THE ARCHITECTURAL RECORD

Published Monthly by F. W. Dodge Corporation, 115-119 W. 40th St., New York
Truman S. Morgan, *President* Sanford D. Stockton, Jr., *Secretary* Howard J. Barringer, *Treasurer*

VOLUME 66 SEPTEMBER, 1929 NUMBER 3

Yearly Subscription: United States, Insular Possessions and Cuba, $3.00; Canada, $3.60; Foreign $4.00. Single Copy 60c. Member, AUDIT BUREAU OF CIRCULATIONS *and* ASSOCIATED BUSINESS PAPERS, INC.

Entered as second class matter May 22, 1902, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

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PORTFOLIO

OF

COLOR PLATES

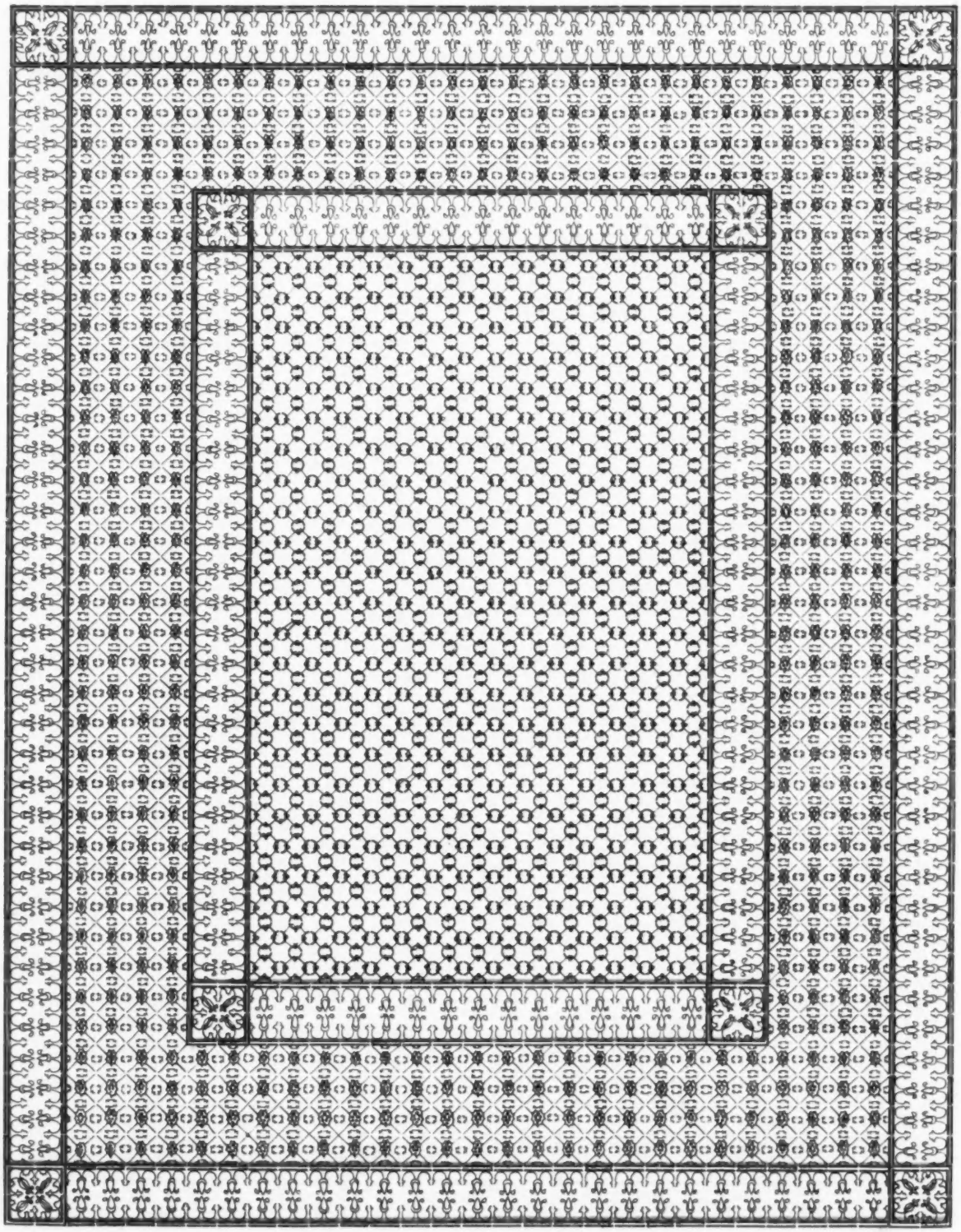
SHOWING

DETAILS OF MAJOLICA FLOOR TILES

IN THE

CASTLE OF ST. ANGELO,

ROME



MAJOLICA FLOOR IN THE CASTLE S^T ANGELO. ROME

PLAN OF COMPLETE FLOOR

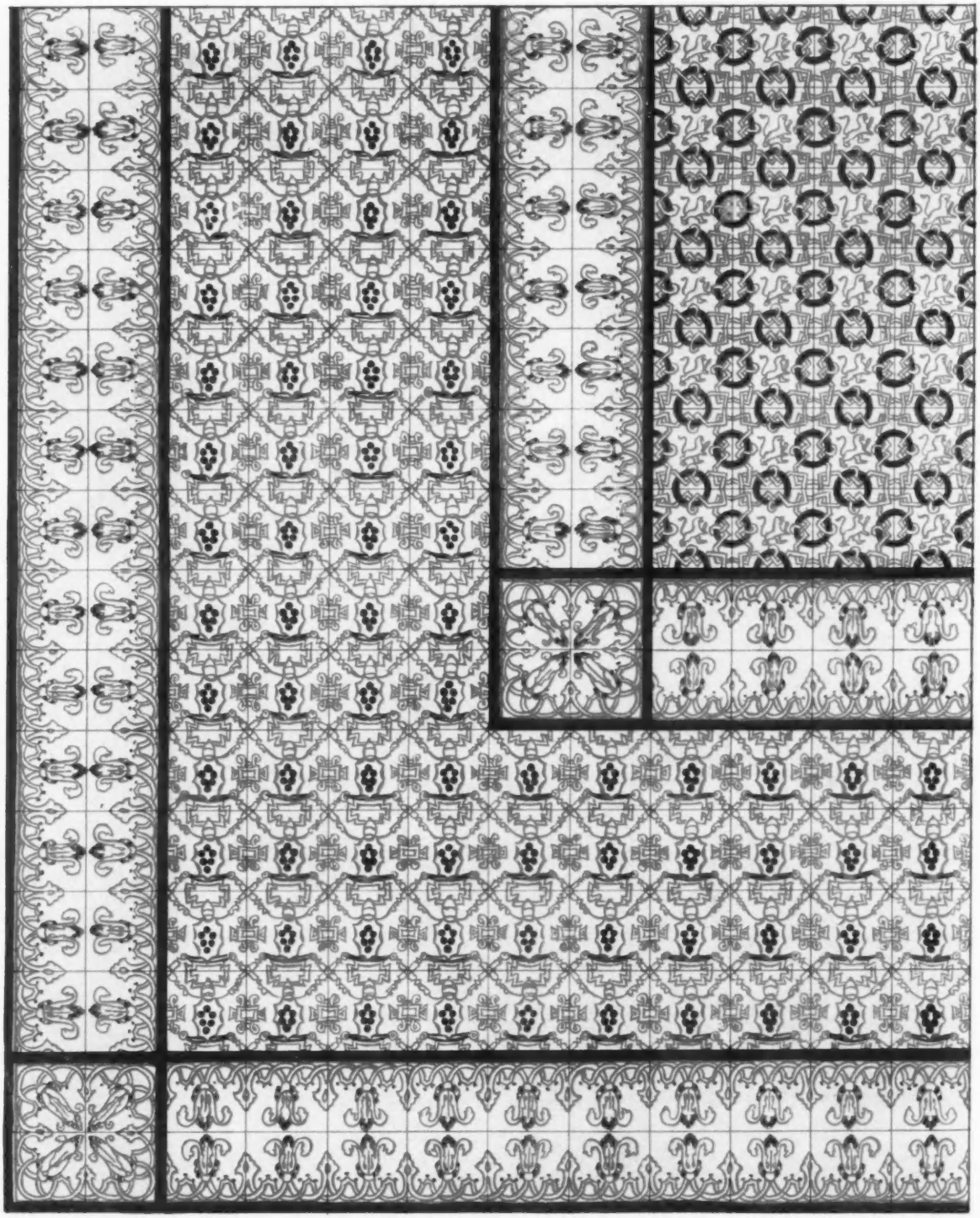
ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.

PLATE II

Majolica, as a species of Italian faïence, differs technically from common pottery by the thin coating of opaque and generally white tin-enamel which protects the surface and on which is laid and fired a painted decoration. Alkalies and oxide of lead form the basis of the vitreous glaze.

The tile pavements are the most enduring evidence of the art of the majolist. Very pleasant to the eye must have been the variegated pavements with which, like a rich carpet, he covered the bare soil. Some of these still exist in many old churches.

In the Castle of Saint Angelo at Rome, decorative tiles bearing the arms of Pope Nicholas V, 1447–1455, have been discovered.



MAJOLICA FLOOR IN THE CASTLE S^T ANGELO
ROME
CORNER DETAIL.

ARCHITECTURAL RECORD SERIES.
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PLATE III

"Some writers have advanced the suggestion that the manufacture of majolica penetrated into Italy through Sicily . . . No value is now attached to Vasari's statement that the discovery of the stanniferous enamels was due to Lucca della Robbia. The author of *The Lives of the Painters* was only indirectly interested in pottery; doubtless he believed that the first sculptor who gave an artistic application to opaque enamels was the inventor of the whole process. Any pot-maker of his time could have set him right in that respect. The priority of the Moors, and of their early imitators in Italy can not any longer be disregarded . . .

"Faenza takes first rank among the Italian factories. So widespread was the extent of its commercial intercourse that the name of the town became a byword in international trade; the word Faenza, or faïence, being understood as a designation for every kind of white ware that was not actually porcelain. A kind of metropolis of the art, Faenza attracted all talents and supplied well-trained hands to minor ateliers.

"Rome may have had numbers of obscure suburban pot-works which have never ceased to supply the population with earthen vessels of all kinds; but the regular manufacture of artistic majolica does not seem to have ever been firmly implanted in the Eternal City."

—M. L. Solon,
A History and Description of Italian Majolica.

MAJOLICA FLOOR IN THE CASTLE S^T ANGELO

ROME

HALF SIZE DETAIL OF THE FOUR TILES USED IN THE DESIGN

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POLYCHROME FLOORS
ANDRÉ LECONTE, MES ET DEL.

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF
ARCHITECTURE & THE ALLIED
ARTS & CRAFTS

VOLUME 66 SEPTEMBER 1929 NUMBER 3

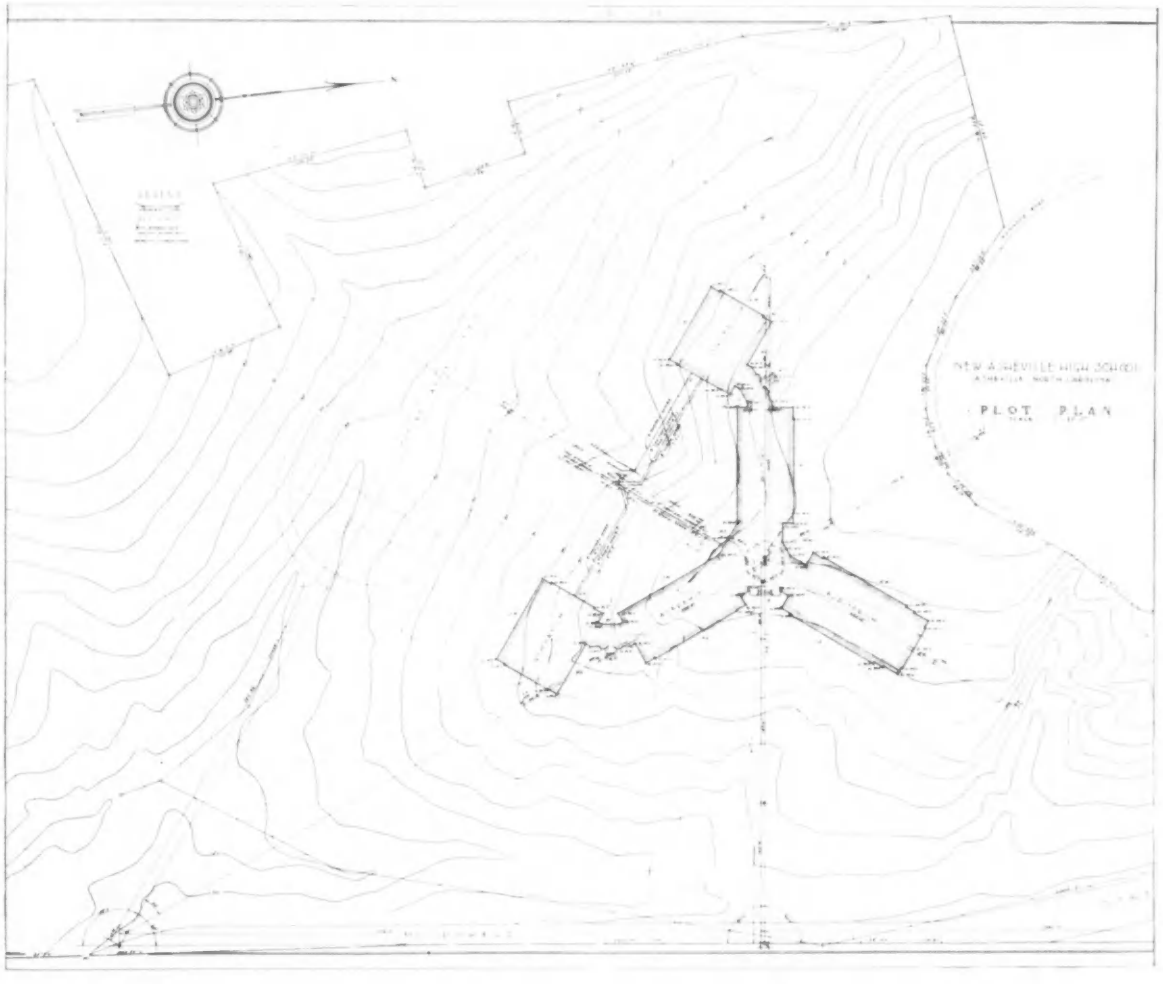
THE NEW SENIOR HIGH SCHOOL OF ASHEVILLE, NORTH CAROLINA

DOUGLAS D. ELLINGTON, ARCHITECT

THE ERECTION of the new senior high school building of Asheville constitutes the first step in a comprehensive program which has as its ultimate objective the creation of a municipal college.

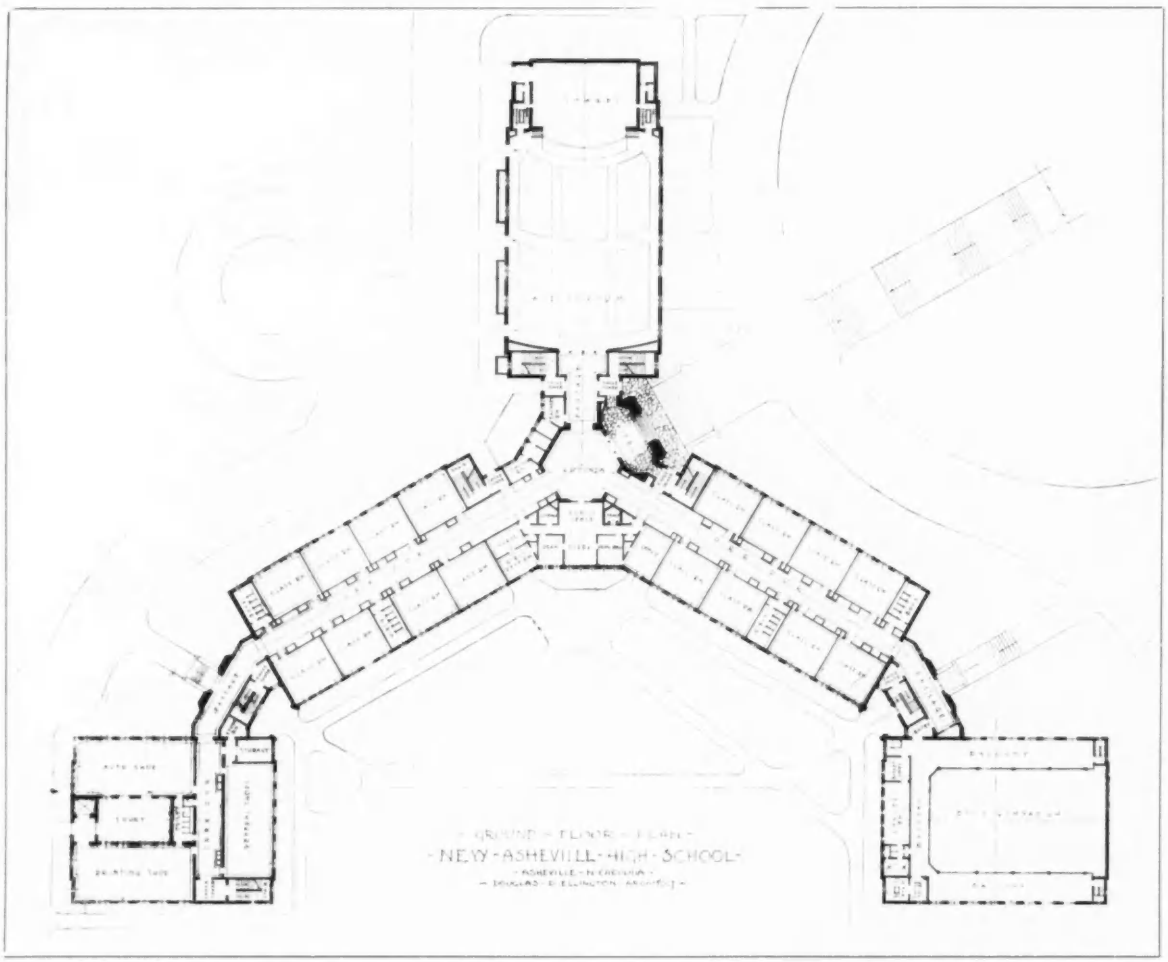
The general site consists of fifty acres of luxuriant woodland located directly between Asheville and the outlying district of Biltmore. About this property new boulevards have been developed, making it directly accessible from the city. The property itself consists of two balanced eminences divided by a natural meadowland or flattened ravine. The eminence to the right of the principal approach to the property was selected as the site for the first group, the senior high school unit, the other eminence being allotted to a future junior college division. A stadium and athletic field are to occupy the broad portion of the ravine and at the narrow point of the ravine a bridge-like structure houses the central heating plant and provides a bridge approach to the site for the future junior college. Another natural depression, adjacent to the auditorium wing of the high school building, is to be developed as an open air theatre. Ultimately an administrative building will be placed near the front center of the general property.

The initial step in solving the architectural problem was the preparation of a plaster model of the general property and approaches, followed by plaster blocks scaled to parallel the floor and area requirements of the high school program, which had been analyzed exhaustively under combined study between school officials and the architect, with Dr. N. L. Engelhardt, Teachers College, Columbia University, as chief adviser. These plaster blocks, in mobile units, were then studied for assemblage, the architectural idea being to combine these sub-units in such a way as to secure symmetry and coördination of requirements and location without disturbing the natural earth slopes any more than was absolutely necessary. Following this, the usual preliminary plans and elevations were prepared, and these again were made the subject of careful review between the school officials and the designer. The final plans embraced anticipatory provision for doubling the capacity of the high school plant without architectural or practical inconsistencies.



A very happy asset in the evolution of the design was the availability of a beautiful and unusual local granite known as "Balfour Pink," quarried near the adjoining city of Salisbury, N. C. The photographs show how the rubble run of this granite was selected and laid, the spandrel features being made up of ordinary paving blocks of this same material. The color of the granite runs from cream through gray to a rich pink, the general effect of the finished surfaces, laid in random shades, being a warm clay pink of brilliance and richness. The entire structure is roofed in tile of a deep variegated heather tone which harmonizes splendidly with the walls. In the central tower bands of tawny Airedale brick and blocks of ordinary rust-toned terra cotta flue lining are introduced for contrast. The ornamental seal of Asheville is introduced in the main face of the tower by brilliantly colored tiles. The principal flagging in the structure is in some areas Mount Airy white granite and in other areas slate-like slabs of an easily quarried, orange-colored stone which crops forth in the Smoky Mountains of North Carolina. All exterior gates, grilles and lighting fixtures are iron of natural finish. All road paving is pink granite.

The interior of the rotunda is finished in Airedale brick with a checkerboard pattern of alternate Airedale brick and light orange-colored smooth brick. The dedication tablet, lighting fixtures and other metal features in this area are natural bronze. The



floor of this area consists of dull red hexagon quarry tiles. The interior finish throughout the high school is a gray putty tone for the walls with stained woodwork harmonious with the wall tones. The circulation corridors are floored in terrazzo and the classrooms in maple. All furnishings, lockers and other equipment are finished to conform to their surroundings.

Leading away at angles from the rotunda are the three main elements of the building, an auditorium wing which has a cafeteria below, and two academic wings. At the ends of the academic wings are the vocational laboratories, workshops and gymnasiums. Each wing has a separate outside entrance as well as connecting passages, thus providing direct and easy circulation.

Surrounding the tower on the fourth floor is the department of music, with a large room for orchestra and band practice, and three smaller studios. The main auditorium, seating two thousand students, has a completely equipped stage and all facilities for dramatic presentation. On the main floor between the two academic wings, facing the west court and opposite the auditorium wing, are the administrative offices. Above is a spacious library flanked on either side with study halls. Nearby are the student activities rooms, providing for the various organizations of the school, grouped about a small auditorium adaptable for class meetings, debates and similar functions. Two gymnasiums are located at the end of the front academic wing. One, on the ground

Photo. Masa, Asheville

PRELIMINARY SKETCH, FRONT VIEW

Photo. Ball, Asheville

PANORAMA VIEW, ENTRANCE COURT

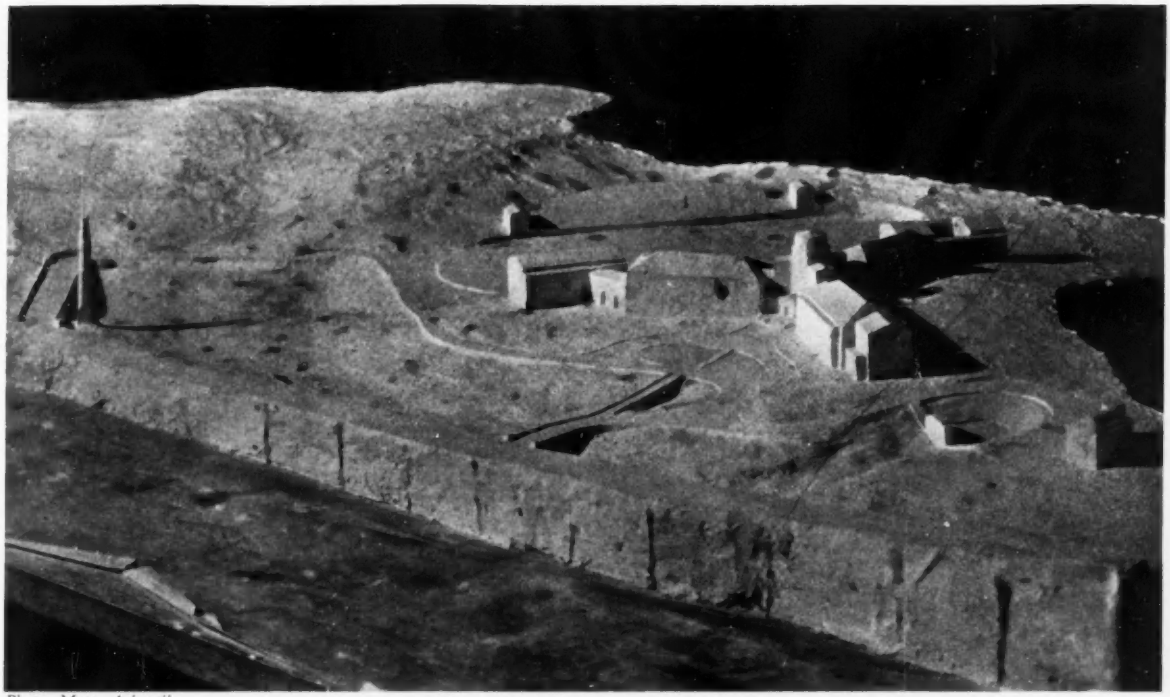
HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA

DOUGLAS D. ELLINGTON, ARCHITECT

floor in the physical education department, is for boys and for interscholastic games and has a gallery that seats fifteen hundred spectators. On the second floor is another gymnasium exclusively for girls. Below the ground floor are showers, dressing rooms, lockers, and a reception room for visiting players. The vocational training departments and laboratories are grouped at the rear of the second academic wing. In the manual arts building there is a printing shop with job presses and full equipment for teaching the fundamentals of hand composition; also electrical laboratories, metal and wood working shops, chemical and physical laboratories, mechanical shops and domestic science rooms.

All fire risks have been eliminated from the building. The structure is fire-proof, type A construction under the fire laws, and at each stair landing is a room open to the air but protected from the weather by glass-louvred windows. Direct steam radiation is employed, and direct ventilation and counter-balanced windows are used throughout. Down-feed heat pipes passing over vent ducts in the attic area create a continuous and efficient gravity ventilation.

There are sixty school rooms in the plant. The pupil capacity is two thousand. The total cost including the site and furnishings was approximately one million dollars. The cost of construction was thirty-two cents a cubic foot.



Photo, Masa, Asheville

MODEL OF SITE AND BUILDING

Photo, Masa, Asheville

AIRPLANE VIEW

HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA

DOUGLAS D. ELLINGTON, ARCHITECT

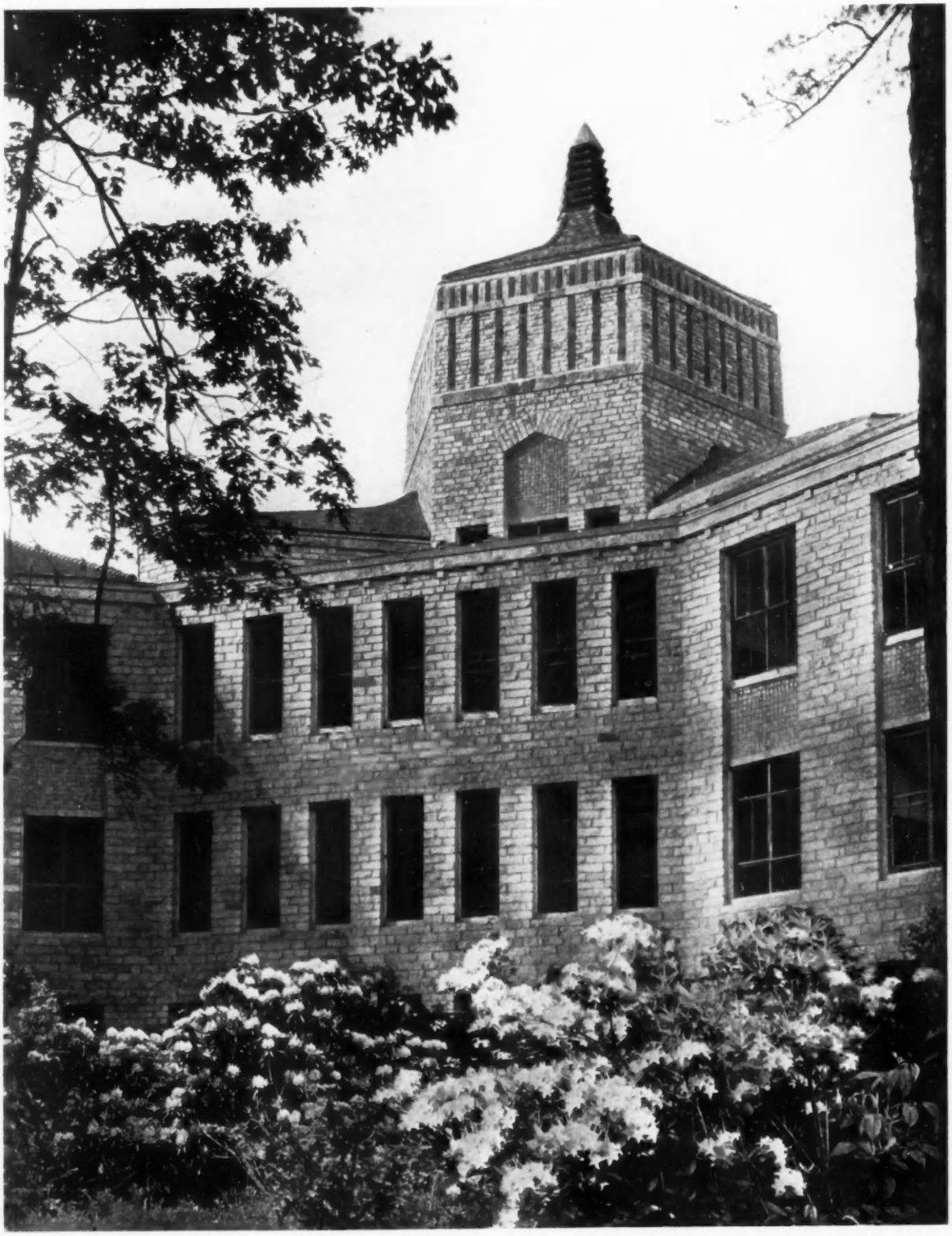
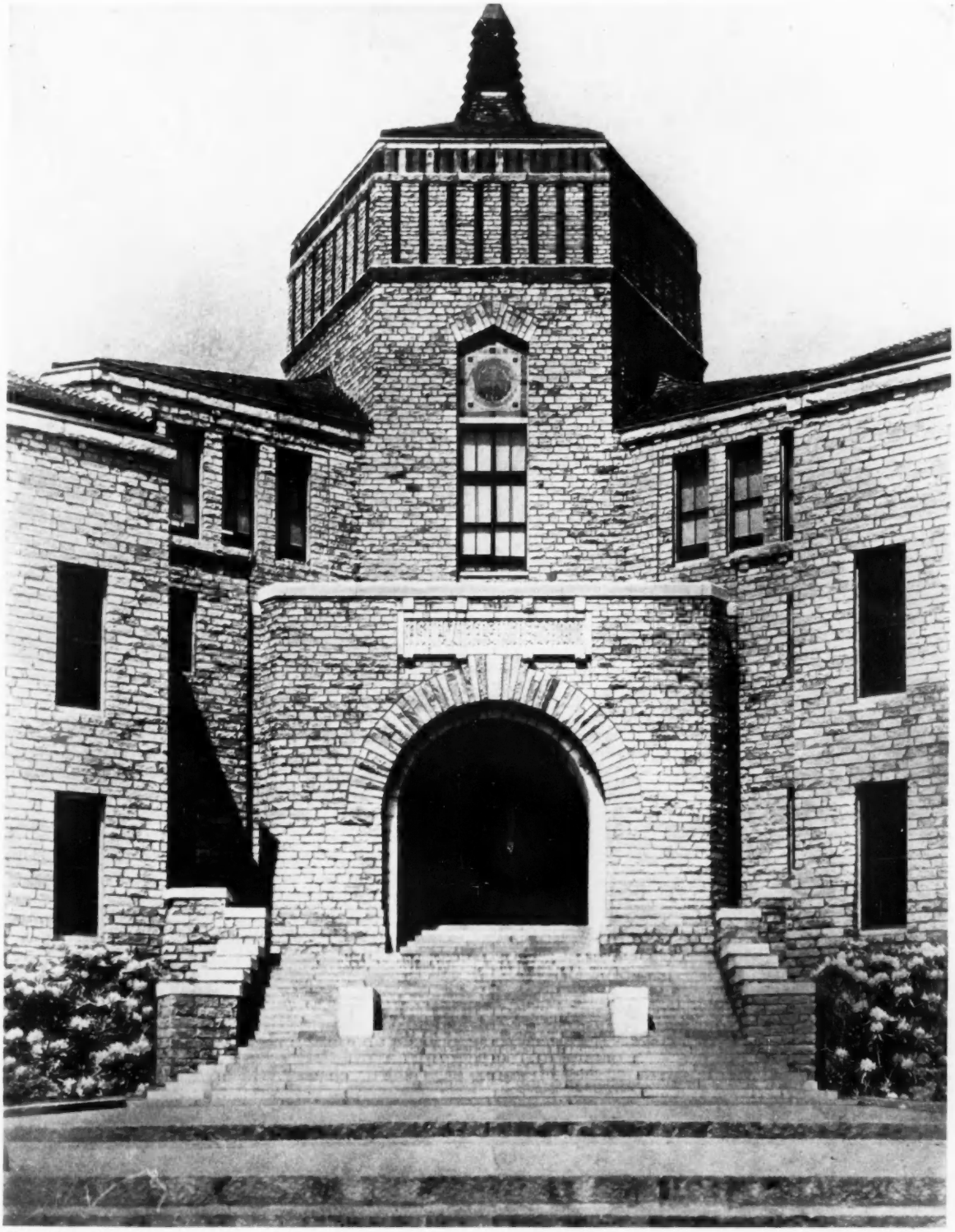


Photo. Masa, Asheville

VIEW OF TOWER FROM WEST COURT
HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA
DOUGLAS D. ELLINGTON, ARCHITECT



Photo, Masa, Asheville

CENTRAL TOWER

HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA

DOUGLAS D. ELLINGTON, ARCHITECT

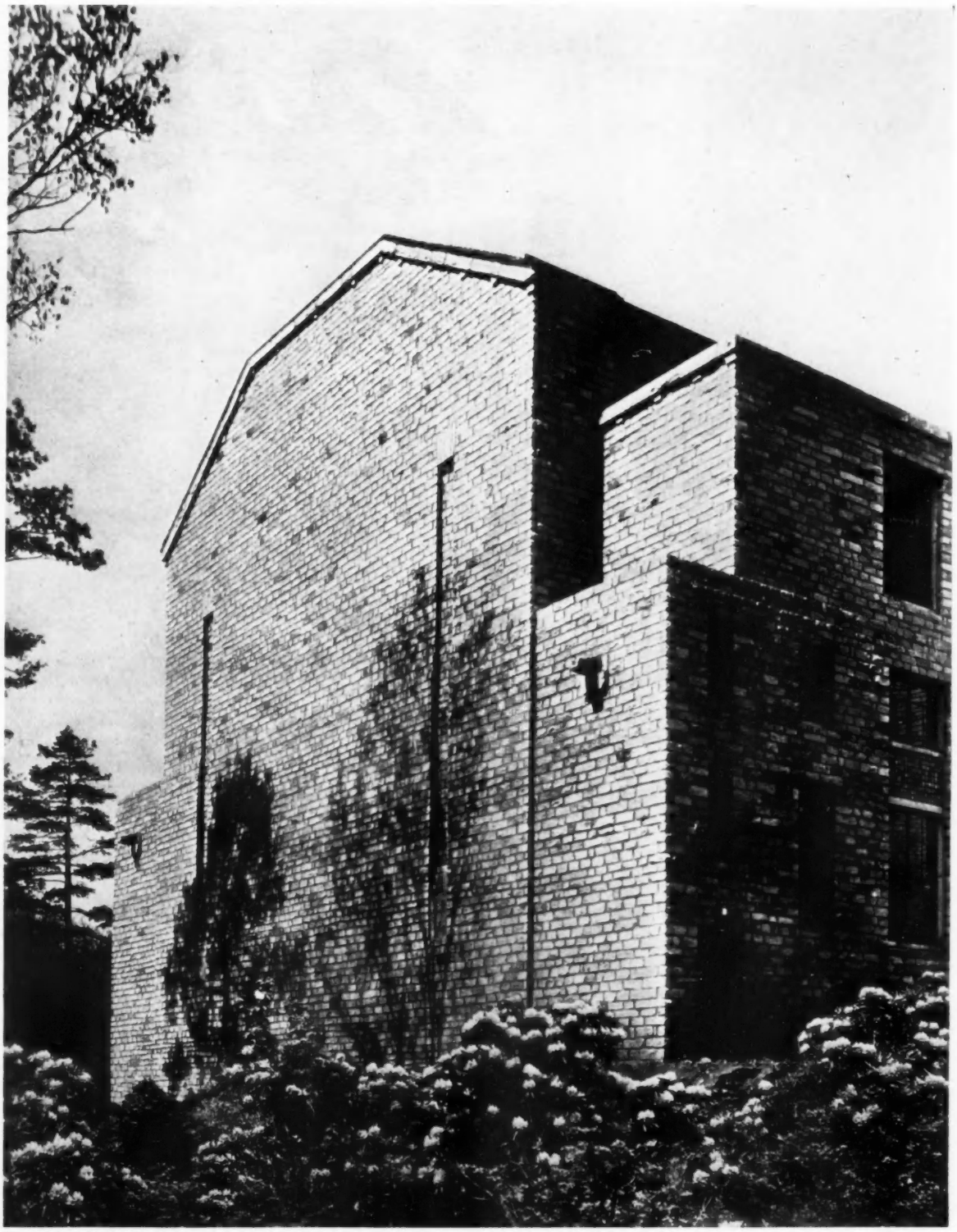


Photo. Masa, Asheville

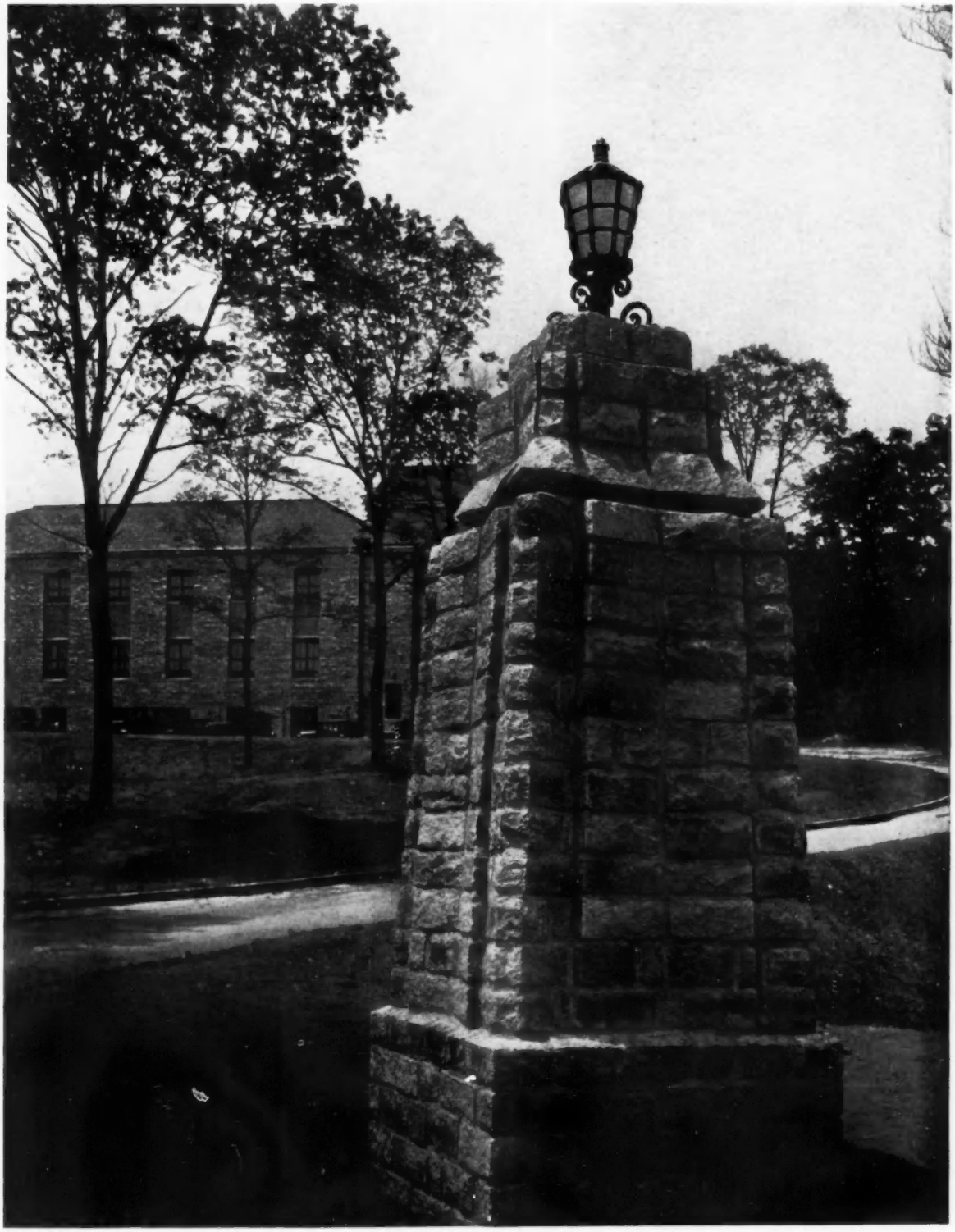
END TREATMENT OF GYMNASIUM WING
HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA
DOUGLAS D. ELLINGTON, ARCHITECT

Photo. Masa, Asheville

ENTRANCE TO SHOP WING

HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA

DOUGLAS D. ELLINGTON, ARCHITECT



Photo, Masa, Asheville

ENTRANCE PYLON
HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA
DOUGLAS D. ELLINGTON, ARCHITECT

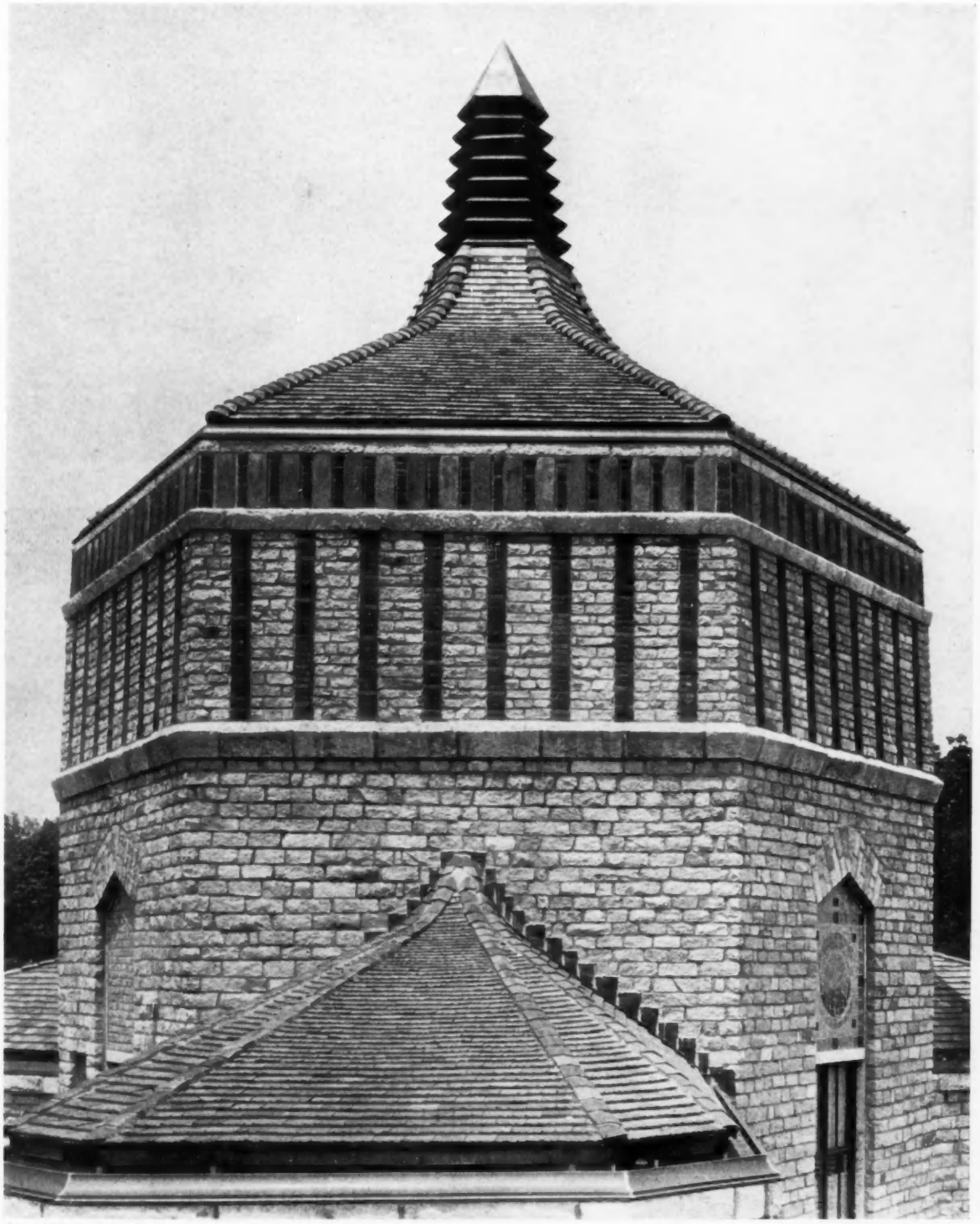


Photo. Masa, Asheville

DETAIL OF TOWER
HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA
DOUGLAS D. ELLINGTON, ARCHITECT

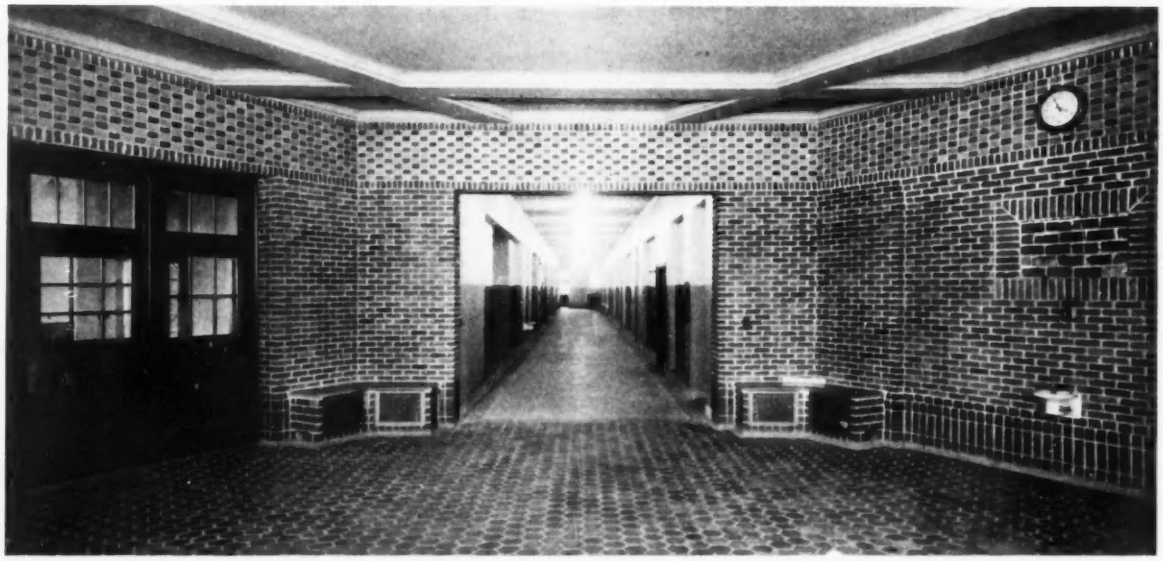


Photo. Masa, Asheville

INTERIOR

Photo. Masa, Asheville

ENTRANCE LOGGIA

HIGH SCHOOL, ASHEVILLE, NORTH CAROLINA

DOUGLAS D. ELLINGTON, ARCHITECT

Photo. Gillies

GENERAL VIEW OF ESTATE

COUNTRY HOUSE OF WARD M. CANADAY TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT

LOCATION:

A fifteen-acre site on a slight promontory overlooking a small river to the south and commanding a vista of rolling country in the distance.

•

THE ROOF:

Slates are varied in thickness and exposure, and in tones of dark purple and green. Valleys are rounded and the slates laid in a manner to avoid any mechanical appearance.

•

THE EXTERIOR:

The walls are brick, local stone and stucco, with the surfaces made slightly irregular in construction to give texture. The walls, including exterior timber work and porch posts, are whitewashed.

The whitewash applied to the dark creosote-stained oak was allowed to weather for several weeks. It was scraped off then with a stiff wire brush to achieve the appearance of old wood.

By using whitewash the architect sought a two-fold effect—to give unity in structure between the various materials with a plentiful contrast of light and shade, and to render the wall surface a pleasing background for the green shrubbery.

•

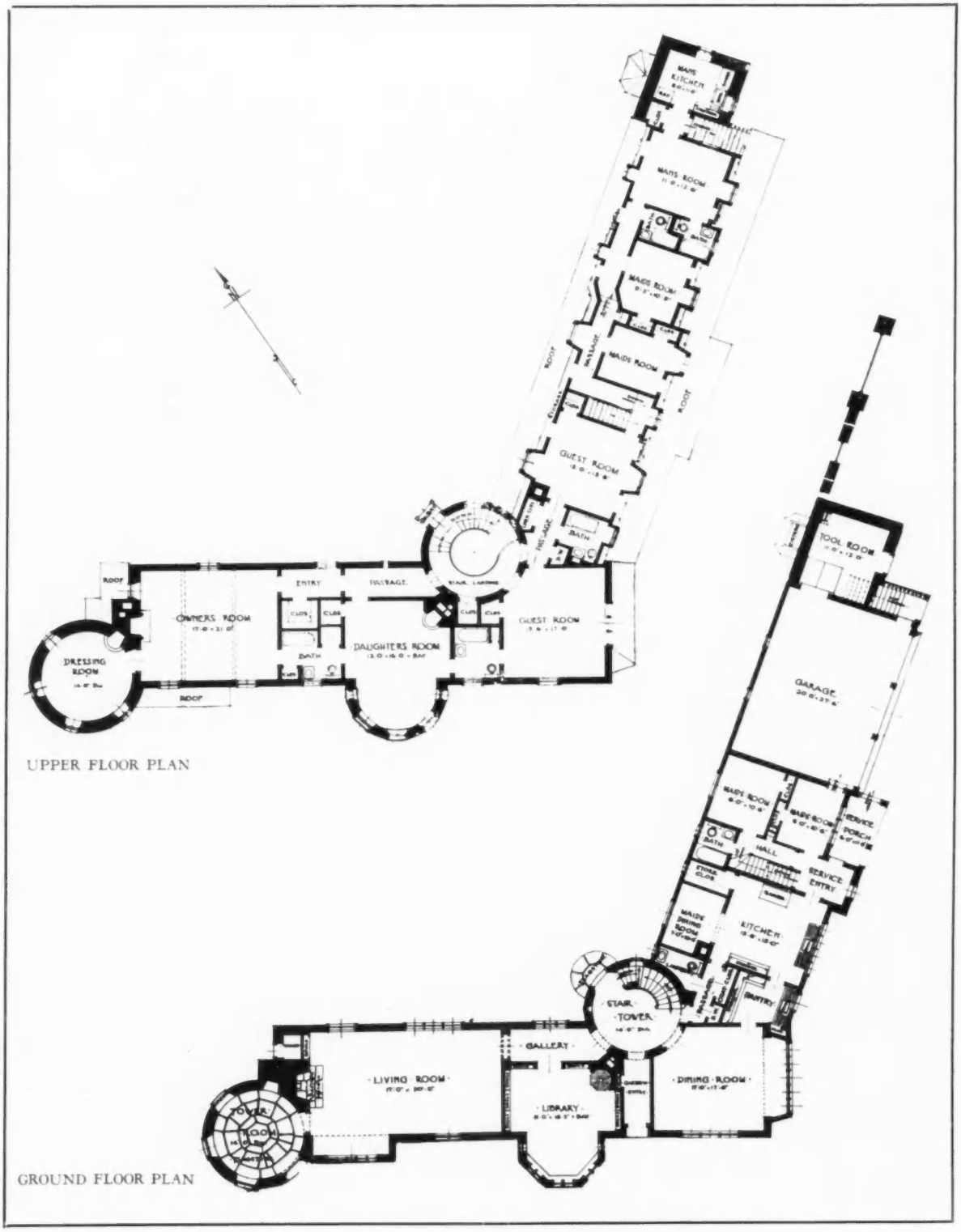
THE INTERIOR:

The woodwork, including the floor treatment, is largely oak.

The floor boards, random width, are several tones darker than the brown oil-stained trim. Stone being desirable in places as flooring, a flat blue stone was obtained and the surface waxed.

Patent plaster was used in three-coat work on the walls and ceilings, the last coat being trowelled to make an uneven surface. The ornamental ceiling of the library was pargeted in lime plaster. In several rooms the plaster walls are painted in mottled tones.

The circular stairs in the entrance hall tower are constructed of reinforced concrete. At the top of the tower is a frieze using the signs of the zodiac.



COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO
FRANK J. FORSTER, ARCHITECT

Photo. Gillies

VISTA OF TOWER

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT. PITKIN & MOTT, LANDSCAPE ARCHITECTS

Photo. Gillies

GARDEN TREATMENT

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT. PITKIN & MOTT, LANDSCAPE ARCHITECTS

Photo. Gillies

DETAIL OF GARDEN FAÇADE

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT. PITKIN & MOTT, LANDSCAPE ARCHITECTS

Photo. Gillies

GARDEN ENTRANCE

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT

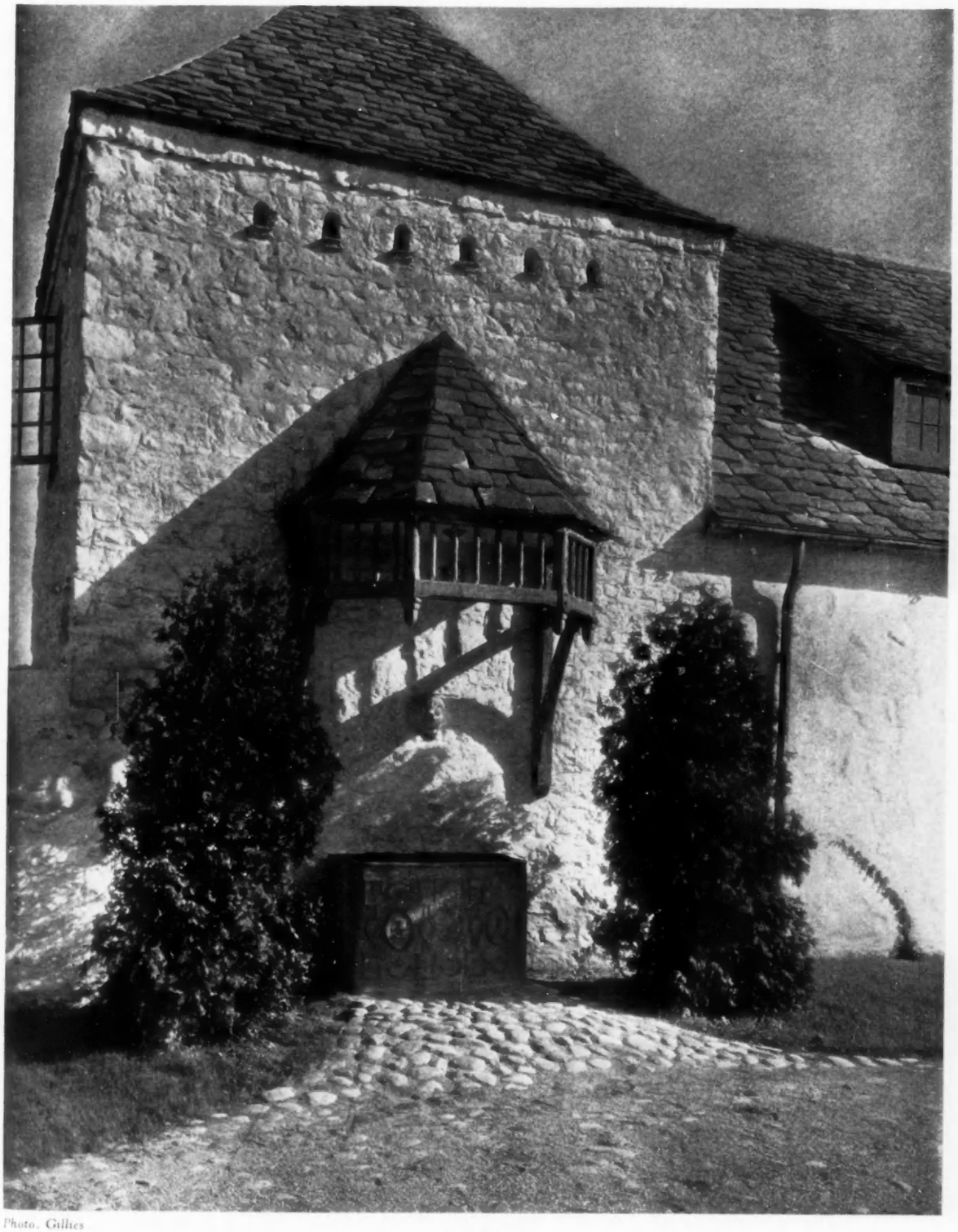


Photo. Gillies

CISTERN

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT

Photo. Gillies

ENTRANCE TO COURTYARD

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT

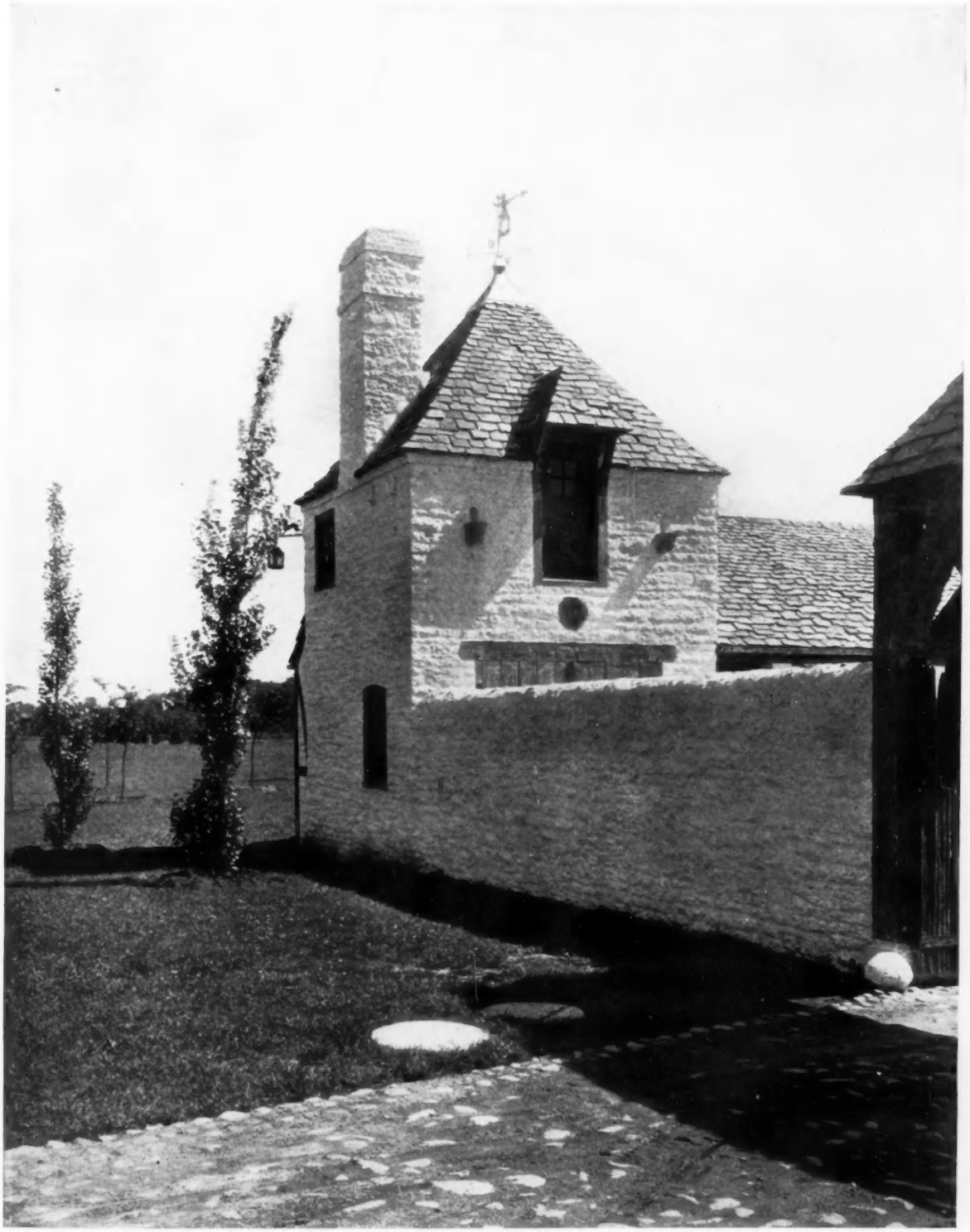


Photo. Gillies

CORNER OF COURTYARD
COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO
FRANK J. FORSTER, ARCHITECT

Photo. Gillies

ENTRANCE TO STAIR TOWER

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT

Photo. Gillies

INTERIOR OF STAIR TOWER
COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO
FRANK J. FORSTER, ARCHITECT

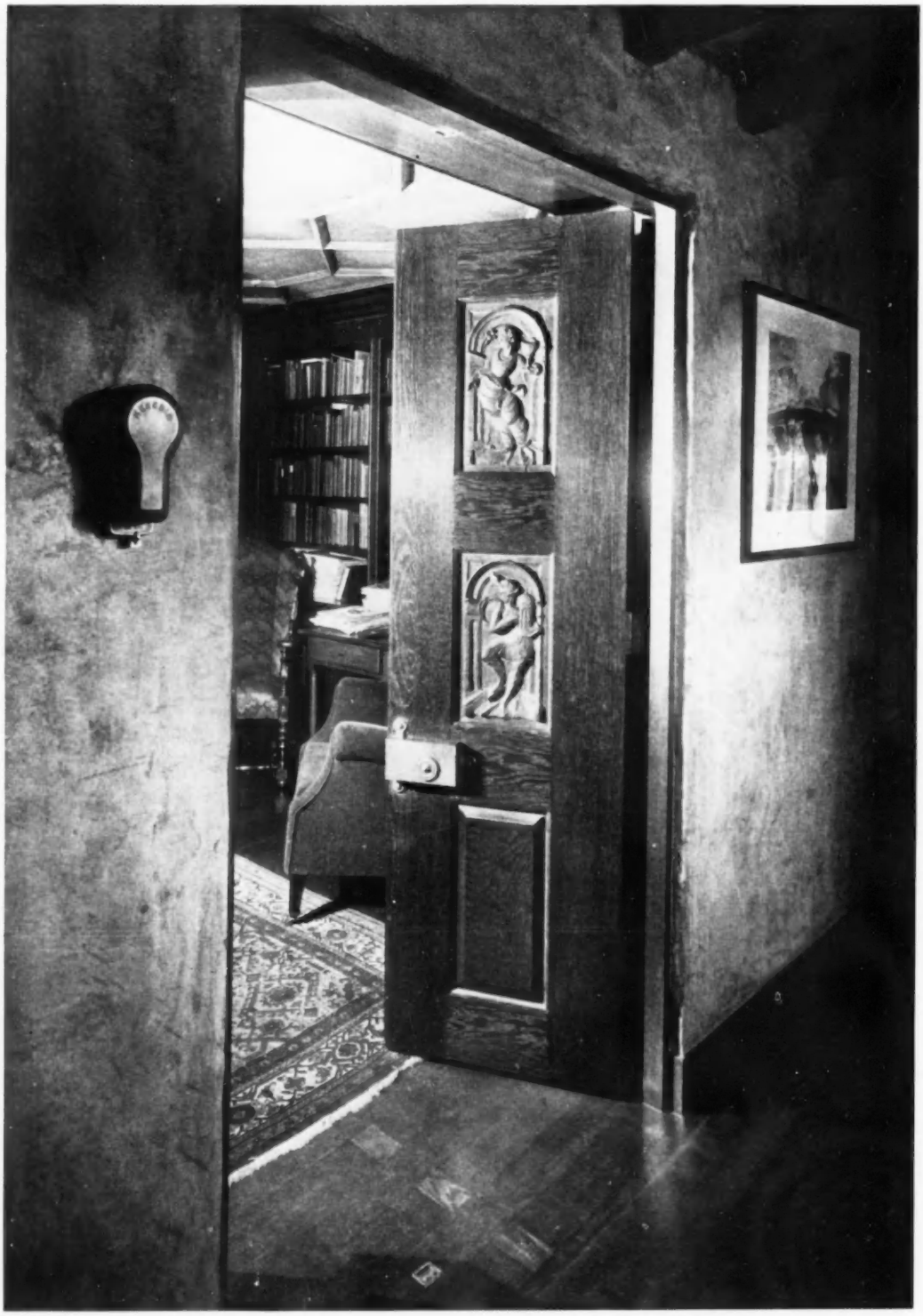


Photo. Gillies

LIBRARY DOOR

COUNTRY HOUSE OF WARD M. CANADAY, TOLEDO, OHIO

FRANK J. FORSTER, ARCHITECT

NORTH ITALIAN BRICK CHIMNEYS

BY MYRON BEMENT SMITH

PART III

WHILE it is true that in Italy the Renaissance architects seldom gave serious thought to the chimney, we have seen, in the first two articles of this series, how a man like Ricchini in designing the Palazzo Ducale at the Certosa of Pavia could make chimneys the most attractive feature of a composition. In Verona, on the roof of the Palazzo Pompei (not the one by Sanmicheli), are three carved brick chimneys designed with this palace which often make us regret that more men of that period did not turn their hands to similar productions. Figures thirty-seven and thirty-eight as well as the drawings, plates VI and VII, illustrate the center and one of the similar flanking chimneys that form this group. For the admirer of good brickwork these examples are a source of sustained inspiration.

PIAZZA SS. TRINITA, FLORENCE

Making allowance for the forms which are not perfect expressions of functional design, but are instead interesting Baroque compositions, our admiration will feed on the unsurpassed flexibility with which the designer has used his brick. Where in the history of brickwork have those rigid, three-dimensioned blocks been made to yield themselves more completely to the necessities of a design? That the material was not pushed beyond its structural limitations is proved by the present condition of these chimneys, untouched apparently for three hundred years. Close examination shows that there are no specially moulded bricks used in this construction. The colonnettes, balusters, dentils and finials are all cut out by hand from fine grained, hard bricks, then laid up in thin joints of strongest lime mortar. These three chimneys are now national monuments so that during the recent reconstruction of the palace these features were not touched.

Although it has been both plastered and whitewashed, the brick chimney that dominates the farm cottage at Rubano (figure thirty-nine), still expresses its brick construction, even if only in the band courses that mark the narrowing of the fireplace into the stack. The three small, circular chimneys from a farmhouse at S. Giuletta show interesting variations of a similar *parti*. Figure forty-one is now lacking the free-

FIG. 37

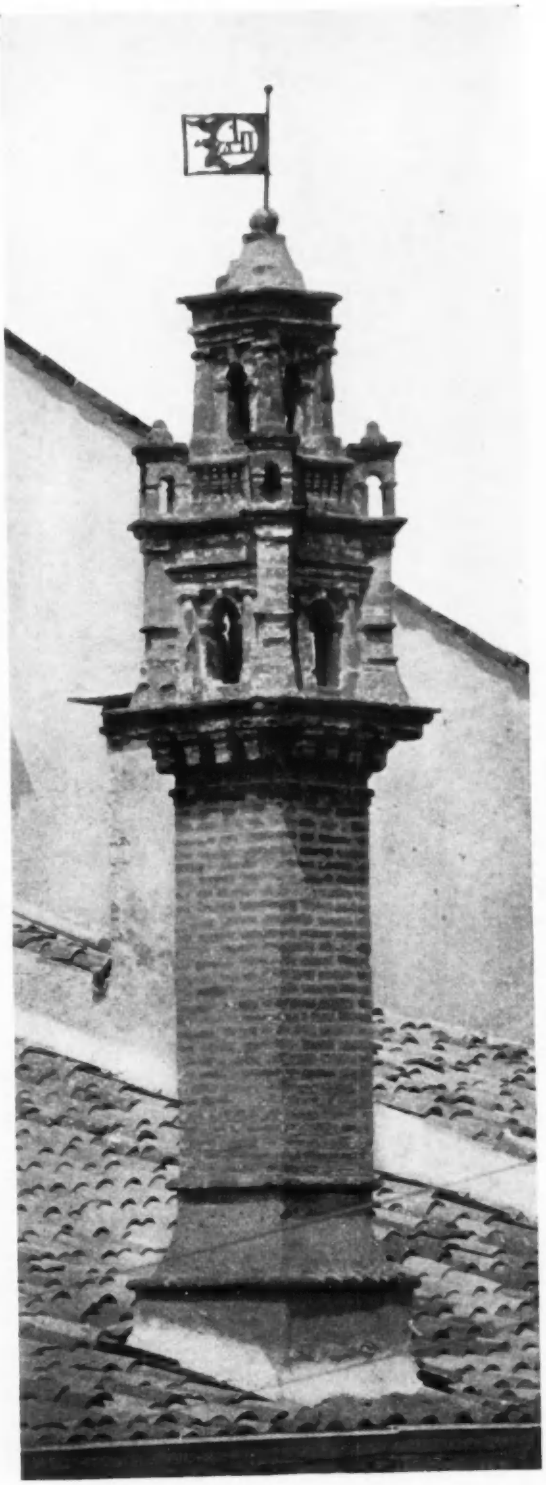
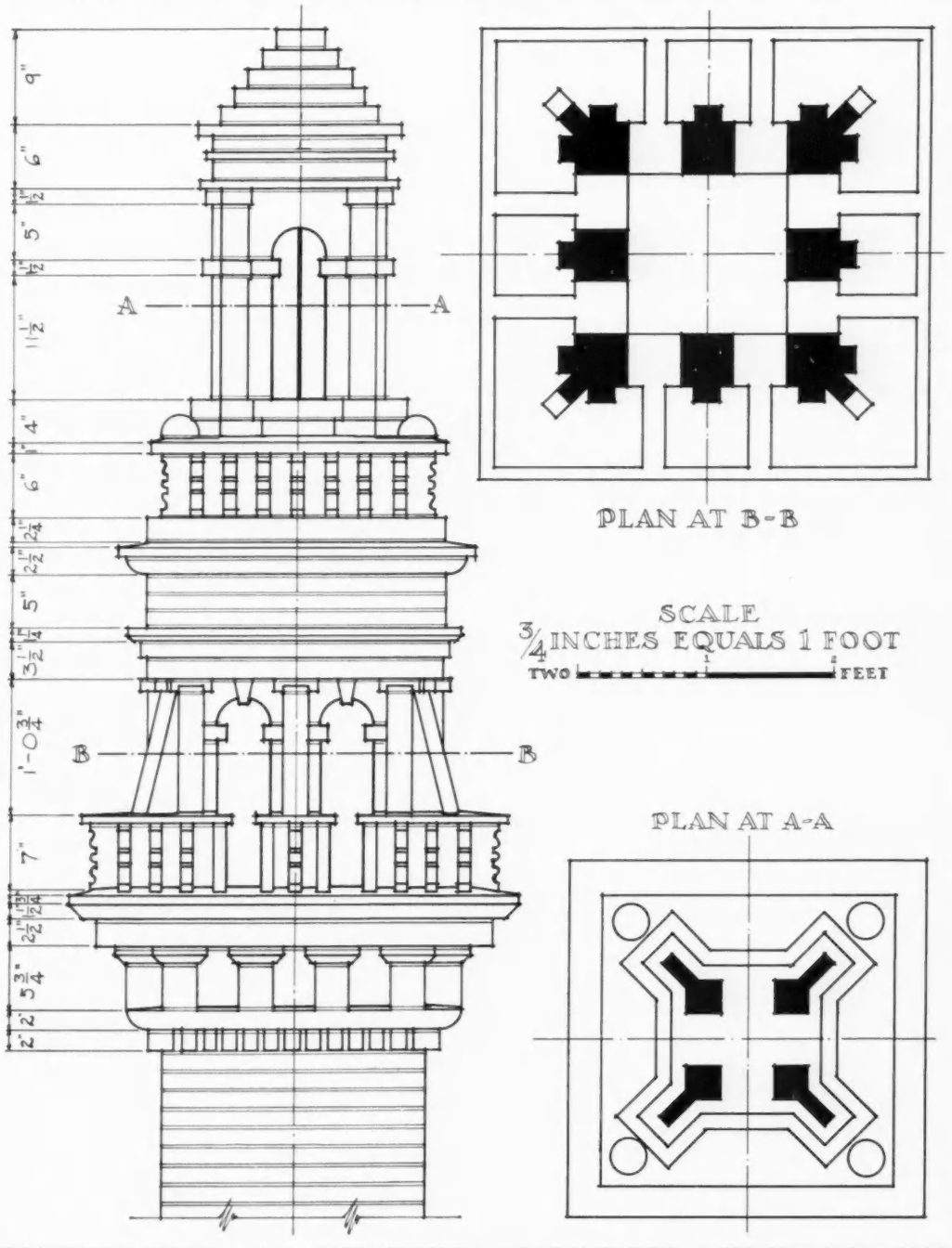


FIG. 38

TWO CHIMNEYS FROM VERONA



NORTH ITALIAN BRICK CHIMNEYS

PLATE VI · PAL. POMPEI, VERONA

MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

FIG. 39. RUBANO, NEAR PADOVA

FIG. 40. S. GIULETTA, NEAR PAVIA

FIG. 41. S. GIULETTA, NEAR PAVIA

FIG. 42. S. GIULETTA, NEAR PAVIA

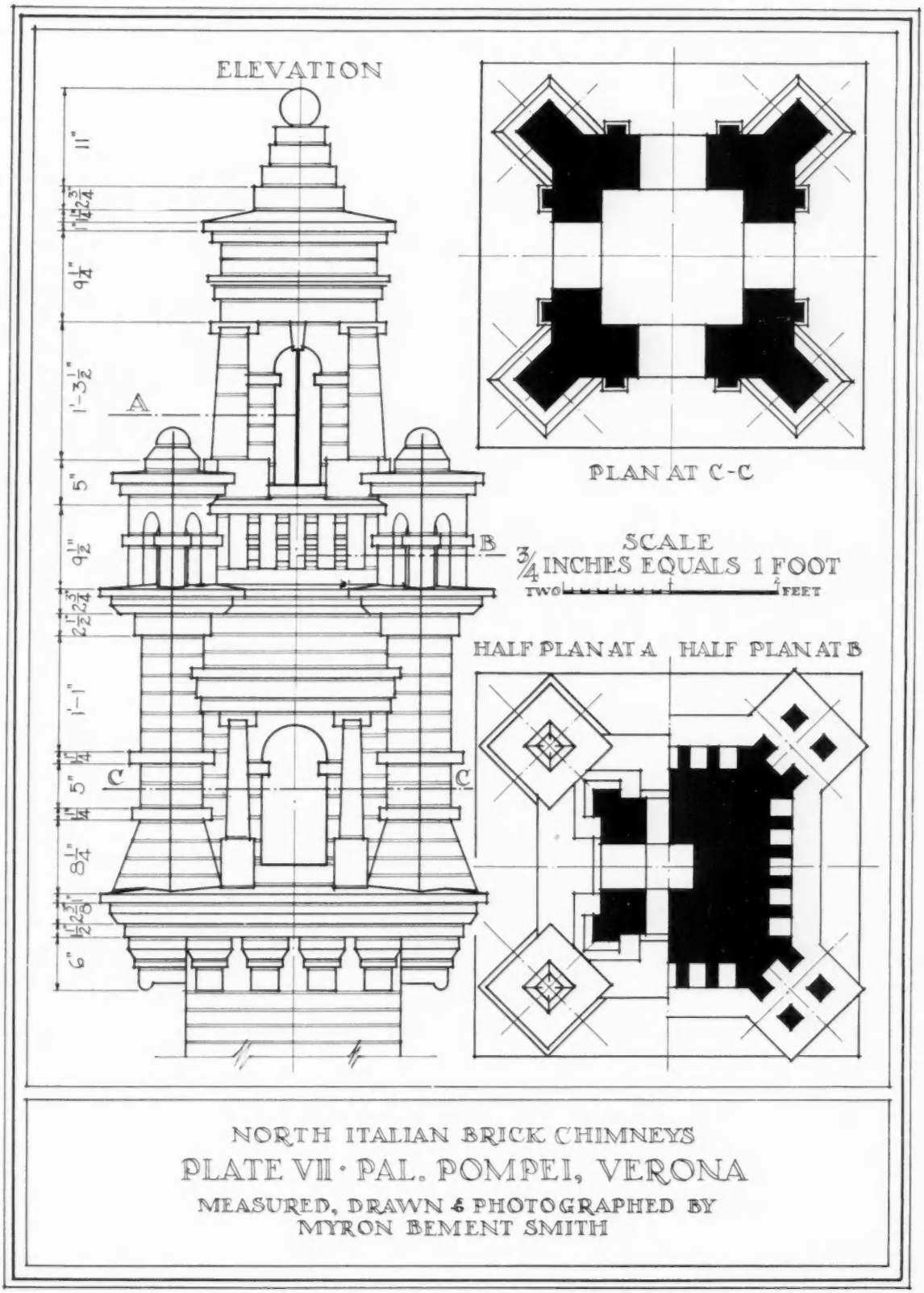
FIG. 43. NEAR PARENZO, ISTRIA

FIG. 44. PISINO, ISTRIA

FIG. 45. MOZZANICA, PROV. MILANO

FIG. 46. BUIE, ISTRIA

FIG. 47. TORRIANO, PROV. MILANO



NORTH ITALIAN BRICK CHIMNEYS

PLATE VII · PAL. POMPEI, VERONA

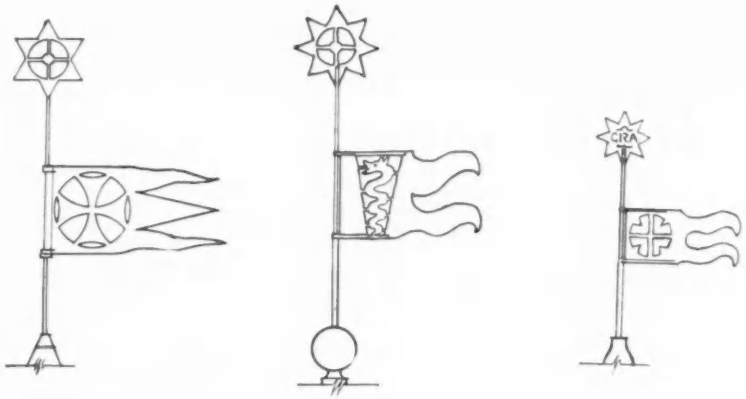
MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

standing colonnettes which were carried up from the brackets to the octagonal roof. The hand cutting on the colonnettes of figure forty-two is not difficult to distinguish. I suspect that all three of these examples once had additional finials, possibly balls or many-sided plinths.

Were the mortar not weathered away, the Istrian chimney (figure forty-three) would not merit publication here. I have said nothing of the colors of Italian brick in these articles, having treated the subject extensively in a previous series, *North Italian Brickwork*. Another Istrian chimney, that at Pisino (figure forty-four), was shown with its *entourage* in the preceding article. This telephoto view gives a better idea of the construction. In the same category, though dissimilar in form, is the Lombard chimney shown as figure forty-five. The square, spreading top of figure forty-six is seen all through the Venetian country. This and the divided top, though they are never built twice alike, are traditional forms that go back to the Gothic centuries. The exotic pair from Torriano (figure forty-seven), have their charm but the one to the right must be insecure structurally. The last one described in this article (figure forty-eight), is one of the oldest and most persistent forms in North Italy. Its details are far from simple. Note that the pan tiles are set over each other and that they are pitched for draining. This type of chimney is always surfaced with hard plaster and generally washed with water paint as in this example.

FIG. 48. S. LANFRANCO, PAVIA

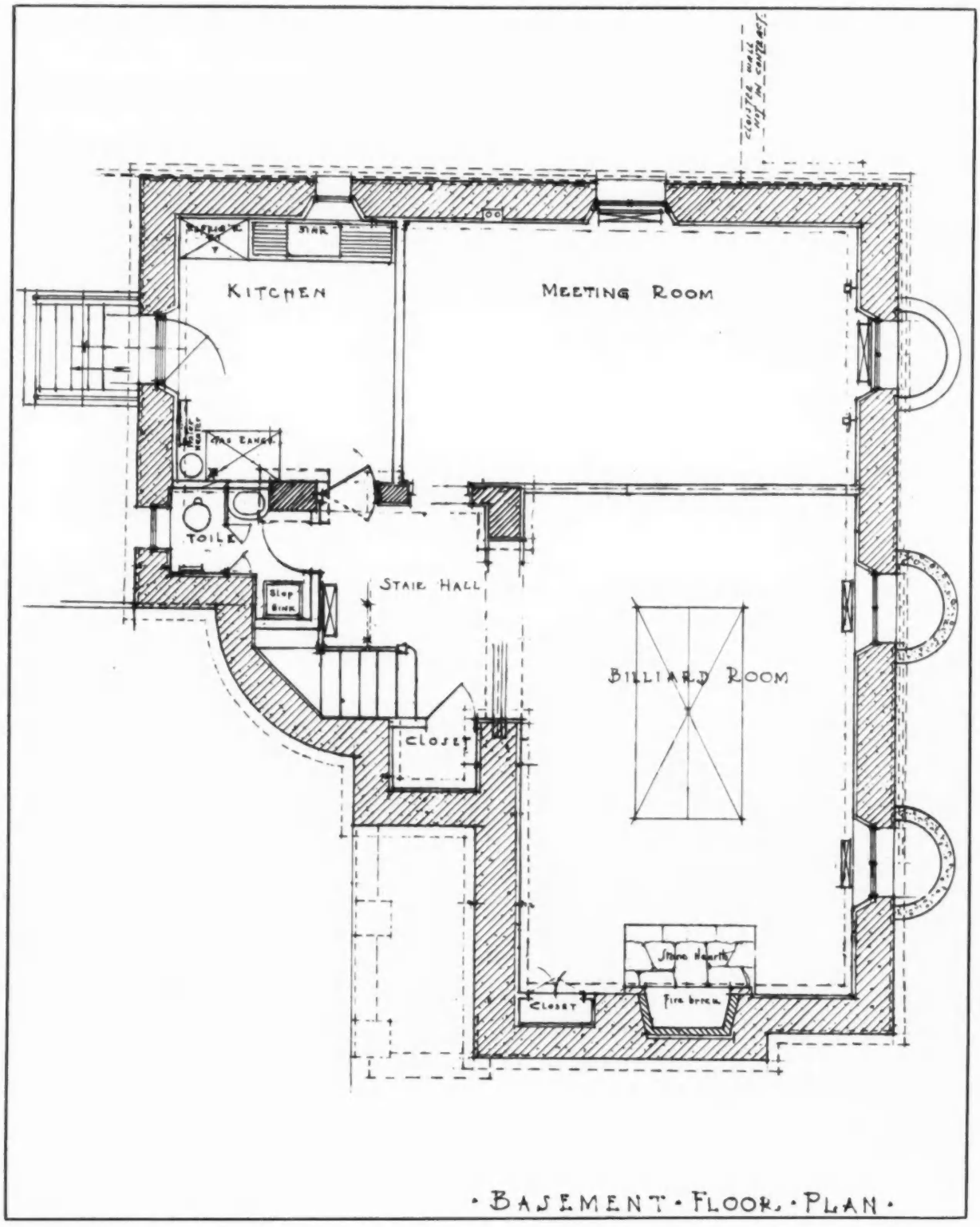
To be concluded.



PORTFOLIO
OF
CURRENT ARCHITECTURE

Photo, Wallace

Phi Delta Theta Fraternity House, Swarthmore
EDWARD L. TILTON, ARCHITECT



Phi Delta Theta Fraternity House, Swarthmore
EDWARD L. TILTON, ARCHITECT

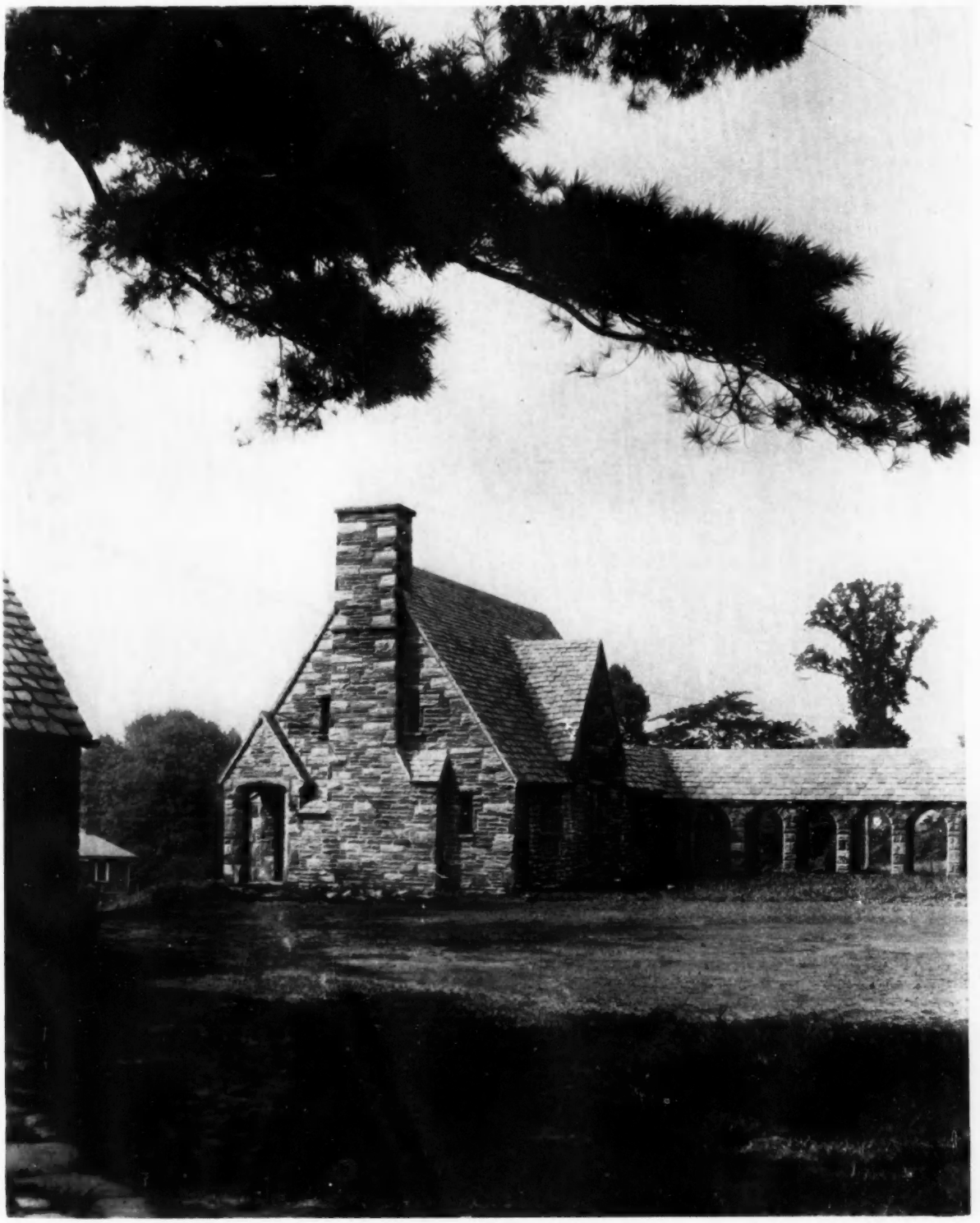


Photo. Wallace

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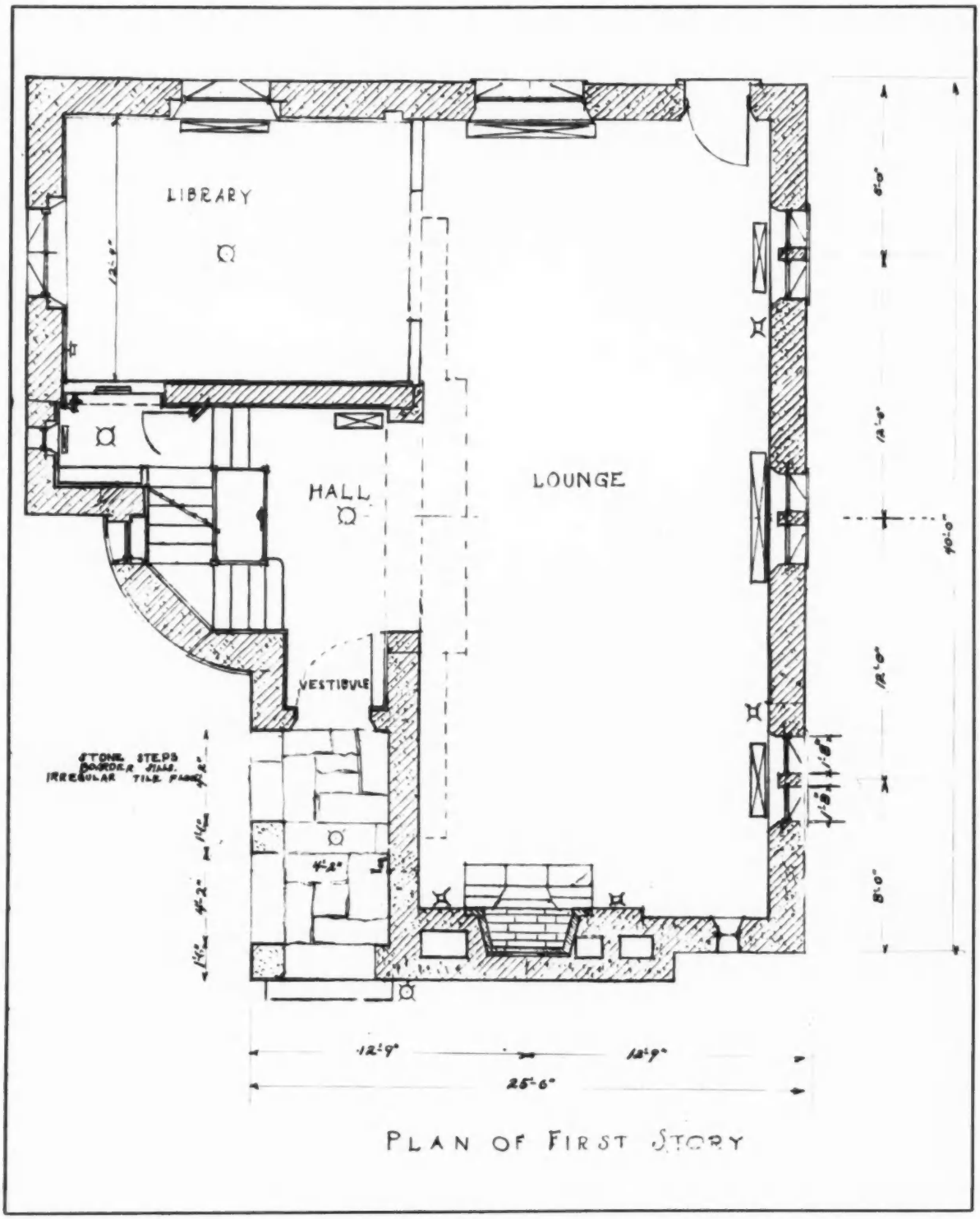

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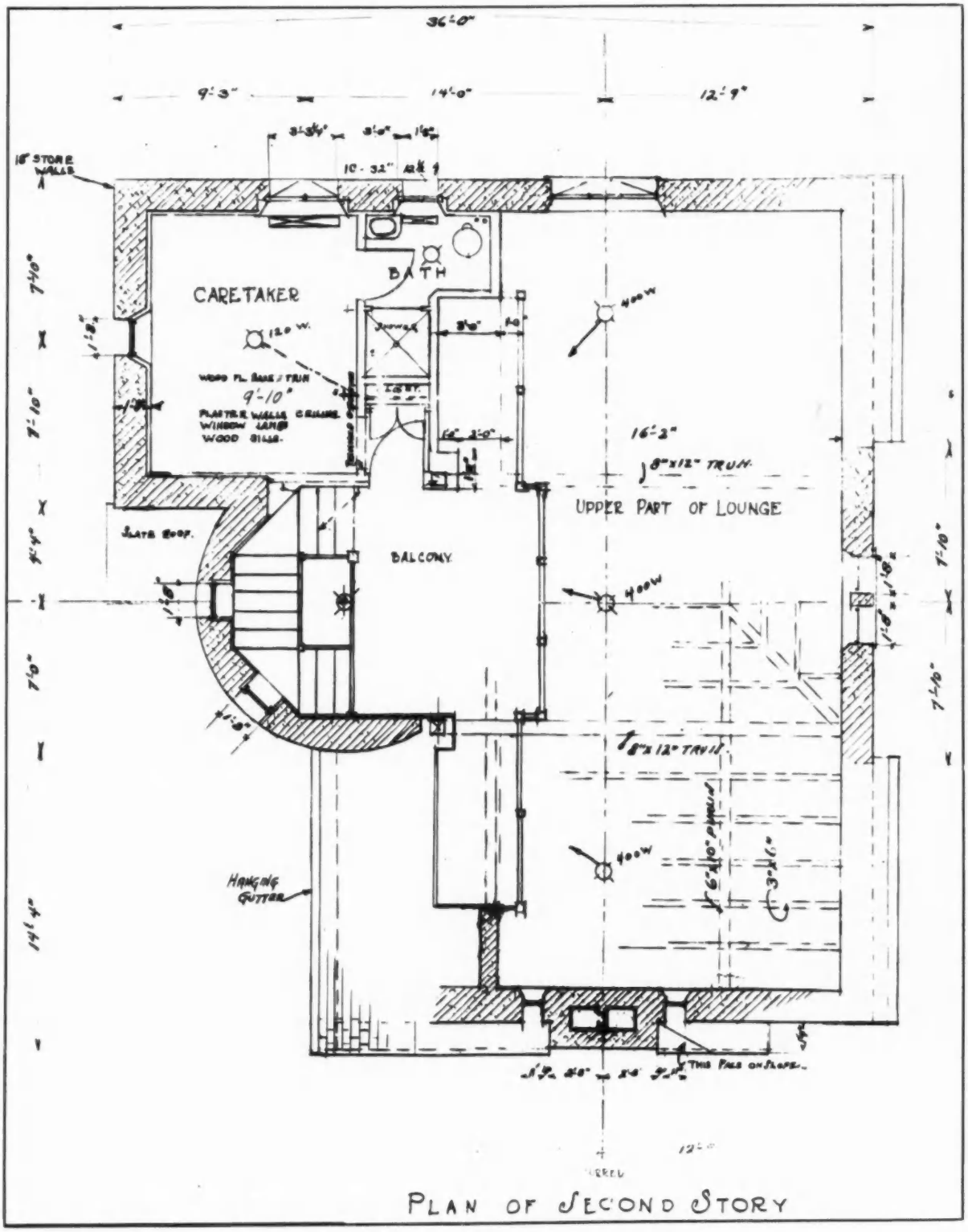

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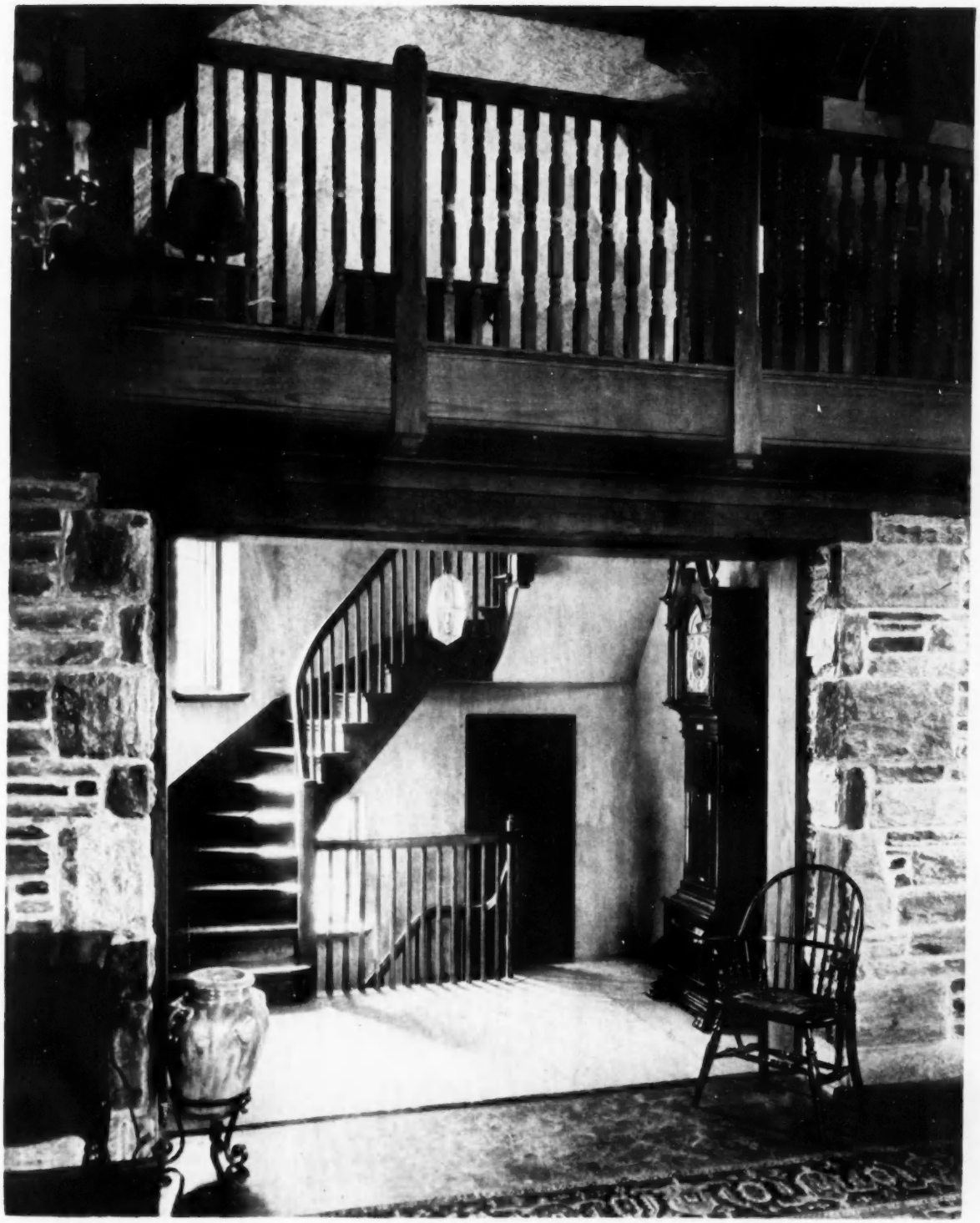

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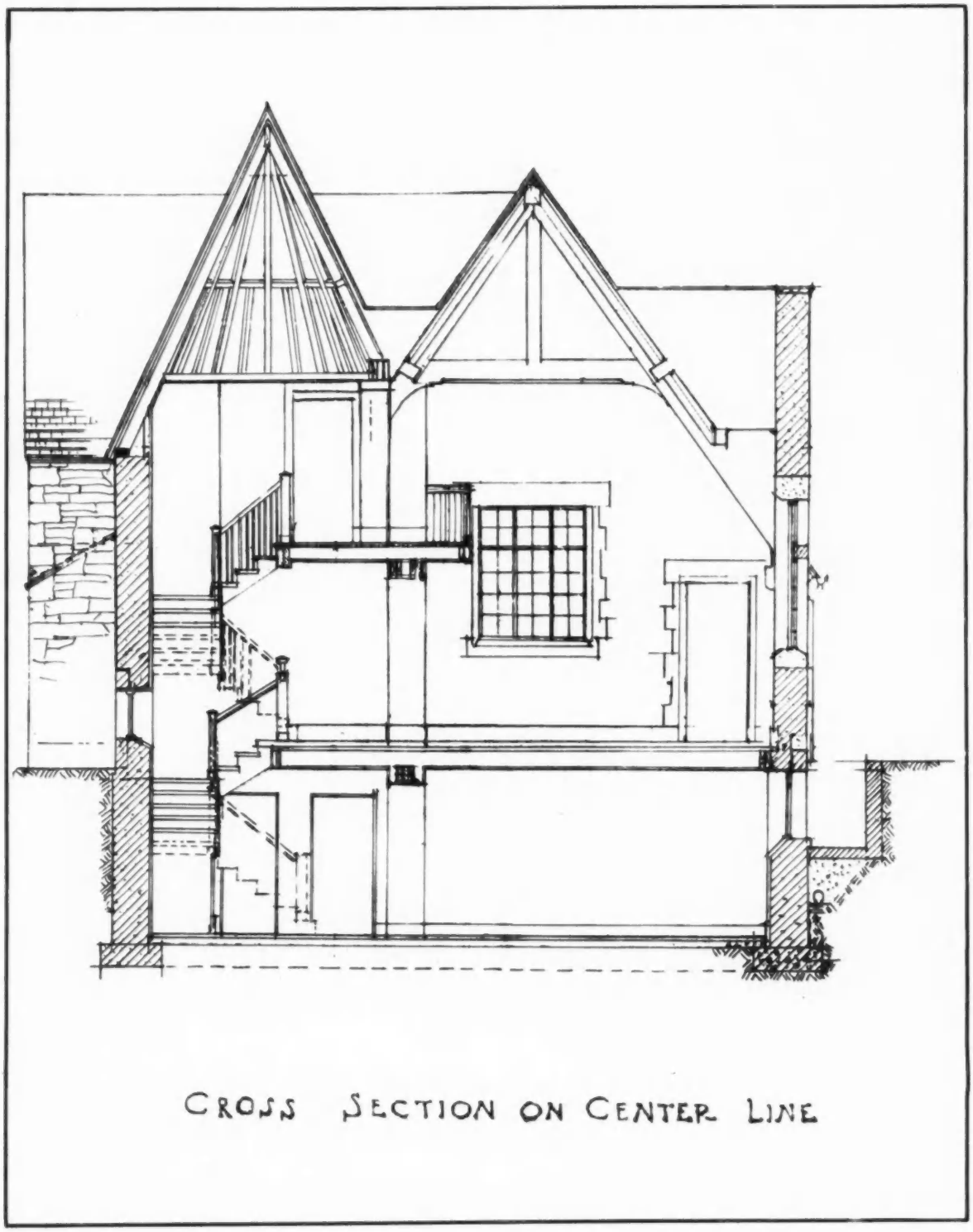


Phi Delta Theta Fraternity House, Swarthmore
EDWARD L. TILTON, ARCHITECT

Photo. Wallace

Phi Delta Theta Fraternity House, Swarthmore
EDWARD L. TILTON, ARCHITECT

PORTFOLIO

OF

CURRENT DANISH ARCHITECTURE

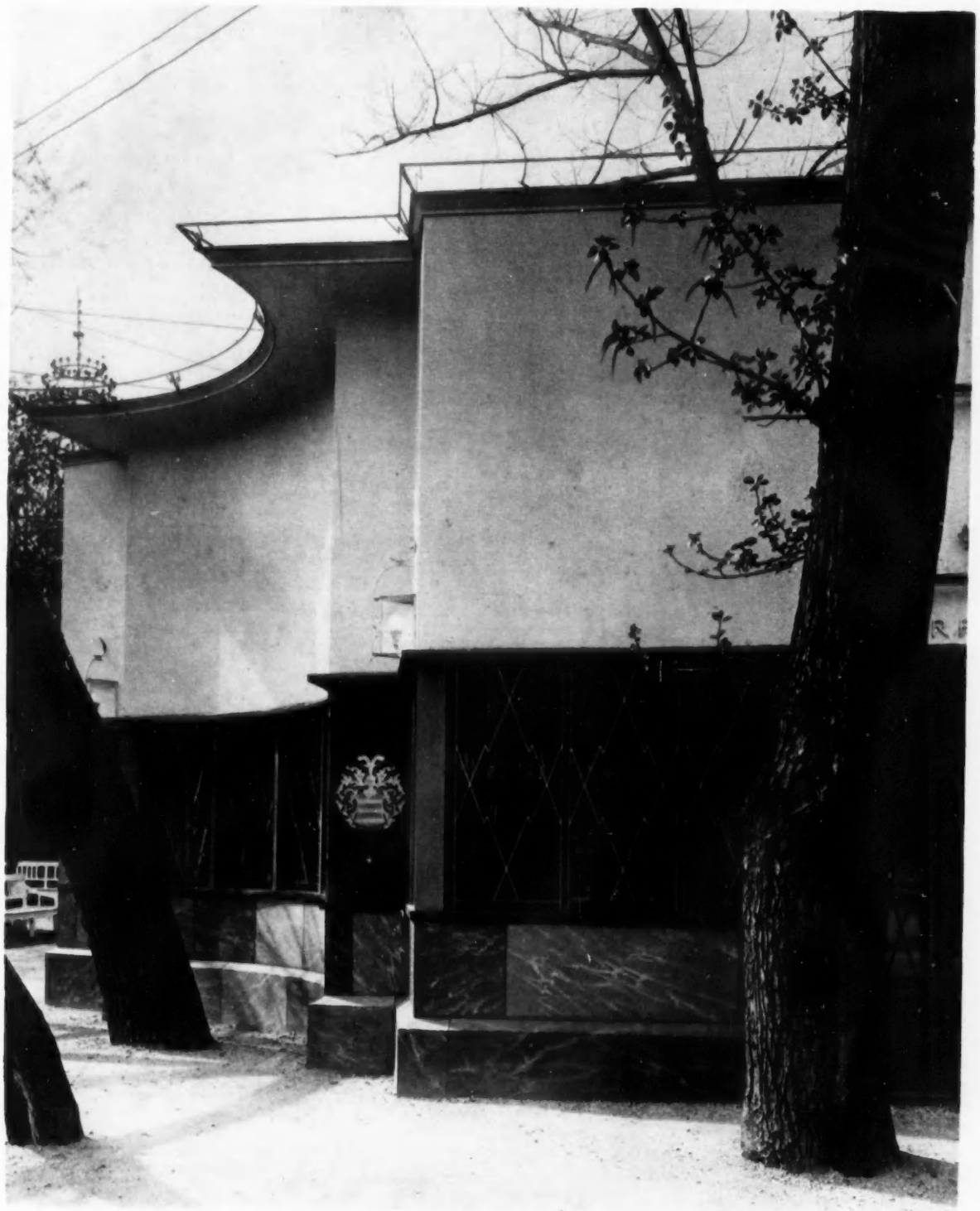
Heering's House, Copenhagen
Featuring
Work by
HELWEG-MÖLLER
and others

Photo. Bang

Corridor
Heering's House, Copenhagen
HELWEG-MÖLLER, ARCHITECT

Fountain in Court
Heering's House, Copenhagen
HELWEG-MÖLLER, ARCHITECT

Table Top for Cocktail Bar
HELWEG-MÖLLER, ARCHITECT



Corner Motif
Heering's Liqueur Pavilion, Tivoli
HELWEG-MÖLLER, ARCHITECT

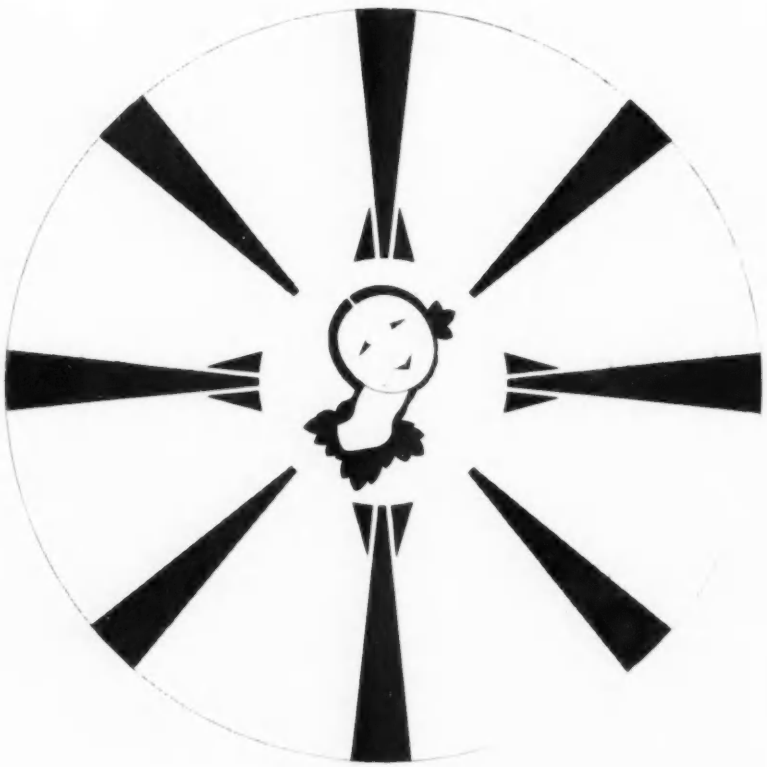
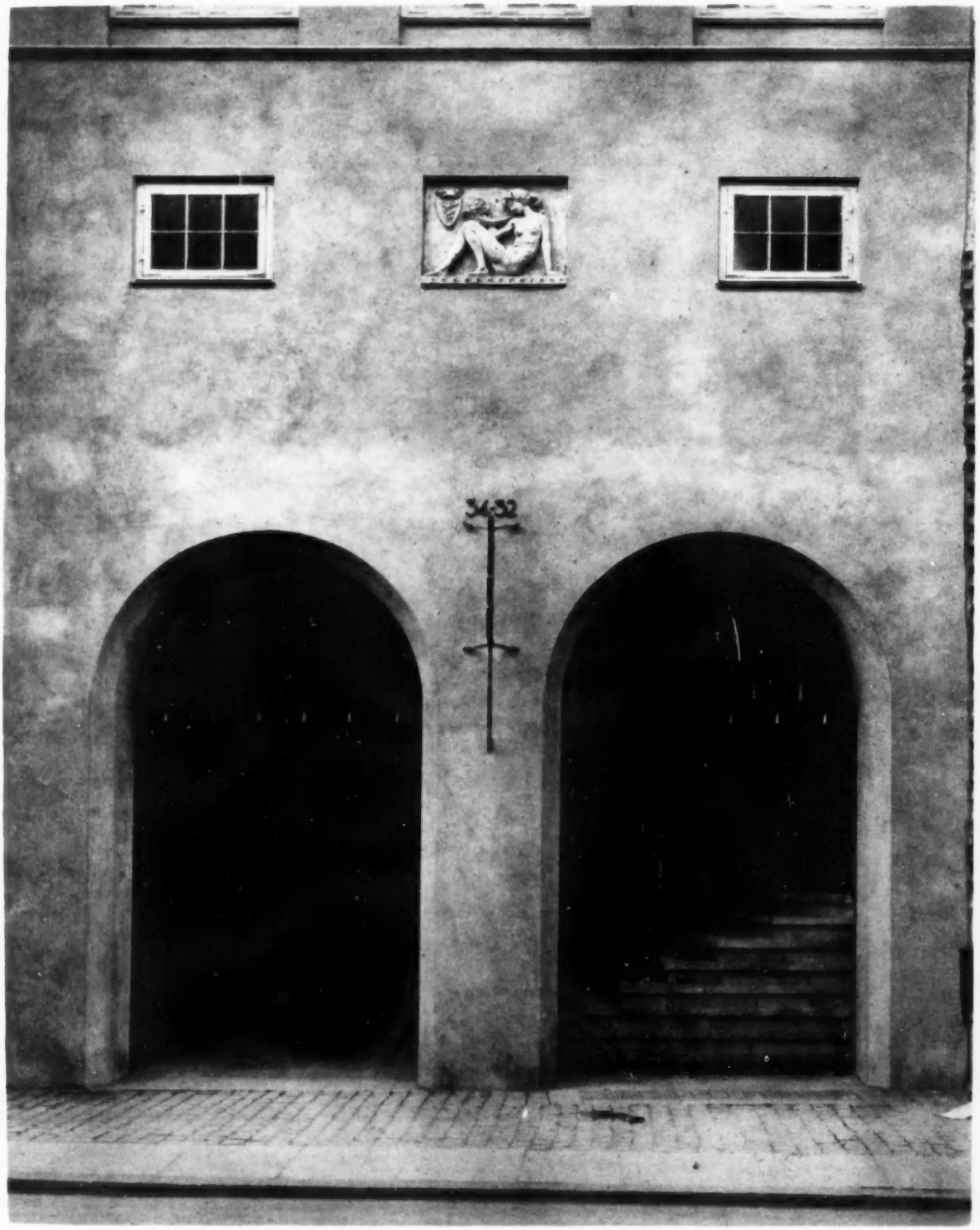


Table Top for Cocktail Bar
HELWEG-MÖLLER, ARCHITECT

Grain Silo
Tuborg Breweries, Copenhagen
CARL JENSEN AND S. RISOM, ARCHITECTS

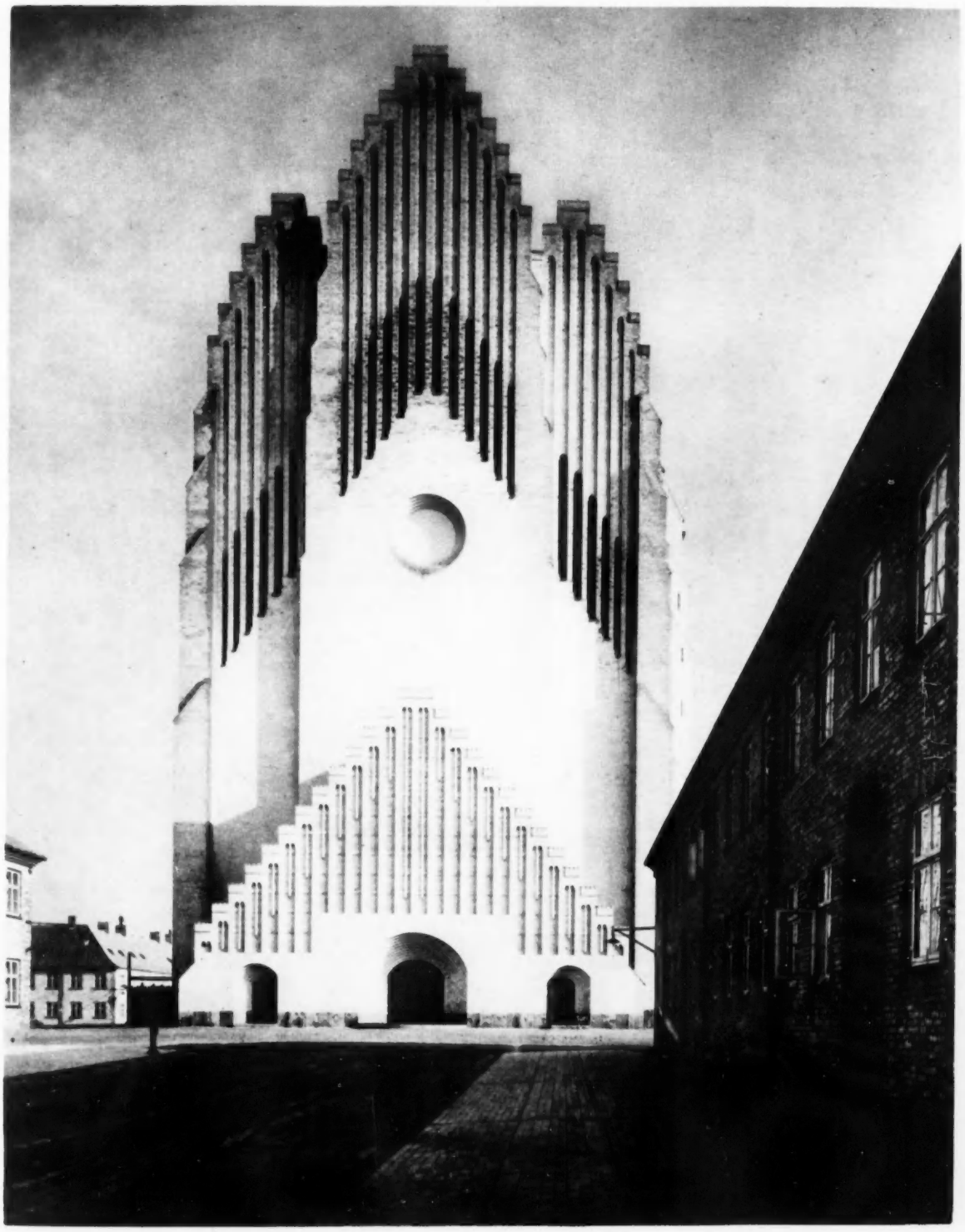


Entrance to Arcade
Former Institution of Gentlewomen, Copenhagen
HELWEG-MÖLLER, ARCHITECT

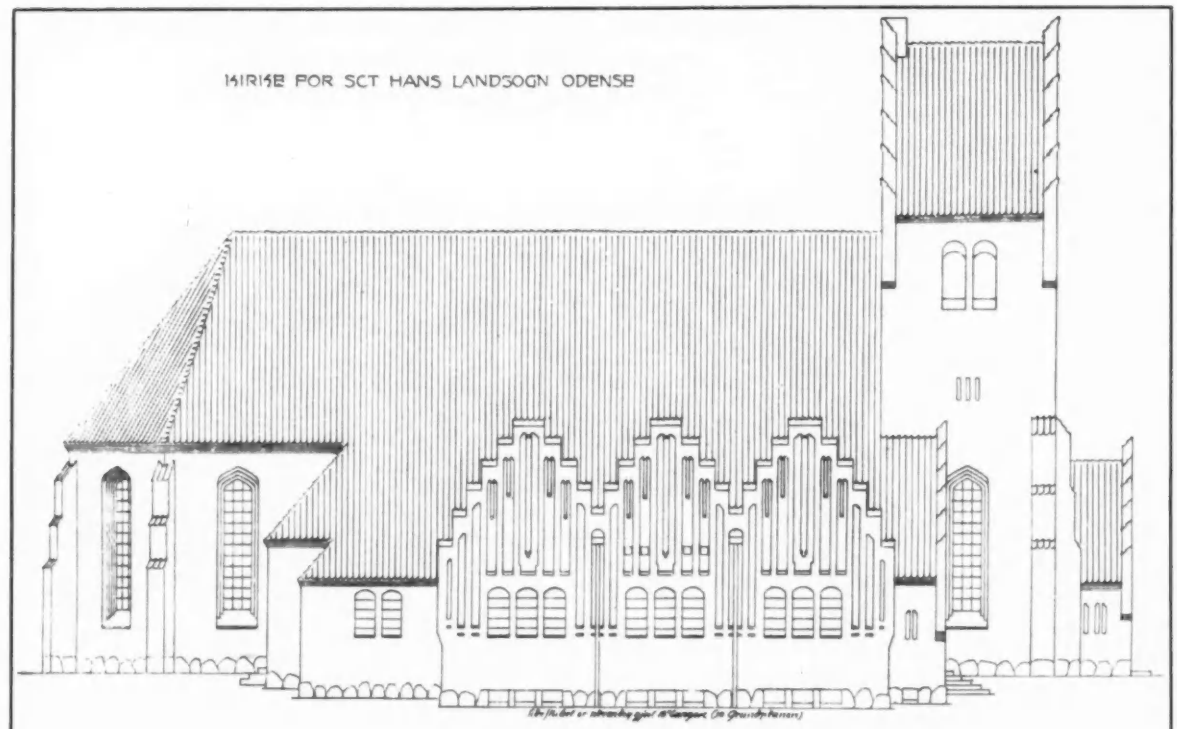
Court Interior
Former Institution of Gentlewomen, Copenhagen
HELWEG-MÖLLER, ARCHITECT

Hall
Country House at Fuen
HELWEG-MÖLLER, ARCHITECT

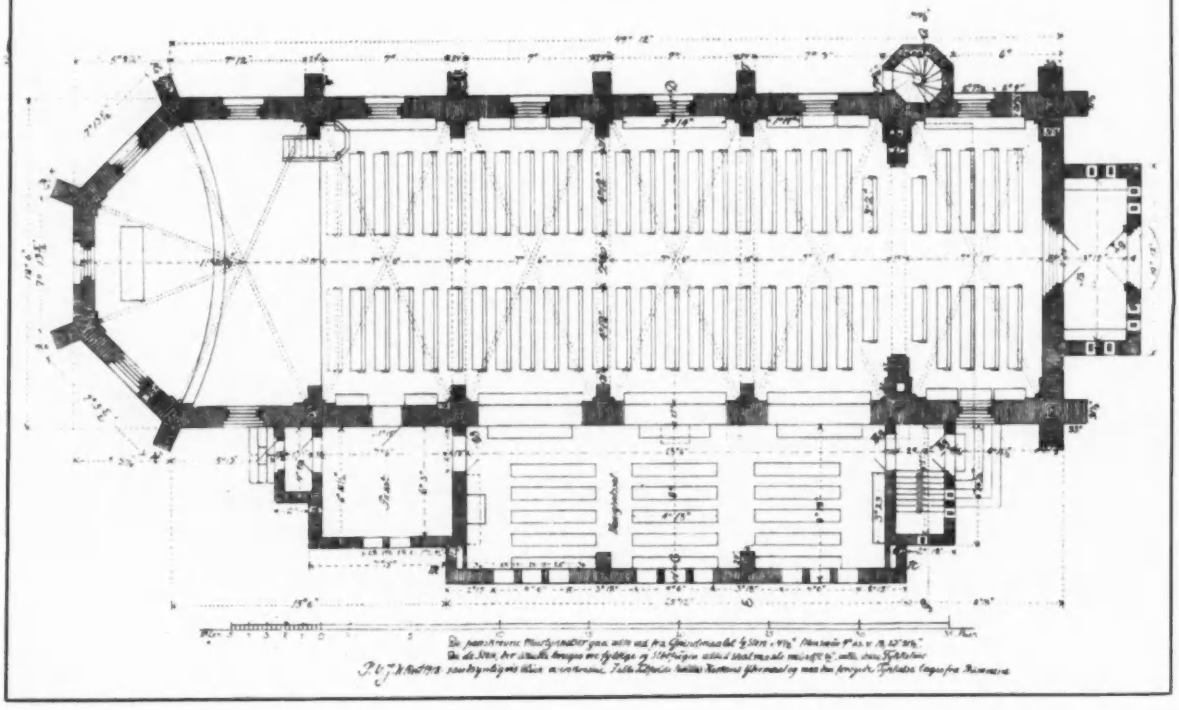
Interior of Church at Aarhus
KAJ GOTTLOB, ARCHITECT



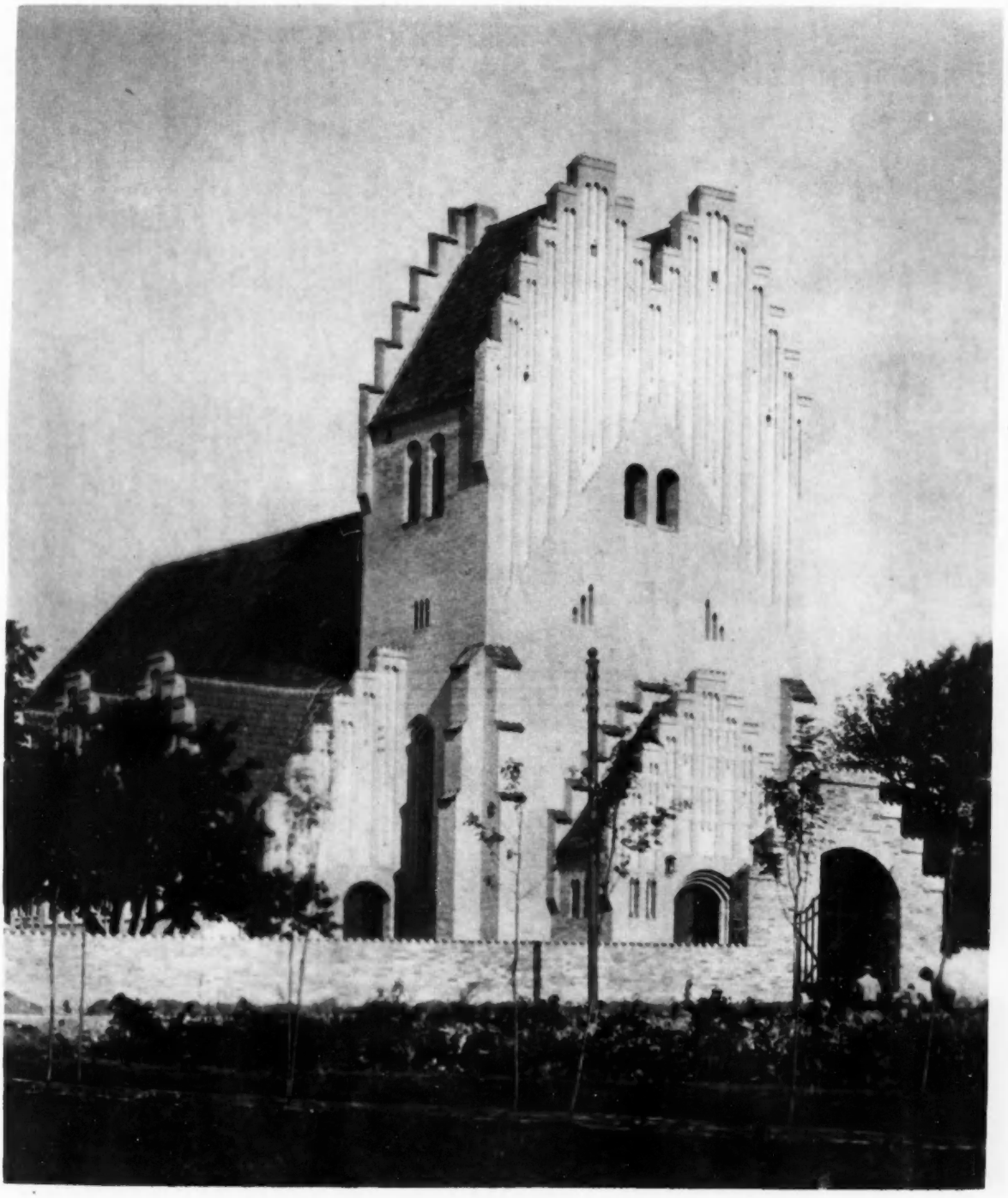
New Facade of the Grundtvig Church, Copenhagen
P. V. JENSEN KLINT, ARCHITECT



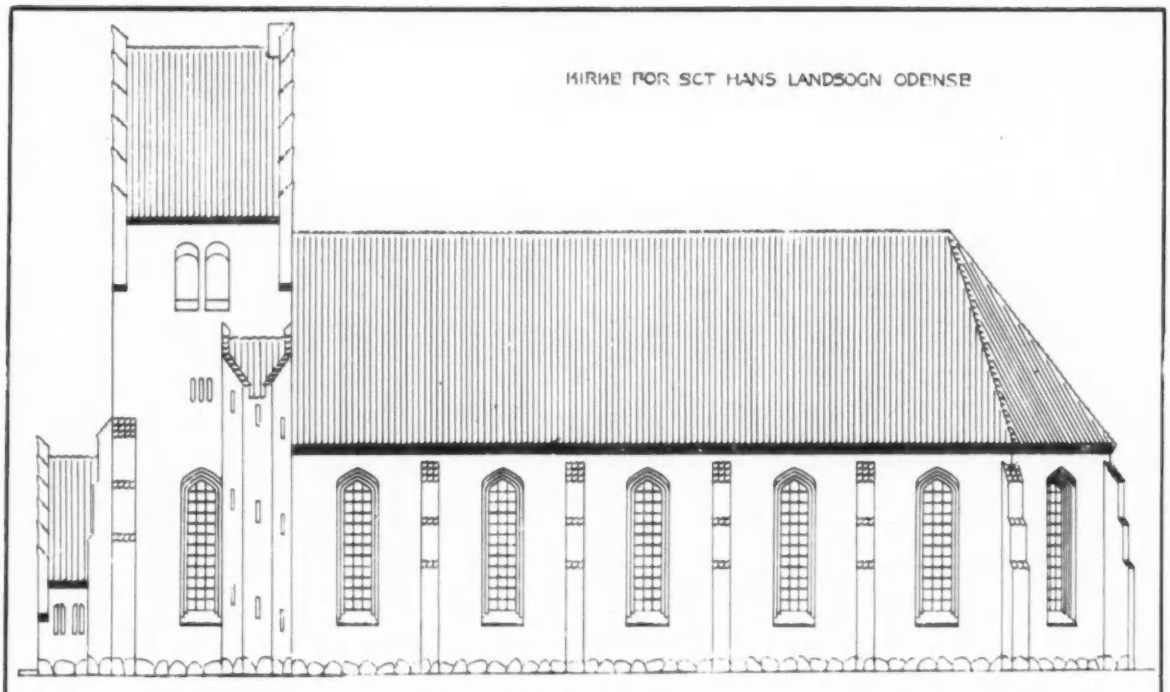
South Elevation



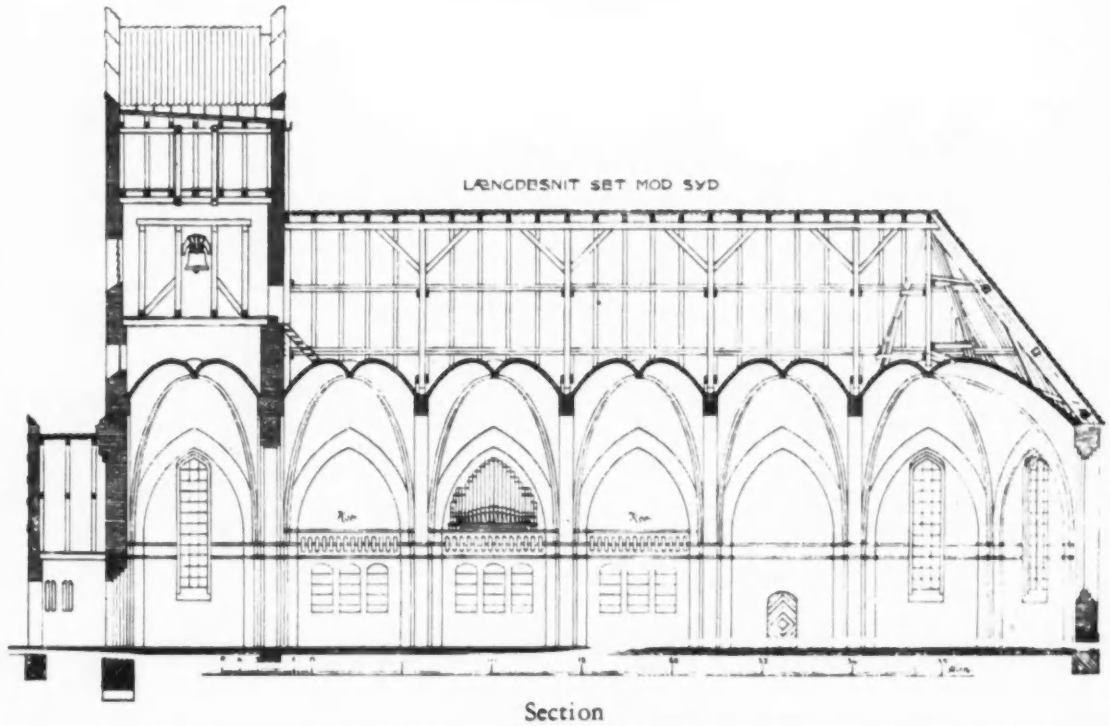
Ground Floor Plan
St. Hans Tvje Church, near Odense
P. V. JENSEN KLINT, ARCHITECT



St. Hans Tvje Church, near Odense
P. V. JENSEN KLINT, ARCHITECT



North Elevation



Section

St. Hans Tvje Church, near Odense
P. V. JENSEN KLINT, ARCHITECT

A BEACH HOUSE FOR DR. P. LOVELL AT NEWPORT BEACH, CALIFORNIA

R. M. SCHINDLER, ARCHITECT

LOCATION:

The beachsands of the Pacific Ocean, a level corner lot along the board walk.

•

THE PROGRAM:

A shelter for a large family for summer beach life and occasional week-end trips.

•

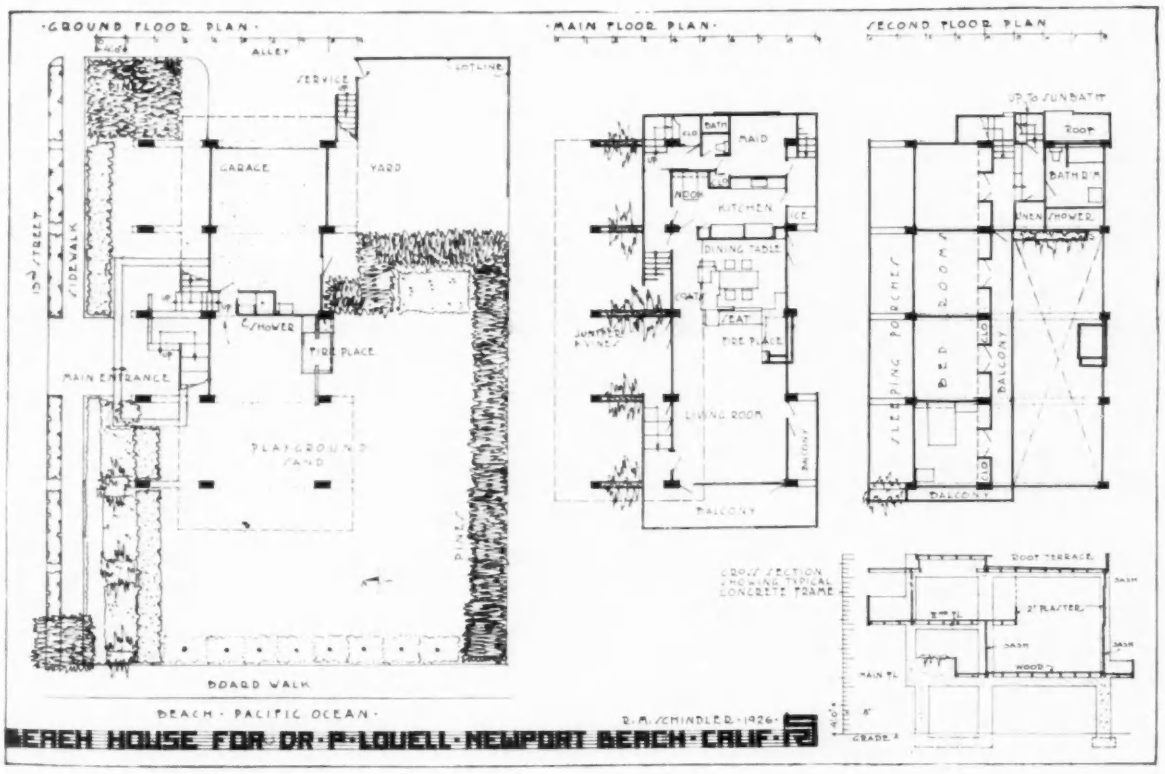
THE LAYOUT:

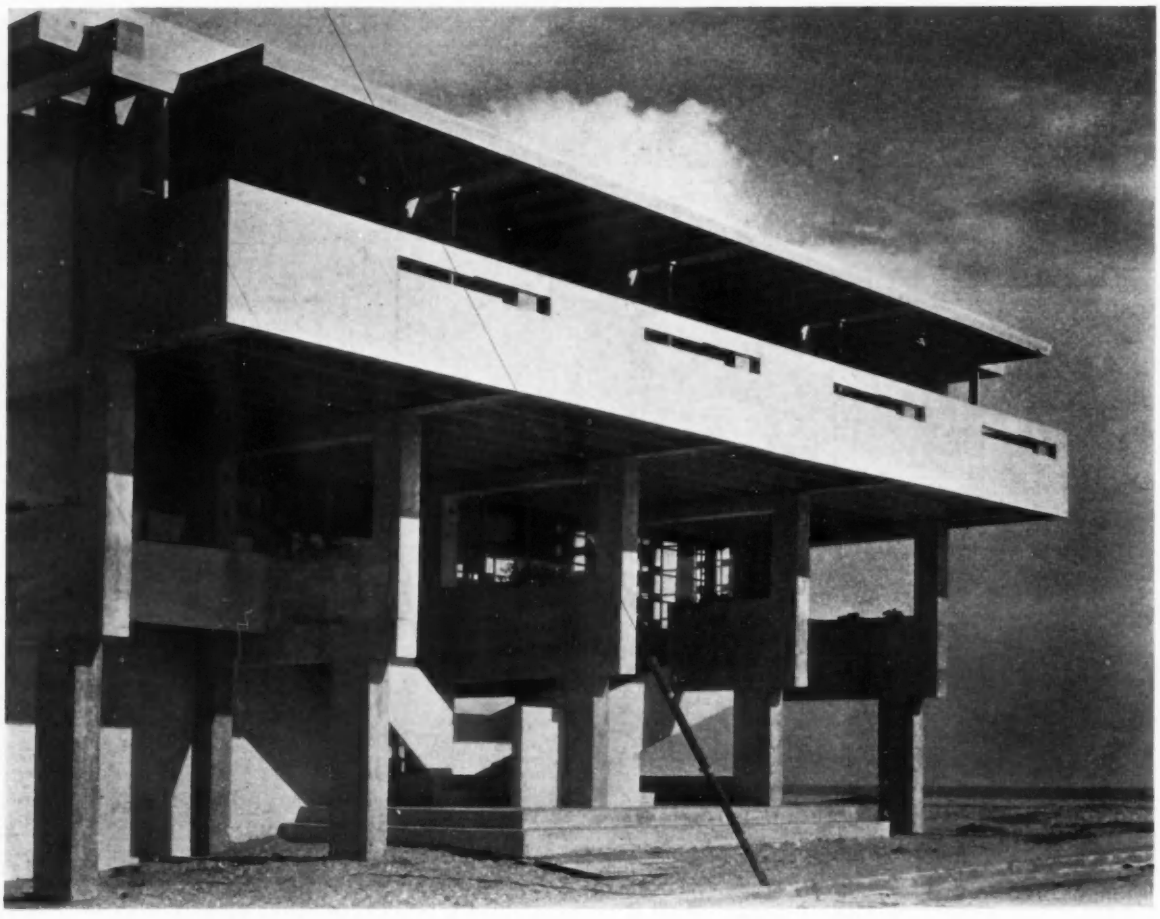
It was considered important to preserve as much as possible of the small lot for a playground, therefore the house was elevated on stilts. This raised the living room high enough above the board walk to assure an unobstructed outlook to the ocean. A shower for the use of returning bathers was provided near the playground. A private stair leads from this shower to the bedrooms. The main roof is used as a terrace and a portion of it is set off by partitions for a sunbath. The bedrooms are actually only dressing rooms, since all beds are placed on sleeping porches.

•

STRUCTURAL SCHEME:

The whole building is supported by five reinforced concrete frames. They were poured in an upright position by means of two sets of wooden forms. Wood joists laid crosswise between them support the floors. All walls and partitions are two inches thick. They are made of metal lath





BEACH HOUSE FOR DR. P. LOVELL, NEWPORT BEACH, CALIF.
R. M. SCHINDLER, ARCHITECT

and cement plaster, suspended between the concrete frames. The extensive use of steel tension members reduces the bulk of the structural mass to a minimum.

The windows, in glazed frames, also hang on sliding tracks like curtains. To secure water tightness, parapet walls and sash were made to overhang each other like scales. This eliminated sills and complicated water tables, substituting for these members a plastic formal scheme.

•

ARCHITECTURAL SCHEME:

The *motif* used in elevating the house was suggested by the pile structures indigenous to all beaches. The substitution of concrete piles for the time-honored wood piles gave characteristic concrete forms. Elevating the house secures privacy and allows an informal life behind open windows.

Floor plans and elevations were designed by a scheme of unit lines to assure uniformity of scale. All woodwork, including concrete forms and furniture, was built of eight inch boards with wide joints.

The character of the whole building has been kept simple and rustic. Furniture was made on the premises, using the same kind of wood as in the construction of the building. A special ornamental use was given the resulting areas of end grain in order to simplify the woodwork.

As much glass as possible was used on the exterior. The railing in front of the

BEACH HOUSE FOR DR. P. LOVELL, NEWPORT BEACH, CALIF.
R. M. SCHINDLER, ARCHITECT

sleeping porches is the only large plaster area of the building. It was made high to insure privacy, but is perforated sufficiently to allow one a glimpse of the ocean while reclining on the bed.

The bedroom ceiling was raised high enough above the living room ceiling to permit the insertion of clerestory windows. They give cross ventilation, admit the morning sun and provide a cooling air stream below the heated room surface.

•

MATERIALS:

Poured reinforced concrete; cement plaster; steel hangers; secondary structural members of Oregon pine wood; glass; Monk's cloth.

TEXTURES:

Medium rough concrete and plaster; surfaced wood; glass; coarse textiles.

•

COLOR:

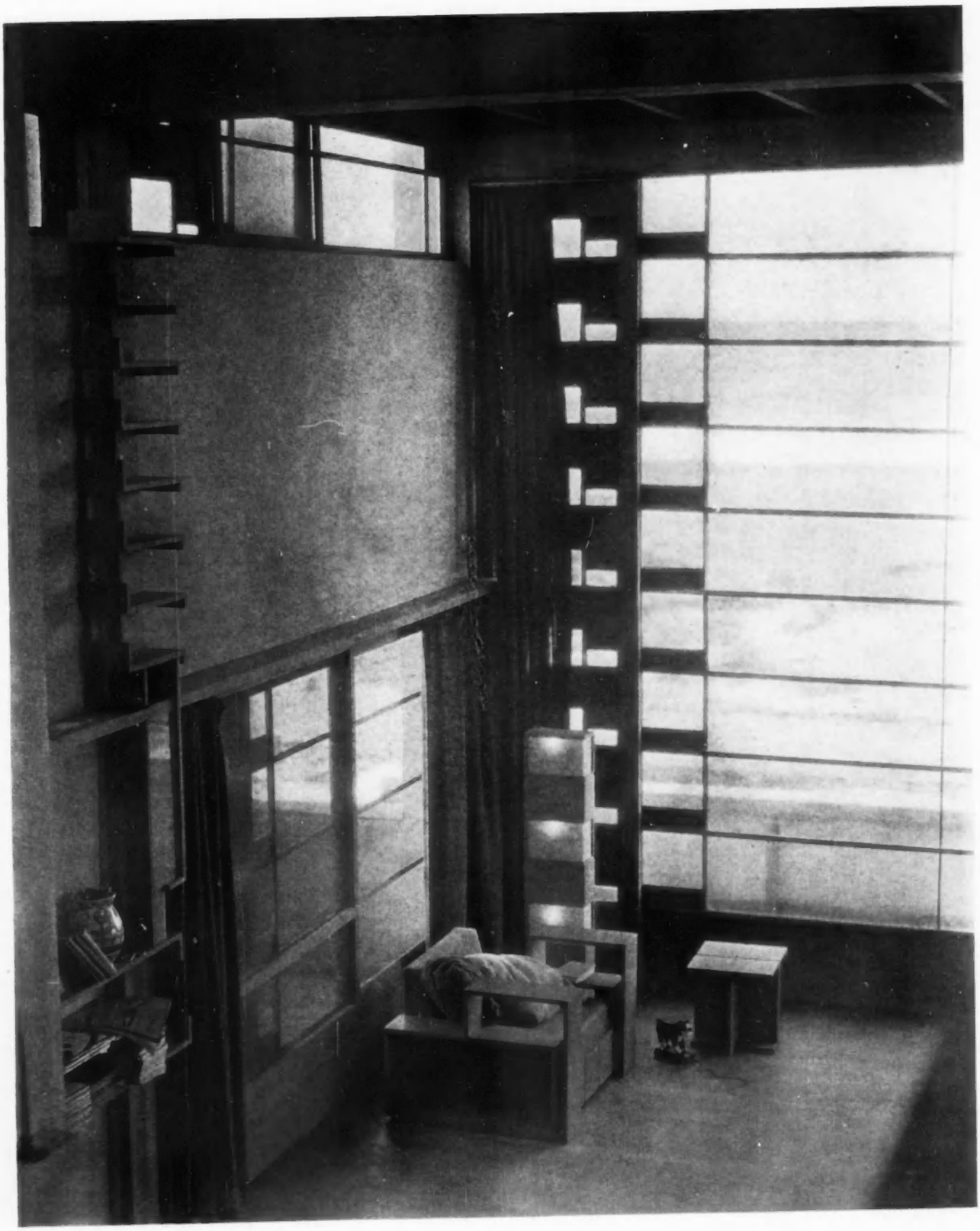
Stained concrete: sand color.
Plaster: natural white.
Stained wood: sand color.
Textiles: terra cotta red.

•

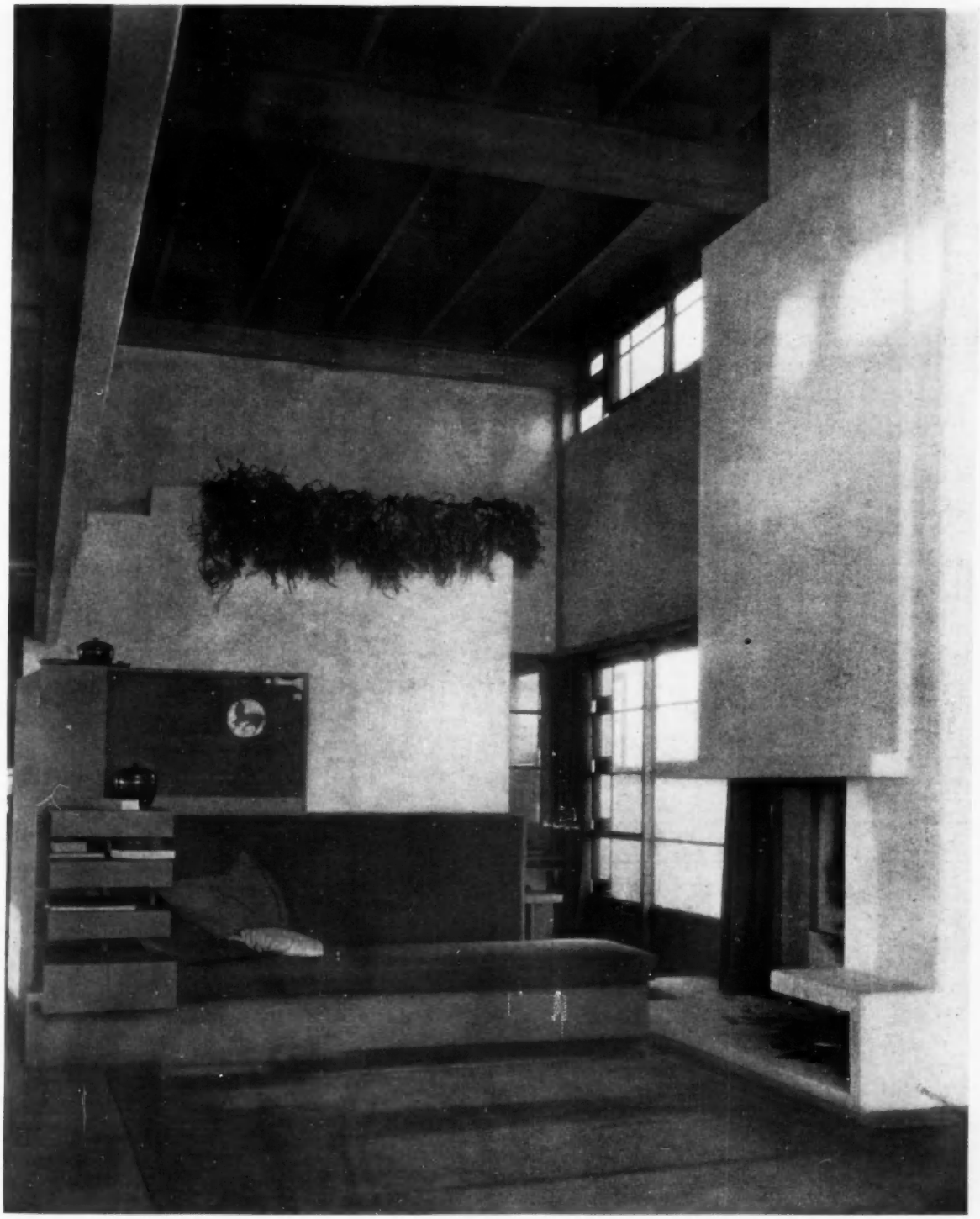
COST:

Total costs, including fee, $11,000.

28,000 cu. ft. at 39 cents a cu. ft., excluding furniture. Items: concrete work, $2,000; plastering, $2,000; plumbing, electrical work, $1,500; furnishings, $1,600.



CORNER OF LIVING ROOM
BEACH HOUSE FOR DR. P. LOVELL, NEWPORT BEACH, CALIF.
R. M. SCHINDLER, ARCHITECT



SEAT AND FIREPLACE IN LIVING ROOM
BEACH HOUSE FOR DR. P. LOVELL, NEWPORT BEACH, CALIF.
R. M. SCHINDLER, ARCHITECT

LIVING ROOM
BEACH HOUSE FOR DR. P. LOVELL, NEWPORT BEACH, CALIF.
R. M. SCHINDLER, ARCHITECT

SEAT AND FIREPLACE IN LIVING ROOM
BEACH HOUSE FOR DR. P. LOVELL, NEWPORT BEACH, CALIF.
R. M. SCHINDLER, ARCHITECT

AN ARCHITECT'S OFFICE

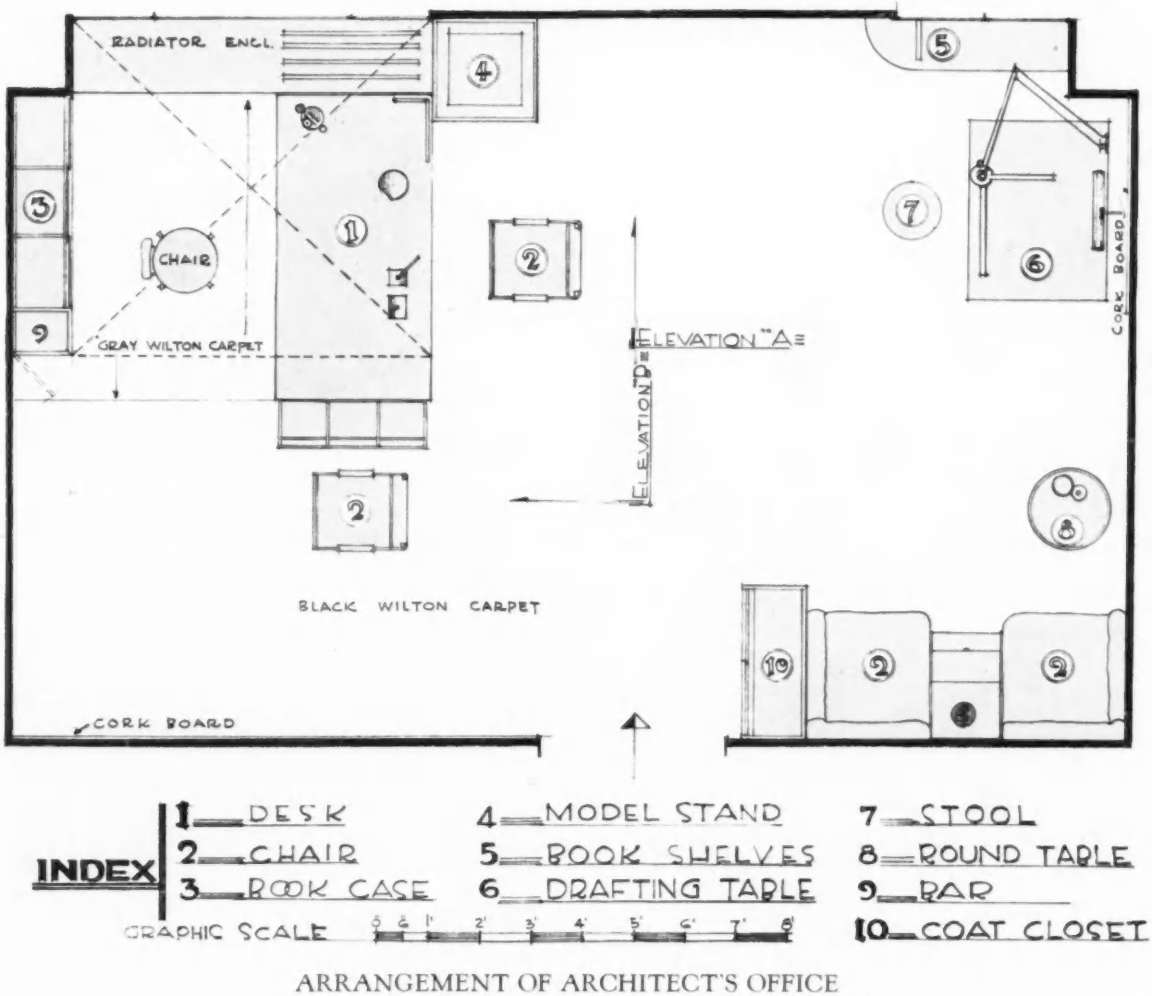
BY A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

THE PROBLEM:

The room here described and illustrated was designed as a model architectural office, erected in the Grand Central Palace in New York City as an exhibition booth for the F. W. Dodge Corporation. It is an office for the head of an architectural firm and it is assumed that, in reality, it would adjoin other rooms necessary for a complete architectural establishment.

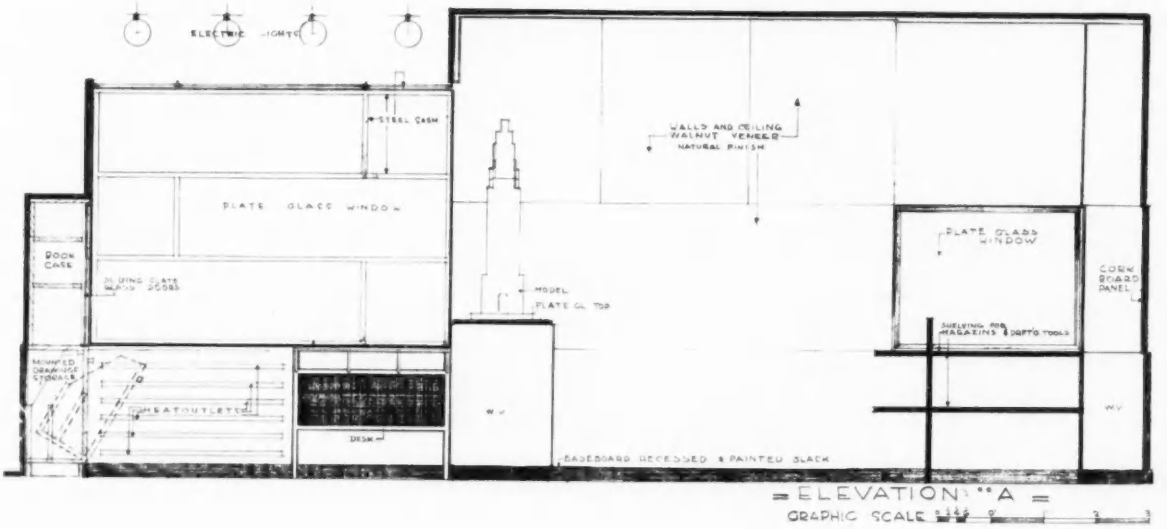
It was considered necessary to plan the office so as to provide three zones of activity: (1) The office proper where the architect's desk is placed, letters are dictated and interviews with clients, visitors and directing draftsmen take place. (2) The drafting space for the architect who originates and carries forward the design sketches. (3) The reception area where clients can discuss with the architect their building requirements in a more intimate fashion than is possible when formally seated in front of the architect's desk.

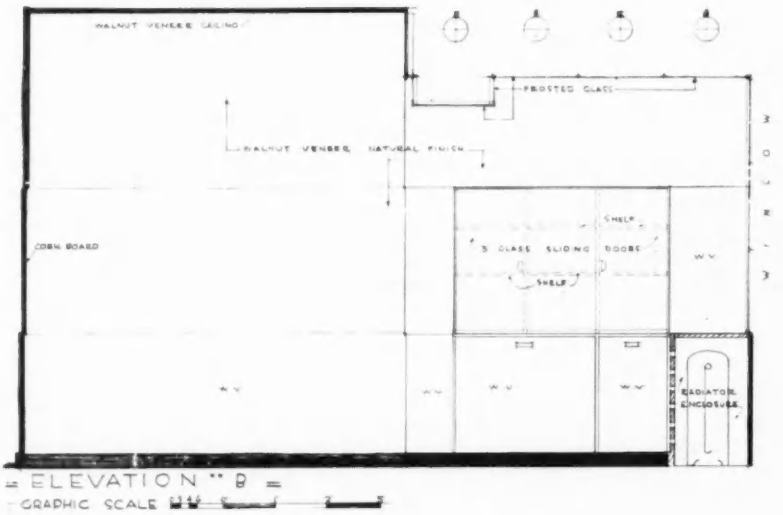
To suit the specialized requirements of



ARRANGEMENT OF ARCHITECT'S OFFICE

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS





AN ARCHITECT'S OFFICE

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

the office, a desk, drafting table, stool and round table were designed by the architects.

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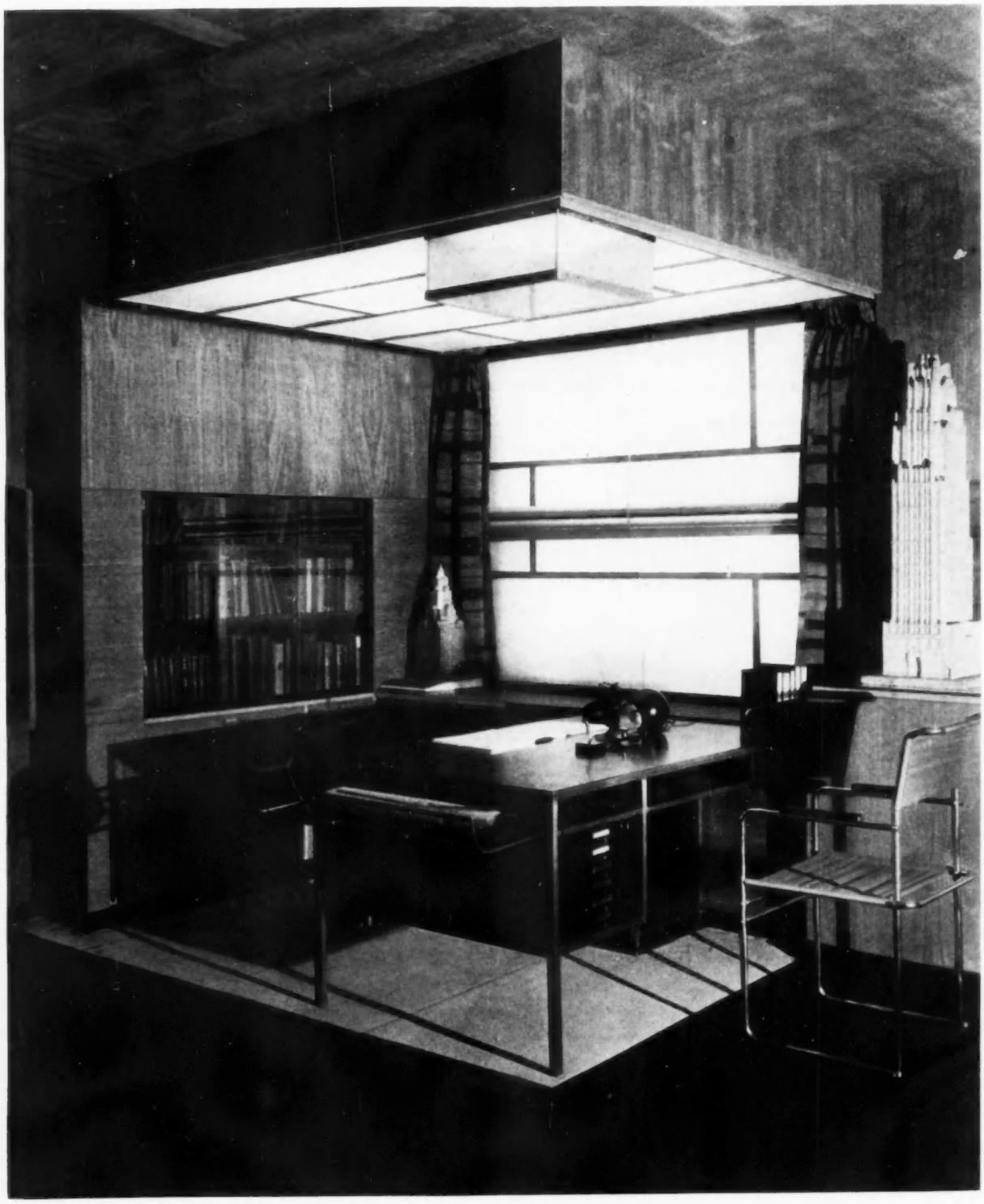
ARCHITECTURAL DESIGN:

Convenience and efficiency of operation were accepted as the most satisfactory basis for the design of such an office. The customary studio aspect with antique furniture and a "period" treatment of room was renounced in favor of the simplest application of veneered boards for walls and ceiling and with an atmosphere of quiet in contrast with noise of city. The functions of the architect's practice were analyzed and expressed in the plan and furniture arrangement. By reason of economy and logic the attempt was made to eliminate all unnecessary details and to substitute convenience, order and efficiency.

•

ELEMENTS:

Architect's Desk. Rack at right for rolls of blueprints and drawings; double top for increased storage; steel drawers with minimum accommodations conducive of order include: letter file, six flat drawers for specifications and orders on current jobs, locker for check and account books, two card in-



Photo, Van Anda

ARCHITECT'S BUSINESS SPACE

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

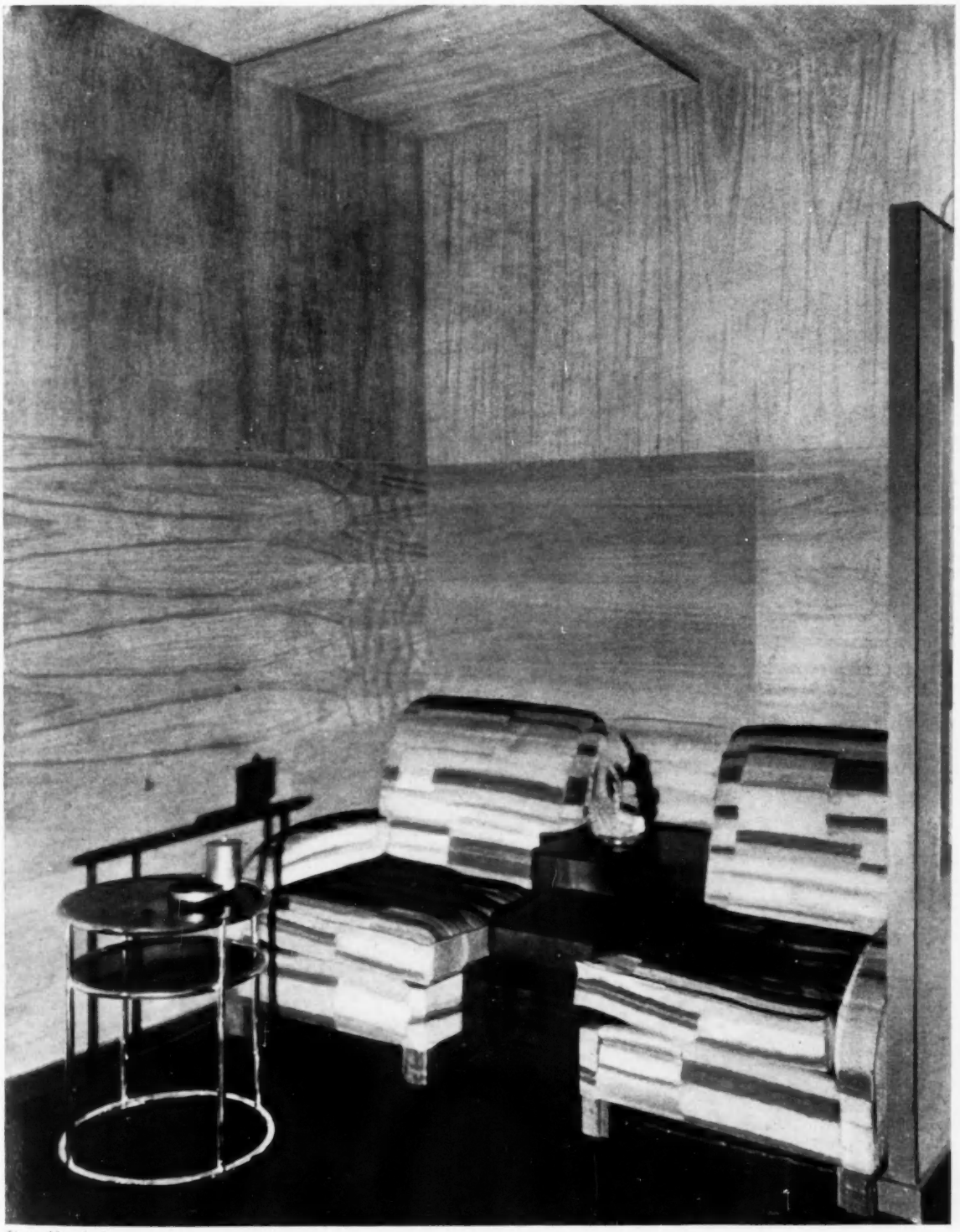


Photo. Van Anda

ARCHITECT'S RECEPTION CORNER
A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

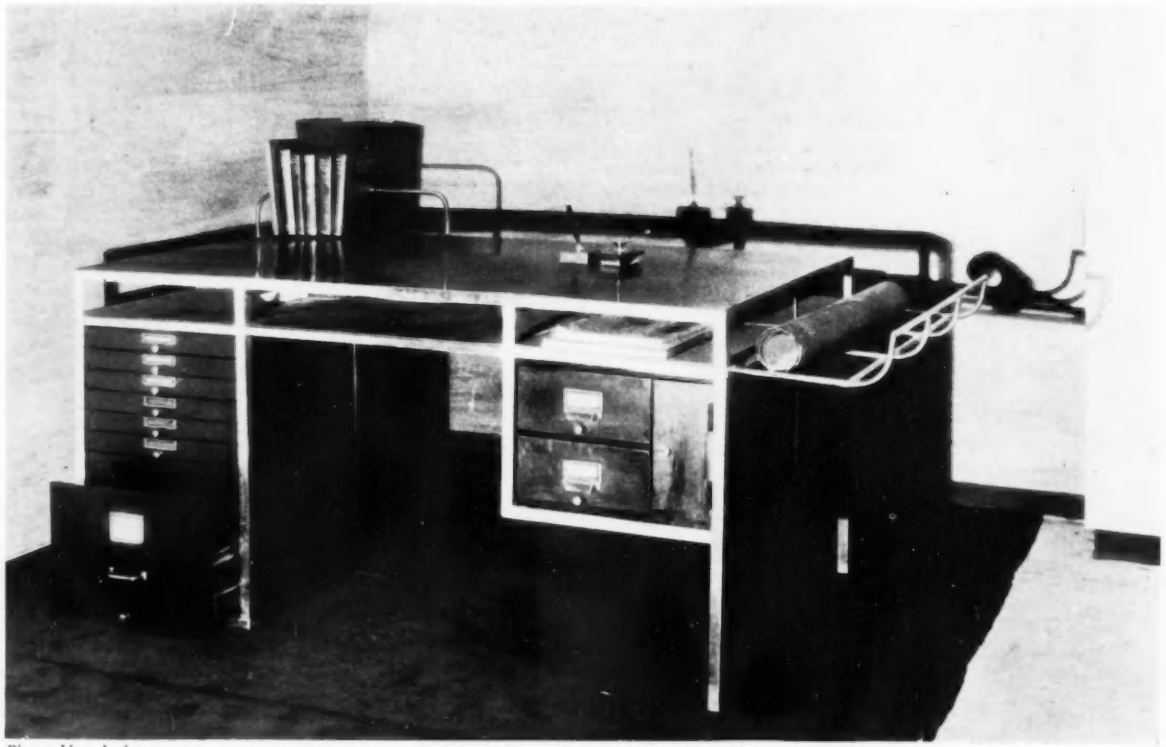
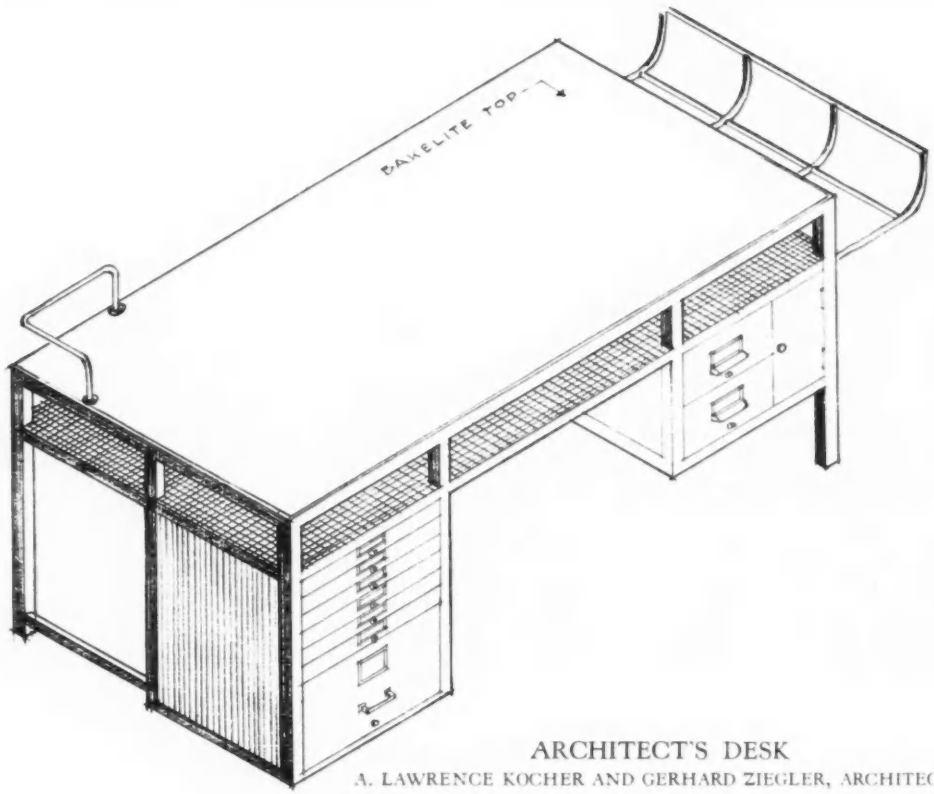
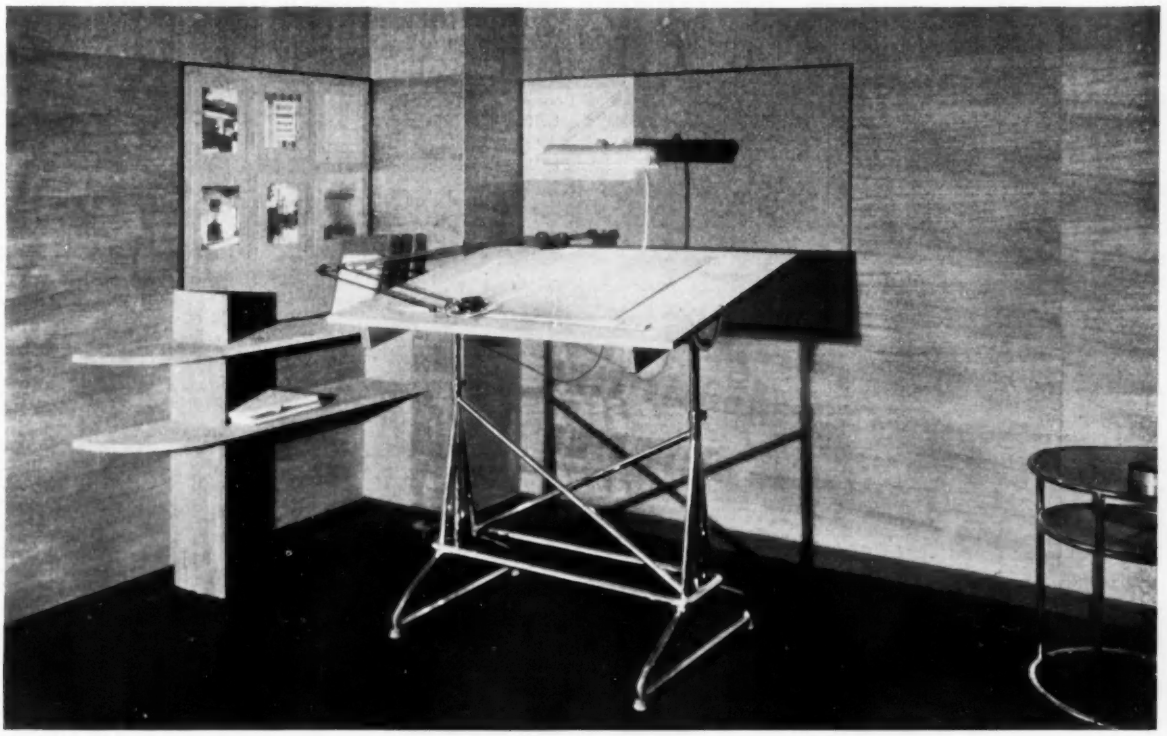


Photo. Van Anda



ARCHITECT'S DESK

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS



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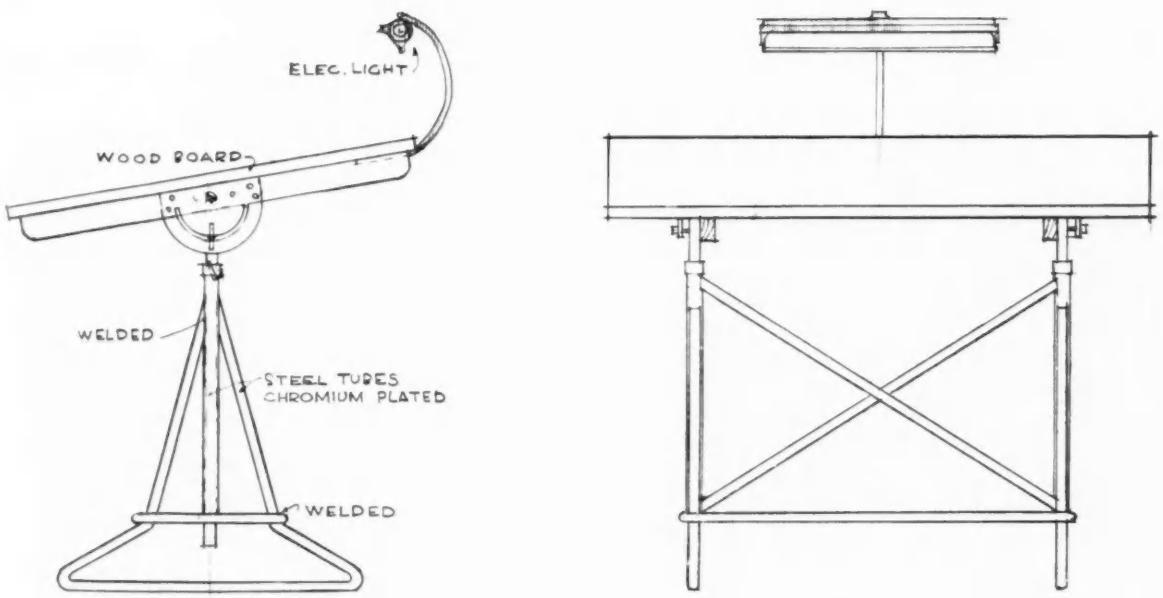

ARCHITECT'S DRAFTING TABLE

A. LAWRENCE KOCHER AND GERHARD ZIEGLER, ARCHITECTS

dex drawers; pull shelf and flat files for secretary at back of desk.

Book Case. Book shelves are low so as to be reached by architect seated at desk; bookcase doors of plate glass slide on ball bearing base; bins below for vertical storage of drawings—more accessible than horizontal shelves.

Bar. Storage space for liquor, shaker and glasses behind secret door at end of bookcase.

Drafting Table. Adjustable to any convenient height; light in weight; tilting top; tubular lamps illuminate top of drafting table with reflector to protect eyes of draftsman.

Shelves for instruments and frequently consulted reference books are within arm's reach of draftsman.

Reception Chairs, luxuriously upholstered (with less intimacy than a settee), facilitate close-range conversation leading to important decisions. A low table separates these chairs and is used for storage of current project sketches and photographs.

Lighting. Sash at left of desk for day lighting with shade to be raised or lowered to control glare; overhead lighting (with white glass) corresponding to area of "office proper;" general illumination by fixture of white glass framed with cast aluminum angles.

•

MATERIALS:

Walls and ceiling of three-ply, quarter-sawed walnut veneer in stock sizes with sanded and rubbed finish; wall panels of cork.

Floors covered with deep Wilton carpet to produce an atmosphere of quiet.

Desk framed with steel angles, chromium-plated; desk top of black bakelite with dull finish; steel drawers, black enamel finish; rack at end of desk made of chromium-plated steel tubes.

Chairs, *drafting table* and *drafting stool* of tubular steel, chromium-plated.

Sash of steel frame with T-shaped steel muntins.

Glass, milk white for artificial illumination; vertical sash with clear plate glass.

Shades by Columbia Mills, Inc.; aluminum-finished fabric.

Curtains and *upholstery*, mastic-jade cotton fabric with tapestry weave.

•

COLOR:

Walls, natural walnut color (a grayish-brown when no wax is applied).

Baseboard, painted black.

Carpet, gray in area of architect's desk; black over remainder of floor.

Curtains, shades of beige, black and jade-green.

Window shade, aluminum-surfaced.

Bookcase interior, painted vermilion red with edges of shelving in black.

Bar interior, vermilion.

Furniture, nickel and black; natural walnut finish; upholstery pattern and color, same as window curtains.

•

COST:

Contract price for construction of walls, ceiling, bookcase, pedestal for model, ceiling light and all glazing and painting	$766.00
Carpet	160.00
Furniture	865.00

THE ARCHITECT'S LIBRARY

BOOK REVIEWS

METAL CRAFTS IN ARCHITECTURE

GEERLINGS, GERALD K.

Metal Crafts in Architecture. Scribners, $7.50

WROUGHT iron is not treated in this volume, but is to be the sole subject of a companion volume not yet complete. The metal considered most extensively is bronze. Brass, copper, iron and lead are treated briefly. There are three concluding chapters respectively; on lighting fixtures; on certain current developments in enamelling, electroplating, and technically controlled alloys such as "Monel Metal;" and finally, on specifications, in which it is urged that the client will always get better value for his money if the specifications are unambiguous, and plenty of time allowed for figuring estimates. There are 277 illustrations, the photographic work being admirably clear.

The historical resumé has its interest, but architects will find more in the plates and the sections on the craftsmanship of each metal. For the last, Mr. Geerlings has gone directly to the shops and foundries. He advises architects not to make decisions regarding a material without technical knowledge of it, and to consult with foundry men while the drawings are in progress. Knowledge is profitable, and the lack of it expensive. An architect, for economic reasons, may substitute a plain panel in a bronze door for the ornamental one he prefers, only to find that the plain panel costs more than the ornamented. Every material has important differences in its technique. To give cast iron as sharp a definition as bronze would bring the cost nearly up to bronze without the peculiar advantages of bronze.

Looking at the photographs of old Italian bronze doors suggests that one might with advantage think of Gothic and Normanesque as northern and southern divisions of medieval art. In point of utility of terms, it seems to fit closer to the essentials. The notion is suggested by the bronze doors, because these 12th Century doors at Troja, Benevento, Ravello, Pisa and Monreale warm me up, as the 15th Century Florentine doors by Pisano, Della Robbia and Ghiberti do not; and the same difference of effect comes to me from the Chartres façade and from the front of any Renaissance church. Both may be admirable in their kind; but the one is medieval, and the other renaissance; one inherited and the other discovered; one grows from within, and the other is put together; one is inherent art and the other adherent.

"The hand that rounded Peter's dome
And groined the aisles of Christian Rome,
Wrought in a sad sincerity.
Himself from God he could not free,
He builded better than he knew.
The conscious stone to beauty grew."

The lines are superb, but Emerson had no direct impression to go to for his illustration. They are not very true of Peter's dome, or of most aisles of Christian Rome. They are truer of northern Gothic and southern Romanesque than of the more consciously determined and less instructive work of the Renaissance.

ARTHUR W. COLTON

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REPAIR OF ANCIENT BUILDINGS

POWYS, A. R.

Repair of Ancient Buildings. 80 illus., XVI plus 208 pp. J. M. Dent & Sons, Ltd., London, Toronto and New York: 1929. $2.50

THIS is a most important and urgently needed work—indeed, the first general practical manual on this *quaestio vexata*, the literature of which for the most part, has been either theoretical or highly technical. Its terminology has been variable against the "restoration" of the nineteenth century in England which largely consisted in wholesale renewal and imitation. The Society for the Protection of Ancient Buildings has maintained a policy of retaining old work as far as possible and has helped to establish the present terms "preservation" and "conservation." Indeed, its conservative attitude has been much criticized. But even preservation needs constructive "repair" of some sort, and the author of this book, for many years secretary of that society, has had wide experience in this connection, and the reasonableness and helpfulness of the book are the more valuable. He disclaims dogmatic rules at the start.

The advice should be useful in America as well as England and in the care of buildings of far less antiquity than some of those described. There are chapters on the making of the preliminary survey; scaffolding and protection of buildings from injury; walls of stone and brick; carpentry, especially roofs; roof coverings, with a good section on thatching; bells, glazing, ceilings, joinery and wall paintings, and even appendices on heating and electrical installations in churches.

In looking to see what Mr. Powys has to say about knotty questions of the day, one finds good sum-

maries of what is so far known and practised in regard to dry rot, for instance, iron framing for timber roofs and stone preservation; good suggestions are made in each case without prejudice to further inquiry.

The style is clear and pithy, and the line illustrations by Mr. J. E. M. Macgregor, are exactly what is wanted. The photographs of actual examples are also helpful. There are a good glossary and index.

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A CONTEMPORARY OF BULFINCH

ROOT, EDWARD W.

Philip Hooker. Scribners. 4°. $12.00

BETWEEN 1790 and 1830, Albany grew from 3500 to 24,000, and the new population, coming from New England, demanded buildings in the "English manner." Even the native Dutch began to abandon the older pastimes. President Timothy Dwight in 1798, commented on the change in Albany (illustrations, pp. 11, 12). A visitor there in 1822, remarked: "The churches are well constructed, but have so great resemblance to each other, particularly in their steeples, that I should not be surprised to hear that one architect had designed them all."

Mr. Root adds that a stranger might draw similar conclusions from the city churches of London. "Hooker, like the great Wren, was the ecclesiastical architect of an entire locality." The renaissance from New England was his opportunity. Colonial Dutch architecture was more gothic than renaissance, and the New Englanders brought in the American classic. The feeling in the matter was much like that entertained by cultivated Englishmen of a century or two earlier, and "the British colonies had contracted the British enthusiasm for the Italian manner." Gothic seemed, in John Evelyn's words (1707) "heavy, unsteadily without any just proportion—abundance of busy work and other incongruities—one can not consider it with any steadiness, where to begin or end."

In 1833, when his activities as an architect ceased, almost every public building in Albany was Hooker's. Churches, banks, school houses, theatres, municipal markets, the city hall; and it is safe to assume that he drew the plans for many of the private houses. His activities as a politician no doubt had something to do with the extent of his employment as an architect. He held many and various offices at various times. He was city surveyor from 1827 to 1832.

Probably few then appreciated the actual beauty of his work. It was popular because it was in the current fashion, and possessed the quality commonly then called "Elegance." But in what does its beauty, in the eyes of modern architects, consist?

Mr. Root answers: "He continued to give his detail exquisite grace without lapsing into the excessive delicacy so characteristic of much of our Classic Revival architecture. He was able to give to entire parts of his building a sculptural breadth, of which our best architects today would not be ashamed, (illustrated, Fig. 23).—Hooker's instinct for the definition of mass indicates even more strongly than his sense of proportion the genuineness of his talent. Had he had a more thorough education, richer patrons and more skillful workmen, he might have equalled, or even surpassed, Bulfinch as an architect."

Philip Hooker, 1766–1836, was almost the exact contemporary of Bulfinch, 1763–1841. Bulfinch belonged to the class of "gentlemen architects," who brought back ideas from their travels abroad. Mr. Root classes Bulfinch among the "contractors and builders," but I should think he was clearly of the other group. Hooker at any rate was first a contractor and builder, and the sources of his inspiration were largely provincial or drawn from English architectural books. He was a self-taught man of unusual natural gifts. It is interesting to remember that Wren was originally a mathematician, and that architecture was rather forced upon him by his opportunity.

The New England city on the Hudson, however, has gone the way of the Dutch city which it supplanted. Hooker is represented now only by the Academy and a few fragments (Figs. 33, 50-66). Outside the city there is little of his work surviving except Hyde Hall on Otsego Lake, and Hamilton College Chapel (Fig. 35).

Mr. Root has made a definitive study of this half forgotten architect, not only architecturally, with 100 plates and exhaustive history and description of Hooker's various constructions; but he even gives Hooker's genealogy and numerous documents bearing on his political careers and other employments.

ARTHUR W. COLTON

Photo. Ellis

MILTON BENNETT MEDARY

1874—1929

In the death of Milton Bennett Medary, past President and Gold Medalist of the American Institute of Architects, a great personality passes from the practice of architecture.

Broad knowledge, cultivated taste, sound judgment and poetic vision characterize his work.

A sensitive appreciation of the aims and ideals of his fellow craftsmen, combined with an uncompromising artistic rectitude, brought him leadership among the artists of his generation.

In his dealings with statesmen and men of affairs, combined wisdom, toleration and gentleness made him an ideal advocate of the great verities underlying constructive progress, and no man of his time has done quite so much as he to augment the respect in which the profession of architecture is held.

His fellow architects will keenly miss the deep insight, the ardent enthusiasm and the unfailing kindness which, for all those who have been brought into personal association with him, have made that association an enduring inspiration.

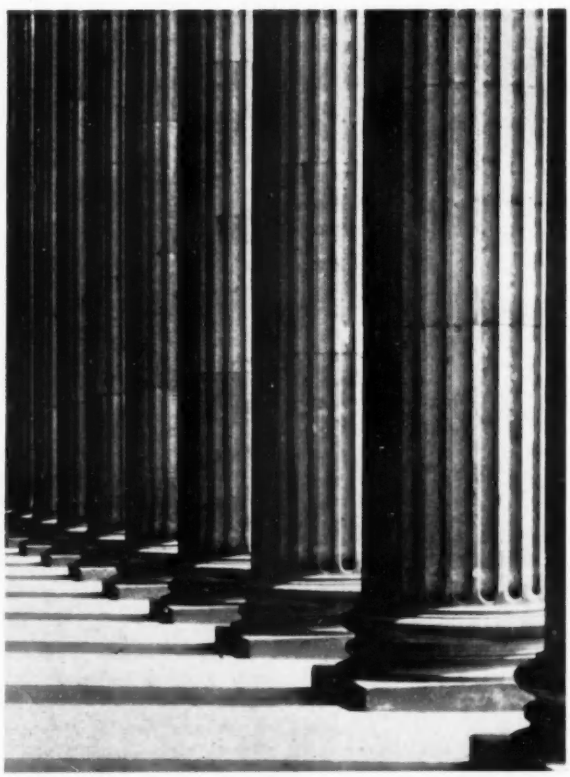
J. Monroe Hewlett.

NOTES AND COMMENTS

ARCHITECTURE CONDITIONED BY ENGINEERING AND INDUSTRY

STRUCTURAL engineering means the problem of external stresses and the dimensioning of members resisting these stresses with proper regard to the calculated loads and the carrying capacities of the materials employed. Rationality, not a preconceived notion of harmony of shapes, determines the form of these members. By being completely functional rather than irrationally adventurous, engineering reaches perfection.

Truly creative architecture therefore should not concern itself with space forms created by structural members since these, sincerely considered, are subject to *dimensioning*. Our creative sense is concerned instead with proportions and surface treatments of rooms. However, engineering and the use of new materials provide, with the naturally slender and inconspicuous metal skeleton of wide spans, a freedom of space arrangement unknown to any historical period.



Das Werk

HEAVY STRUCTURE OF ANCIENT ORDER

The sincere creative urge in designers unprejudiced by anything counter to their better judgment is responsible for the high points of architectural development in the past. This sincerity —not any *technical* instruction to be extracted and fitted to contemporary use—is the moral exhortation that the architect of the present should derive from the architecture of the past.

The ancient Doric peristyle, in its sincerity as an expression of the statical knowledge of that period, is perfect. Columns and beams were proportioned according to accentuated solution of the statical tasks and a profound religious tradition. The symbolic expression of the statical function was as sincere as it was naïve. The bulging and fluted column of limestone was given a surface treatment like that of a fibrous organic body. Such a sincere *naïveté* concerning materials and their action under stress can not be given to a period, such as ours, where rational computation takes the place of mystical tradition. After a limestone column has been correctly *dimensioned* to carry an exactly computed load, we cannot *proportion* it differently without losing sincerity.

Unfortunately contemporary designing has been separated from the work of the engineer. Greek architects were the Greek engineers. Brunelleschi won the reward for his design of the dome of Santa Maria dei Fiori not because he submitted an imaginative rendering but because his scheme to erect the scaffold of this daring, wide span, double shell construction was the safest and most convincing solution considered by the Signoria of Florence. The dome was recognized to be a monument of its period; the bold concept, based on the most advanced knowledge of engineering, filled all minds with enthusiasm. Every great blossoming of architectural activity, like the Gothic centuries, went the limit of engineering knowledge in the methods of construction—and the structural daring was aesthetically satisfactory!

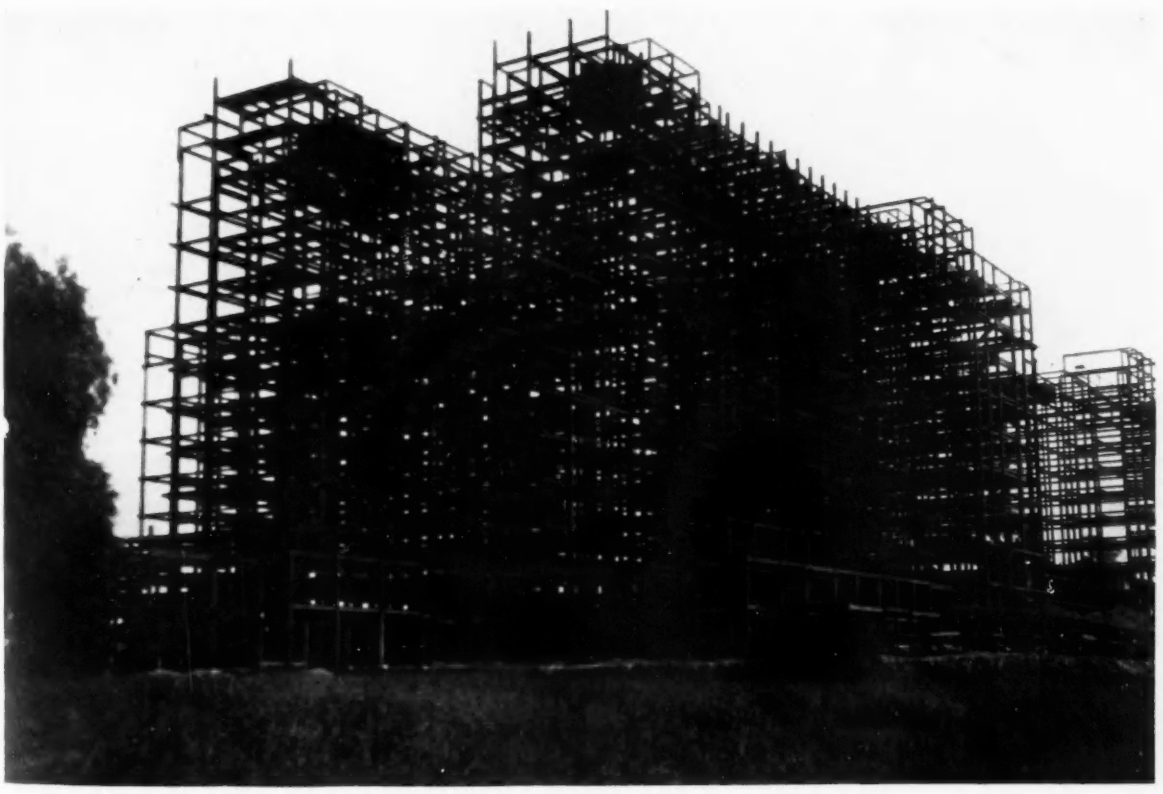
Our own time cannot indulge in irrational adventures. When the actual execution of a building project begins, all features including the smallest detail have been checked and rechecked and a permit obtained from the building department. When finished and fireproofed, the exterior gives no hint, even to engineers, of the strength of the concealed construction. It would be far fetched to symbolize in surface decoration the strictly computed factor of safety merely to reassure the layman. It is vain to look for conspicuous expression of statical relations in a contemporary building.

The playful and eternally irrational trend of creative activity must change its direction at present, to be diverted to the fascinating task of modeling the space enclosed by partitions, curtain wall and suspended screens, assembled to form rooms and to cloak the engineering skeleton.

Another essential difference between the Gothic period and ours is the existing urge of economy to box together in one huge skeleton construction large sets of rooms widely different in function. A new sort of building results—a composite sometimes of apartment hotel, theatre, gymnasium, stores, railroad station, exhibition galleries, funeral parlors, churches, all arranged along the shafts of elevator groups under one roof and behind one set of street façades. This *room-combination* building, which determines much of our present development, was unknown in historical architecture. The archetype of Greek buildings, as well as the Gothic, was the one-room building and the ideal language of the antique style immediately becomes lost when applied to buildings of several stories. The character of one-room structures was imprinted on the purest development of building styles in the past. Today the large structural skeleton and the flexible cellular system of inserted partitions invites *combinations* of rooms and functions housed together in one complete structural unit. It would require very artificial means to give a "room-combination" building the individual expression of a monument that signifies the "one-room" styles of the past. Our large structures are universal rather than individual in expression.

The ideal specimens of these ancient buildings can be characterized roughly as *one-material* structures. A temple looking down from a promontory on the Aegean sea was constructed of limestone like the rock on which it rested. The roof was limestone, the covering mortar coat was made of lime. There was no window glass, and no carpentry, no insulating materials, no flooring other than limestone, no linoleum, lighting or heating installation and no sheet metal. Grilles in many cases were not of bronze but of stone.

The smallest filling station today has a specification of materials that is very complicated compared to the Erechtheion or the simply determined treasury buildings at Delphi. This is because industry is now governing the building supply market. The essential materials specified by the architect are not those found in the vicinity but the products of highly



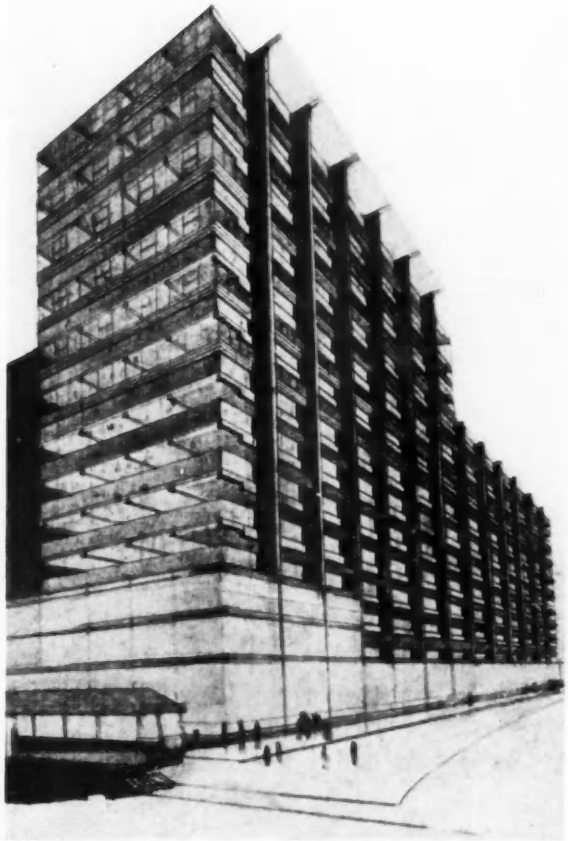
SLENDER STEEL SKELETON OF TODAY
LOS ANGELES COUNTY HOSPITAL

organized technical processes, like rolled steel, sheet metal, sheet glass, cork stone slabs and cement.

Since materials determine building modes, and since industrial conditions affect materials, it is clear that *industry determines architectural styles*. Spanish, Italian or English ornaments do not give the character of style to American houses so much as do the technical equipment, the roller screens, the impressive surface finish of walls and fixtures, the plate glass and enamel, Vitrolite, tile, washable paints, hardware: all these parts of a clean cut environment proclaim that the buildings are of the twentieth century.

The inventiveness of the American building supply market exacts the most intimate influence on contemporary style formation. Compared with this deeply rooted influence of mass production and world wide marketing of building materials, the activity of even the most gifted progressives in architecture might be considered as secondary in importance and a reflection only of the essential *superpersonal* events. National style characteristics naturally recede to the background.

RICHARD J. NEUTRA



DESIGN FOR STORE AND OFFICE BUILDING

RICHARD J. NEUTRA, ARCHITECT

•

ECONOMY IN PLANNING

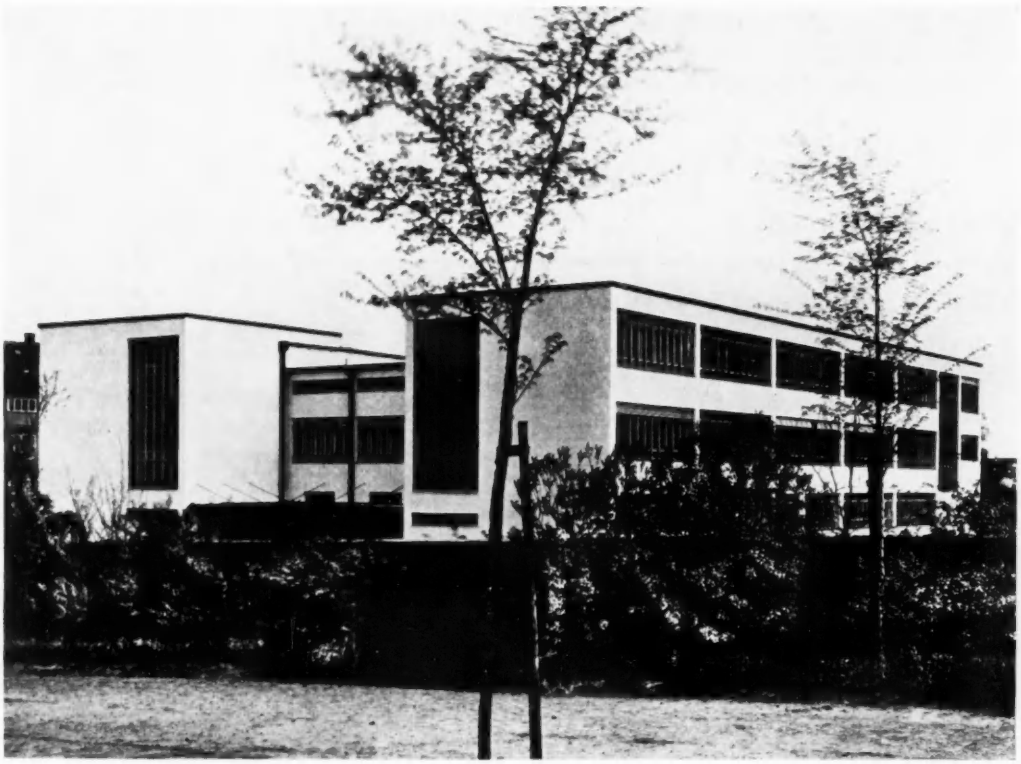
THE NEW public school at Celle, Germany—illustrated in this issue—offers an instance where the architect has solved the problem of the school building from a fresh point of view. Not content with merely covering with a new cloak the inconsistencies and fallacies of an antiquated building program, the architect, Otto Haesler, has approached boldly the matter of providing the school children with a maximum of light and air and general comfort, at the same time seeking efficiency and economy in planning and construction.

Essentially the building is highly economical. Located in a district of Germany where the general well-being of the populace makes prohibitive the expenditure of large sums for building construction, the school necessarily had to be built economically and efficiently.

But economy in building does not mean cheap materials in construction. Greatest economy demands best quality. In this *Volksschule* the architect economized through the use of a modern technique in planning, the most complete utilization of rooms. The gymnasium illustrates this: the addition of a stage at one end and a motion picture projection cage at the other turn this room into a well-equipped auditorium capable of caring for large audiences. This double use of one room means that the added expense of providing a costly and infrequently used element in the general scheme of the building is eliminated.

Classrooms are well lighted and stairways properly placed. Large expanses of glass provide ample *Luft und Licht* for the pupils and render particularly attractive the stairs. Not only is the frank expression of the solution aesthetically satisfying but the resulting economies, all done without the substitution of inferior materials or construction methods, indicate the potentialities of more efficient planning.

TECHNICAL NEWS
AND
RESEARCH



GENERAL VIEW
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT

Featuring

THE PLANNING
OF
HIGH SCHOOL BUILDINGS FOR BETTER UTILIZATION

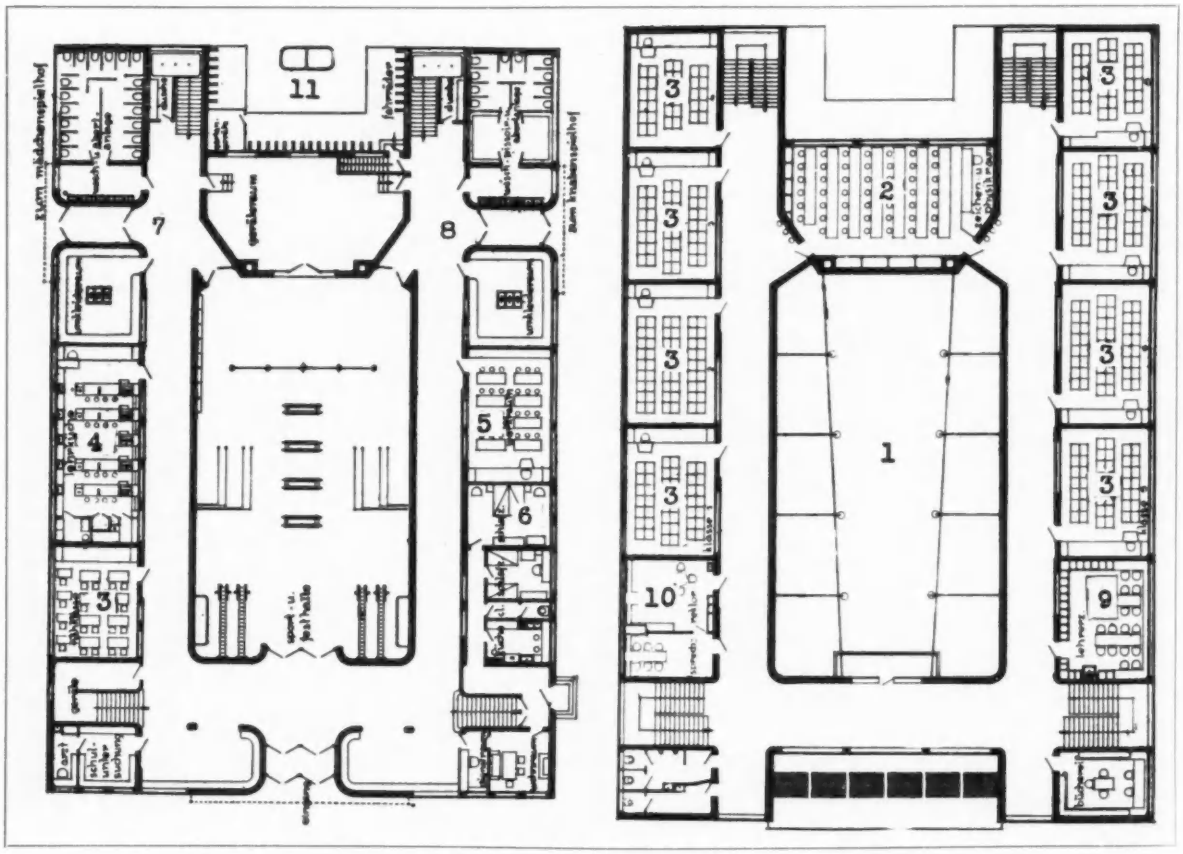
PLANNING HIGH SCHOOL BUILDINGS FOR BETTER UTILIZATION

BY N. L. ENGELHARDT

APPROXIMATELY $400,000,000 is being spent annually in the United States for the erection of school buildings.

A very significant part of this sum is being devoted to high school buildings. Communities have tended to spend more freely for high schools than elementary schools. Senior high schools have been built in many localities costing as much as $1,000 for each pupil of the estimated capacity. In these same communities, a similar per capita cost for junior high schools has ranged from $500 to $700, while the per capita cost of elementary schools has been considerably lower, ranging from $300 to $500.

According to the 1929 Yearbook of the Department of Superintendence, there are exactly 1,000 high school buildings in the United States with an enrollment of more than 800 pupils. There are approximately 1,200 high schools in which the enrollment ranges from 401 to 800. The remainder of the 18,157 high schools in the country have enrollments of 400 or less; in fact, 60 per cent have enrollments of 100 pupils or less. In the larger high schools where enrollments range from 800 to as many as 8,000, there is a range in cost from a possible $500,000 to a cost exceeding $5,000,000 for the single school building.



From *Moderne Bauformen*, September, 1928

GROUND FLOOR PLAN — UPPER FLOOR PLAN

SCHOOL AT CELLE, GERMANY

OTTO HAESLER, ARCHITECT

1. Gymnasium and Auditorium. 2. Drawing and Physics Room. 3. Classroom. 4. Domestic Science. 5. Workroom. 6. Caretaker's quarters. 7 Entrance to girls' lockers and lavatories. 8 Entrance to boys' lockers and lavatories. 9. Teachers' Room. 10. Headmaster's Office. 11. Parking space for pupils' bicycles.

RATING AND EFFICIENCY

When rating all the school buildings of a community, it usually has been found that the high school scores higher on a 1,000-point scale than most buildings in the community. In fact, the difference between the scores of the high school and the poorest elementary building has been astonishingly great. Elementary buildings in some communities rate as low as one quarter of the high school score. It should be noted, however, that utilization of the high school building is represented in practically all these cases by a percentage far less than that of any elementary school building. No way may be possible to secure a complete adjustment between these two situations in order that each dollar of building investment can be represented by an acceptable percentage of utilization. It may be that the difficulties inherent in high school program-making prevent the attainment of a high degree of utilization.

ROOM AND PUPIL STATION UTILIZATION

Morphet, in his very extensive study of the measurement and interpretation of school building utilization, presents the methods to be employed in the analysis of utilization. The method details are fully given in this study,* and the results of his thorough analysis of the utilization of 52 school buildings during the regular school hours are of present interest to us.

A. ROOM UTILIZATION

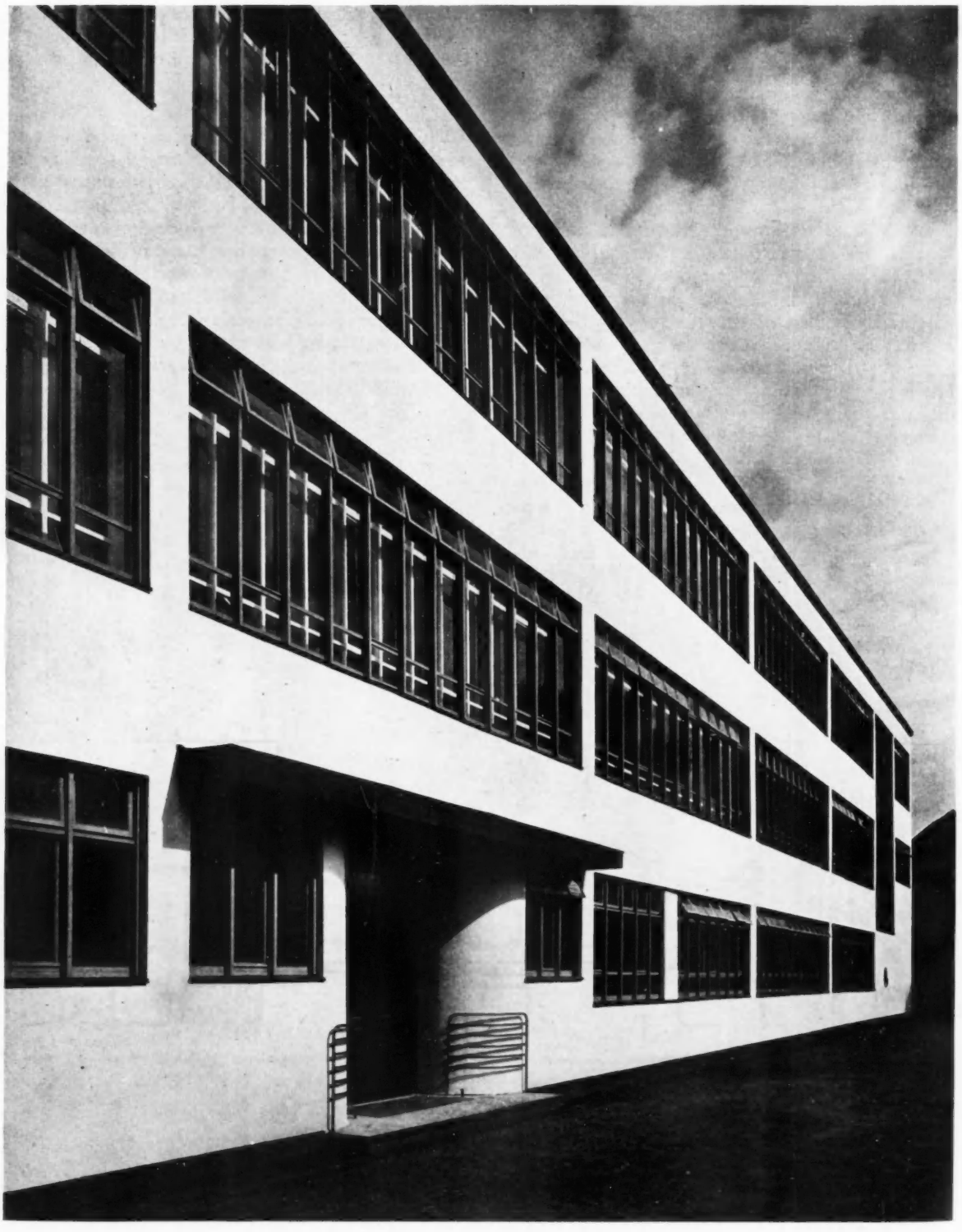
This has been the most commonly used basis for the determination of the adequacy of building use. From a study of its definition, it is clear that room utilization must be coupled with individual pupil station utilization if any satisfactory analysis of building use is to be secured. Room utilization is not concerned with the number of pupils in the room but whether the room is actually used for class study or any other pupil activity. It is concerned also only with those rooms which may be considered as instructional space, i.e., for any regular or special class or conference purposes.

B. PUPIL STATION UTILIZATION

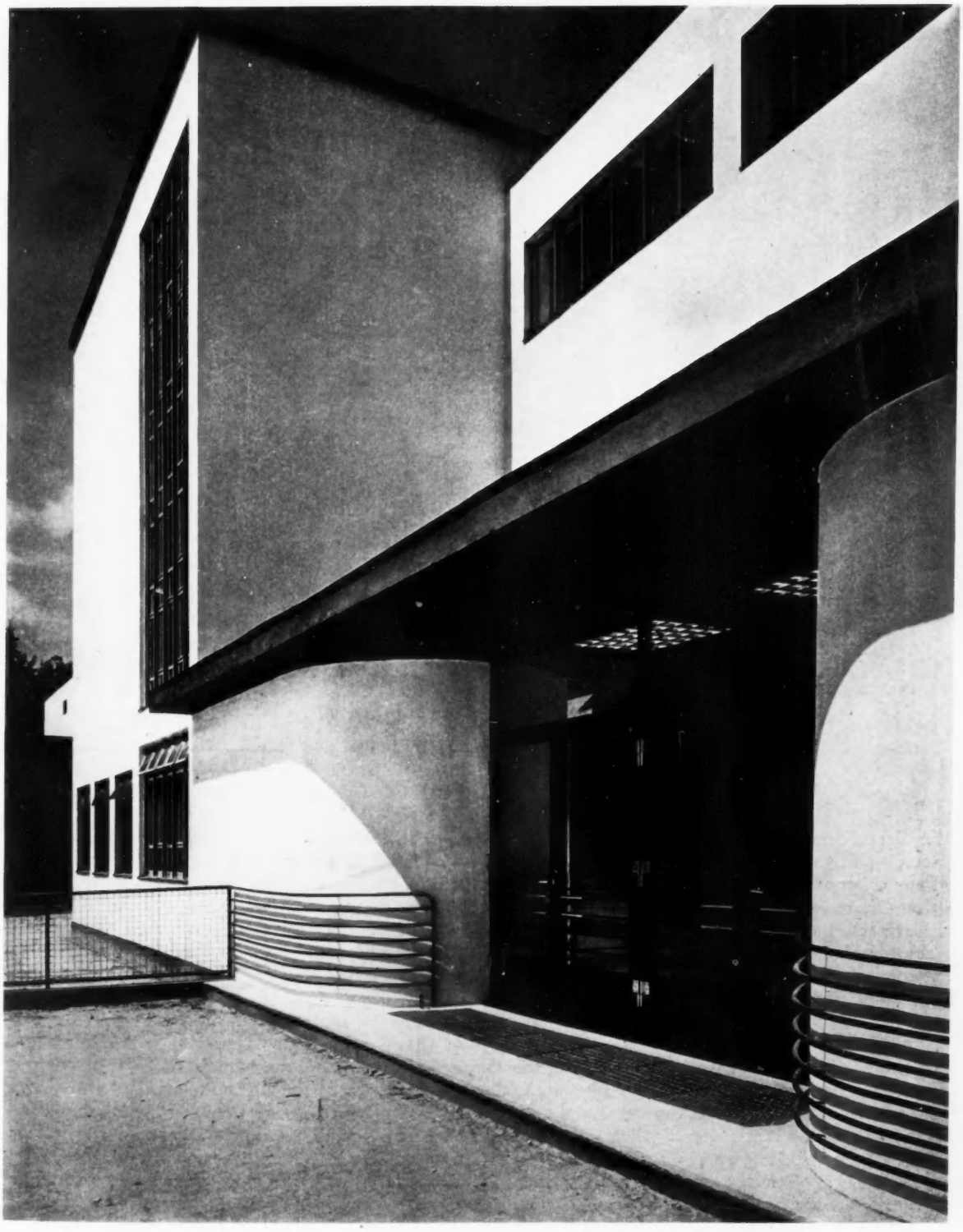
A pupil station may be defined as any seat, machine, space at a table, or proportion of space on a floor as, for example, in the gymnasium where a pupil may be assigned for any period of time.

* Morphet, E. L. Measurement and Interpretation of School Building Utilization. (1927) Bureau of Publications, Teachers College, Columbia University.

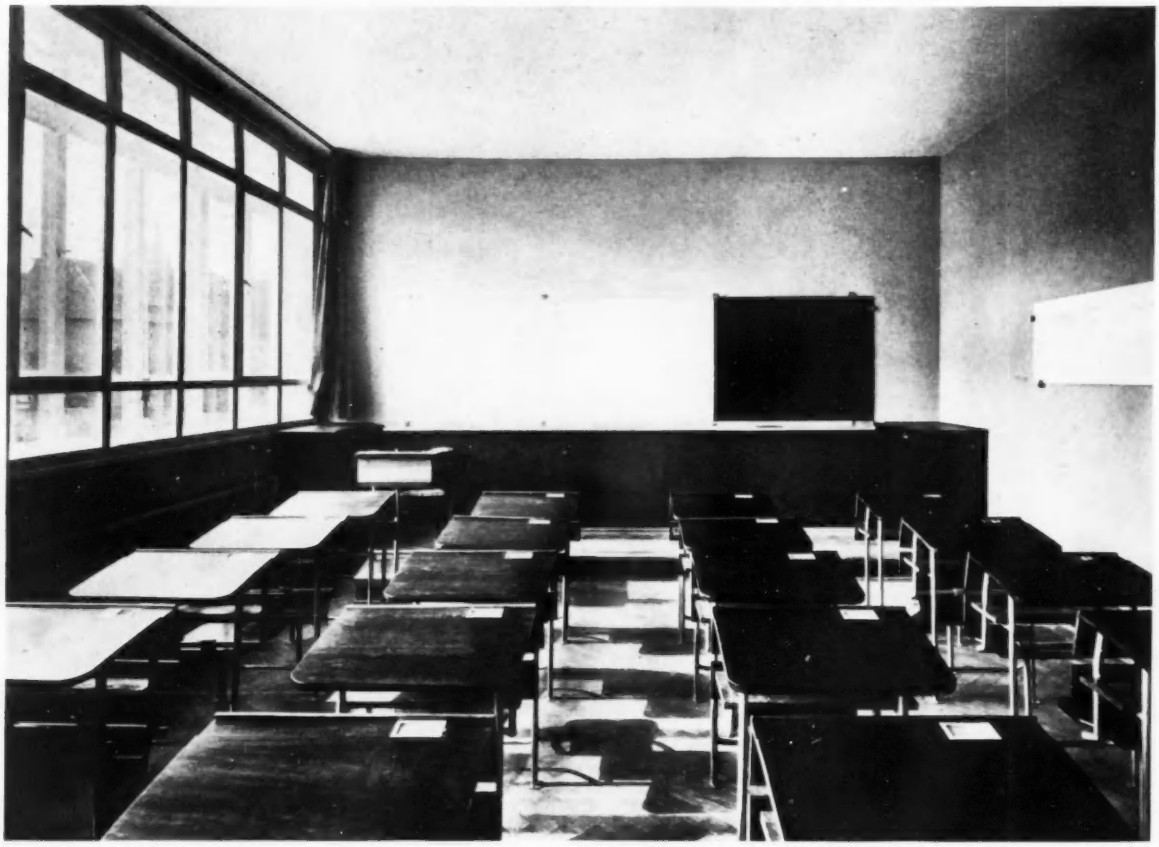
SOUTH ENTRANCE FAÇADE
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT



WEST ENTRANCE
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT



DETAIL OF MAIN ENTRANCE
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT



CLASSROOM
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT

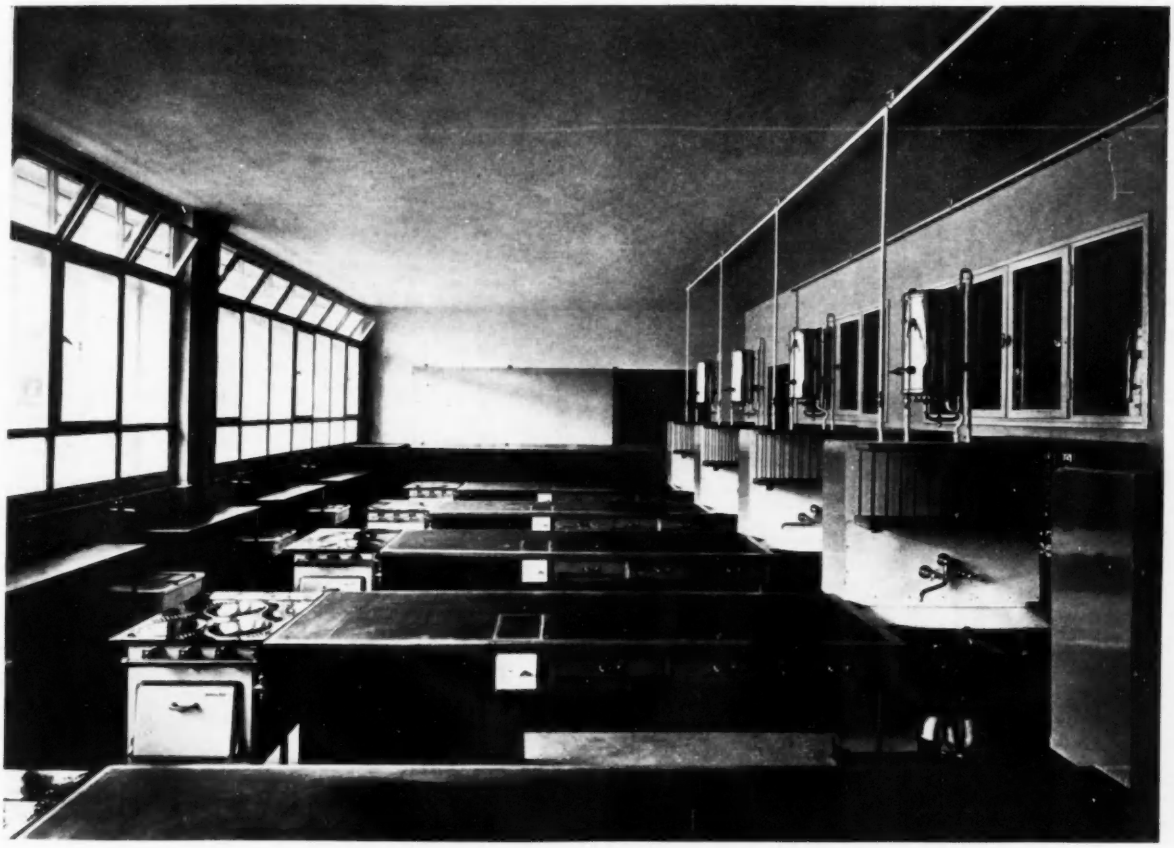
Pupil station utilization concerns primarily the relation of the actual number of such stations used to the number available for use. It is clear that pupil station utilization refers not only to the actual provision of equipment which has been made, but also to the maximum possible equipment in all rooms with due reference to the desirable aims or purposes of the instruction which is being advanced.

C. EXAMPLES OF UTILIZATION

For the 58 schools, the average percentage of room utilization, eliminating the auditorium, gymnasium and cafeteria, was found to be 80 when based on the class periods of the schools, 71.6 when based on all periods in the schedule, and 53.5 when based on a 40-hour week. When the auditorium, gymnasium and cafeteria were included in the room utilization analysis, the percentages became 75.4 based on class periods, 68.7 based on all periods in the schedule, and 51.8 when based on a 40-hour week.

The total enrollment in these 58 schools was about 50,000. The present cost of replacing the buildings would be approximately $40,000,000. These percentages of room utilization can be interpreted as implying a 20 to 30 per cent excess of construction in these situations. The relationship between the construction utilized and that not utilized may be represented by the contrast between the figures $30,000,000 and $10,000,000.

In the building study, Morphet finds a wide range in the number of pupil stations provided for each enrolled pupil. In one school with a very small enrollment, there were nine pupil stations available for each pupil during each hour. In other schools, the number of pupil stations where each pupil might make a choice for each period of the day ranged from one to seven. In many cases three, four or five pupil stations were available for each pupil during every hour. This abundance of pupil stations is naturally reflected in any percentage of utilization. Morphet contrasts the average pupil station utilization in all the schools he studied with ten schools



ROOM FOR DOMESTIC SCIENCE
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT

considered highly congested by the principals in charge. The results of this study concerning nine different types of rooms follow:

PERCENTAGE OF PUPIL STATIONS USED IN 52 HIGH SCHOOLS, 1926

Room Type	Average Percentage All Schools	Average Percentage Ten Congested Schools	75th Percentile*, Ten Congested Schools
Academic Classrooms	56.6%	62.9%	69.1%
Study Halls	59.8	72.5	80.7
Libraries	61.8	68.8	79.4
Typing Rooms	48.5	56.5	59.8
Science Rooms	37.0	51.2	57.2
Chemistry Laboratories	32.8	45.4	65.9
General Shops	55.1	62.7	68.9
Auditoriums	9.2	10.9	12.0
Cafeterias	21.7	31.3	38.3

* The value that is unreached by 75% of the measurements and surpassed by 25% of them.

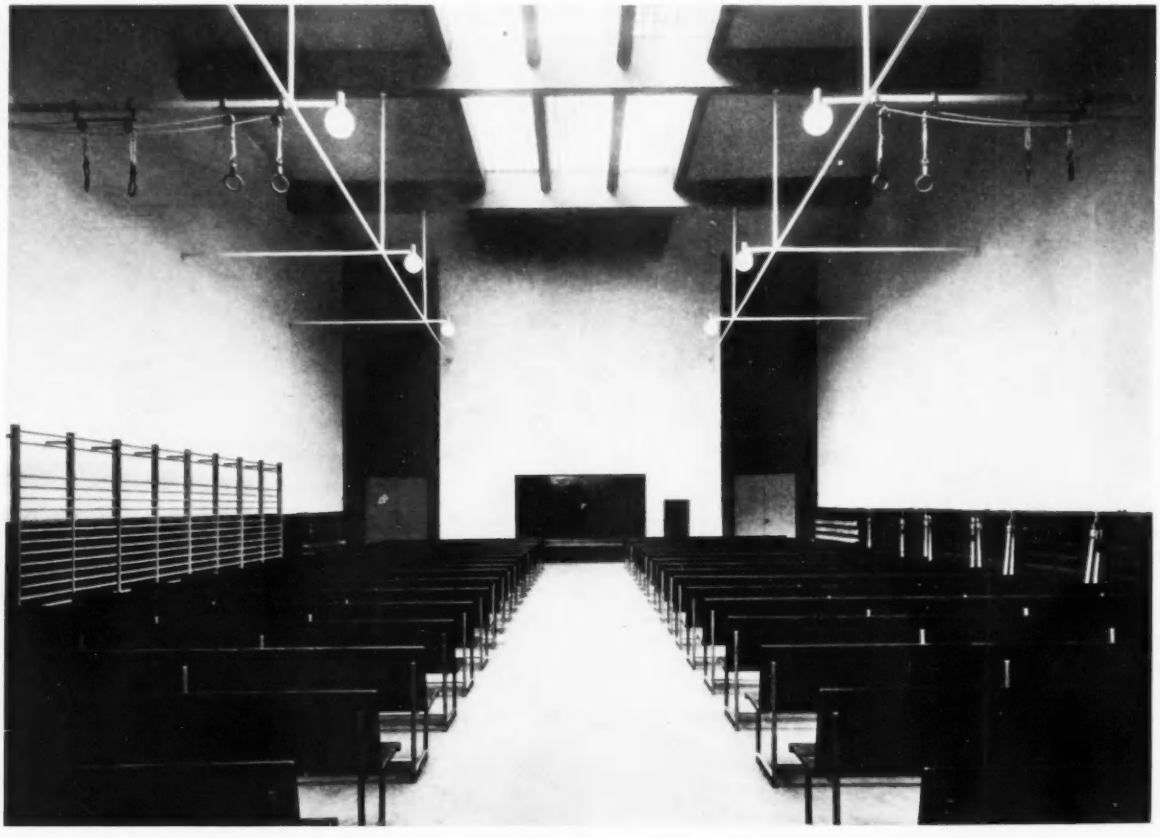
D. LOW UTILIZATION EVEN IN CONGESTED SCHOOLS

Even in the ten congested schools, the percentages of pupil station utilization are so low as to stimulate further investigation in this field. Even in the most highly congested schools, percentages of pupil station utilization of 80 or more are rarely secured, while percentages of even 50 or less are found when special rooms, not including the auditorium, cafeteria and gymnasium, are studied.

EFFICIENCY OF UTILIZATION

A. EFFICIENCY VS. INDIVIDUALISM

It would be unfair to present these low percentages of utilization for schools which might be considered more or less typical without indicating the dilemma in which the high school administrator finds himself. The modern secondary school program emphasizes the necessity for individual care, for extension of the curriculum, for adaptation of school work to the interests and special needs of the individual. In fact, the high school principal is confronted with the



COMBINED USE AS GYMNASIUM AND AUDITORIUM
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT

problem of relating changes, which arise from improvement in curriculum and the adaptation to individual needs, to building conditions more or less inelastic and frequently originally created with a limited participation on the part of those required to administer the educational programs.

B. 100 PER CENT EFFICIENCY NOT POSSIBLE

Nothing said in this article should be interpreted as implying that 100 per cent room utilization or 100 per cent pupil station utilization is possible for any high school building. Every encouragement should be given the high school administrator to continue his curriculum adjustments and program of meeting individual needs. These more recently developed educational policies, on the other hand, are demanding a greater attention to the measurement of plant utilization and to the problem of building planning than was ever required ten and fifteen years ago. In fact, modern high school administration is a high grade form of engineering. It requires measurement of plant as well as product. It relates achievements to costs. It emphasizes the human need, but does not neglect the sources of material development.

C. SPECIAL ROOMS

When high schools were small, the subject matter limited, and special room needs existed in only slight degree, utilization of plant had slight significance as compared with the problem that develops out of the 1,000-pupil school today. Many practices which developed from the old academic program are commonly resorted to today and affect in considerable measure the degree of utilization. It seems strange to still find some schools in which rooms are assigned to teachers with the understanding that only the classes of a single teacher are to use each room. This practice may result from the attitudes of older teachers on the staff and has of course the merit of permitting the teacher to be constantly in touch with his materials of instruction. However, it is an expensive policy when considered from the standpoint of total cost for public education. Even in schools of recent construction, it is difficult to present a real

solution for this problem where no special study rooms or conference rooms have been provided for teachers and students. Frequently, a small office which contains a desk and two chairs will extend the percentage of utilization of a room which makes provision for as many as 30 or 40 students. Subject specialists who require special materials or equipment for instructional purposes are frequently inclined to consider that their rooms should be limited to their particular use. This again is a more or less traditional attitude and if full consideration were to be given to the extension of use of special rooms, a far better percentage of room and pupil utilization could be secured.

D. ANTIQUATED THEORIES

High school building utilization is also affected by the belief of some administrators and teachers that the high school program contains indispensable features that cannot be bettered. The following are some such current beliefs:

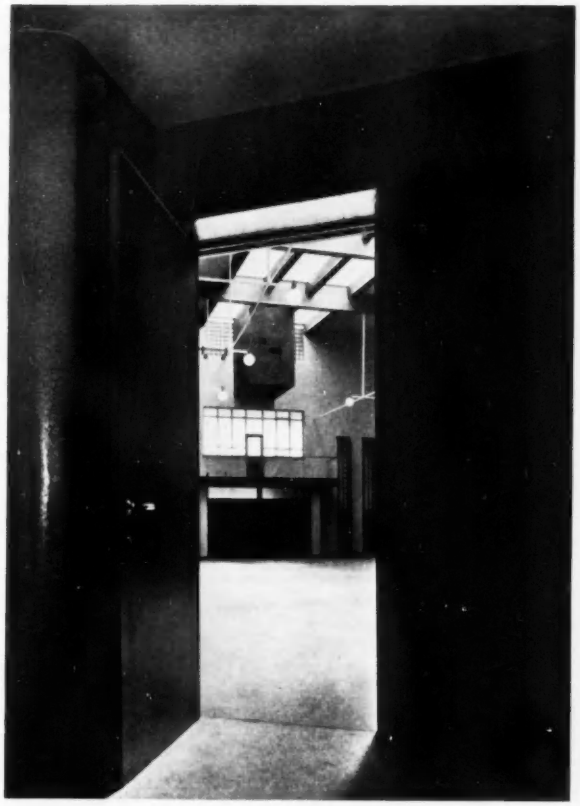
1. A study hall must be provided for a very large percentage of the student body, even 50 per cent or more.

2. Every student must be provided a home room seat in a regular or academic classroom.

3. A library is a place for the conservation of books rather than a place in which many students and many books form constant contacts.

4. Rooms in the basement are good enough for special classes but not good enough for the regular class type of work.

5. Special rooms, like music, sewing and lecture rooms, are designed for one purpose only and do not permit any other use. There is a tendency to restrict room usage very largely on the basis of character of the equipment. Very frequently it would be economical to discard the existing equipment entirely and to replace the equipment in terms of a multiplicity of uses rather than continue as at present.



GYMNASIUM, SHOWING MOTION PICTURE PROJECTION CAGE
SCHOOL AT CELLE, GERMANY
OTTO HAESLER, ARCHITECT

SPECIAL TYPES OF ROOMS

In building large high schools certain spaces are frequently neglected largely because of the magnitude of the problem. It is possible to find school buildings today in which 150 different types of rooms are planned. For example, the Madison junior high school in Rochester has 141 different types of rooms. Strayer, Engelhardt and Hart list, in checking the planning of school buildings, as many as 494 different types of rooms which have been included in high schools. The tendency in planning is frequently to include certain kinds of rooms simply because others have done so.

A. MODEL APARTMENTS

So-called model apartments have been frequently incorporated. They have taken up the equivalent of one and a half to two and a half classrooms. The evidence is that these model apartments are rarely used except for show purposes and dusting. They have cost large sums for construction, for service facilities and equipment. In spite of this there are no doubt being built today large numbers of these model apartments for which the utilization will probably be so low that it can never be justified.

B. LECTURE ROOMS FOR SCIENCE

These are still made part of even the smallest high schools, and yet all studies made of lecture-room utilization indicate such a low percentage that intelligent planning requires other provision for this type of instruction.

C. SHOPS

In new buildings shops are still located so that the noise interferes very seriously with other classes in adjoining rooms. This frequently causes a smaller utilization of such classrooms and also points out the need for considering instructional losses when rooms are being utilized under difficult conditions.

D STAGES

The dramatic arts are being advanced in many high schools. A stage of considerable depth is required. Frequently one finds on recently developed plans stages 20 feet or less in depth, with dressing rooms of very limited dimensions cut off from the rear of the stage. Such dressing rooms are practically useless and become storage places for equipment or stage property. The total cost of these dressing rooms in high schools has been considerable. The utilization of them has been practically nil. In other words, money should not be spent on the construction of such small spaces as these if a high percentage of utilization is desired.

E. MULTIPLE USE OF SPACE

Earnest efforts have been made to secure a maximum utilization through the development of duplicate or multiple use of various spaces. The community demand is frequently such that large groups of spectators must be provided for in the large units, the auditorium, the gymnasium and swimming pool. This has placed a great burden on those planning the school. Frequently a stage has been turned into a gymnasium in order to satisfy this demand for adult amusement. This practice however has proved exceedingly unsatisfactory in many cases. It is desirable, before any combination of this kind is accepted, to consider fully the educational implications and to contrast the losses in the secondary educational program. There are, however, many duplicate or multiple uses of rooms which have proven to be satisfactory. The development of the cafeteria in such a manner as to make it available for the orchestra and glee club and even for study purposes, presents a much more satisfactory attempt to increase the percentage of utilization. The construction of special equipment for science laboratories, making possible laboratory and lecture work in the same room, has been a commendable advance. Further analysis should be made of equipment in the household and manual arts to ascertain whether equipment serving duplicate purposes can be developed.

EFFICIENCY OF BUILDING AND EQUIPMENT

A. TOTAL EFFICIENCY OF BUILDING

Utilization studies which consider not only classroom space, as done by Morphet, but all the space and cost items in the complete structure would present very much lower percentages of utilization than those quoted by Morphet.

B. UTILIZATION OF VENTILATION

Ventilation equipment and installation, which may amount to three or four per cent of the total cost of the building, present another problem for the administrator. Having $20,000 to $40,000 lying idle in expensive fans, motors and ducts should raise in the minds of educators questions concerning the desirability of state laws which require expensive installations with a minimum of return.

C. EQUIPMENT COSTS

Compared to the total cost of the building, equipment costs range from 8 to 20 per cent. Frequently, one finds expensive stenographers' desks in typewriting rooms where ordinary tables would have sufficed, or very elaborately equipped machine shops where simpler installations would have brought better results. The character of utilization should be a determining factor in equipment selection and results should be carefully contrasted with the costs involved.

D. BASEMENTS

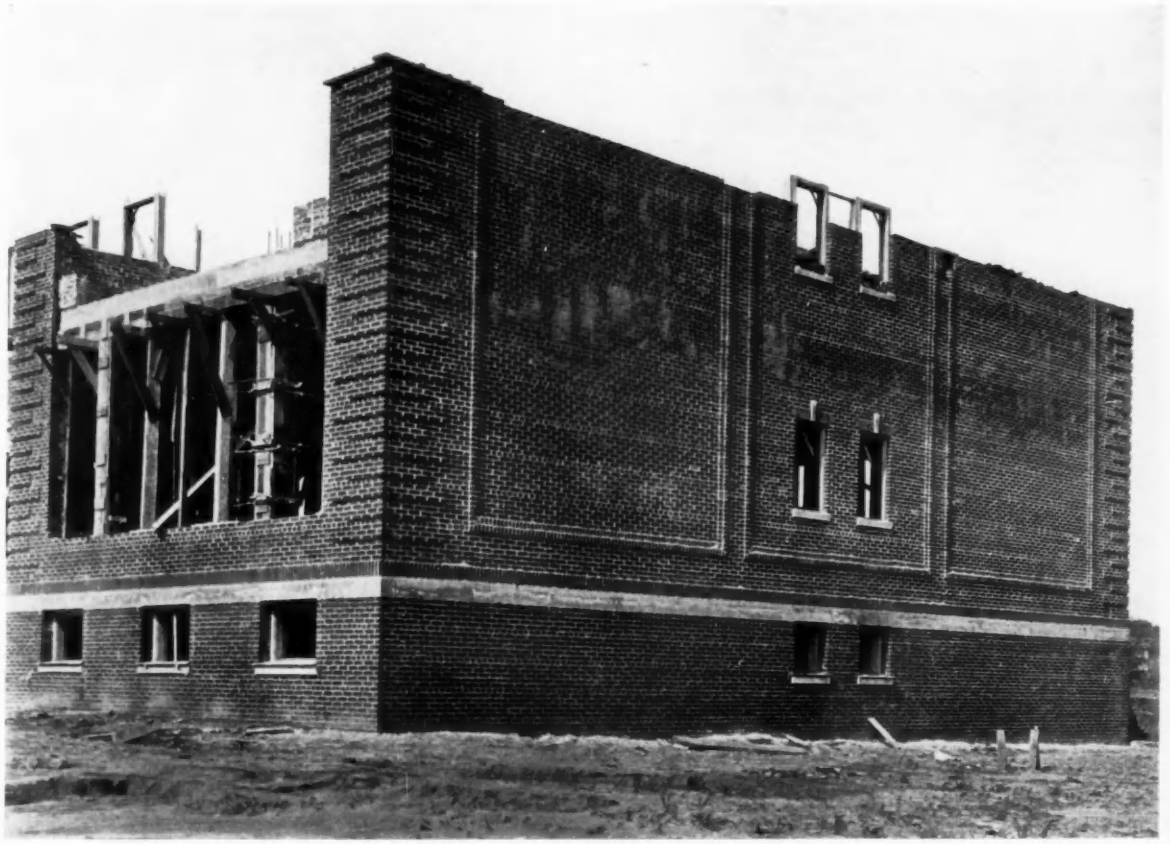
In spite of all that has been written in educational literature in the past twenty years concerning the costliness and futility of basement space for educational and social purposes, many buildings are being erected today with a maximum of such space. The utilization in practically all these cases will be very low and in no sense will be commensurate with the amount of money spent.

E. EASE OF MAKING ADDITIONS

The degree to which utilization is affected by the inability to make satisfactory additions to a school building is a topic for fruitful work. Very frequently the relationship between regular classrooms and special rooms requires readjustment as students' choices and additions to curriculum bring about changes. It is quite possible that the addition of a few classrooms will increase considerably the percentage of utilization. It is also possible that the addition of a large unit, such as another gymnasium, will also make possible a far higher degree of utilization of the existing plant. Provision should be made for this in the original planning, but many buildings are being reproduced in our educational journals today where no such provision has been made. A further elastic element frequently ignored in original planning is the possible addition to a particular department, such as the shops, the household arts or the science section of the building. Elasticity not only in room sizes but in departmental development, as well as in building development, is a highly essential element in planning if present as well as future utilization is to be given full consideration.

F. EXCESSIVE BUILDING PROGRAM

The percentage of utilization is frequently reduced for two or three schools because the community has overbuilt. It is quite possible to find in many rural communities two high schools which are so close together that many of the facilities are duplicated and hence inadequately used in both buildings. This is particularly true with reference to the large units,



SOUTH PART OF BASEMENT

THE NEW FIELD CLUB SCHOOL AT OMAHA, NEBRASKA

The large basement room at this end is made useless because of inadequate lighting

such as the auditorium, cafeteria and gymnasium. The faults are multiplied in those communities which have built downtown high schools rather than the regional high schools. Thus utilization becomes a resultant of the original building program of the city.

G. OVER-UTILIZATION

A negative aspect of this problem may be thought of as over-utilization. In the planning of gymnasium locker rooms, adequate space has frequently not been provided in the past. The allotment of space has often not been made in terms of the number of pupils to be provided for. Locker rooms have usually been the places where architects have economized. The result is an over-population of these rooms during many hours of the school day and conditions are unsatisfactory.

EXAMPLES OF POOR PLANNING

Recently the plans for the best schools erected in each county of a certain state within the past five years were reviewed. It may be well to point out a few criticisms of these plans to show the effect of original planning upon utilization.

Case No. 1

In this building the manual training and domestic arts have been placed in the basement. Utilization undoubtedly will be affected. Excessive space has been given to toilet rooms and they also have been located in the basement where more rapid deterioration will seriously affect the equipment. Stairwells are fireproof but too many have been provided in this building and unnecessary money has been spent. No addition can be made without destroying some feature already included in the plant. Losses will be sustained in future utilization as well as in replacement. The building has been planned as though the auditorium were the only educational facility worthy of excellent development.

Case No. 2

Domestic science and sewing rooms are in the

basement and no doubt will become damp, making them unfit for use during part of the school day. At least a third more blackboard provision has been made in this building than is necessary. Library facilities are so limited that they serve almost no adequate purpose. Without doubt this will affect seriously the utilization of plant if a progressive administrator is put in charge. Physics and chemistry layouts have been made so extensive that the school will be over-supplied for a period of twenty years at least.

Case No. 3

This is the plan of a small high school which probably should never have been erected. If enrollment increases, it will be very difficult to remodel or alter this building. Such remodeling would necessitate the destruction of about 50 per cent of what has been developed. It is a very wasteful building from the standpoint of excessive corridor space. The auditorium is on the second floor and inaccessible. The stage is too small for any real school activity. In other words, there is practically no factor in this building to permit a high degree of utilization.

Case No. 4

Interior stairways have been located in the corridor. They increase the corridor widths but do not permit direct egress out of doors, and the runs do not conform to educational standards. This small high school has been equipped with a lecture room between the physics and chemistry laboratories, which necessitated the reduction in size of both laboratories. A lecture room in a school of this size is unnecessary. Locker rooms are dark and inaccessible. Shower and locker rooms for the gymnasium are inadequate and poorly placed. Few elements in this plan permit commendation.

Case No. 5

The inaccessibility of the gymnasium stage and the poor locker facilities are the most marked among many faults. It is rather difficult to comprehend how so large a sum could be invested in a school with as little attention given to the actual utilization of the building. There is little to commend this building in the location of its room spaces, the frequency of its study halls, the size of its classrooms or the character of its stairways and corridors. This structure should never have been built.

SUMMARY

These five cases are illustrations of the poorest planning in this state. If space permitted, it would be possible to give a number of illustrations of excellent planning. The point to be made is that the problems of school utilization should not *first* be brought to the fore after the building has been completed, but should be thoroughly analyzed while the preliminary plans of a building are still in the pencil stage.

VARIATION IN COST*

"The expensive architect places spacious classrooms along wide halls, with big wardrobes for the pupils. After he has provided for classrooms, he has numerous corners left vacant. Does he rearrange the rooms to condense the structure while drawing 6 per cent commission on the whole business? No, indeed; he designates the odd spaces as 'special service rooms,' 'office of the school board,' 'music hall,' 'waiting room,' 'organization rooms,' etc. His building has a rifle range, a psychology room and a home making apartment. Under a high pointed roof that would do honor to a cathedral he has an attic as big as a barn. In the basement there is a storeroom large enough to hold all the pupils and their parents. In one wing is an ample gymnasium and in another an auditorium with balconies, motion picture booth, lobby, dressing rooms and orchestra pit.

"And what has the architect working with an eye to economy to offer? He has 35 to 40 pupils in a classroom. He has rearranged the classrooms until very little space is left over. In this small vacancy he has laid out an office, a few toilets, and other needed facilities. Book shelves in the classrooms replace a central library. The auditorium serves not merely as an assembly hall; music classes use the front of it part of the time, and the rest of the time it is occupied as a study hall. The school board must meet after hours in a classroom. Supplies are stored under the stage or stairway. One laboratory serves for teaching all the sciences. Folding doors permit changes in the sizes of rooms. By making each space serve several purposes instead of assigning special rooms to them, he effects great savings. His roof provides for no attic and his basement is just large enough to house a boiler and a fireman. The gymnasium may be readily converted into an auditorium by the use of movable chairs.

"Concrete proof of the wide variation in design is afforded by the following figures on a few items based upon floor plans of a small group of recent buildings on file with the Department of Education:

* Special Joint Committee on Taxation and Retrenchment, State of New York, 1929, pp. 27, 28, 40, 41.

Storage space in square feet of floor area per pupil:
School on Long Island ..... 0.72 } 1000% range
School in Westchester County[1] ..... 7.15 }

Square feet of floor area set aside per pupil in toilet rooms:
School in Warren County ..... 1.03 } 300% range
School in Wayne County ..... 3.10 }

Contents of three one-classroom schools:
School in Onondaga County ..... 200 cu. ft. per pupil
School in Putnam County ..... 420 " " " "
School on Long Island[2] ..... 1,570 " " " "

Depth of the school stage:[3]
School in Tioga County ..... 24 feet deep
School in Warren County ..... 8 " "

Depths of wardrobes running across one end of classroom:
School on Long Island[4] ..... 6 feet deep[4]
School in Tompkins county ..... 1 ft. 6 in. deep

[1] This storage space would hold all the children attending the school and their parents.

[2] This "one-room" school has a furnace room, two toilets, a long hall, a library and an auditorium, in addition to the single classroom.

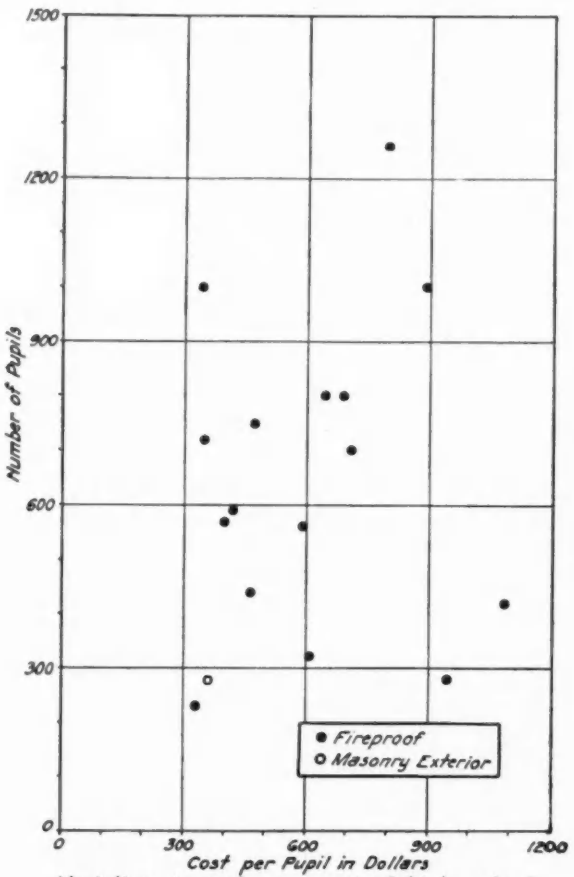
[3] This depth is measured from front to back of the stage platform.

[4] This wardrobe would hold four wardrobes the size of that in the school below it.

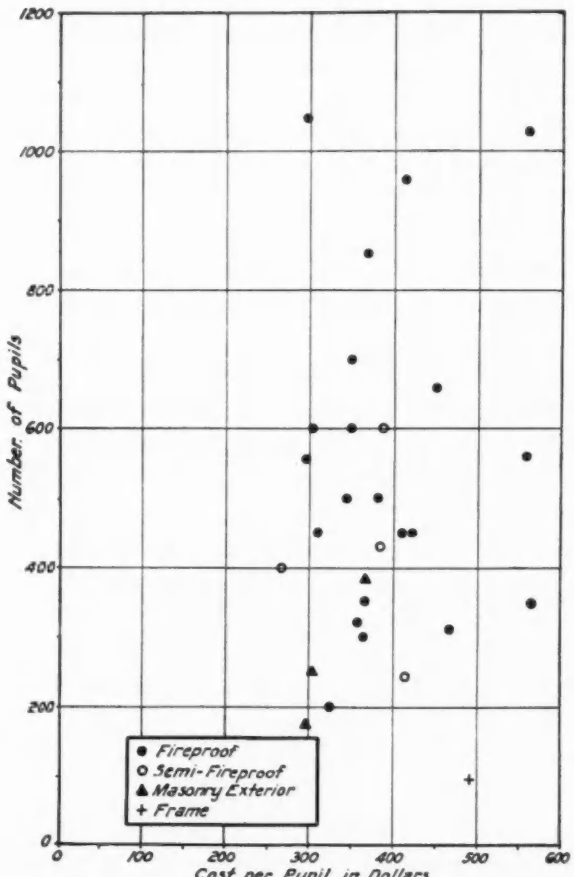
SCHOOL BUILDING COST DATA

Location	Class of Construction*	Cost of Bldg. per cubic ft. (cents)	Cubic ft. per Pupil	Cost per Pupil Bldg.	Cost per Pupil Furn.
Ogdensburg (Annex)	A	33	542	$180	$9
Hastings No. 4	B	47	526	248	44
Cortland No. 3	A	44	2,062	903	92
Bainbridge	B	38	641	245	..
Painted Post	A	30	1,372	415	..
Roslyn	B	42	1,900	800	46
Baldwin	A+	36	2,390	861	95
Port Washington	B	39	1,850	715	72
Nyack	A	..	1,730	....	..
Dunkirk	A	..	....	225	25
Johnson City	A	57	584	333	25
Newburgh	A	..	....	515	67

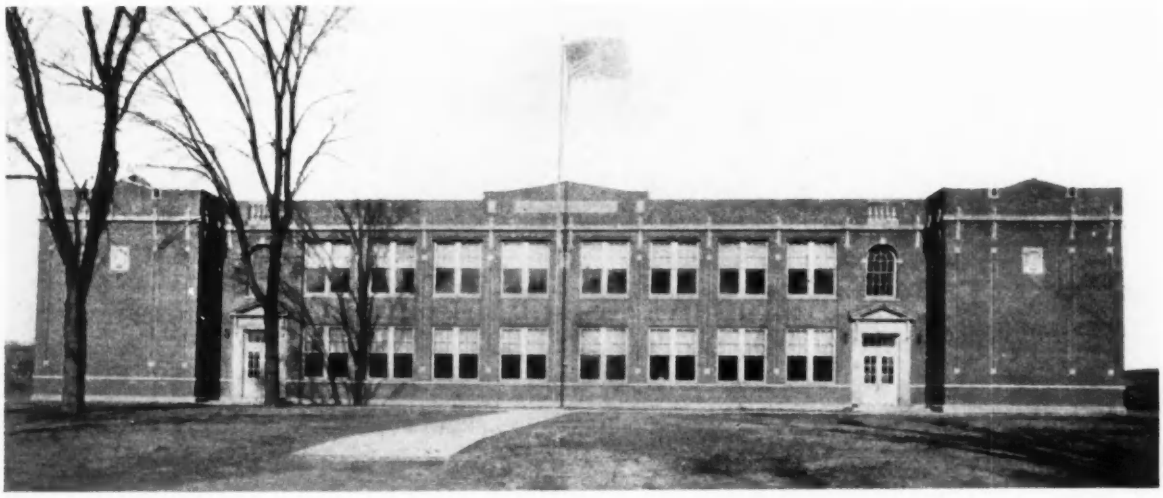
* Classes A and B are respectively fireproof, semi-fireproof; stone exterior and frame types of construction omitted from the table.



Variations in cost per pupil of high school buildings of different pupil capacities

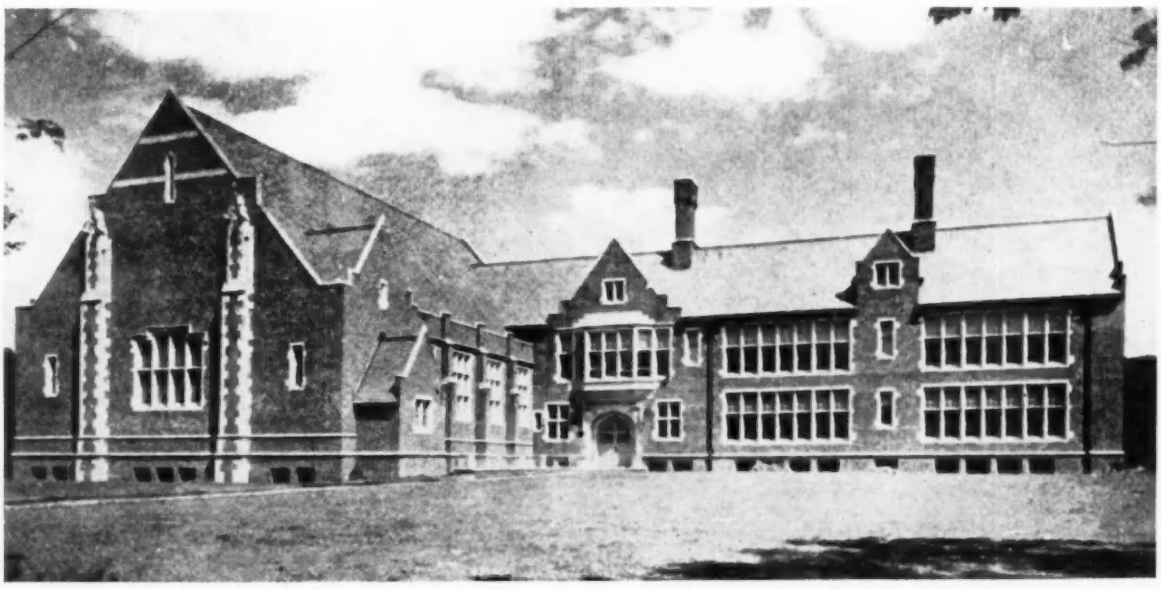


Variations in the cost per pupil of combined high and grade school buildings of different pupil capacities.



STILLWATER SCHOOL

Built at a cost of $125,000 to house 400 pupils. The cost per pupil is $375, and the space per pupil is 750 cubic feet



BRONXVILLE ELEMENTARY SCHOOL

Built at a cost of $740,000 to house 795 pupils. The cost per pupil is $930, and the space per pupil is 1,790 cubic feet. The photograph shows but one wing of the school plant

NOTES IN BRIEF

VICTOR LALOUX

Victor Laloux, architect and teacher, has been awarded the Gold Medal of the Royal Institute of British Architects. *Le grand patron d'atelier* is the eighth of a distinguished roster of French architects and men of letters —Charles Garnier, César Daly, Auguste Choisy, Honoré Daumet, Jean Louis Pascal, Henri-Paul Nénot, Charles Louis Girault.

From The Architect, London

VICTOR LALOUX

Laloux at present is 79 years old. His life has been replete with achievements. Endowed with unusual force and ability, he has succeeded in two great accomplishments —that of creating noble buildings and that of continuing the progress of architecture through the teaching of younger generations of designers.

The Atelier Laloux just outside the precincts of the Ecole des Beaux-Arts has been extraordinarily successful, both in the extent of Laloux's following and in the consistent successes of his pupils working in the Grand Prix manner. Designs of his students have always been notable for their power of expression and the strength of logic in *parti*. The freshness and soundness of his teachings have been passed on from pupil to pupil. Here in America the effect of the Atelier Laloux has been strongly felt through the work of young Americans trained abroad and through the instruction of French teachers who have come to American schools of architecture.

In addition to the strong influence of his teachings, Laloux's own practice has been considerable. Many of the buildings he designed have already, in this age of rapid change, the flavor of a "period." Perhaps the best known work of his professional career is the railway station, the Gare d'Orleans, Quai d'Orsay, in Paris, with its monumental exterior and its clear and cheerful interior. Even to-day the Gare and the adjoining Hotel Terminus are notable for their excellent planning and equipment. The famous Hotel de Ville at Tours with its exuberant style, the Basilique St. Martin at Tours, the Bourse and another Hotel de Ville at Roubaix, and various commercial and domestic buildings throughout France attest the inexhaustible energy and ability of the master.

Honors have not been lacking. Since 1912, he has been a corresponding member of the R. I. B. A. and the A. I. A. Four times he has been president of the Société des Artistes Français. Gold medals were given him at the Paris exhibitions of 1889 and 1900. He has been president of the Société des Architects Diplômés and president of the Société Centrale des Architects. In the Order of the Legion d'Honneur he has been Chevalier, Officier and Commandeur. And in 1909 he joined the ranks of the forty "immortels" as a Membre de l'Institute.

In an official capacity he has been Architect en Chef du Gouvernement and Inspecteur-Général des Bâtiments Civil et Palis Nationaux. He is a Membre du Conseil Supérieur des Beaux-Arts, Membre de la Commission des Monuments Historiques, Membre du Conseil Général des Bâtiments Civil.

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PARIS PRIZE

Competitive drawings for the Paris Prize will be judged September 5, and the winner announced the next day. For the following two weeks the drawings will be on exhibition at the Beaux-Arts Institute of Design, 304 East Forty-fourth Street, New York City.

The jury making the award: Philip A. Cusachs, chairman; Archibald M. Brown, Robert P. Bellows, Paul A. Davis III, Abram Garfield, Arthur Loomis Harmon, Edward S. Hewitt, Raymond Hood, Clinton MacKenzie, Henry Oothout Milliken, Benjamin W. Morris, Julian Peabody, Henry Richardson Shepley, Arthur Ware, Whitney Warren, and C. C. Zantzinger.

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MODERN ARCHITECTURE AT COLUMBIA

A course on the history and development of the modern movement in architecture is to be offered at Columbia University this semester to third and fourth year students. The course will be illustrated by slides and will stress the use of new methods of construction as determining many of the new forms of design.

Prof. Joseph Hudnut, who will conduct the lectures, has spent the summer in Europe collecting photographs and information concerning French, German and Scandinavian architecture.

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ILLINOIS SOCIETY OF ARCHITECTS

Alfred Granger was elected president of the Illinois Society of Architects at the thirty-second annual meeting of the organization. He is a member of the firm of Granger and Bollenbacher.

Other officers elected: William P. Fox, first vice-president; George B. Helmle, second vice-president; Robert C. Ostergren, treasurer; Walter A. McDougall, secretary; H. L. Palmer, financial secretary; Emery Stanford Hall and Howard J. White, directors.

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CHICAGO WORLD'S FAIR

Features not before considered in other International Expositions confront the designers for the centennial celebration in Chicago in 1933.

Permanence of construction is desirable. In general the architectural scheme will conform to the requirements of the city plan commission so that bridges, walks, and drives may be utilized after the Fair. Such buildings as may be desired by the South Park board as permanent structures will not be torn down.

To prevent visitors becoming fatigued, electric power barges will convey them through canals and lagoons. The grounds being confined to a comparatively small area, buildings of several stories are planned, with the main entrances at roof level in order to enhance the value of exhibition space on upper floors. Escalators and moving sidewalks will take visitors to various points of interest.

Realizing that thousands of people will view the Fair from the air, the architectural commission has been faced also with the problem of making the exposition as attractive from above as from the ground.

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CONTRIBUTORS

Douglas D. Ellington is also the architect of the City Building at Asheville. His design in the competition for the Columbus Memorial Lighthouse was one of the ten placed first.

N. L. Engelhardt, as professor of education, has participated in city school surveys of many cities, including the state of Delaware, and written numerous books on the problems of schoolhousing.

Frank J. Forster is well known for his country house designs. His offices are in New York City.

R. M. Schindler collaborated with Frank Lloyd Wright on the Tokio Hotel in Japan. At present he is practising in Los Angeles.

CALENDAR OF EVENTS

GENERAL ANNOUNCEMENTS

September	Exhibition of Architecture at Copenhagen.
Sept. 12–19	International Housing and Town Planning Congress at Rome.
Oct. 7–12	The first National Electrical Exposition at the Grand Central Palace, New York City.
Oct. 19–29	Exhibition of Modern Offices at Brussels, Belgium.
Oct. 29–Nov. 27	World Engineering Congress of Tokio, Japan. Excursion and inspection tours, Nov. 7–22.
Nov. 1–15	The 32nd annual Architectural Exhibition of the American Institute of Architects, Philadelphia Chapter, and the T-Square Club in the galleries of John Wanamaker, Philadelphia.
Jan. 18–30, 1930	The second International Exhibition of Building Trades and Allied Industries at Brussels.
Mar.–April, 1930	Fifth International Exhibition of Housing and Modern Industrial Applied Arts at Nice, France.
May 20–Oct. 1	Exhibition of Modern Industrial and Decorative Arts at Stockholm, Sweden.
June 19–30, 1930	The fourth Pan-American Congress of Architects and Architectural Exhibition at Rio de Janeiro.
Sept. 1930	International Congress of Architects at Budapest.

COMPETITIONS

Sept.–Dec.	A nation-wide competition will be held for a War Memorial for Chicago. Programs may be obtained by qualified applicants, Sept. 1 up to Oct. 1, from Earl H. Reed, Jr., Professional Advisor, War Memorial Competition, 435 North Michigan Ave., Chicago, Illinois. Judgment will be announced early in December.
Sept. 5	Judgment of the Paris Prize Competition.
Nov. 15	The second annual church building competition for Protestant churches, already built and having a seating of 150 to 600 persons, is announced by The Christian Herald, 419 Fourth Ave., New York City. Prizes are $1,000, $300, and $200, the awards to be divided equally between architect and church.
Nov. 18	Closing date of the Lehigh Airports Competition.

INTERNATIONAL CONFERENCE ON MODERN ARCHITECTURE

Le Congrès International d'Architecture, a convention of architects, social economists and industrialists, will meet during October at Frankfort am Main under the auspices of the *Stadtbauamt*.

Topics to be considered at the session will include the requirements of the "minimal dwelling" and a comparative analysis of building ordinances in the important countries. Ernst May, German architect, will preside. Papers will be read by Walter Gropius of the *Bauhaus*, Dessau, and by Le Corbusier of Paris.

As American representatives of the new movement in architecture, Richard J. Neutra of Los Angeles and a group of four other architects are preparing a paper on modern dwellings.

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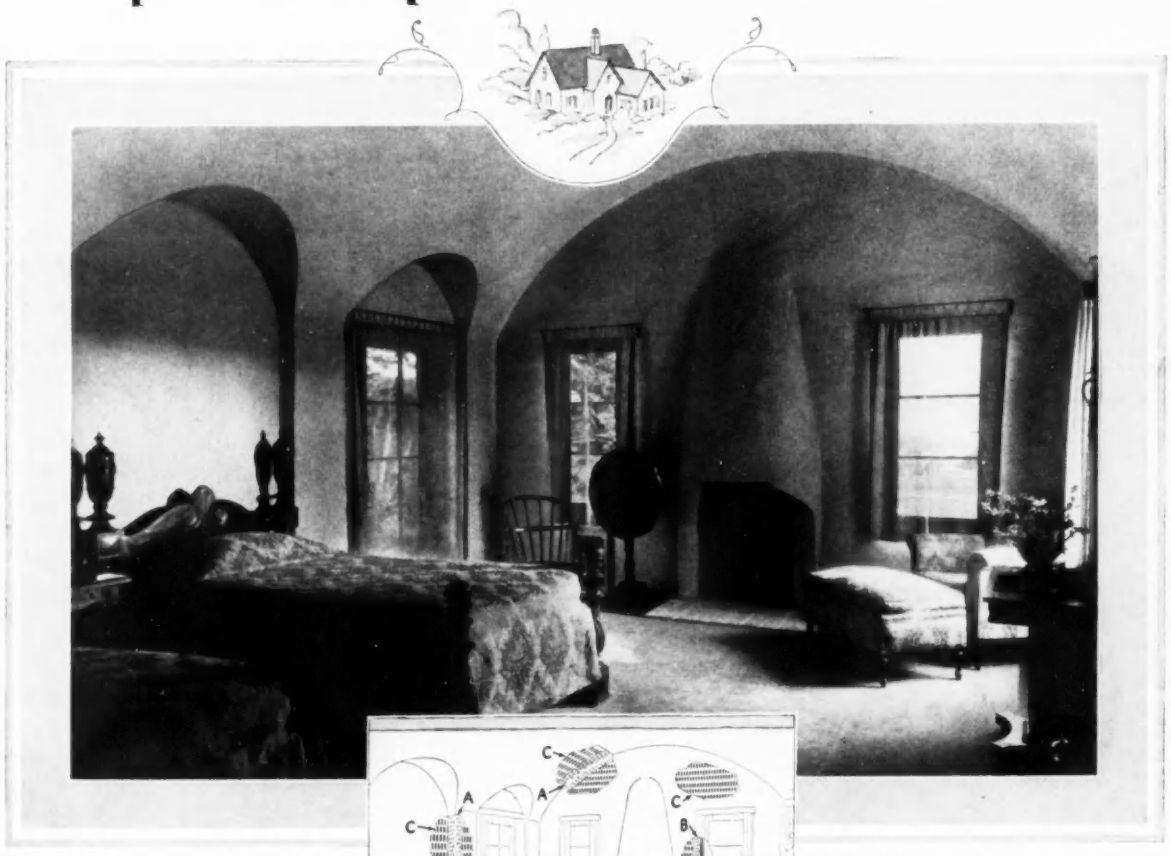

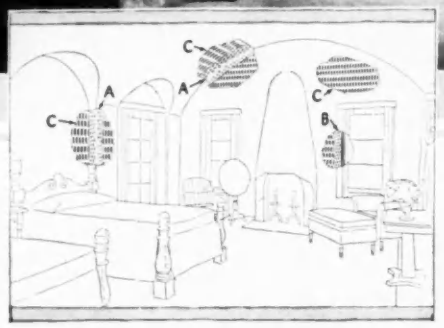

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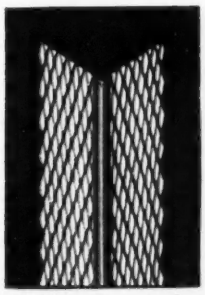

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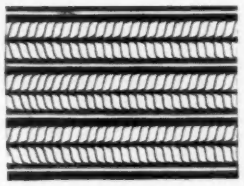

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NEWS OF THE FIELD

THE SWEET'S ARCHITECTURAL CATALOGUE staff are preparing the 24th edition for press, and this edition promises to be a record in many ways. The new edition will have an entire change of cover design, and will consist of four volumes, or five thousand pages. Seventeen hundred catalogues will be represented in the 24th S. A. catalogue edition. There was about ten carloads of paper ordered for this publication. The paper weighs approximately two hundred tons, the cost of which will run into five figures.

THE WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY has recently placed on the market a new automatic water heater, the Westinghouse Adjust-o-matic Water Tank, which is manufactured at the Mansfield, Ohio, works of the company. This is a twenty gallon tank for household use; it is covered with heat insulating material and cased in sheet steel, attractively finished in grey. The feature of this water heater is the adjustable automatic temperature control. Three cut-on temperatures are provided—low, medium and high. There are "U" traps in both hot and cold water lines at the top of the tank, inside the insulation; this prevents recirculating of water and helps maintain constant temperature.

IMPORTANT developments in the national standardization activities of almost every major American industry are described in the American Standards Year Book, a review of the national industrial standardization movement during the past twelve months, published by the American Standards Association, 29 West 39th Street, New York. The review covers mechanical, electrical, building, transportation, mining, textile and many other industries. The Year Book lists altogether about 150 national standards which have already been completed and about 175 other national projects now under way. Also, the Year Book lists nearly 550 trade associations, technical societies and other organizations which have been coöperating in the establishment of industrial standards under the Association's procedure and approximately 2200 individuals who have been active in the work of the technical committees engaged on the projects.

THERE have been several changes in the sales department of Sargent & Company, New Haven, Conn. Mr. P. E. Barth, Manager of the Chicago office and warehouse, has been transferred to the New Haven headquarters as Assistant General Sales Manager. He will be assistant to Mr. Murray Sargent, General Sales Manager. Mr. Harold A. Parks will continue as Sales Manager in charge of Builders' and General hardware, including door closers and padlocks, and in addition will direct the sales of tools; his department will be known as the General Hardware and Tool Division.

Mr. William C. Sullivan, who has represented the Company in the Southwest for some years, recently as District Sales Manager, has been made Sales Manager in charge of the Lock Division, as successor to Mr. R. B. Cherry, who will hereafter serve in an advisory capacity, giving special attention to the study of new markets.

FIVE miles of wire, fifty-eight tons of steel, a super structure extended through the roof, 3,600 electric lamps, about 800 feet of Claude Neon tubing, a double-decked flasher ten feet six inches long, probably the largest single unit ever employed for an electric sign, are a few of the mechanical features of the gigantic Claude Neon spectacular display constructed for the Buffalo General Electric Company on the roof of their service building at Front Avenue and Niagara Street, Buffalo.

The golden streak of lightning, the words Niagara Power Service in red and green letters ten and eight feet high, flash for miles around the country.

The Niagara Power Service emblem enlarged to a forty-five foot circle uses electric lamps of eighteen different color tones to give the sparkle of reality to the falls, even to the spray of mist which rises at the contact of the two cataracts with the waters below. The entire display measures 162 feet across and forty-five feet in height.

Built for the Buffalo General Electric Company by Claude Neon Displays, Inc., it is claimed to be one of the most elaborate gigantic spectaculars ever constructed. It is an example of the great possibilities of electric lighting effects.

THE NATIONAL ELECTRICAL SAFETY CODE (Handbook No. 7) of the U. S. Bureau of Standards, designed to prevent injury and loss of life from electrical hazards, has not only been approved and endorsed by the American Engineering Standards Committee, but has stimulated at least one manufacturer (Bull Dog Electric Products Co. of Detroit, Mich.) to discontinue the manufacture of such items in the line as conflict with the recommendations of the Code.

ALUMINUM will be used extensively upon the Chrysler Building now in process of erection at Lexington Avenue and 42nd Street, New York. This is the practical expression of the idea that no metal that needs painting or other protection should be used where it will be exposed to the weather. With aluminum the trouble or expense of upkeep and the chance of corrosion through faulty maintenance are negligible. Moreover, it retains its sharpness and refinement of detail which invariably is lost by the filling up of ornament by the successive coats of paint that are applied when other metals require such protection. A polished surface free from lodging places for dust and dirt, except where such accretions emphasize the design, will be kept clear, by rain, of the deposit which settles on everything out of doors in the city.

EXECUTIVE and sales offices of Electrol will be moved to New York City immediately. W. T. Koken, who has been president of Electrol since 1925, becomes Chairman of the Board. M. E. Simpson, formerly general manager of the Electrol Distributing Corporation, which has been merged with Electrol, Incorporated, becomes vice president in charge of sales. Lionel L. Jacobs continues as vice president and general manager of the company. The new executive and sales offices will occupy an entire floor of the building at 227 East 45th Street, New York.

OF silver and gold and milk-white marble is this bathroom that provides a worthy setting for the newest Crane lavatory, the *Padara.* Gold-veined onyx marble, gold-plated legs and fittings, for the lavatory; silver Chinese tea paper for the walls; silver tile for the bath niche; onyx marble to enclose the *Tarnia* bath. Thus does the chic originality of Crane fixture designers and bathroom decorators suggest still another bathroom quite out of the ordinary. Whatever the size and style of the house, whatever the budget you must keep within, you will find the right fixtures, valves, and fittings, and just the right decorative key, at Crane Exhibit Rooms. Or write for the new book, *Bathrooms for Out-of-the-Ordinary Homes,* with illustrations, floor plans, and descriptions. Architects are finding it fertile with practical suggestions.

150 Pounds Pressure

CRANE

2500 Pounds Pressure

FIXTURES, VALVES, FITTINGS, AND PIPING, FOR DOMESTIC AND INDUSTRIAL USE

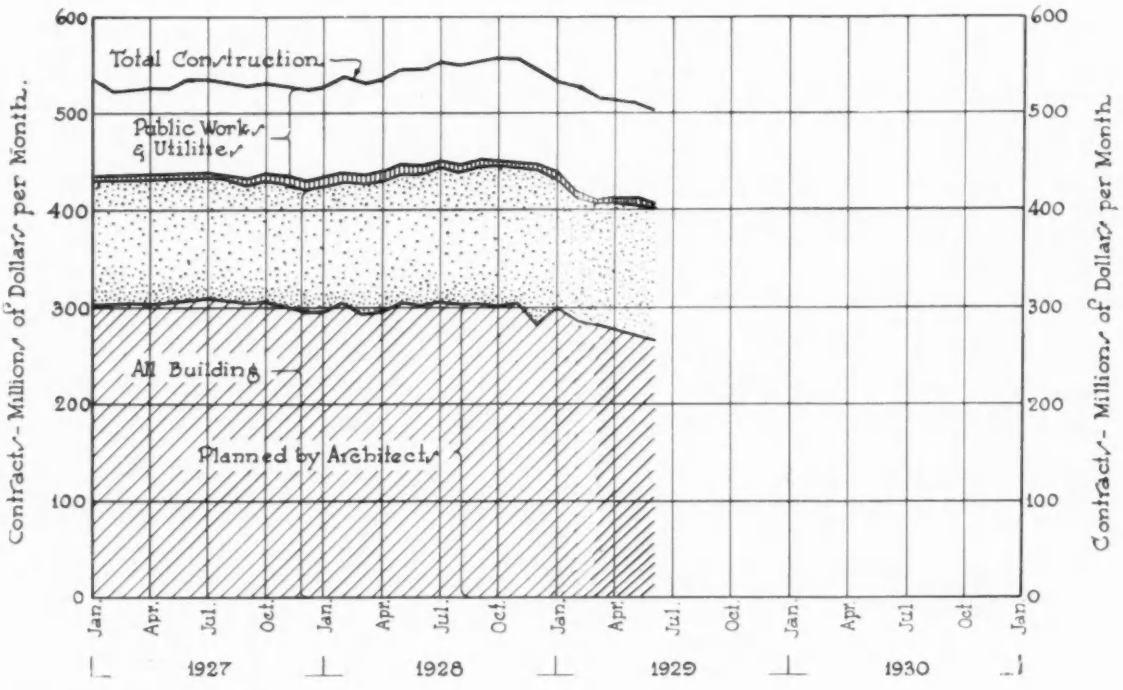
Crane Co., General Offices, 836 S. Michigan Ave., Chicago • 23 W. 44th St., New York • Branches and sales offices in one hundred and eighty cities

CONSTRUCTION STATISTICS

From the records of F. W. Dodge Corporation, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent of the country's construction volume.

First Six Months, 1929

Classification	TOTAL CONTRACTS Number of Projects	TOTAL CONTRACTS Valuation	WORK PLANNED BY ARCHITECTS Number of Projects	WORK PLANNED BY ARCHITECTS Valuation	Per cent of Total
Commercial Buildings	12,370	$489,570,200	5,295	$362,876,900	74
Educational Buildings	2,069	189,317,200	1,736	181,781,900	96
Hospitals and Institutions	533	58,509,500	394	49,628,100	85
Industrial Buildings	3,397	394,073,000	1,220	97,951,800	25
Public Buildings	662	61,498,100	382	57,294,300	93
Religious & Memorial Buildings	1,127	55,420,000	810	49,901,700	90
Residential Buildings	62,113	1,103,070,000	16,172	672,255,000	61
Social and Recreational Projects	1,312	72,109,400	791	57,172,600	79
Total Building	83,583	$2,423,567,400	26,800	$1,528,862,300	63
Public Works and Utilities	8,813	607,979,400	158	13,982,200	2
Total Construction	92,396	$3,031,546,800	26,958	$1,542,844,500	51
Total construction, first six months, 1928	104,798	$3,444,867,500	31,762	$1,908,268,100	55



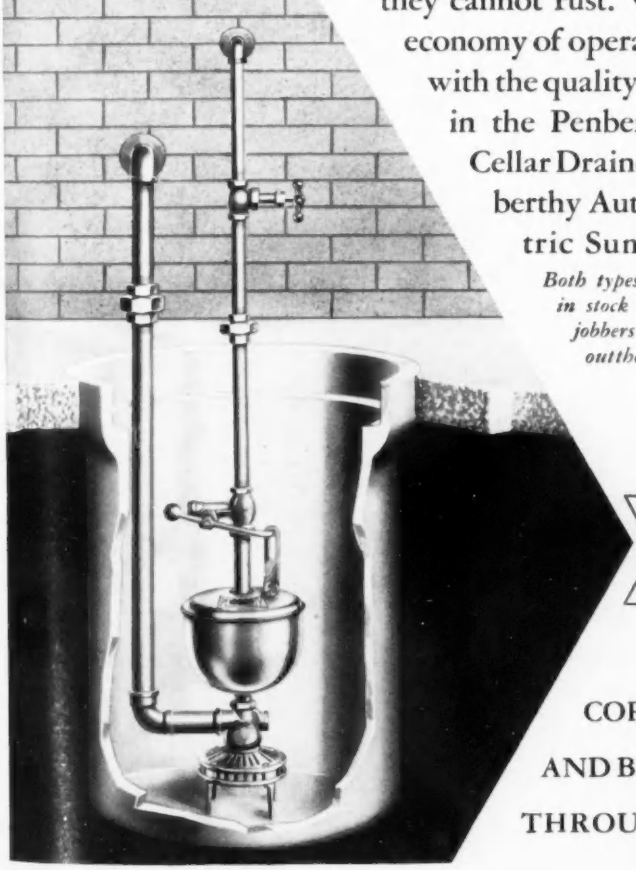
the Pumps that *Cannot Rust*

Rust, the eternal enemy of iron and steel, is ever alert for the attack whenever these metals are exposed to water, and protective coatings are at best only a partial defense. ¶ Positive protection against the danger of rust has been achieved in the Penberthy Automatic Electric Sump Pump and the Penberthy Automatic Cellar Drainer, by the complete elimination of iron and steel. These pumps are built of copper and bronze throughout — they cannot rust. ¶ Dependability and economy of operation are consistent with the quality of materials used in the Penberthy Automatic Cellar Drainer and the Penberthy Automatic Electric Sump Pump.

Both types are carried in stock by leading jobbers throughout the country

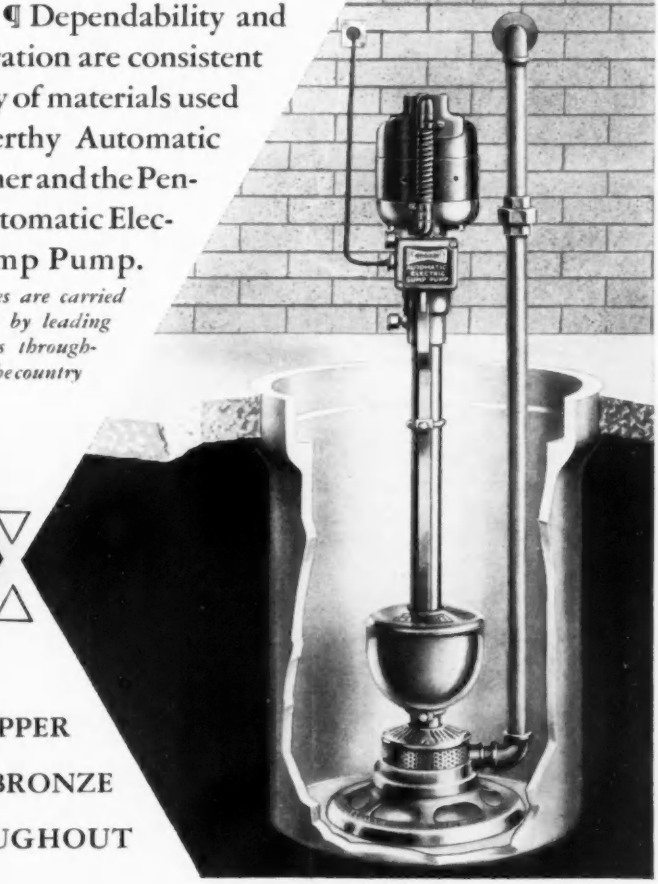
PENBERTHY PRODUCTS

Automatic (Hydraulic) Cellar Drainer



PENBERTHY PRODUCTS

Automatic Electric Sump Pump



COPPER AND BRONZE THROUGHOUT

PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886

DETROIT

CANADIAN PLANT WINDSOR, ONT.

RECENT TRADE PUBLICATIONS

ISSUED BY MANUFACTURERS OF CONSTRUCTION MATERIAL AND EQUIPMENT

[These may be secured by architects on request direct from the firms that issue them, free of charge unless otherwise noted.]

STORE FRONTS

"Store Fronts by Zouri." Fabricated in solid rolled bronze or copper or electro-plated in many colors. Enrichments. Corner and reverse bars. Division bars. Show case door. Ventilators. Four treatments using the same general floor plan show how varied the façade can be in arrangement and design. Recent installations. Also loose leaf full size details of typical store fronts. Zouri Drawn Metals Company, Chicago Heights, Ill. 9 x 11¾ in. 31 pp. and drawings. Ill.

RADIATORS

"Proof of the Pudding." The Robras 20-20 radiator. Invisible radiators. Heat that flows with speed. The only welded brass radiator. Used with any type of heating system. Institutional buildings. In the yacht. How the Robras 20-20 is made; how installed. Rome Brass Radiator Corporation, 1 East 42nd Street, New York City.

MANTELS

"Driwood Mantels." A line of mantels made of wood. Mantels designed to harmonize with mouldings. For any type of interior. Henry Klein & Co., Inc., New York, N. Y. 8½ x 11 in. 11 pp. Ill.

DOORS AND TRIM

"Manual of Laminex Philippine Hardwood Doors and Trim." Exclusive process of building. The door that "will not shrink, swell or warp." Directions for finishing. The Wheeler, Osgood Company, Tacoma, Wash. 6 x 9 in. 8 pp. Ill.

WEST COAST WOODS

"Beautiful Siding of Western Red Cedar." High insulation value of Western red cedar. Variety of sizes. Its relative durability. Interesting studies in siding designs. 8 x 10¾ in. 10 pp. Ill. "Durable Douglas Fir." For sash and frames. Great strength. Good insulating agent. Adaptability to every style and type of architecture. 8½ x 11 in. 20 pp. Ill. West Coast Lumbermen's Association, 364 White-Henry-Stuart Building, Seattle, Wash.

BOILERS, STEEL

"61 Years of Progress in Steel Boiler Building." Progressive development of Kewanee Boilers, both product and process. A contrast in manufacturing methods. Kewanee Boiler Corporation, Kewanee, Ill. 8⅞ x 11⅞ in. 10 pp. Ill.

BOILERS, GAS

"Hand Book on Heating Buildings with Bryant Gas Boilers." Technical information of value to the architect and heating engineer. Detailed description of all models of Bryant Gas Boilers and Controls. Color plates showing "livable basements." Heating data. Specifications. The Bryant Heater & Mfg. Company, Cleveland, Ohio. 8½ x 11 in. 16 pp. Ill.

Continued on Page 190

The Invisible Superintendent at the Mortar Box *Assures the Mix* SPECIFIED

EVEN when the architect specifies the ideal mix for portland-cement-and-lime mortar, he has no assurance that his specifications will be accurately followed unless his superintendent is constantly at the mortar box... The proportion of lime may be increased for the sake of plasticity or the mix may be oversanded. In either case the strength of the mortar is impaired.

The use of BRIXMENT, however, is your assurance that all mortar will be uniform in strength and color and that specifications will be accurately followed. If oversanded, BRIXMENT mortar works short and, since there is no lime in the mix, the necessary plasticity can be secured only by using the proper amount of BRIXMENT. *Handbook on request.* Louisville Cement Company, *Incorporated,* Louisville, Kentucky.

District Sales Offices: 1610 Builders Bldg., *Chicago;* 301 Rose Bldg., *Cleveland;* 602 Murphy Bldg., *Detroit;* 101 Park Ave., *New York*

BRIXMENT
for Mortar and Stucco

RECENT TRADE PUBLICATIONS—(Continued)

FLOORS

"Specifications for Truscon Floor Treatments." A. I. A. File No. 3-B-2, etc. Book "B." Specifications for floors of concrete, wood, cement. Varnishings, coatings, enamel, etc. The Truscon Laboratories, Detroit, Mich. 8½ x 11 in. 32 pp. Ill.

SASH CORD, ETC.

Window sash cord—general information. Samson Spot Sash Cord. Cords to meet various requirements. Couplings and attachments for solid braided cord. Twine. Samson Cordage Works, Boston, Mass. 6¼ x 9¼ in. 35 pp. Ill.

INSULATING MATERIAL

"Maftex, the 'Thermal-Insulating' Board that has Structural Strength." Its manufacture; properties. Maftex compared with wood. General applications of Maftex; roof sheathing, side wall sheathing, sound deadening, wall finish, etc. Insulating value. Structural value. For interior decoration. Paneled walls and ceilings. Maf-lath as insulating plaster base. General notes on plastering. Roof condensation chart. MacAndrews & Forbes Company, 200 Fifth Avenue, New York City. 8½ x 11 in. 64 pp. Ill.

OIL BURNERS

"Ideal Oil Burning Boilers." Balanced features of design. Boiler selection. Ratings and data. Dimensions and data. 8½ x 11 in. 6 pp. Ill.

"Ideal Water Tube Boilers for Oil Burning." Description. Dimensions and data. Ratings and data. 8⅝ x 11 in. 6 pp. Ill. American Radiator Company, 40 West 40th Street, New York City.

METERS

"Sangamo Meters." Type N Amperehour Meters. For motive power service, for switchboard mounting. Advantages of design and performance. Principles of operation. Construction. Directions for ordering. Type NF Amperehour Meters. Wiring diagrams. Sangamo Electric Company, Springfield, Ill. 8 x 10⅝ in. 15 pp. Ill.

UNIT HEATING

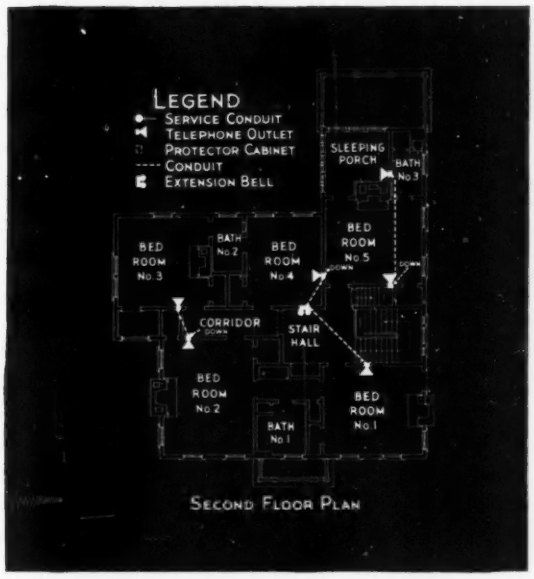
"How to Cut Heating Costs with the Trane System of Unit Heating." Fundamental factors in space heating. Mechanical features of the Trane System; the Trane copper heating element, header construction, fan and motor equipment, etc. Types of unit heating systems; floor and ceiling, combined heating and ventilation, combined space heating and room heating. Blast heating and industrial drying. Notable space heating installations. The Trane Company, La Crosse, Wisconsin. 8½ x 10½ in. 30 pp. Ill.

INSULATION

"Just between You and the Weather." Properties of United States Mineral Wool. Advantages. Retains heat. Protects against frost. Fireproof. As a sound deadener. As a sanitary protection. Application. Other uses. Estimating quantity required. United States Mineral Wool Company, 280 Madison Avenue, New York City. 6 x 9¼ in. 15 pp.

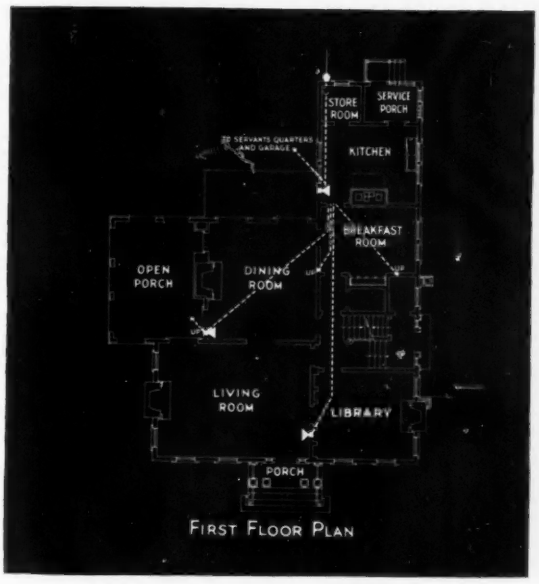
Continued on Page 192

Your local Bell Company will be glad to help you Plan the Telephone Arrangements for your Houses



IN PLANNING for telephone convenience in new and remodeled homes, there are many things which must be given consideration: the number and arrangement of telephones to provide greatest ease and comfort in use of the service . . . the location of the telephone service entrance . . . the conduit layout . . . protection to the apparatus from water and extreme heat . . . and many other details.

It is highly desirable, of course, that these matters be discussed with representatives of the telephone company prior to or during the preparation of the building plans. Your local Bell Company will be glad to arrange for conferences with architects, builders and home owners, to discuss telephone facilities for specific building projects. There is no charge for this consulting service. Just call the Business Office.



In the residence of Mr. J. W. Goldsmith, of Atlanta, three telephone outlets downstairs and six upstairs provide facilities for installing telephones at convenient locations. There is an additional outlet in the servants' quarters over the garage. Exposed wiring is made unnecessary by the conduit layout. PRINGLE AND SMITH, Architects.

RECENT TRADE PUBLICATIONS—(Continued)

BOILERS.

"The Smith '16'." New boiler for steam, hot water or vapor heating—for coal, coke, oil, or gas fuels. Other advantages. Table of dimensions. Interior, front and rear views. The H. B. Smith Co., Westfield, Mass. 4½ x 7½ in. 15 pp. Ill.

MODERN COLOR TREATMENT

"Modern Color Treatment of Builders' Hardware." A. I. A. File 27-B. New type of color treatment for builders' hardware. Old method of hastening and heightening natural effects versus new treatment in which colors not found in metals themselves are artificially applied to surface. Examples of both kinds of treatment. P. & F. Corbin Division, New Britain, Conn. 8½ x 11 in. 6 pp. Ill.

TILES, MOSAIC

"Mosaic Faience Tiles." "Concerning "Faience." Most frequent uses of Mosaic Faience. Treatment of entrance hall and staircase. Mantel designs in Mosaic Faience. Designs for a fountain. Floor designs. Decorative inserts and trims in Mosaic Faience. Use of Mosaic Faience in mouldings. The Mosaic Tile Company, Zanesville, Ohio. 8⅝ x 11⅛ in. 79 pp. Ill.