can the farm houses show any encouraging signs of progress in the art of living, for of the 6,000,000 farm homes, hardly 10 per cent measure up to what has been set as a minimum standard of health and decency. Who will say that there is not work for the architect ahead of us?

Monday, September 23.—Fifth Avenue is in part agog today over the so-called invisible glass display windows just installed in Marcus & Company's jewelry store. An Englishman named Pollard devised this ingenious scheme for doing away with reflections from the outside. Of course, the same effect has been attempted through the scheme of making the inside lighting of a window stronger than the outside lighting, which, however, is somewhat difficult when one is competing with bright sunlight.

Wednesday, September 25.—Lunched with Julian Levi, recently back from Paris filled with enthusiasm over the prospects of the exposition in 1937. World fairs are apparently going to be very much with us for some time to come—San Diego this year; 1937, Paris; 1938, San Francisco; 1939, New York City; 1940, Tokyo.

The press and a few other invited guests were privileged to see the new Hayden Planetarium in action late this afternoon. Introduced by F. Trubee Davison, who is president of the American Museum of Natural History, Admiral Byrd whirled us around the globe to the South Pole to show us how the heavens would look from that viewpoint, then to the North Pole, and finally back to our own more insignificant point of longitude. The planets marched across the heavens, speeded up so that their paths would be more easily visible to our eyes. The moon marched by in its various phases. A famous comet appeared and disappeared, reproducing for us its wanderings near the earth some seventy-five years ago. The building, which consists chiefly of a hemispherical dome seventy-five feet in diameter, was designed by Trowbridge & Livingston, and we hope to show, before long, some of the details in these pages.

Thursday, September 26.—A newspaper report from Castel Gandolfo today quotes Pope Pius as expressing his public disapproval of modern architecture for Catholic churches. In receiving the French delegates to the International Architects' Congress, the Pontiff told them that their art should "glorify the church," adding that "unfortunately" modern architecture does not meet the requirements of religion.

Friday, September 27.—Dropped into York & Sawyer's office this afternoon to find six or eight of Samuel Yellin's "sketches" on the library table. In setting about the creation of a grille, let us say, Yellin does not start with a drawing. He starts with a bar of iron and an anvil and a hammer. Having worked out to his satisfaction some simple motif for crossing two bars, he sends this to the drafting-room and has it drawn as a repeat, to see what it looks like in a field. Then back to the forge for changes in scale, spacing, texture, or what not—or perhaps the thing is discarded entirely.

These "sketches" then, are panels perhaps 12 by 18 inches in size, each showing an entirely new and beautiful way of crossing iron bars in a decorative pattern. One would think that the crossing of two iron bars permitted of no great variety of treatment, and that the beautiful work that has come down to us from Italian, Spanish, English, and French sources would have about exhausted the possibilities. One has only to see these sketches of Yellin's to realize that such is not the case, that the field of possibilities in this rather restricted phase of design has only been scraped on the surface.

Monday, September 30.—Timothy L. Pflueger in from San Francisco on one of his frequent pilgrimages east to find out what is going on. I told him he must be sure to see the Triborough Bridge in progress, the details of which would interest him particularly, since he has been working on the bridge at the other side of the Continent, spanning San Francisco Bay.

House of H. W. Lowe

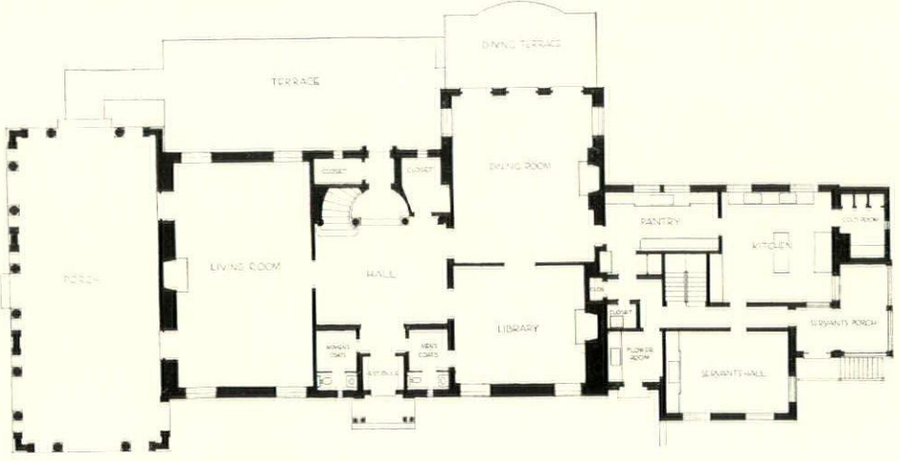
Wheatley Hills, N. Y.

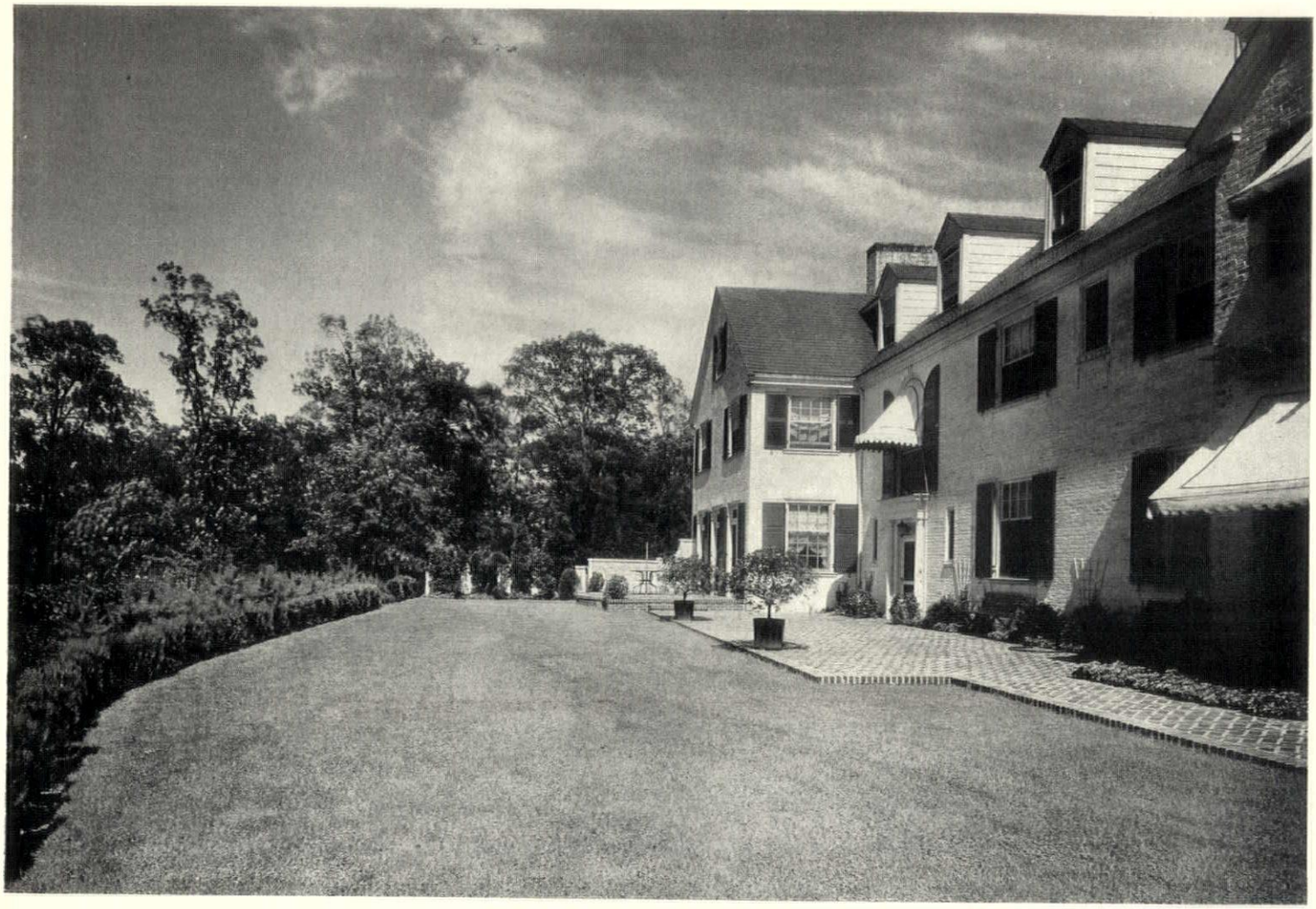
OFFICE OF JOHN RUSSELL POPE,
ARCHITECT

The house stands upon a high point commanding a view over its gardens to rolling hills, woods, and pasture land

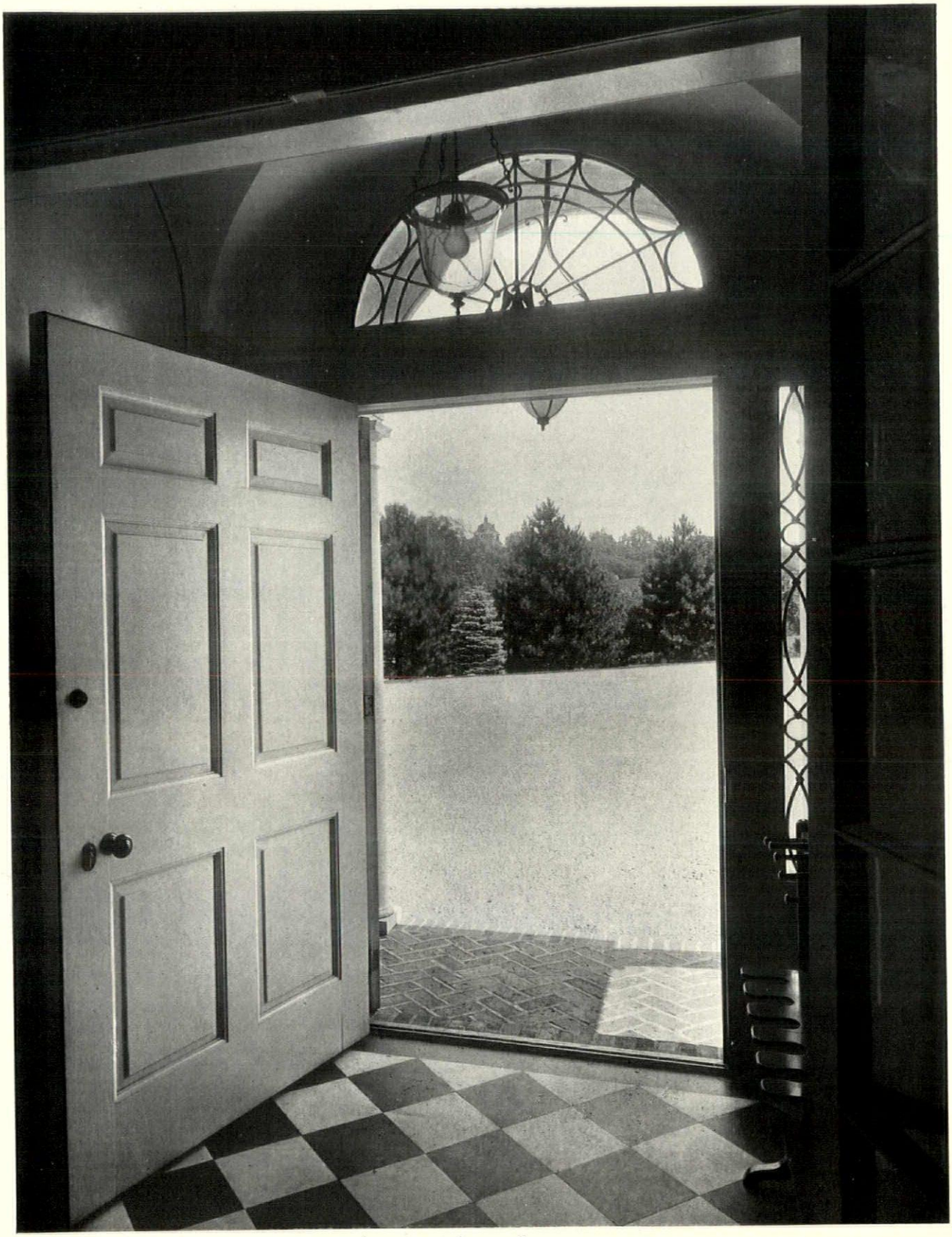
Photographs by Robert M. Glasgow

The house is built of common brick painted white. Shutters are green; awnings, white with a green stripe. Above, the photograph shows the entrance front, facing a large motor court at the end of the entrance driveway. At the far end, a brick wall screens the service court at a lower level





A brick-paved terrace extends almost the whole length of one side of the house, connecting the porch with the dining terrace at a slightly higher level, at the far end. The roof is of slate; dormers have clapboarded sides



Looking out of the entrance door upon the small brick-paved porch and the motor court. Outside trim is white. Side-lights and fanlight are leaded. The floor of the vestibule is black and white marble

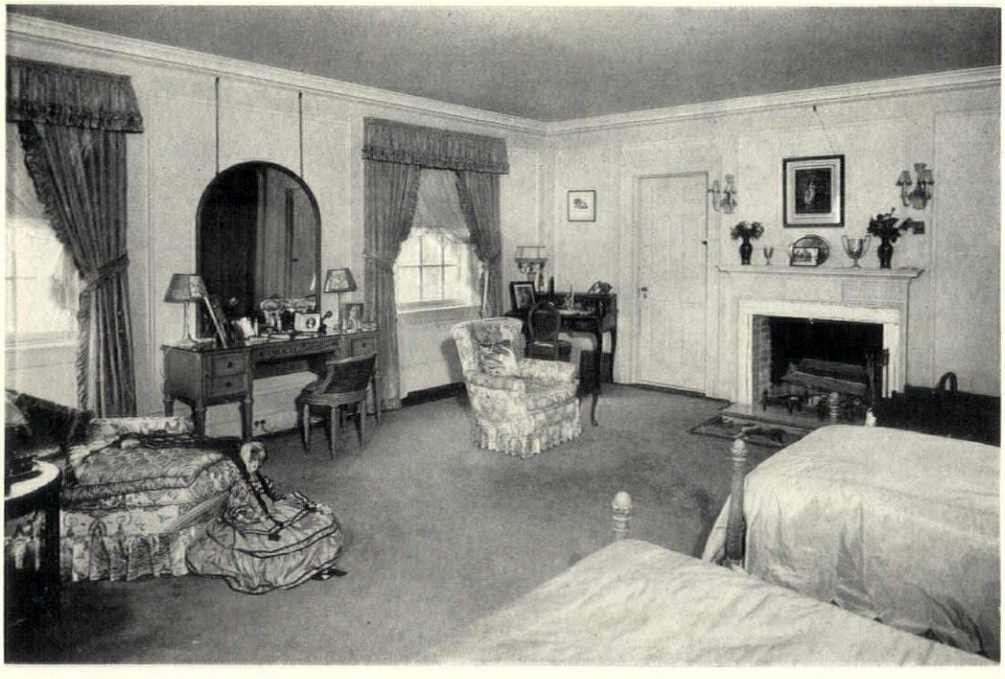
The hall. Woodwork is white, shaded towards cream, with a mahogany hand-rail on the stairs. Floors are of oak stained rather dark

The great porch is, as will be seen by the plan on page 278, a dominating feature of the house. Summer rugs and wicker furniture in its natural color make it an outdoor living-room

Fireplace side of the living-room. Here again the woodwork and walls are light cream color, enlightened by the over-mantel painting, the bright hangings, and the upholstery

The dining-room, one end of which is almost all glass, with a dining terrace adjoining

The library is in pine to the ceiling, and the wood has been given a rather dark stain before being waxed



One of the bedrooms. It will be noticed in the plan of the second floor, on page 279, that four of the bedrooms have fireplaces. The panel effect of the walls is secured by the use of wood moldings on the plaster

A brick wall separates the terrace side of the house from the service court on a lower level

NUMBER 109 IN A SERIES OF COLLECTIONS OF PHOTOGRAPHS ILLUSTRATING VARIOUS MINOR ARCHITECTURAL DETAILS

ARCHITECTURE'S PORTFOLIO OF UNUSUAL BRICKWORK

Subjects of previous portfolios are listed below at left and right of page

1926
- DORMER WINDOWS
- SHUTTERS AND BLINDS

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

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

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

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

1931
- BANKING-ROOM CHECK DESKS
- SECOND-STORY PORCHES
- TOWER CLOCKS
- ALTARS

Below are the subjects of forthcoming Portfolios

Shutters and Blinds
DECEMBER

Fireplaces
(MEDITERRANEAN TYPES)
JANUARY

Pediments
FEBRUARY

Balcony Railings
(INTERIOR)
MARCH

Gothic Buttresses
APRIL

Corner Windows
MAY

Photographs showing interesting examples under any of these headings will be welcomed by the Editor, though it should be noted that these respective issues are made up about six weeks in advance of publication date.

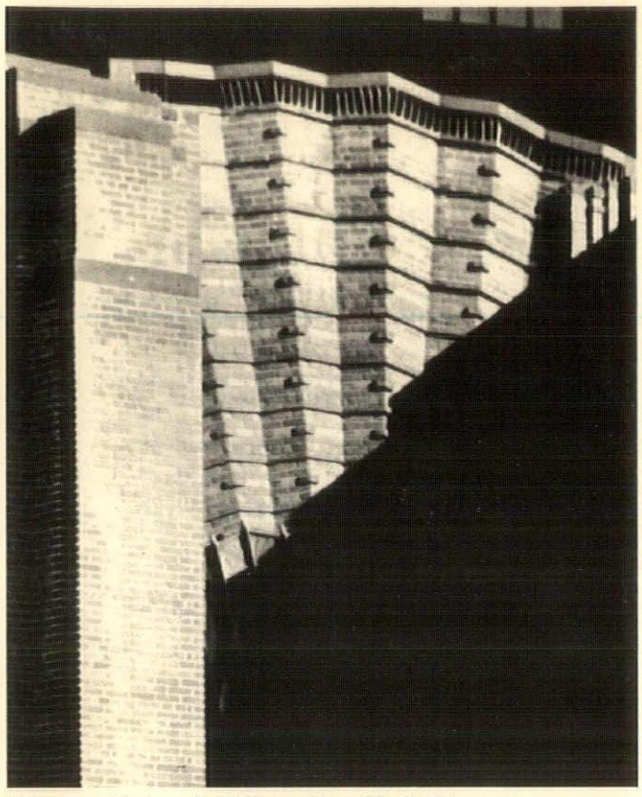
1931—*Continued*
- GARAGE DOORS
- MAIL-CHUTE BOXES
- WEATHER-VANES
- BANK ENTRANCES
- URNS
- WINDOW GRILLES
- CHINA CUPBOARDS
- PARAPETS

1932
- RADIATOR ENCLOSURES
- INTERIOR CLOCKS
- OUTSIDE STAIRWAYS
- LEADED GLASS MEDALLIONS
- EXTERIOR DOORS OF WOOD
- METAL FENCES
- HANGING SIGNS
- WOOD CEILINGS
- MARQUISES
- WALL SHEATHING
- FRENCH STONEWORK
- OVER-MANTEL TREATMENTS

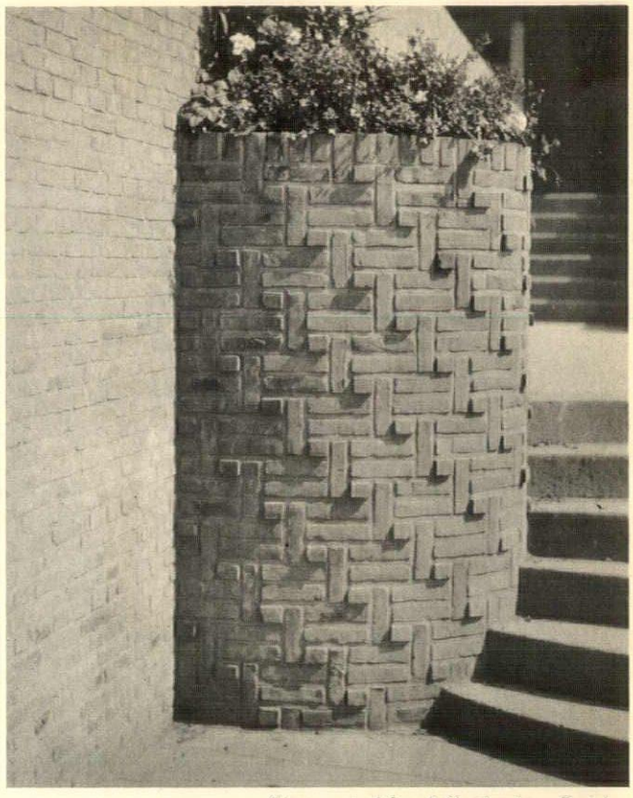
1933
- BANK SCREENS
- INTERIOR DOORS
- METAL STAIR RAILINGS
- VERANDAS
- THE EAGLE IN SCULPTURE
- EAVES RETURNS ON MASONRY GABLES
- EXTERIOR LETTERING
- ENTRANCE DRIVEWAYS
- CORBELS
- PEW ENDS
- GOTHIC NICHES
- CURTAIN TREATMENT AT WINDOWS

1934
- EXTERIOR PLASTERWORK
- CHURCH DOORS
- FOUNTAINS
- MODERN ORNAMENT
- RUSTICATION
- ORGAN CASES
- GARDEN FURNITURE
- WINDOW HEADS, EXTERIOR
- SPIRES
- BUSINESS BUILDING LOBBIES
- ROOF TRUSSES
- MODERN LIGHTING FIXTURES

1935
- CIRCULAR WINDOWS, GOTHIC AND ROMANESQUE
- TILE ROOFS
- MOLDED BRICK
- DORMER WINDOWS
- ENTRANCE SEATS
- OVERDOORS, INTERIOR
- BRICK CORNICES
- SIGNS
- CHIMNEY OFFSETS
- WINDOW HEADS, EXTERIOR, ARCHED

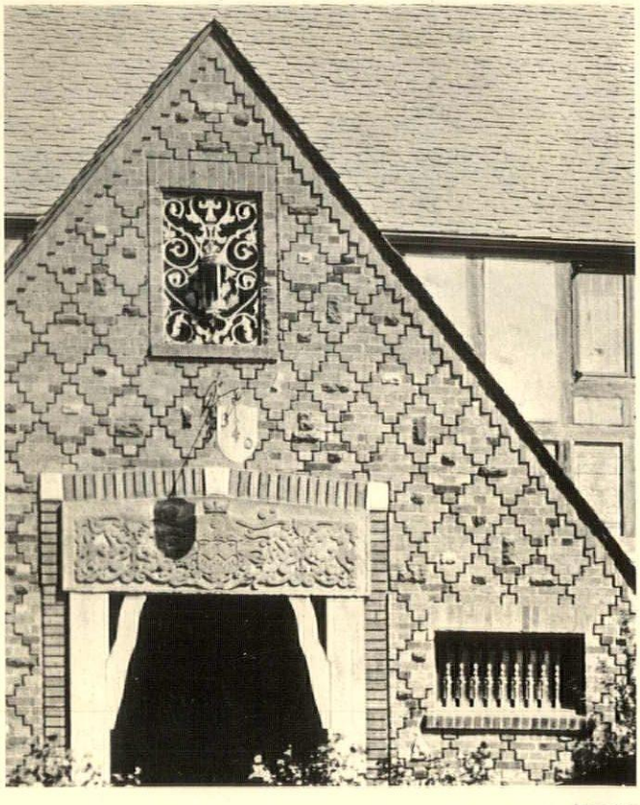


Western Union Building, New York City
Voorhees, Gmelin & Walker

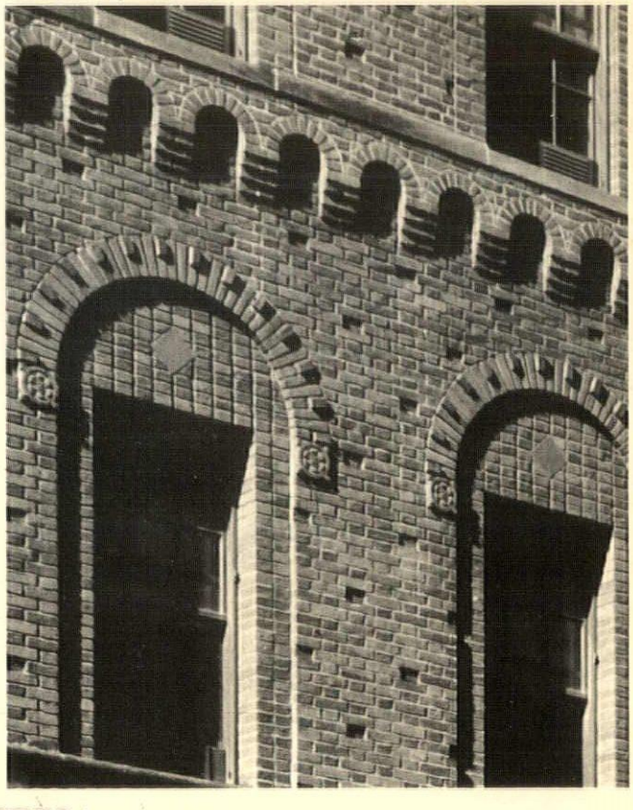


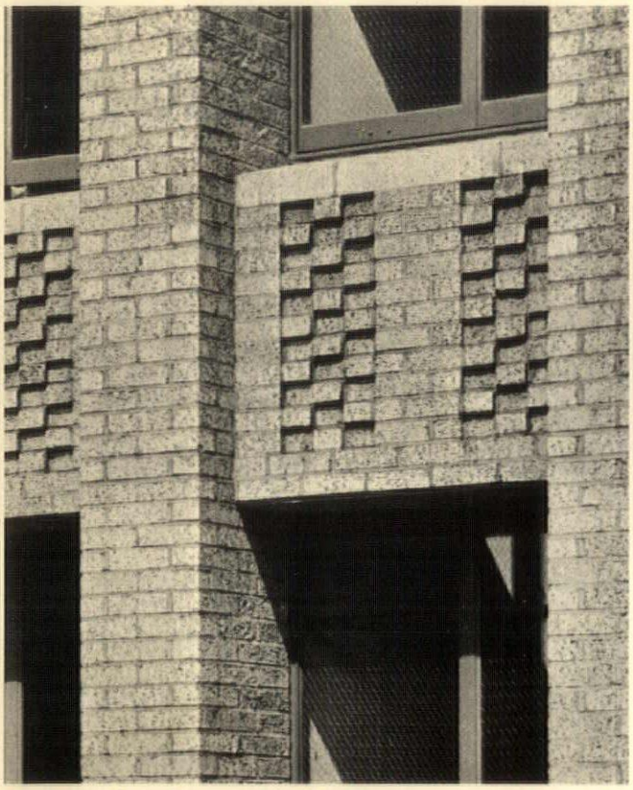
Steps at side of Catherine Bridge
Utrecht, Holland

House at Hollywood, Calif.
L. G. Scherer



Bible House, New York City
McKenzie, Voorhees & Gmelin

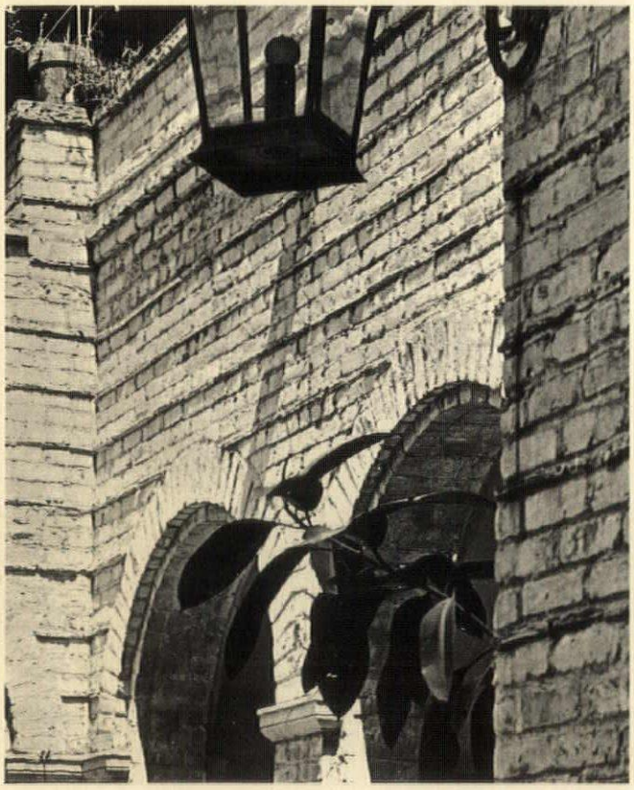




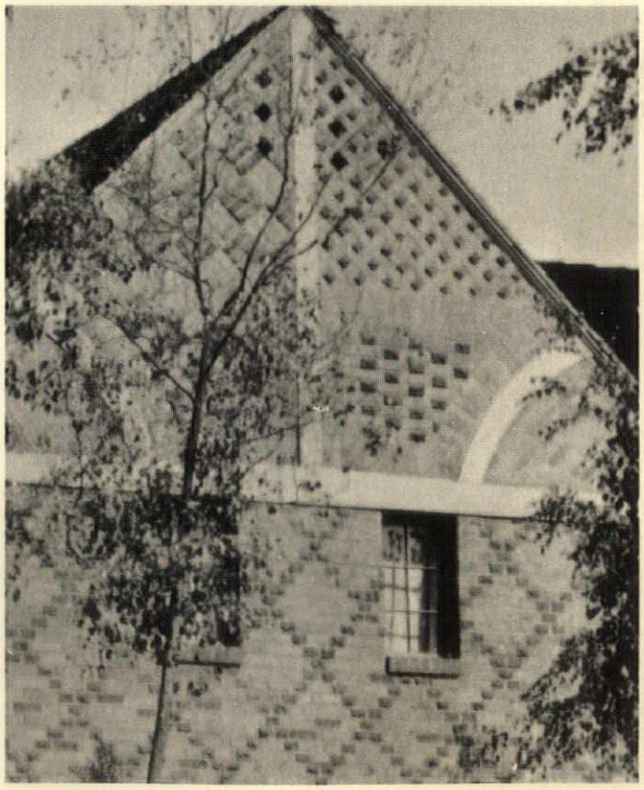
Northern Life Tower, Seattle, Wash.
A. H. Albertson; Joseph W. Wilson & Paul Richardson

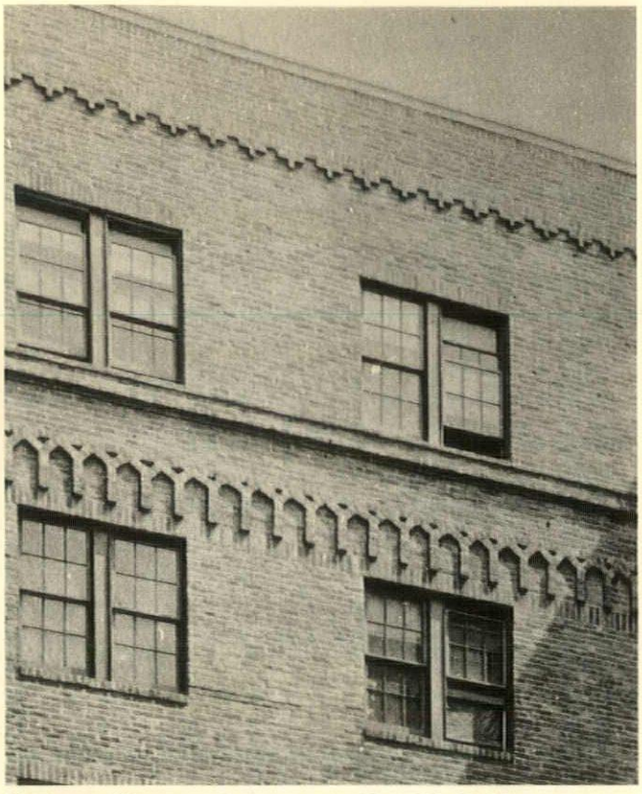
Van Tassel Apartments, North Tarrytown, N. Y.
Andrew J. Thomas

Cosmopolitan Club, New York City
Edward C. Dean

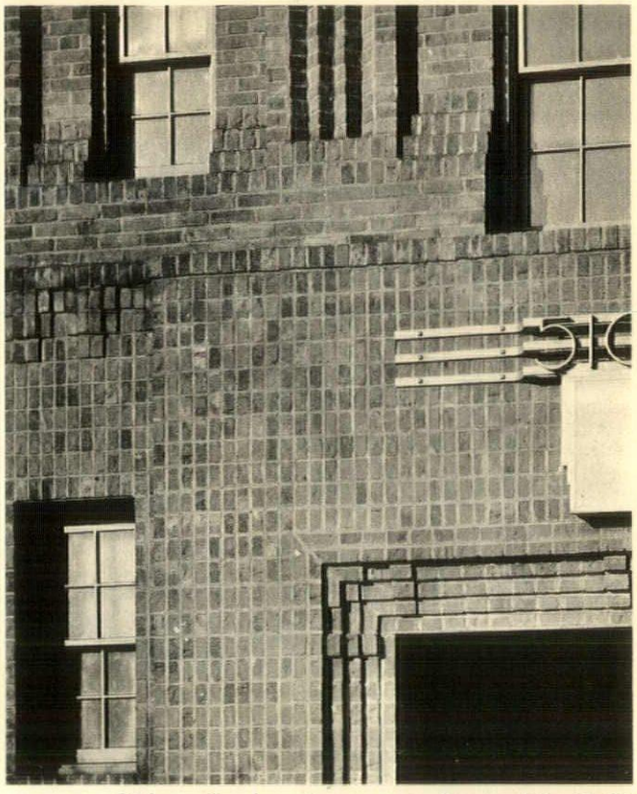


House at Hollywood, Calif.
L. G. Scherer



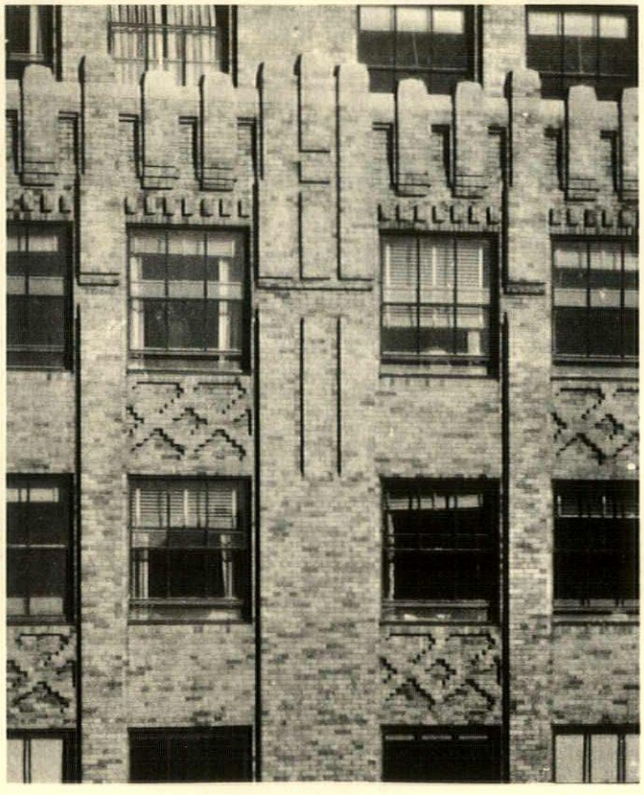


Beekman Terrace Apartments, New York City
Treanor & Fatio

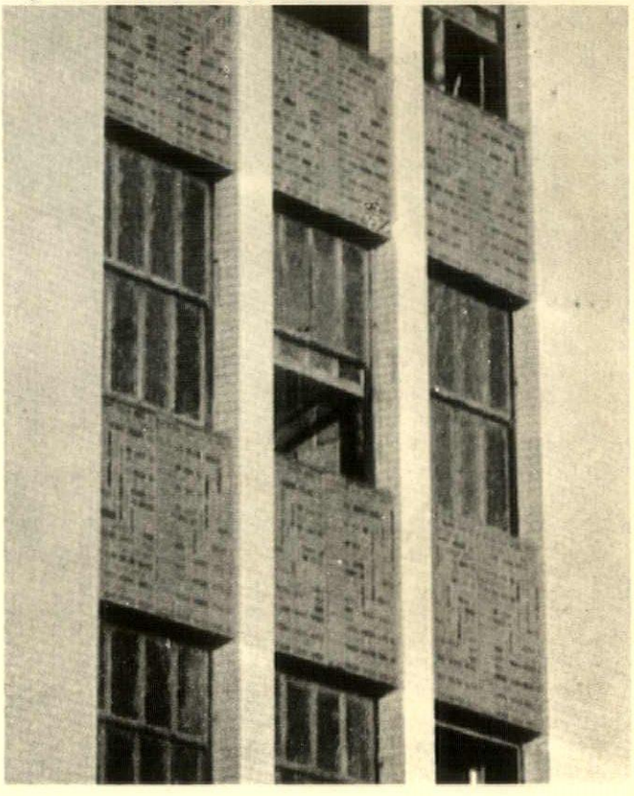


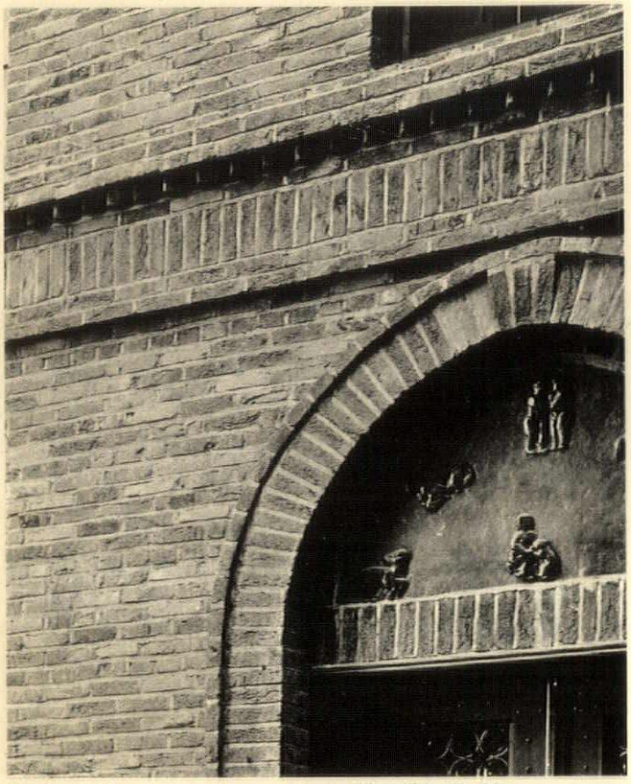
Phipps Garden Apartments, Sunnyside, N. Y.
Clarence S. Stein

Harriman Building, New York City
Cross & Cross

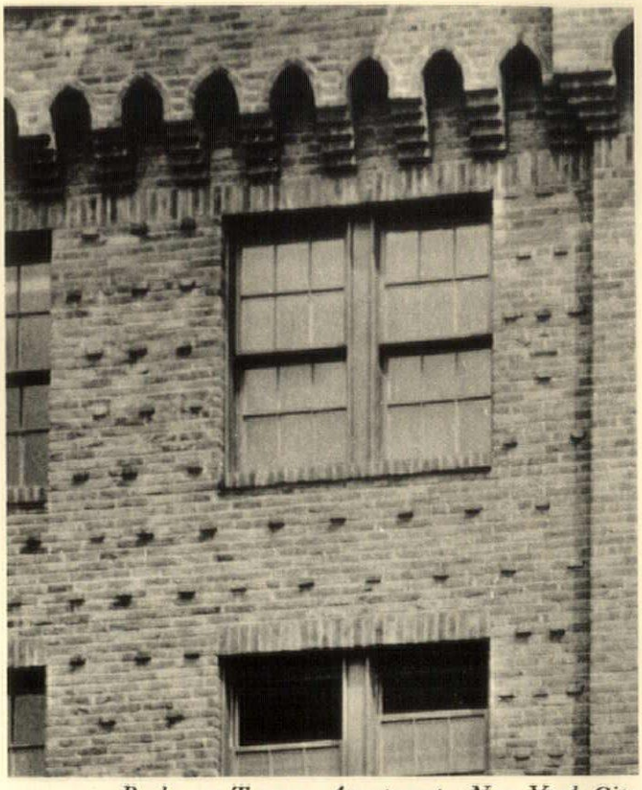


Daily News Building, New York City
Raymond Hood, Godley & Fouilhoux



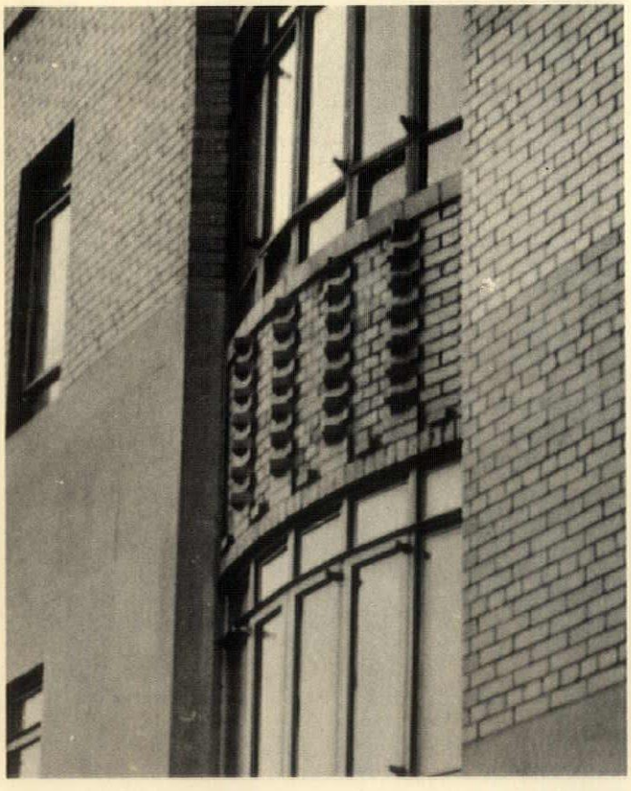


Beekman Terrace Apartments, New York City
Treanor & Fatio

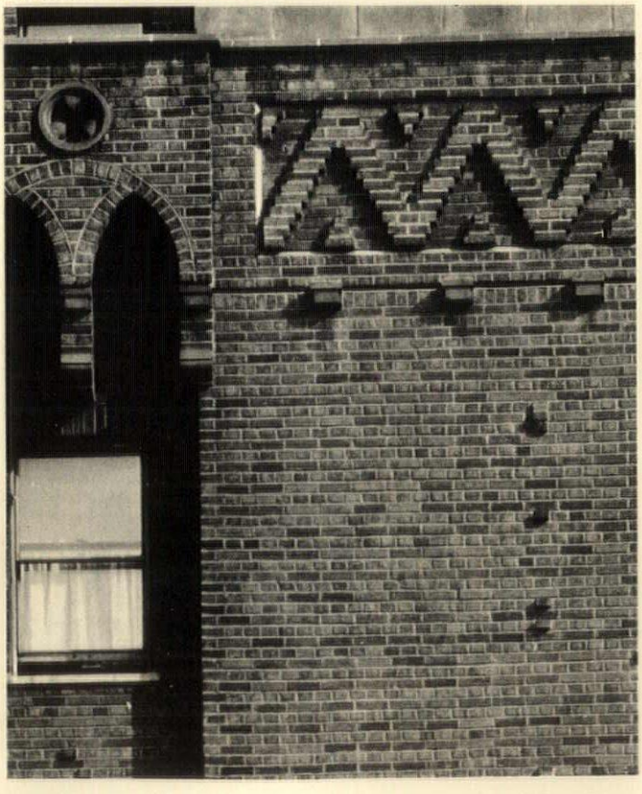


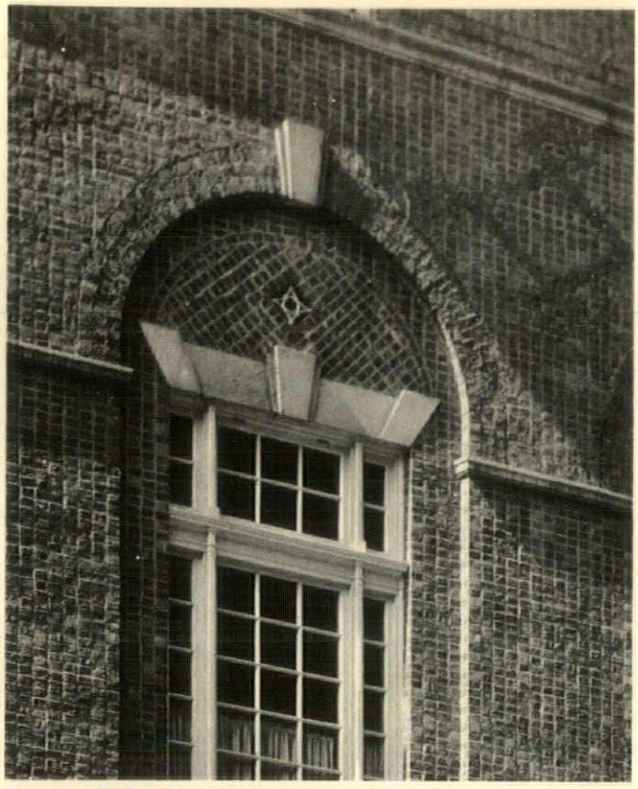
Beekman Terrace Apartments, New York City
Treanor & Fatio

Century Apartments, New York City
Irwin S. Chanin

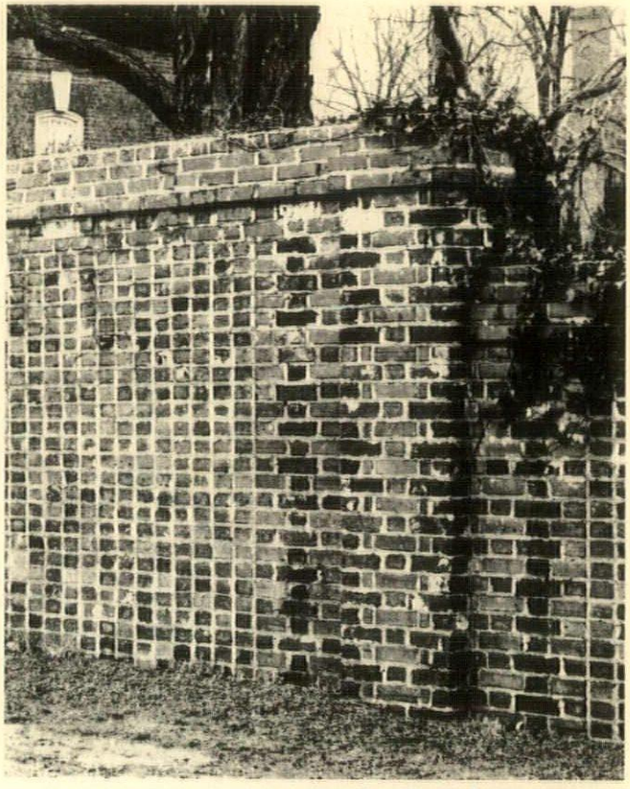


Hotel Shelton, New York City
Arthur Loomis Harmon



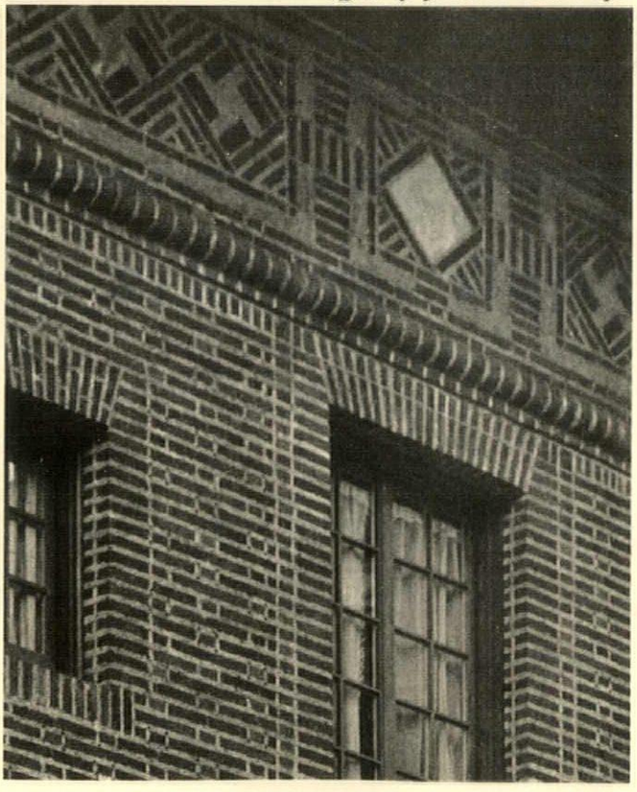


Former Colony Club, New York City
McKim, Mead & White

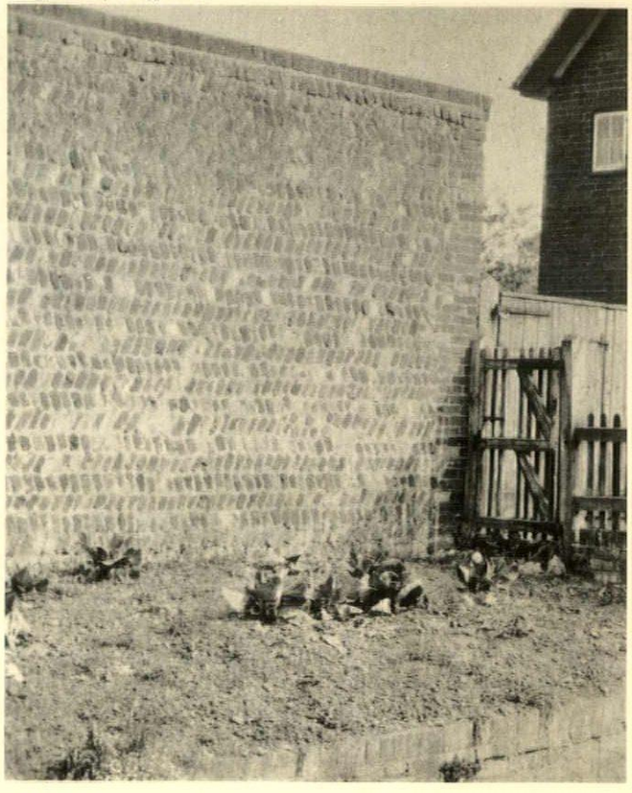


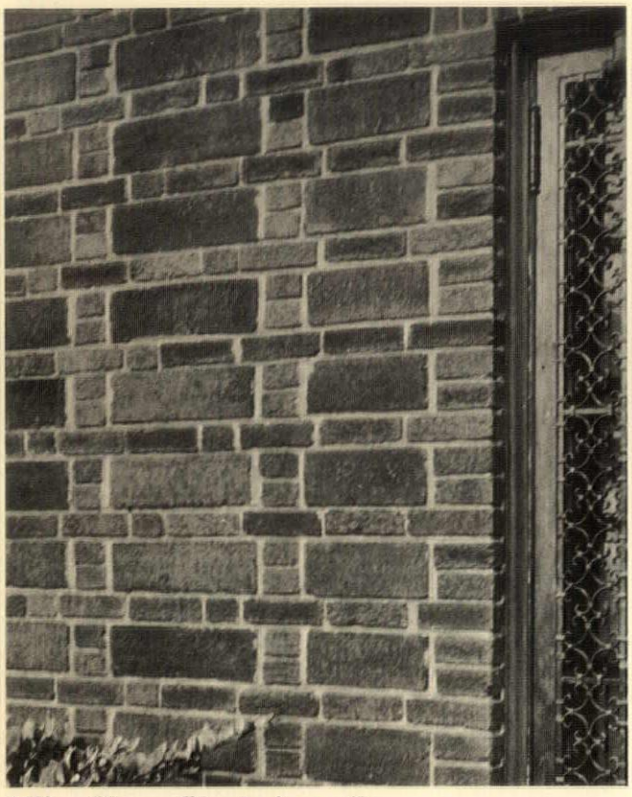
Garden Wall, Nelson House,
Yorktown, Va.

McLean House, Washington, D. C.
Office of John Russell Pope

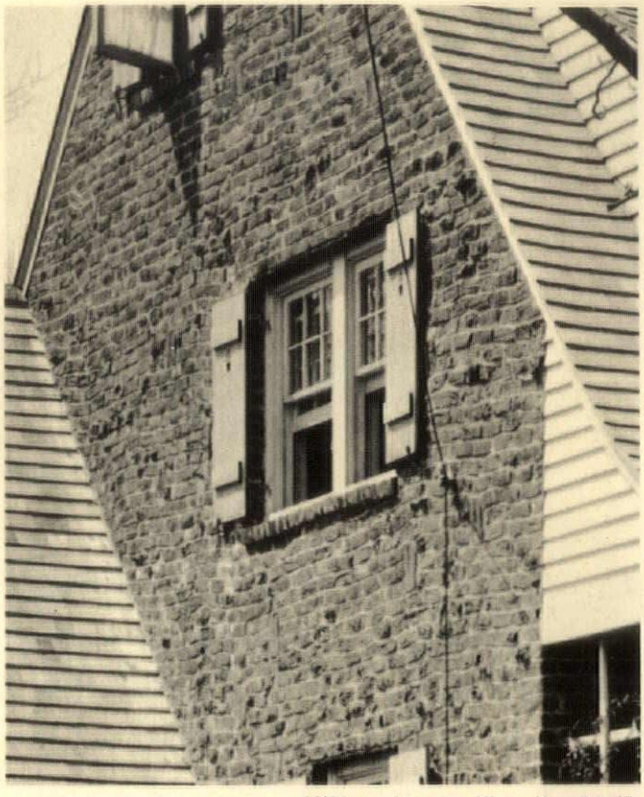


Garden wall,
Nayland, England



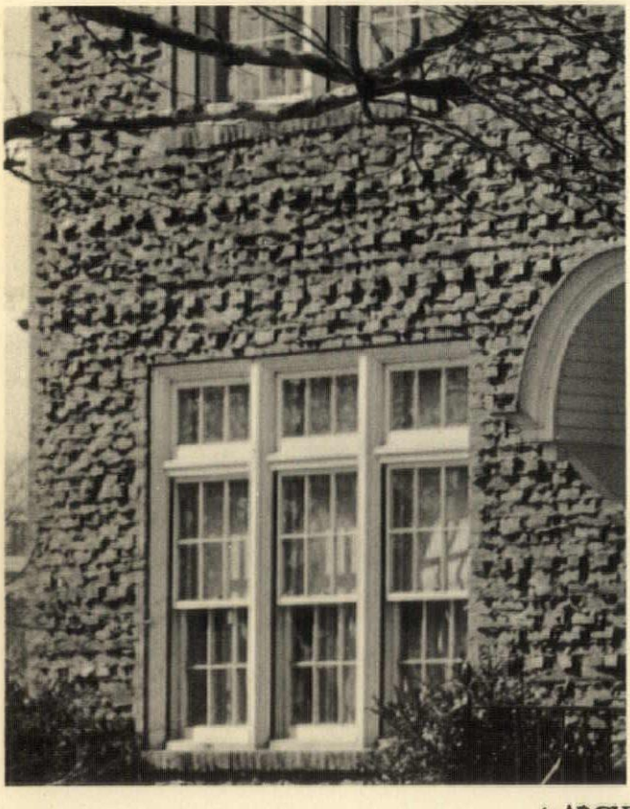


Milner House, Birmingham, Ala.
Warren, Knight & Davis

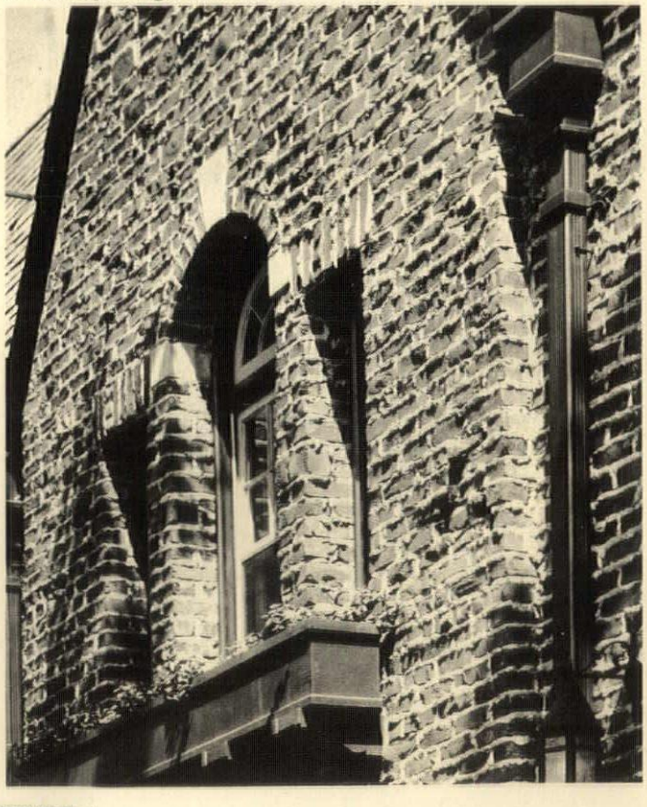


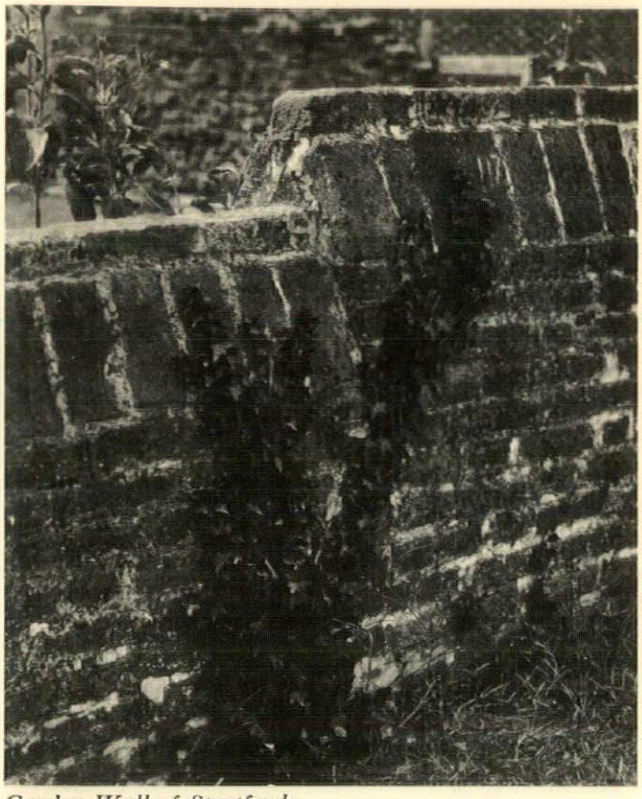
Wilcox House, Tenafly, N. J.
Frederick T. Warner

Skintled brickwork, Wilmington, Del.
Roscow Cook Tindall



Skintled brickwork, Birmingham, Ala.
Warren, Knight & Davis

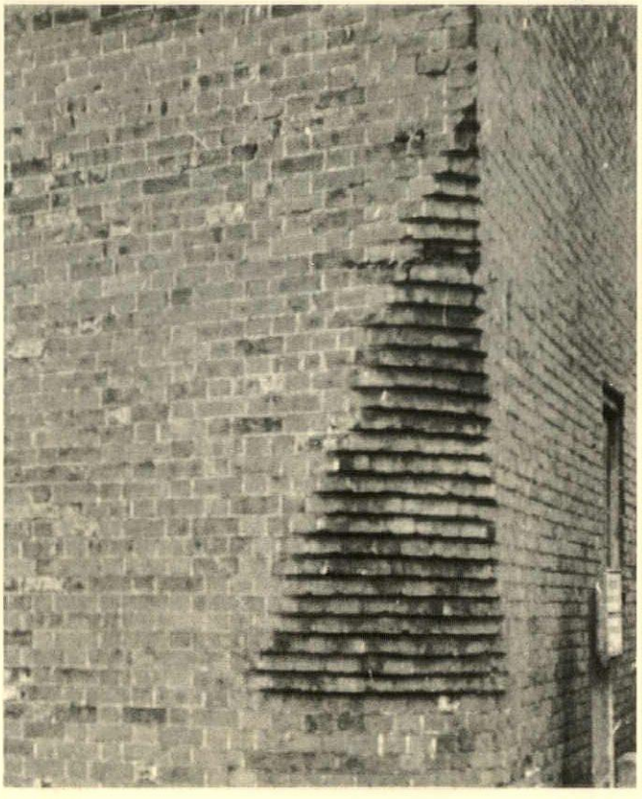




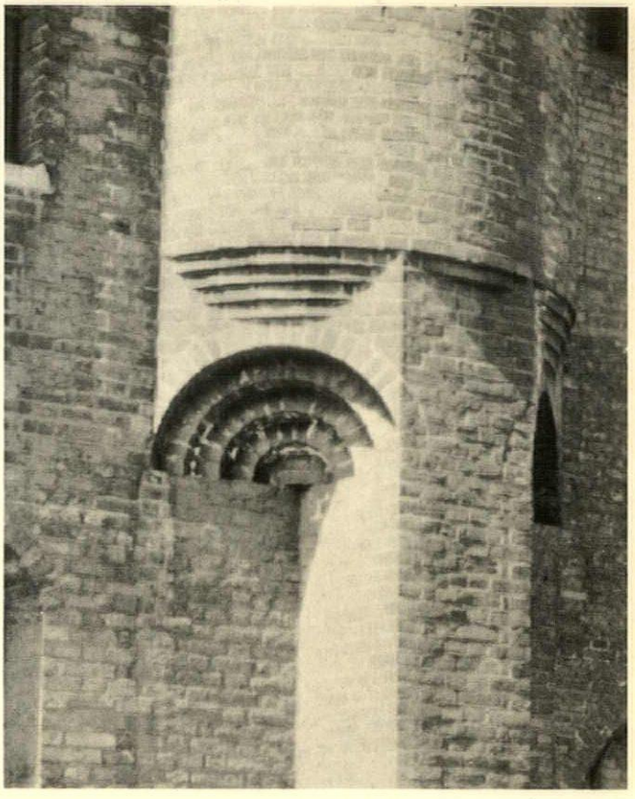
Garden Wall of Stratford
Westmoreland County, Va.

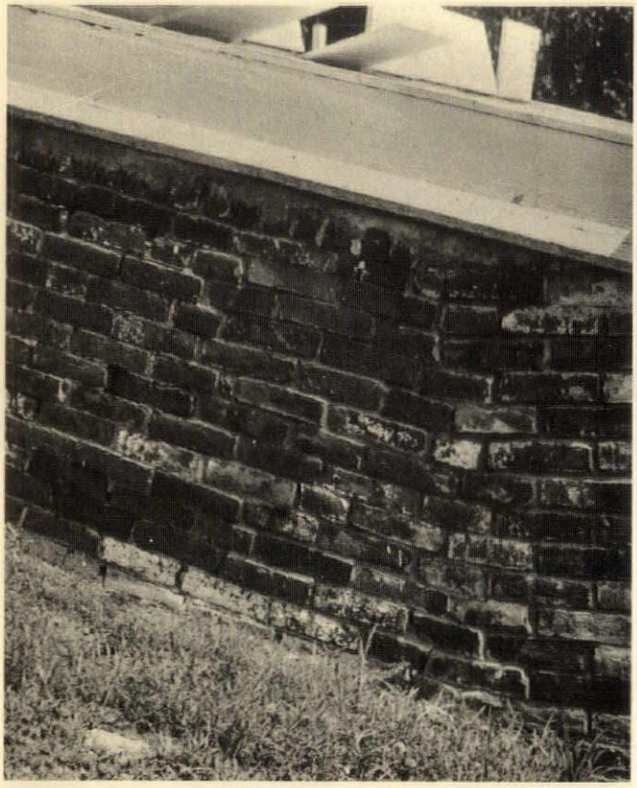
Vouvray,
France

Corbelled corner,
Potton, England

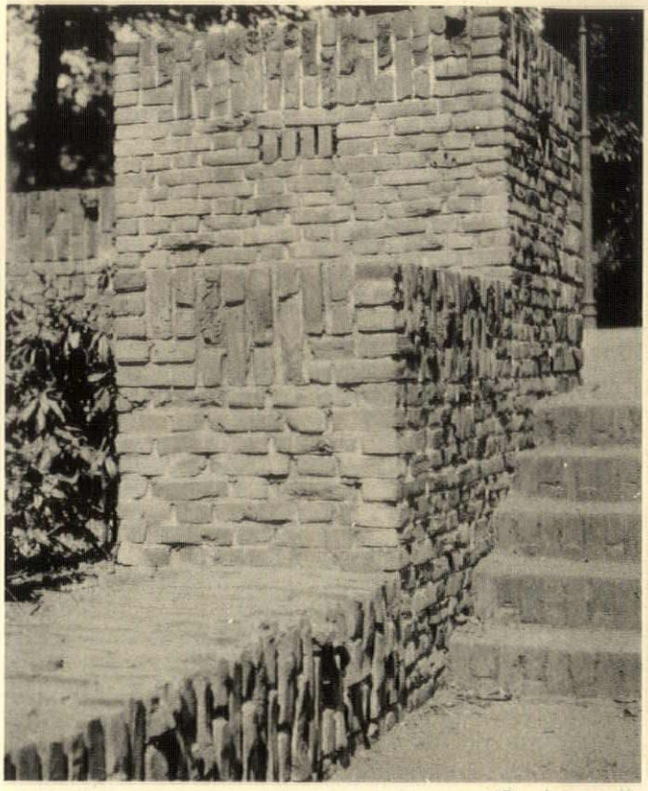


Corbelled turret,
Binnenhof, The Hague



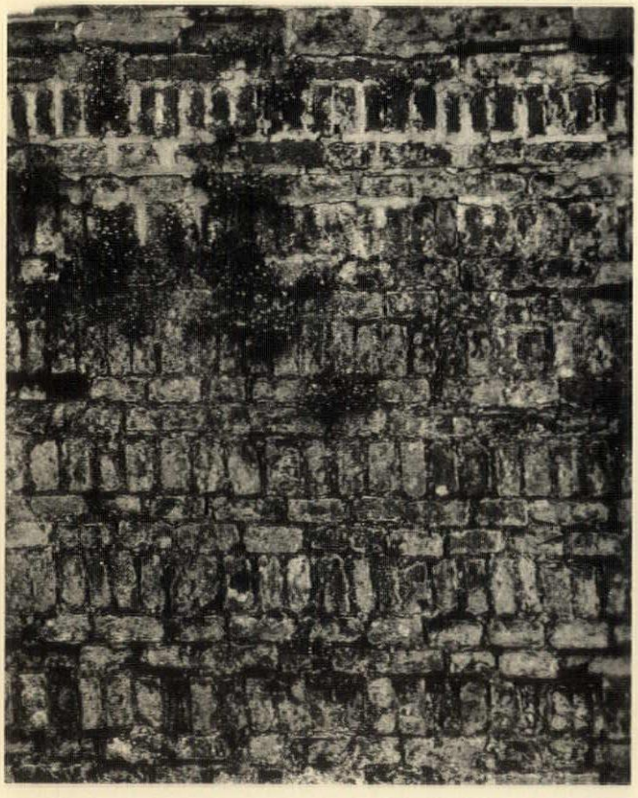


Greenhouse wall (1800) following slope of the land
Waltham, Mass.

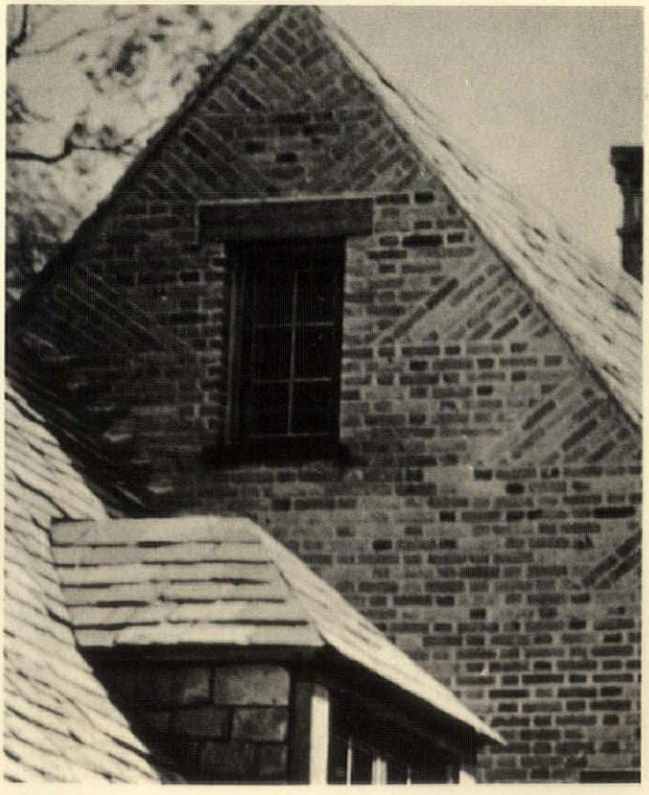


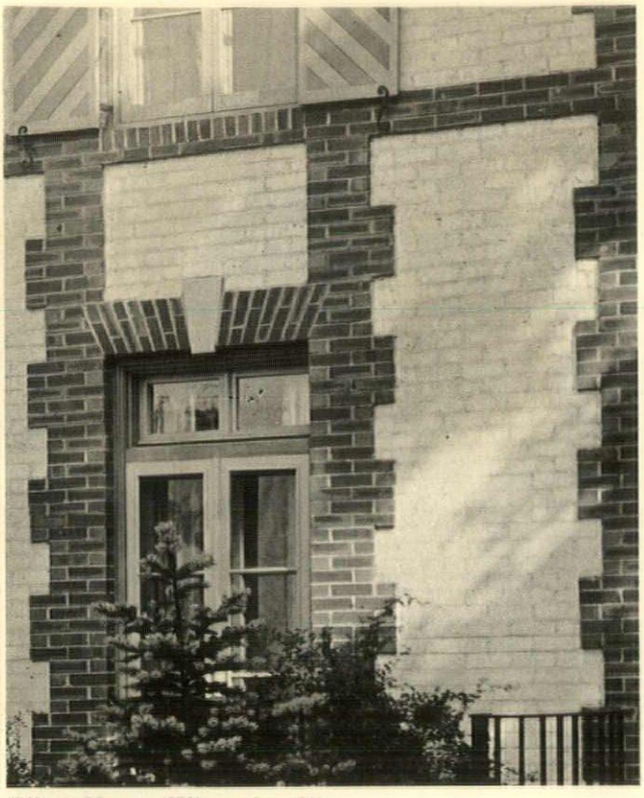
Garden wall,
Utrecht, Holland

Garden wall,
Lavenham, England



Gardner House, Dayton, Ohio
Peabody, Wilson & Brown

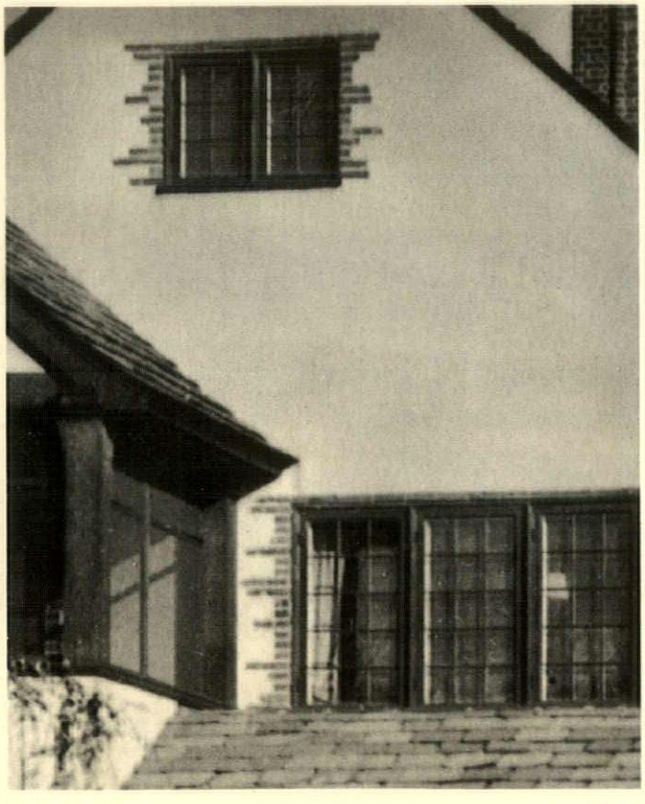




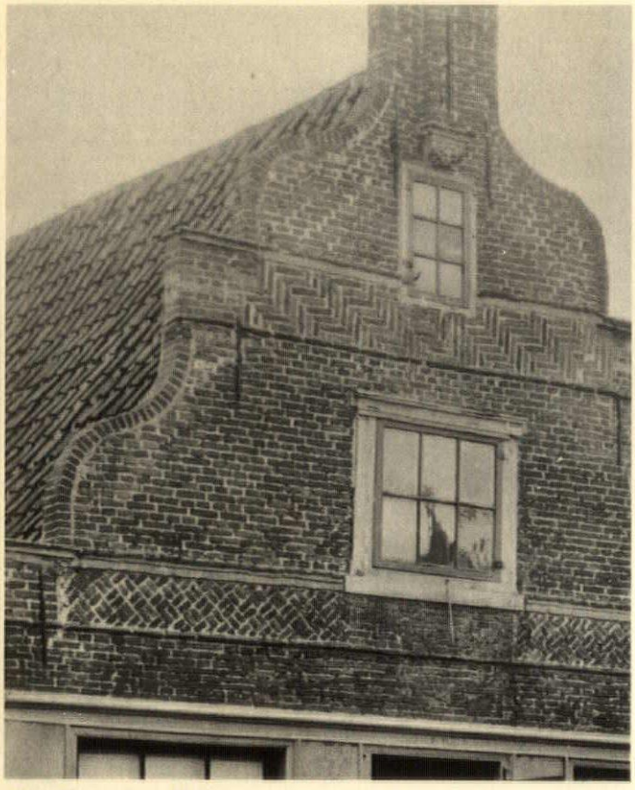
Oliver House, Winnetka, Ill.
Huszagh & Hill

Skim coat of stucco over brick quoins
Henry H. Saylor

House at Locust Valley, N. Y.
Roger H. Bullard



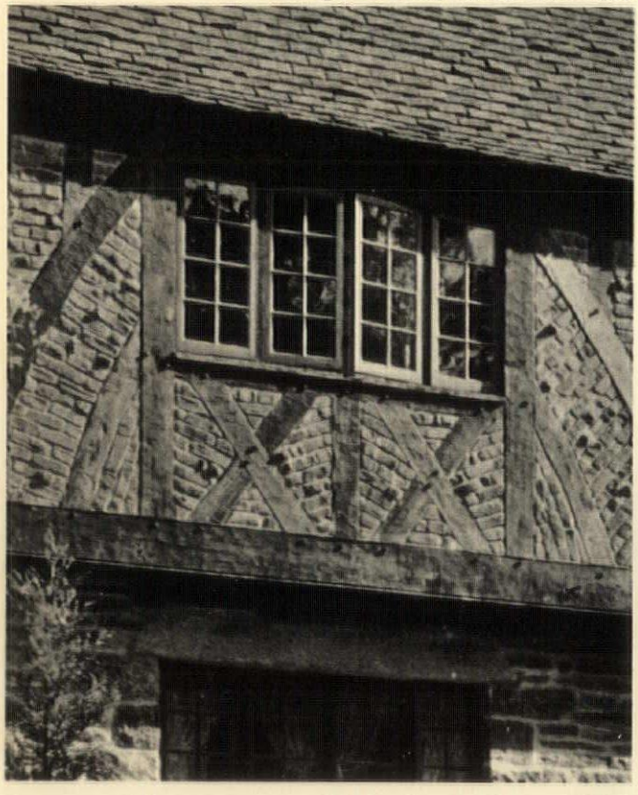
Holdeman House, Beverly Hills, Calif.
Marston, Van Pelt & Maybury



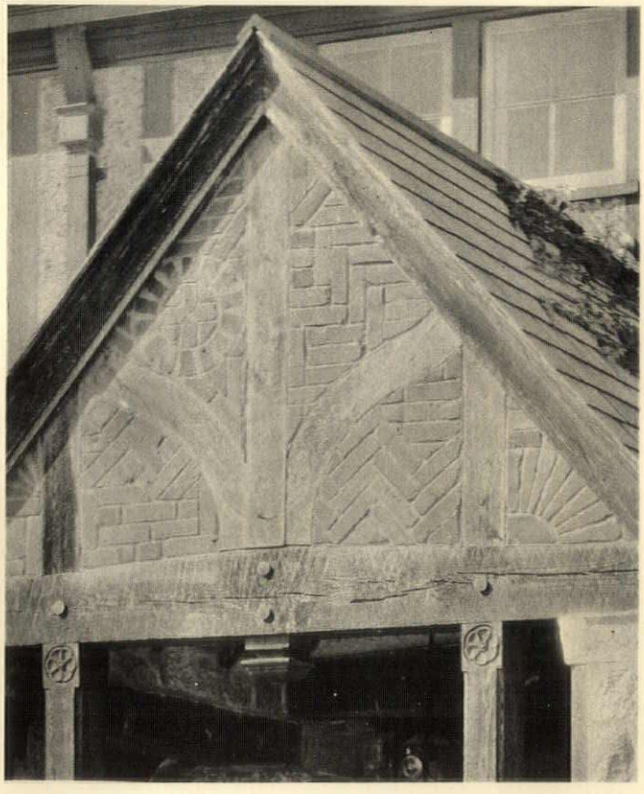
A gable end at Edam, Holland

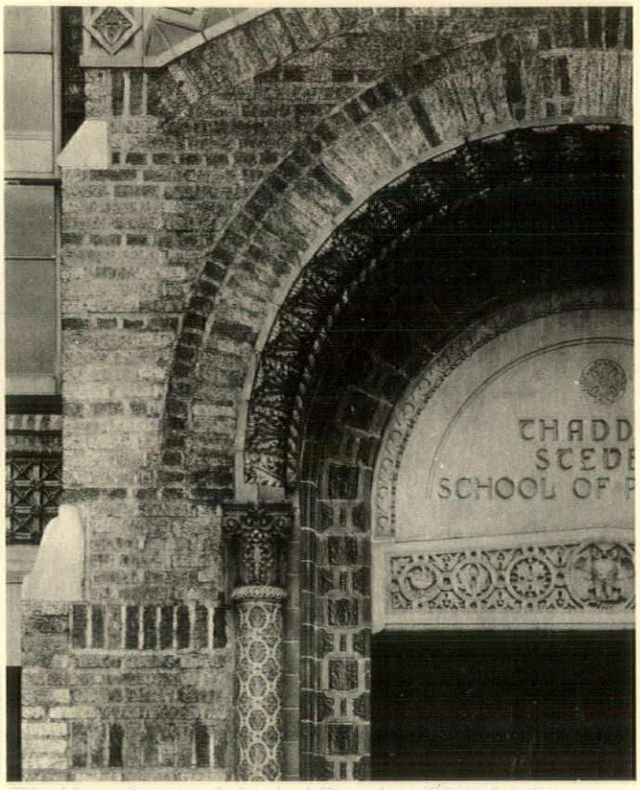
Stable and garage, Greenwich, Conn.
Greville Rickard

Bass House, Greenwich, Conn.
Frank J. Forster; R. A. Gallimore

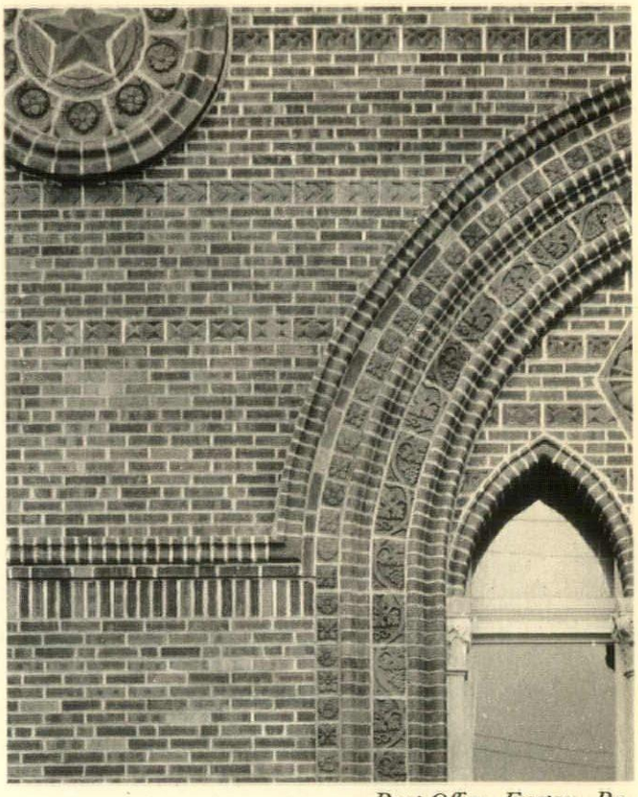


Nicholson House, Bristol, R. I.
Jackson, Robertson & Adams



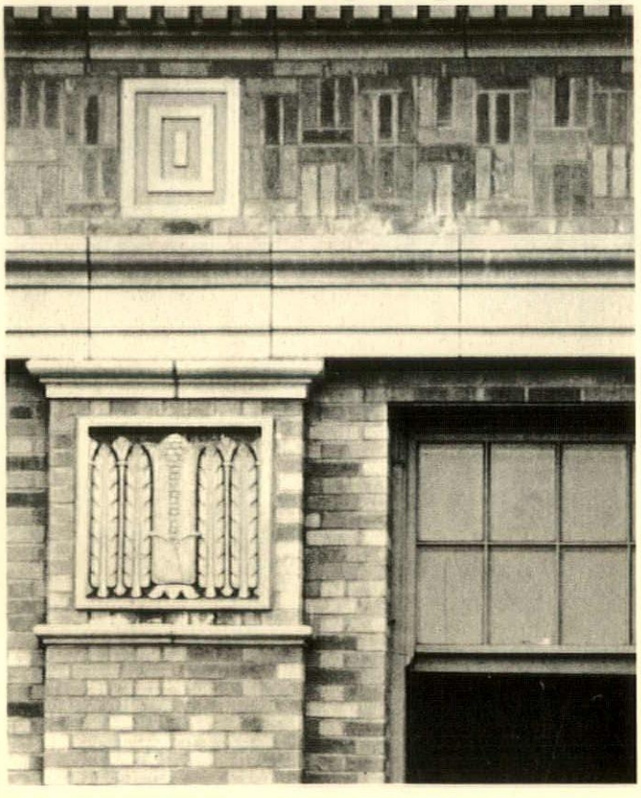


Thaddeus Stevens School of Practice, Philadelphia
Irwin T. Catherine

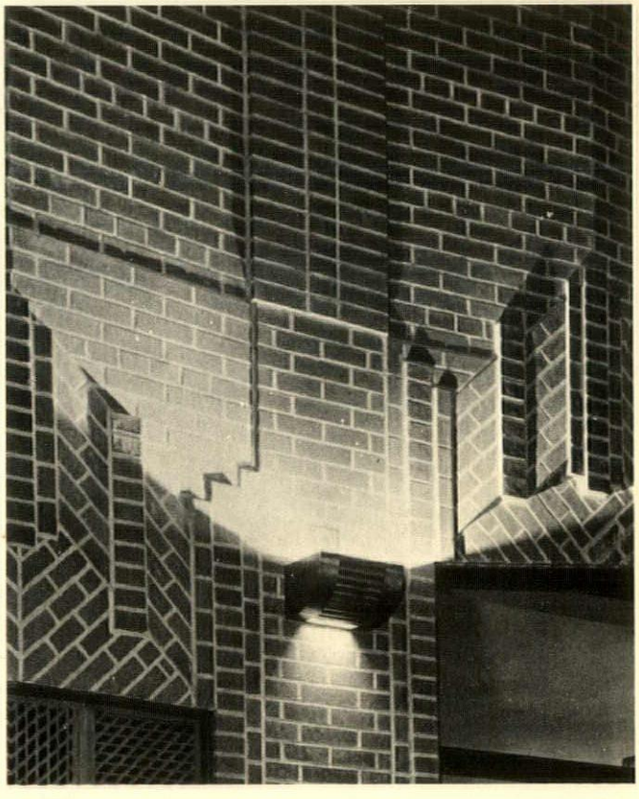


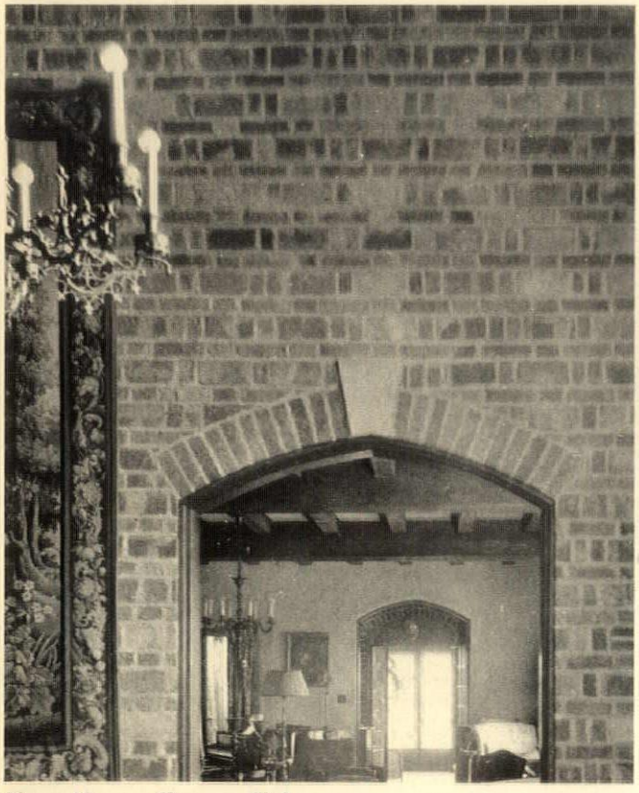
Post Office, Easton, Pa.
Hopkins & Dentz

Agricultural Extensible Building, Washington, D. C.
Supervising Architect's Office

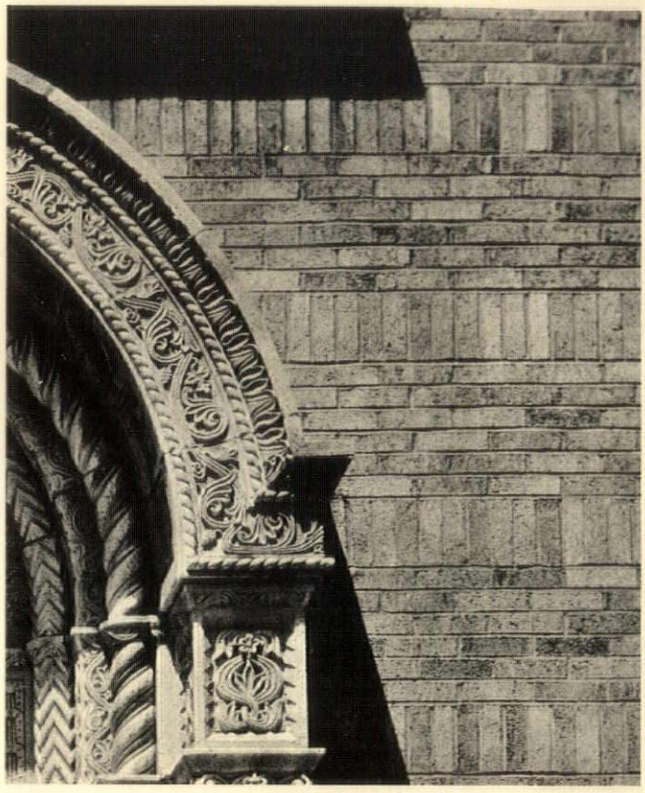


Western Union Building, New York City
Voorhees, Gmelin & Walker



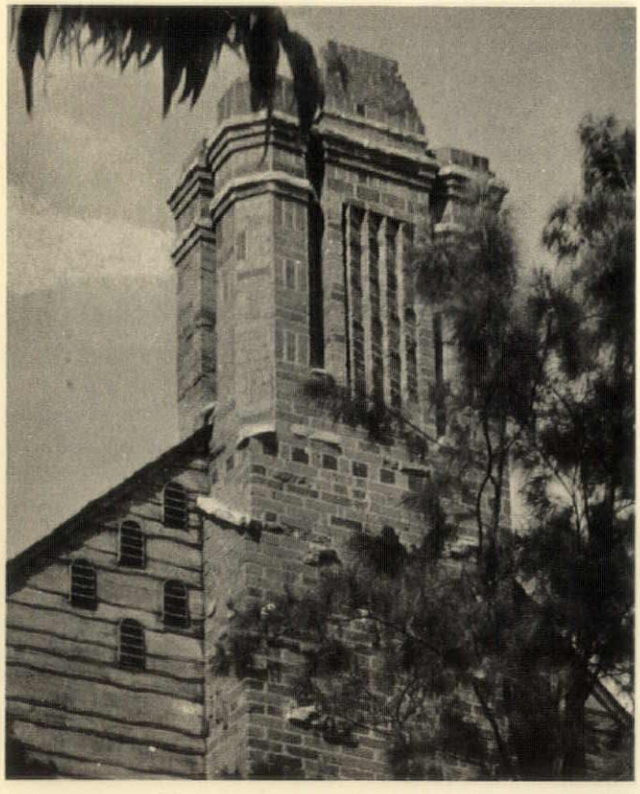


Gano House, Denver, Colo.
W. E. & A. A. Fisher

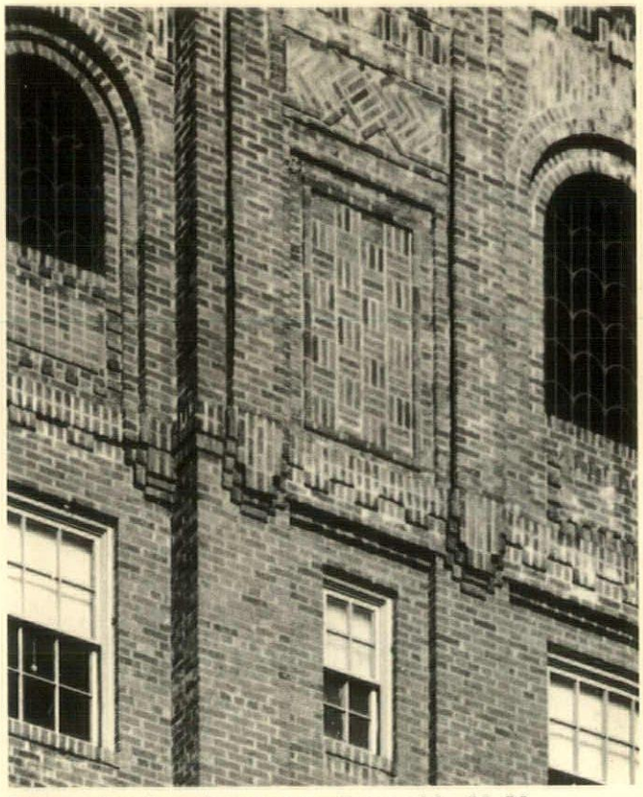


Telephone Building, Tiffin, Ohio
Mills, Rhines, Bellman & Nordhoff

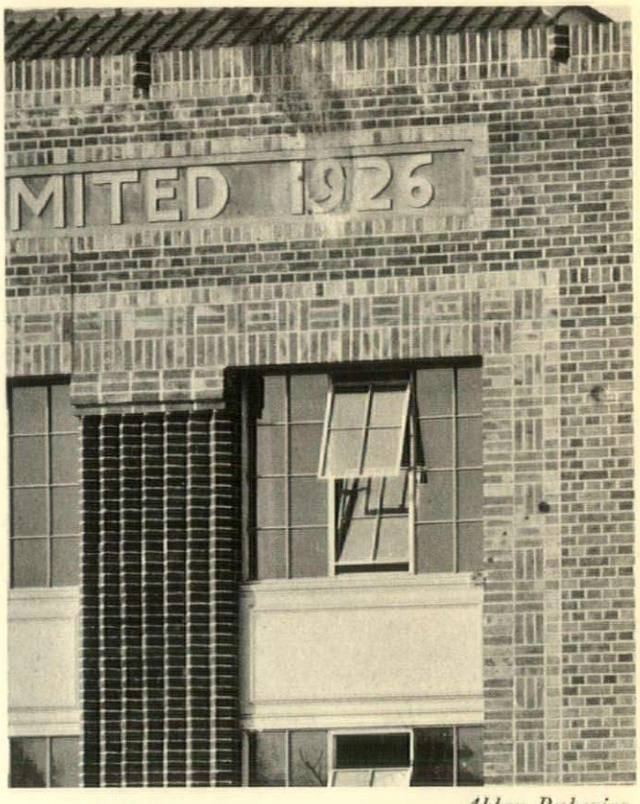
A chimney at Hollywood, Calif.
L. G. Scherer



Western Union Building, New York City
Voorhees, Gmelin & Walker

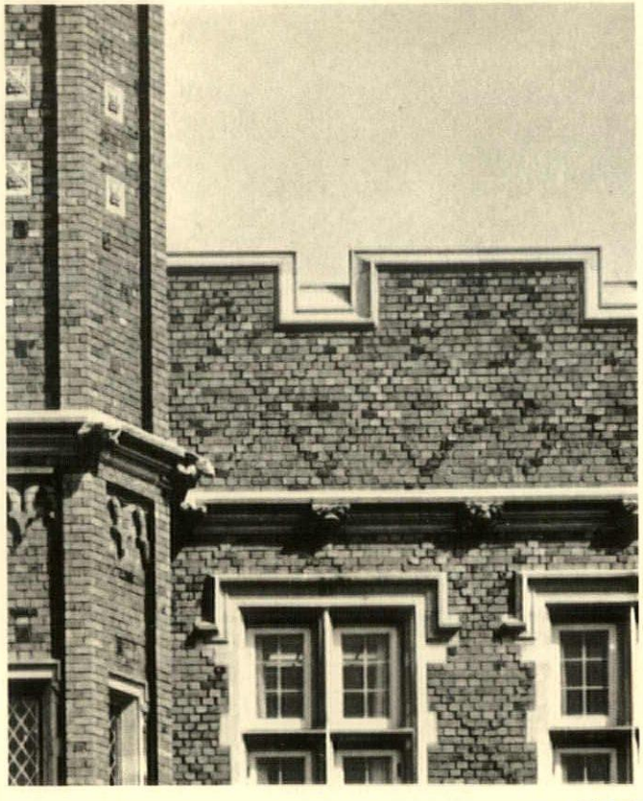


Phipps Garden Apartments, Sunnyside, N. Y.
Clarence S. Stein

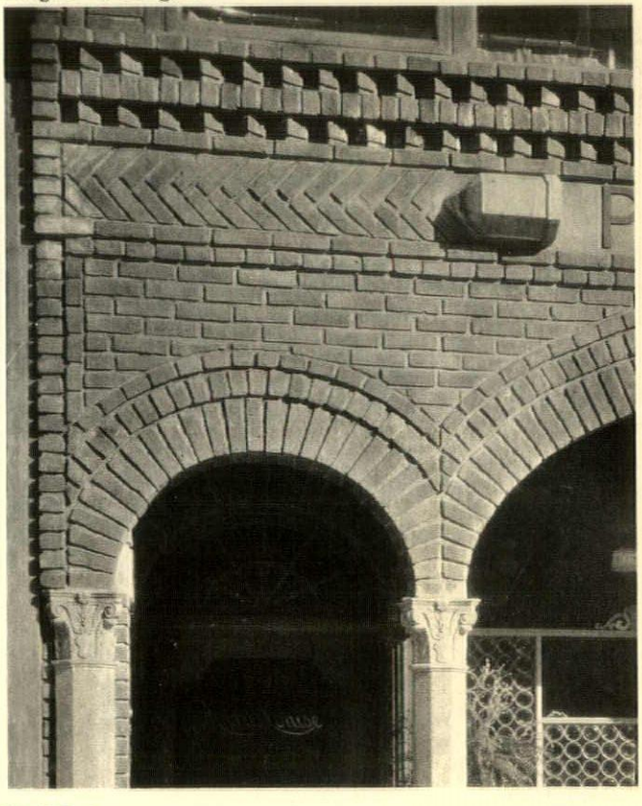


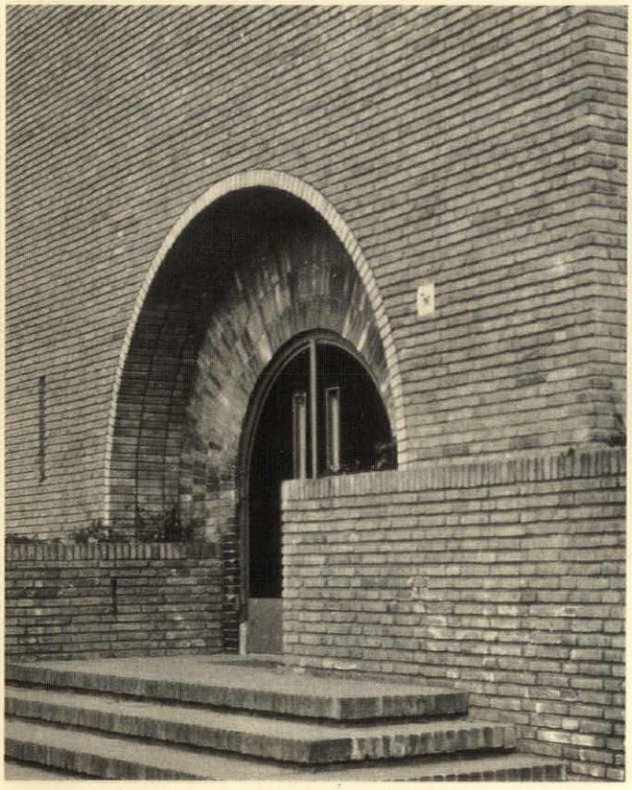
Abbey Bakeries,
Leicester, England

High School, Teaneck, N. J.
Hacker & Hacker

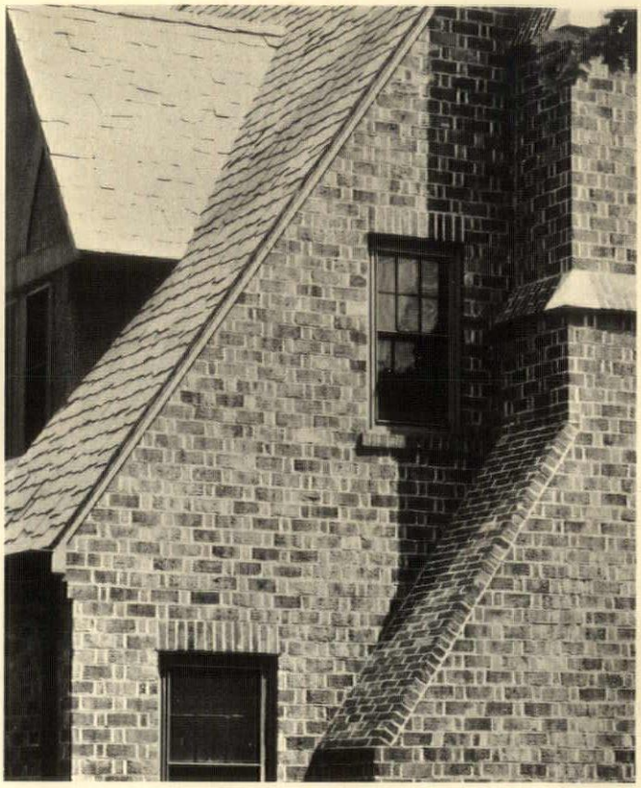


Store front, New York City
Hughes & Hughes



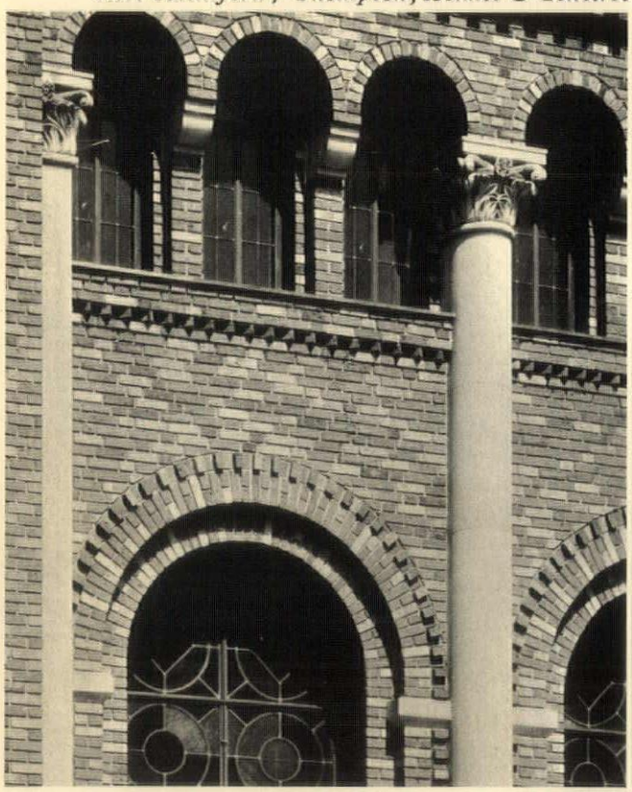


School at Hilversum, Holland
W. M. Dudok

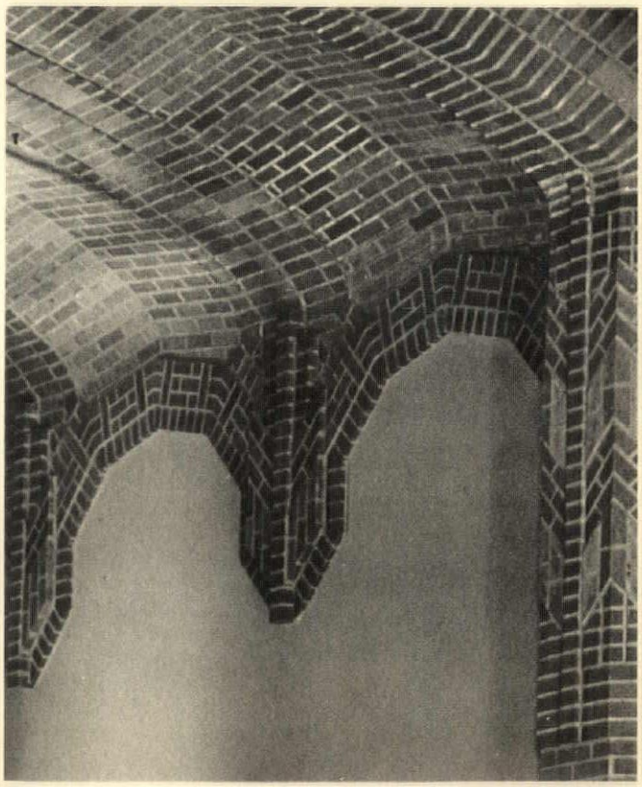


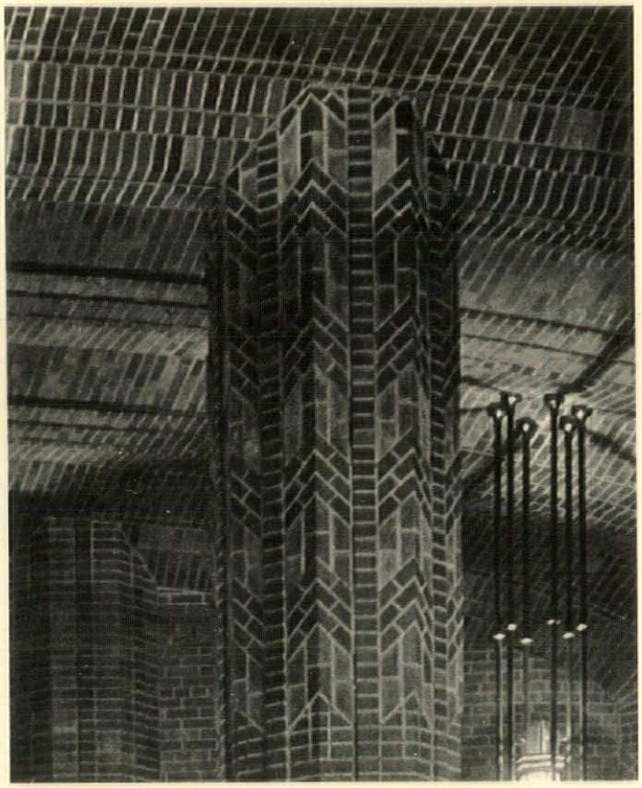
House at Garden City, N. Y.
Harry Grattan

Hellenic Eastern Orthodox Cathedral,
New York City
Kerr Rainsford; Thompson, Holmes & Converse

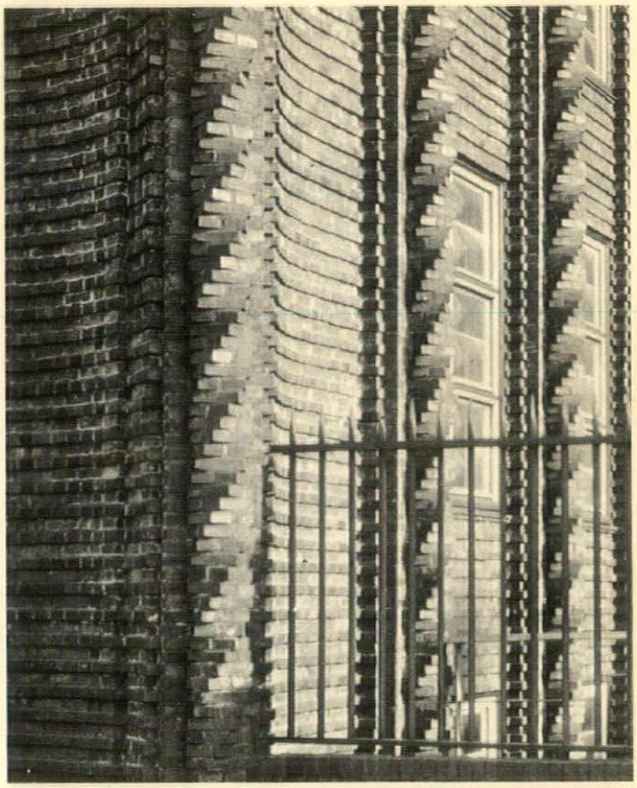


Western Union Building, New York City
Voorhees, Gmelin & Walker



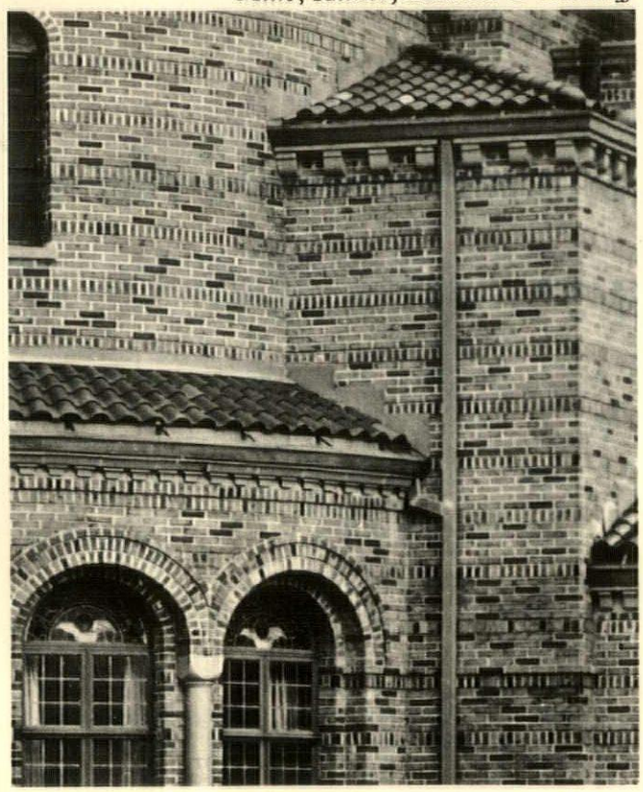


Western Union Building, New York City
Voorhees, Gmelin & Walker

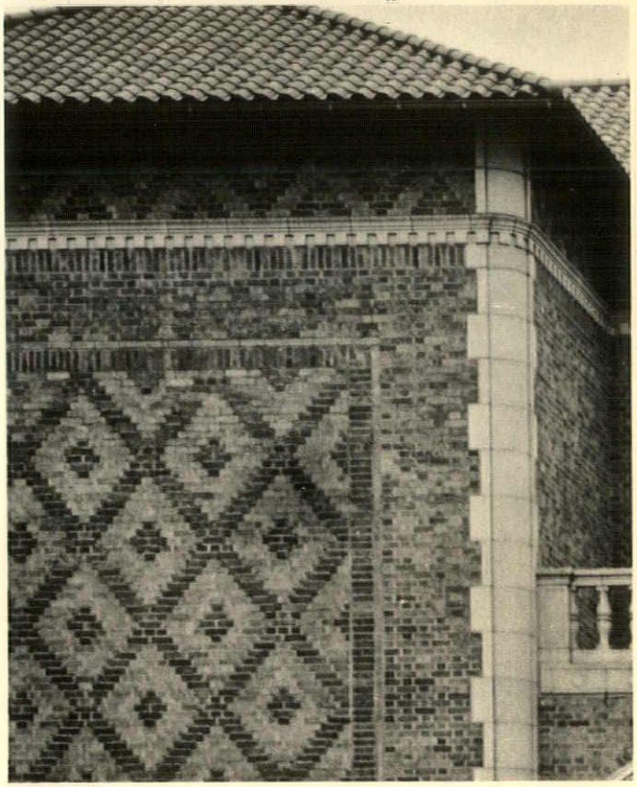


A factory, Hamburg, Germany
Fritz Höger

Nazareth Hall, Grand Rapids, Mich.
Mills, Rhines, Bellman & Nordhoff



Parochial School, Toledo, Ohio
Mills, Rhines, Bellman & Nordhoff



NOVEMBER, 1935

Building Products' News

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[Fill in the file numbers of the desired items and mail the card]

In your community: within your circle of acquaintances there are those who will be glad to know about NATIONAL HOUSING ACT LOANS UP TO $50,000.00 to Modernize Apartments, Multiple Family Dwellings and Stores, Hotels, Hospitals, Schools, Colleges, Orphanages, Manufacturing and Industrial Plants. Shall we send you the very latest information? Address ARCHITECTURE, 597 Fifth Avenue, New York.

Magazine Feed Boilers

No. 34 announces new C–N Boiler designed to burn Chestnut Anthracite or Coke—in addition to complete line of Spencer Magazine Feed Boilers burning No. 1 Buckwheat Anthracite. New Rotary Ash Receiver description and diagram included. Capacities and dimensions. Spencer Heater Company. G. 159

Electricity vs. Hand Power

Sixteen pages illustrating and describing new line of electric dumbwaiters, elevators, hand-power dumbwaiters, hand-power elevators, etc. Complete set of detailed blueprints with general layout of each product. John W. Kiesling & Son's File 33. G. 160

Tube Fabricating Equipment

Complete with price lists, instructions and index. Fabricating tools, pipes and tubes, tube bender, lubricants. Diagrams and photographs. Parker Appliance Company. G. 161

Fabricated Railings

Something absolutely new in pipe railings. Assembled by welding and have jointless steel posts instead of the usual tubular fittings. For safety, long life, and economy. Diagrams, diameters, descriptions. Fabricated Steel Products Company. G. 162

Telephoneless Telephoning

Latest mode in homes, offices, and factories. Four stages of amplification used and loud speakers take place of 'phones. Two-way communication controlled by a button over any distance. Voice identification perfect. Vocalphone by the Doorman Manufacturing Co. G. 163

New Uses and Design

Creating, developing new uses for flat glass due to improvements and new kinds of glass. Every available type of L–O–F flat glass, 11 industries providing greatest sources of glass sales and "daily dozen" list of suggestions for closed specifications. 250 contact sources. Libbey-Owens-Ford Glass Company. G. 164

Hot Water

Modern, fuelless method for domestic water heating. Illustrations, installation data, size and capacity charts. Super heater with jacket. TACO Heaters, Inc. G. 165

Industrial Products

Insulating materials, refractories, floorings, roofings, and transite in various forms among products described. Photographs, drawings, tables, and charts—first complete catalog of all J-M industrial materials issued in several years. Johns-Manville Corp. G. 166

Wire Nails

Rods! Wire! Nails! Staples! Fence Posts! 40 pages of up-to-date information, profusely illustrated. Sizes, prices, and index. Form ADV. 226-B. Republic Steel Corporation. G. 167

Freon Compressor

Specification for enclosed type Freon Compressors, diagrams, and outline dimensions. Frick Company. G. 168

Beauty That Endures

Step by step journey through the Hardwick & Magee mill, showing, graphically, the Wilton process, from raw wool to finished carpet. 31 plates. G. 169

Dure z Wood

Plywood and veneered sheets made with resin glue. Meet boiling water tests and other specifications and guaranteed waterproof and termite-proof. Least costly of structural materials, suitable for interior or exterior walls, partitions, subfloors, ceilings, roof panels, sheathing, etc. General Plastics, Inc. G. 170

25-S-6

Series 25 Basmor Gas Fired Boiler with new DeLuxe housing, all controls enclosed, for steam, hot-water, and vapor heating. American Gas Association rating of 550 square feet of steam radiation, capable of handling 350 feet of actual cast-iron steam radiation plus starting and piping load. Bastian-Morley Co., Inc. G. 171

Thermofin?

Principle of convection employed in Thermofin system of heating, imparting natural circulation to air in a room. Simplex and Duplex Thermofin presented in pictures and diagrams. Also capacities and dimensions of both types. Grinnell Company. G. 172

Indestructible Seats

Pictures! Diagrams! Descriptions! Construction features and advantages of the Sani-Black seat and hinge unit for commercial and industrial sanitation. Hardwood core, thoroughly kiln-dried, steel plate anchored in the core, and extending back to house the axis for hinge rotation. While exterior a thick coat of composition hard rubber. C. F. Church Co. G. 173

"Don't Be Stuck"

Waterproof cement insuring permanent bond and satisfactory results for laying rubber tile, cork tile, linoleum tile, and composition flooring to concrete, metal, or wood. "Stick with Ulmeron," an Ulmer & Company product. G. 174

Future House; Rockefeller

Bevel-Tile installed in "Future House!" Catalog describes this product, its advantages over ordinary cork flooring, its use for walls and wainscots. Page of technical detail. David E. Kennedy, Inc. G. 175

Invisible Warmth

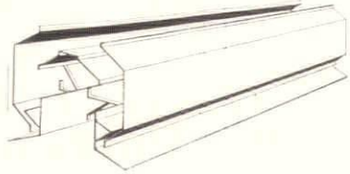
Aero Convector, a concealed heating unit, scientifically designed to heat by convection. Testimonials, installation pictures, performance data, ratings, construction details, dimensions. Mellon Institute of Industrial Research among great buildings warmed by Aero Convector units. National Radiator Corp. G. 176

Heat and Air

Automatic conditioning in a single unit. Burns low-grade fuel oil. Air-conditioning features on new, double-purpose unit cost less to operate than ordinary indirect living-room electric lamp. General Electric Co. G. 177

New Burt Development

Monovent Continuous Ridge Ventilator. Gives appearance of a ridge roll, harmonizing architecturally with building design. Windband and inner baffles take advantage of wind effect to greatest possible extent. Capacity tables. Burt Manufacturing Company. G. 178



Boilers and Radiators

Eight different styles of boilers, both round and sectional, plain and jacketed, for hot-water, steam, vacuum, and vapor heating systems, to burn all coals, coke, oil, or gas, in sizes to fit requirements of residential and commercial buildings, illustrated in color in book of 56 pages. Embodies many engineering tables of technical data, charts, blueprint drawings, sectional illustrations, performance data records. Crane Company. G. 179

Impulse Telemetering

Principle of Bristol's Metameter based on "Impulse" system of telemetering, according to A. I. E. E. Standard Definitions. Features, principle of operation, charts, uses, diagrams included on telemetering pressure, liquid level, temperature, flow and motion over simple, two-wire systems (telephone circuits included). Bulletin No. 424 of the Bristol Company. G. 180

Marble Plates

A. I. A. File No. 8b1 contains detail plates relating entirely to toilets and shower baths. Two plates show prominent installations and some marbles especially adapted for the purpose; one is devoted to marble tests and analyses. Vermont Marble Company. G. 181

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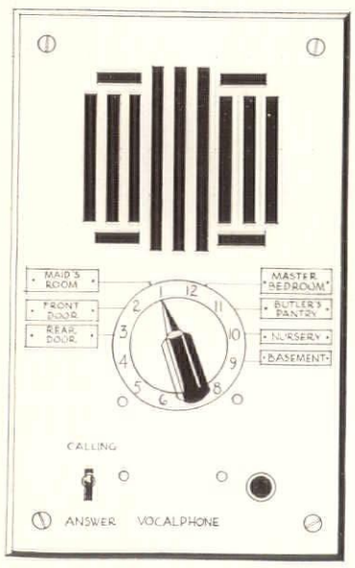

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Electric Air Heater

Twenty-four page Data Book No. 236 illustrates and describes space heating by Electromode forced heat. Cost comparisons, applications, compared heating methods, sizes and styles to suit every application. Electric Air Heater Co., Div., American Foundry Equipment Co. G. 184

Good Companions

For commercial and industrial heating, National Premier Steel Stoker Boilers and Iron Fireman Automatic Stokers. . . . For automatic home heating, National Bonded Jacketed Stoker Boilers and Iron Fireman Automatic Stokers go hand-in-hand. National Radiator Corp. and Iron Fireman Mfg. Co. G. 185

Unit Ventilators

Catalog No. 377-1 covers national sales and service, ventilating school buildings, operation of Common and De Luxe Unit Ventilators, sectional diagrams, three cycles of temperature control, capacity tables, dimensions and arrangements, and specifications. The B. F. Sturtevant Co. G. 186

Automatic Heat. What Is It?

Ten questions regarding automatic heat asked and answered. Branford Oil Burners, Models A and E, described. Malleable Iron Fittings Co. G. 187

Farlite

New, pre-finished building material for modernization as well as new work, to be used where marble, wood paneling or structural glass now employed. Bathrooms, kitchens, pantries, doors, windowsills, elevator cabs, barber shops, etc. Color designs and wood patterns molded into surface with Bakelite laminating varnish. Durable, lustrous, heat-proof. Farley & Loetscher Mfg. Co. G. 188

More Hot Water

Service heaters, preheaters and converters. Unless otherwise specified, heating surface in all Patterson Hot Water Service Heaters is seamless drawn "U" shaped copper tubing, mill tested to 1000 lbs. hydrostatic pressure per square inch. Storage capacity tables, heating capacities, clearance dimensions, conversion table, consumption chart. All hot-water heaters made by this company described in great detail. Patterson-Kelley Co., Inc. G. 189

Squirrel Cage

Induction Polyphase motor especially designed for refrigeration and air-conditioning application. Construction includes cast frame and end brackets, ample-sized shafts and bearings and well-anchored field and rotor cores. Electrolytic copper bars and end rings joined into a homogeneous, high-conducting joint. Century Electric Co. G. 190

Utility of Carbide Residue

Twenty pages telling how carbide residue can be used as principal ingredient in whitewash, fireproof cement, mortar, plaster, concrete or stucco. Industrial uses of residue as oil and dirt scavenger, cleaner for drainage pipes, brake and clutch dressing for machinery and as ingredient in boiler lagging. Linde Air Products Company. G. 191

Building Design Revolutionized!

An improved glass block which has stood up under 72,500 pounds of pressure to a single block. Reduces heat flow, deadens sound, transmits and diffuses light, deflects sun glare and resists fire. Especially adapted for industrial buildings, dairies, breweries, laboratories, filling stations, apartment structures, houses, mausoleums, and store fronts. Particularly desirable in air-conditioned buildings and in structures where large quantities of natural light are wanted. Tests showed no "sweating" when outside temperature was 16 degrees below zero with inside temperature of 70 degrees and 40 per cent humidity. Owens-Illinois Glass Company. G. 192

Arco Air Conditioner

Air conditioning in an integrated system, using radiator heat, provided through new air-conditioning machine, Model 101. Can be hooked in at any point on supply line of radiator heating system for conditioning a six-room house. Four different sets of controls provided. American Radiator Corporation. G. 193

Invisible Glass

All reflection eliminated to create illusion of perfect transparency! Constructed with camera-like precision, display windows are an arrangement of curved and straight surfaces of specially treated glass and mirrors that transfer to hidden light-absorbing areas all light that could cause reflections. Merchandise seen in the same light at any hour of the day or night without relation to natural light or weather. Invisible Glass Company of America. G. 194

Ceilings Won't Fall

New York City's Board of Education uses corrosion resistant tie wire for metal lathing to prevent recurrence of ceiling failure caused by corrosion of steel wire. Article appears in INCO magazine, published by The International Nickel Co., Inc. G. 195

Arc Welding Supplies

All newest developments in arc welding electrodes and accessories. Condensed manual on arc welding. Complete descriptions, applications and procedures given for electrodes for all welding purposes—mild steel, high tensile steel, light-gauge steel, 18-8 stainless steel, 25-12 stainless steel, high manganese steel, cast iron, aluminum, for hard facing to resist moderate shock and abrasion, rolling or sliding abrasion, impact and severe abrasion, and for making tool-steel cutting edges. Latest arc welding accessory details. Lincoln Electric Company. G. 196

Ivanhoe Reflector Equipment

Ivanhoe Reflectors for High Intensity Mercury Vapor Lamp used in industrial lighting. Descriptions, types, wattage, prices. More and better illumination at lower cost. The Miller Company. G. 197

Water Operated Coal Stoker

Only a water connection required, costing but a few cents a month. Rural water pressure systems make it available for country as well as city. Has only nine moving parts and simultaneous control of inlet and outlet water accomplished by flapper valve mechanism corresponding to operation of automobile vacuum tank. Less than ¾ pound of coal delivered at a stroke and speed of stroking can be regulated. Silent operation, simple mechanism, uniform heat and money savings. American Home Stoker Company. G. 198

Seven Sizes to Series 3

The addition of seven sizes to line of Series 3 Unit Heaters makes 20 standard models in complete and well graduated line providing sizes and capacities up to 1300 EDR. Data on complete line given in Data Book No. 537. Fedders Mfg. Co. G. 199

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Sarco Graduator System of controlling steam heating systems assures proper regulation of warmth in buildings of all types. Simple, mechanical system of fully automatic control, direct by the weather. Two thermostats, one outside, the other inside the building so actuate the main steam supply valve as to proportion the quantity of steam fed to the system accurately to the heat loss of the building. Ingenious automatic graduators assure rapid and uniform distribution of steam. Sarco Company, Inc. G. 200

Tilting Slats

Venetian Blind installations, tints and stains in which they are obtainable, specifications. Special section on slat arrangements for semicircular or elliptical tops. Burlington Venetian Blind Co. G. 201

Phillips Recessed Head

Self-centering screws and bolts mark first important improvement in screws since introduction of the gimlet pointed wood screw eighty-five years ago. Tapered recess exactly fits tapered driver, taking place of slot in ordinary screw. May be moved into position for driving with one hand. American Screw Company. G. 202

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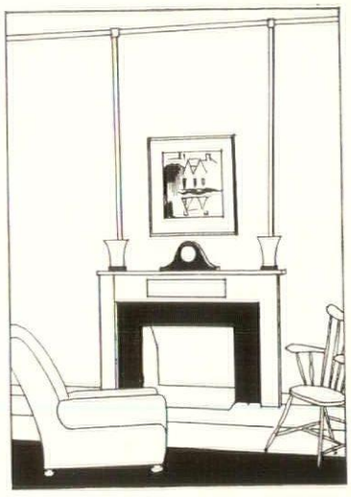
Radically different material for surface extension wiring in already-wired buildings. Listed and labelled by Underwriters Laboratories, Inc., and recognized by National Electric Code for circuit extensions made from existing outlet and confined to room in which they originate. Practical and feasible solution to problem of adding outlets. Bryant Electric Co. G. 203



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New! Extensive line of electric clock systems required in schools, hospitals, banks, and public buildings. Watchman's clock systems, elapsed time recorders, fire-alarm movements, fire and watch control desks for government buildings and industrial plants. Holtzer-Cabot Electric Company. G. 204

Air Conditioning Guide

An unbiased guide written for those contemplating purchase of air-conditioning equipment. Inside and outside design temperatures, internal heat sources, ventilation, general design, salvage value, controls, and cost of operation discussed. Frigidaire Corporation. G. 205

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Freon to you—complete series of technical papers compiled on stability, corrosive properties, behavior of certain metals in contact with Freon, flammability tests by the Underwriters' Laboratories, solubility relationships, specifics and methods of analysis, standard ton of refrigeration, design factors, and thermodynamic properties. Kinetic Chemicals, Inc. G. 206

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November, 1935

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PROJECT: Yardley Showrooms, Rockefeller Center

For Yardley's wholesale showrooms—designed by The Firm of Ely Jacques Kahn—we recommended Bigelow Lokweave Broadloom. This modern carpet shows *no seams* throughout its entire area. And damaged spots may be cut out and replaced without leaving a trace!

Mr. Kahn, who has used Bigelow carpets for many years, says that he has "found them entirely satisfactory"—and has found us "willing and helpful" in our cooperation.

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Bigelow Lokweave Broadloom in Yardley's

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WOVEN BY THE BIGELOW WEAVERS

Walls in contrasting colors of primavera and walnut. Deep rust carpet — one of 27 Lokweave colors.

mittee will function until a successor to Dean Joseph Hudnut, who resigned to head the faculty of Architecture at Harvard, is selected.

Developing the new educational policy which went into effect last year, steps have been taken to widen the opportunity for architectural training, emphasizing creative design and sound science, according to Professor Arnaud, who declared that "architecture is at the beginning of a period which promises to be the most brilliant in generations."

COMMUNITY PLANNING COURSE

NEW YORK University School of Architecture and Allied Arts announces a two-term course to be given by Dr. Carol Aronovici, of which the first term began September 24 last; the second term begins February 5, 1936. Among the outside lecturers in the course are: Werner Hegemann, Robert W. Gruere, Clarence S. Stein, Robert Whitten, and Henry Wright. For further details and application blanks, address the Admissions Office, Bryant Park Center, 1071 Sixth Avenue, New York.

NEW SCHOOL LECTURES

THE New School for Social Research is offering a series of ten lectures by Dr. Ernst Kahn on Friday evenings beginning October 4, last, and extending through December 13 on the general subject of "Management in Low Cost Housing." Dr. Kahn is a specialist in housing management and finance, and was formerly financial editor of the *Frankfurter Zeitung* and director of the Housing Research Institute, University of Frankfurt.

The New School is also offering a series of fifteen lectures by Dr. Werner Hegemann on Thursdays from 5:20–7 P.M., beginning October 3, last, and extending through January 23, 1936. The general subject is "Regional and State Planning." Dr. Hegemann is a well-known town planner, formerly editor-in-chief of *Städtebau* and adviser to the city of Düsseldorf.

WALTER SHARPLEY, 1881–1935

WALTER WILLIAMS SHARPLEY, architect, died at his home in Haddonfield, N. J., August 12.

Mr. Sharpley was born in Philadelphia, studied at the Pennsylvania Acedemy of Fine Arts, Drexel Institute, and the University of Pennsylvania.

In 1906 he won the John Stewardson Travelling Scholarship in Architecture, and studied for a time at the American Academy in Rome.

Among the more important architectural works for which he was responsible were the Bellevue-Stratford Hotel in Philadelphia; the Haddonfield Borough Hall; Hotel Dennis, Atlantic City; the Camden Club; Philadelphia Elks' Home, the 112th Field Artillery Armory addition in Camden.

Mr. Sharpley was assistant chief designer of exhibits at the Louisiana Purchase Exhibition, St. Louis.

SIR HENRY TANNER 1849–1935

SIR HENRY TANNER, architect, died at his home in London, September 3.

Sir Henry was born in 1849, and was knighted in 1904. For a time he served as chief architect for the Office of Works. Sir Henry was a pioneer in the use of reinforced concrete, and was responsible for the General Post Office, the first London building so constructed.

He was a Fellow of the Royal Institute of British Architects, a Fellow of the Chartered Surveyors Institution, and a member of other architectural and building groups.

CHARLES S. PEABODY 1880–1935

CHARLES S. PEABODY, formerly of the firm of Ludlow & Peabody, architects of New York, died of a heart attack September 10 at his summer home at Lake George, N. Y. Mr. Peabody had retired from active practice some five years ago, the work of the firm being carried on by his partner, William Orr Ludlow.

Mr. Peabody was educated at The Hill School and at Harvard, being graduated from the University in 1903. A year later he was enrolled at the Ecole des Beaux Arts in Paris. Upon his graduation from the Ecole in 1908, Mr. Peabody stood second highest in a class of 300.

Among the many important buildings throughout the country which the firm of Ludlow & Peabody designed are the Johns-Manville Building, Chase Tower, the Railroad Building and Loan Building and the New York Times Annex, all in New York; the First Presbyterian Church and parish house at Watertown, N. Y., the First Baptist Church at Westfield, N. J.; the Carson S. Peck Memorial Hospital, the Cumberland Hospital and the St. Giles Orthopedic Hospital, all in Brooklyn. Among the educational buildings designed by the firm are a group for the Peabody Teachers College at Nashville, Tenn., the gymnasium for the Stevens Institute of Technology, several buildings for the University of Georgia, a group for Skidmore College, Saratoga, a group for the Women's College of New Jersey, and several buildings at Hampton Institute, Hampton, Va. During the World War the firm was commissioned by the United States Government to design two hundred model homes for shipyard workers at Newburgh, N. Y.

PERSONAL

Albert J. Lothian, architect, announces that he has opened an office for the practice of architecture at Nassau, New Providence, Bahamas, B. W. I., and requests that manufacturers' catalogues be sent to him.

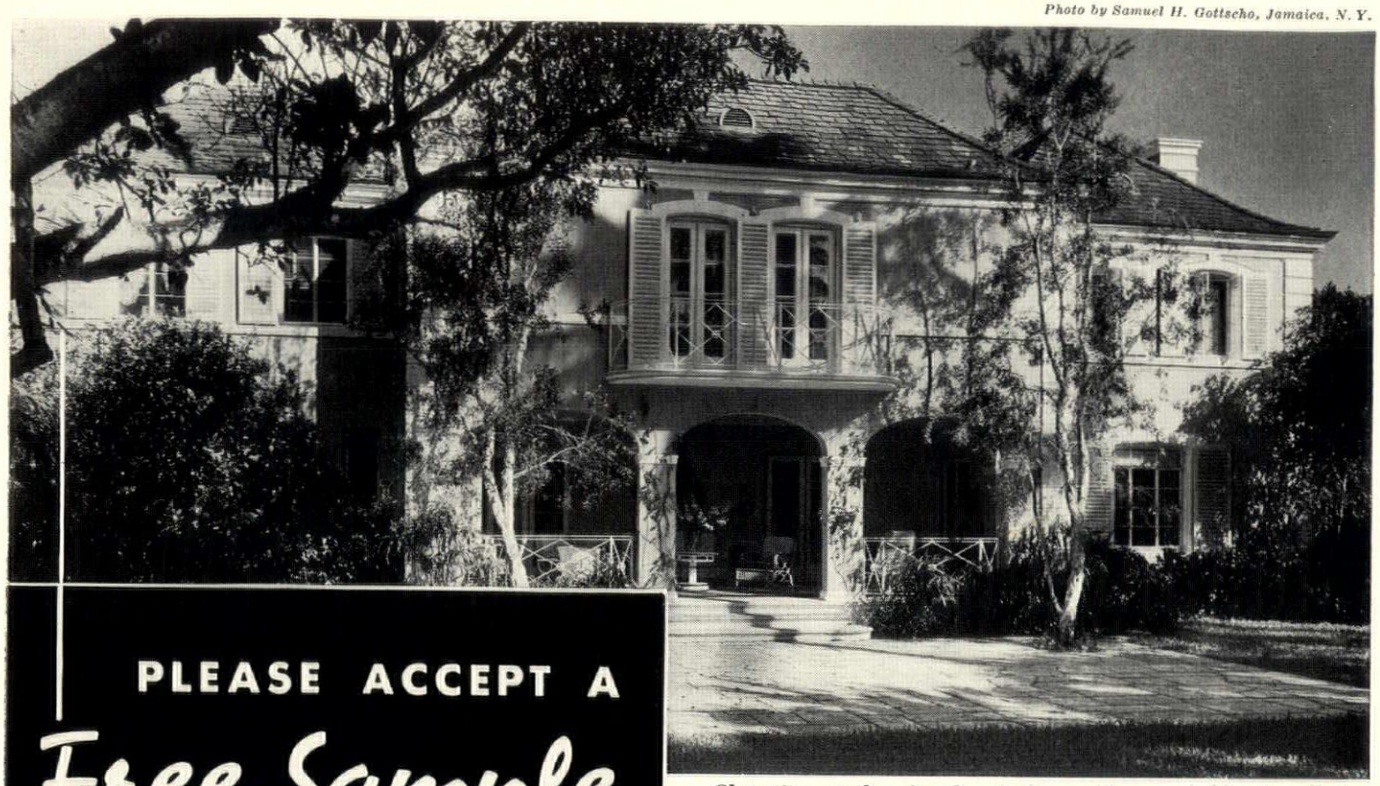
Architects Edward A. Nitsche and Wilfred W. Beach have closed their offices at 28 East Huron Street, Chicago. Mr. Nitsche's present address is 2843 North Kilbourne Street, Chicago. Mr. Beach is temporarily at 3707 West Cambridge Street, Seattle, Wash., completing the script for his forthcoming text-book on "The Preparation of Construction Specifications."

Warden H. Fenton, architect, formerly of Hiss & Weekes, announces the opening of offices for the practice of architecture at 101 Park Avenue, New York City.

Martin A. Preston, formerly of the firm of Brown, Preston & Derrick, architects and engineers, Detroit, has entered the practice of design and construction, interior decoration and landscaping of homes, with office and studio at 8 Ridgemont Road, Grosse Pointe, Michigan. Catalogues and information pertaining to homes, materials, furnishings, equipment, etc., are desired.

Bjarne C. Dahl, for some years architect with the territorial government, announces the opening of his own office at Room 1, Schuman Building, Honolulu, Hawaii, and would be glad to receive manufacturers' catalogues and informational data.

Photo by Samuel H. Gottscho, Jamaica, N. Y.



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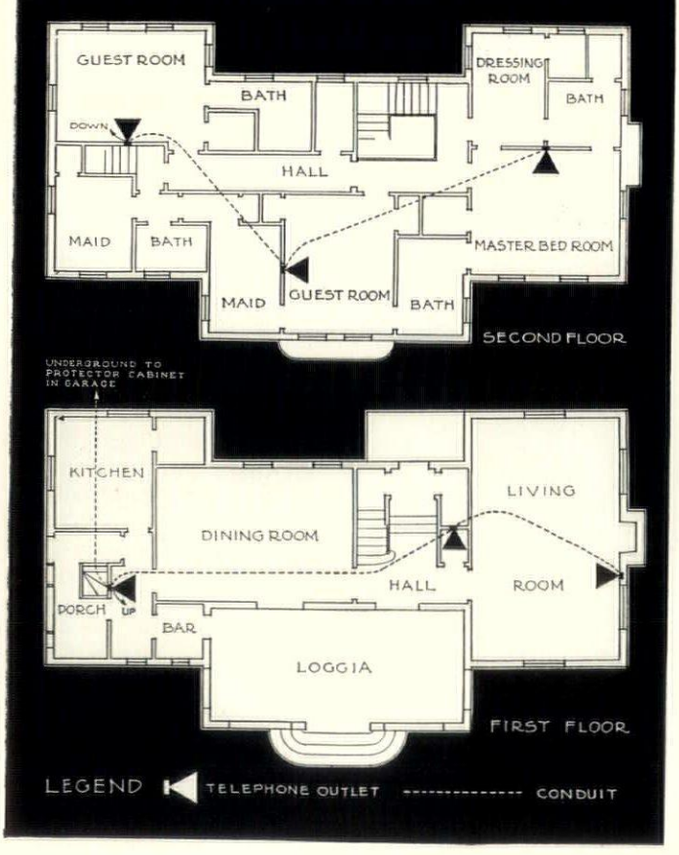

Charming garden façade of the residence of Maurice Fatio, Via Vizcaya, Palm Beach, Florida. Built-in conduit, connecting six outlets, provides for telephone convenience. . . . Architects, TREANOR AND FATIO, Palm Beach.

SOCIAL and business life today depends so largely upon the telephone that no home is quite modern without adequate telephone facilities. Many architects provide for them as carefully as for electric lights or heating systems. And to assist in this pre-planning, telephone companies offer the service of trained technical staffs, without charge.

Co-operation between architect and telephone engineer is highly desirable for a number of reasons. Telephone conduit costs much less to install during construction than later. Extra outlets can be located in anticipation of future needs. Then, as families grow up, telephone service can be easily extended without the necessity of piercing finished walls and floors and without exposing the wiring.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933.

Of ARCHITECTURE, published monthly at New York, N. Y., for October 1, 1935.

State of NEW YORK, County of NEW YORK.

Before me, a NOTARY PUBLIC in and for the State and county aforesaid, personally appeared CARROLL B. MERRITT, who, having been duly sworn according to law, deposes and says that he is the BUSINESS MANAGER of ARCHITECTURE, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

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EDITOR: Henry H. Saylor . . . . . 597 Fifth Ave., New York, N. Y.
MANAGING EDITOR: None
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2. That the owners are: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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CARROLL B. MERRITT, *Business Manager.*

Sworn to and subscribed before me this 24th day of September, 1935.

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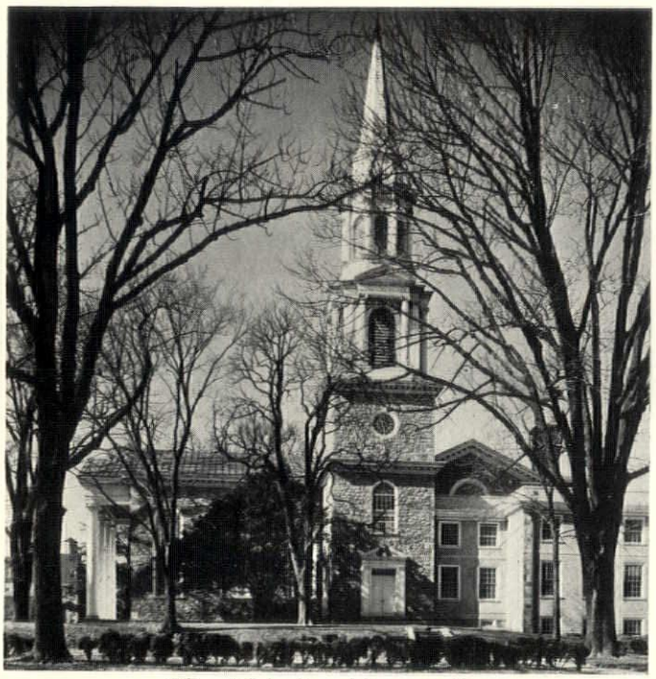

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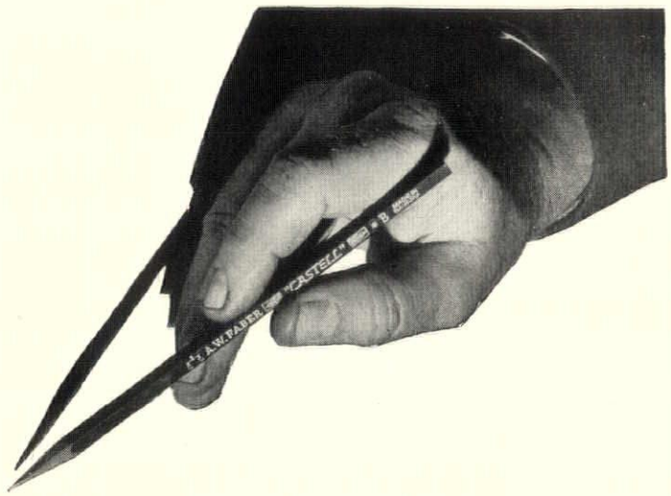

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