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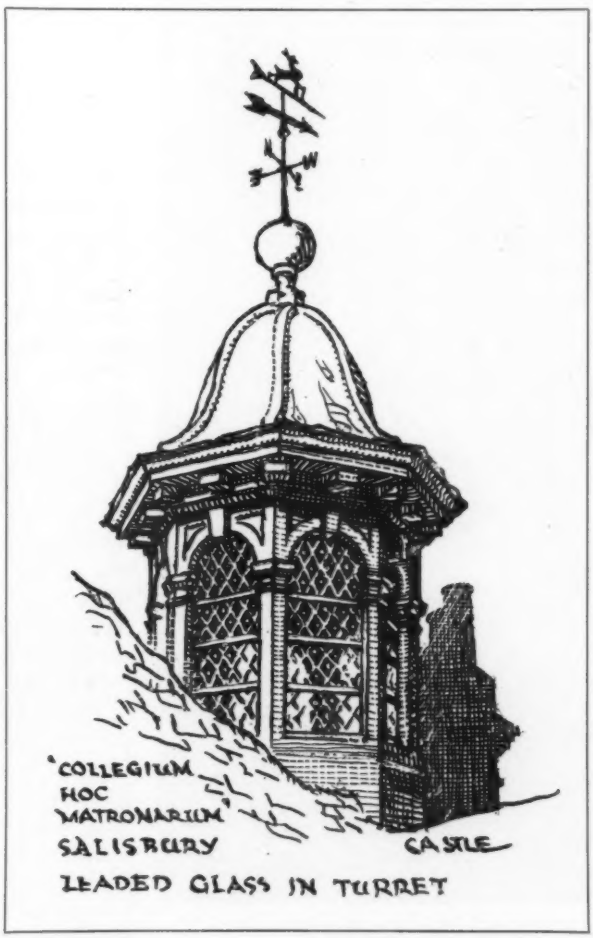
THE SURVIVAL OF THE LEADED WINDOW IN THE HOME

By SYDNEY E. CASTLE, F. R. I. B. A.

HALF sadly and reflectively, we had wandered in the quiet of the stone ruins of Old Cowdray in Sussex—burnt out these hundred years. My friend broke the silence. "How cold and desolate — how blind this place seems," he remarked. "These unglazed gaping holes beset one with shudders." And, on our way back to Midhurst, we fell to talking about the proud glazing that once filled these now skeleton-like openings. What cheerful company, to be sure, is the responding glisten of a window! Surely of all architectural features it belongs to expressive life.

. . . . . .

In medieval England, following the archaisms, came the first serious home window — a queer network of lead latticing, as yet narrow and confined and, in the limitations of glassmaking, closely meshed. After a lapse, when fresh air seemed desirable to relieve the mustiness of the household atmosphere, the smith was called in to beat out a tiny iron frame that could be fitted to part of the glazed spaces and opened or shut at will. Thus came the metal casement, and the post-primitive English domestic window was complete in all its essential details.



LEADED GLASS IN TURRET

That the church was the alma mater of these windows is a commonly accepted doctrine. As the fenestration of churches and monasteries brought early lancet windows and developing tracery, so that of the household, leaving behind the primitive crenelles and louvres, followed allegiant suit. Thus, overlooking inner courts of ancient fortified houses, we find windows in full Gothic flower such as the cathedral churches themselves would not have despised. Indeed, with no loss of architectural seemliness, divine service might ensue in the great Hall at Penshurst, or even in the humbler

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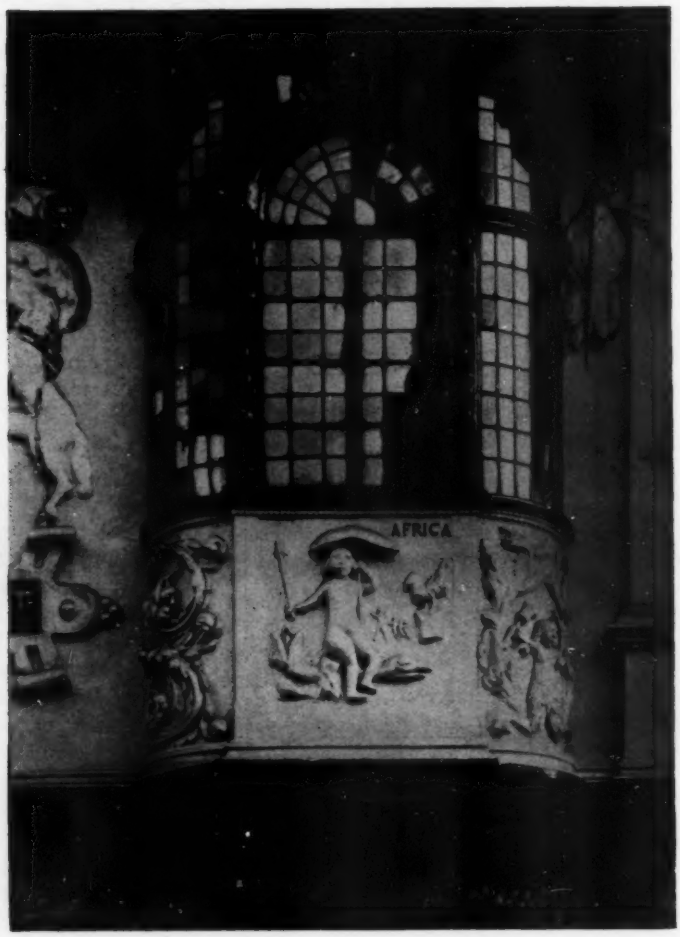
example at Preston Plucknett. Old work rarely fails in faithful narrative, and we are as rarely unmoved by the beauty of the telling. Handicraft thus speaks to us; and during the long years it was in process of being divested of military features, the keynote of the late medieval English house was the window from which alone we can trace the beginning and the end of the tutelage of the church.

Passing forward to Great Chalfield, Wiltshire, an early manor house erected in the middle of the fifteenth century and advanced for its time, since there are no manifest signs of fortification, we find Gothic character still reigning supreme and the windows as yet pointed and churchlike. Sweeping along a hundred and fifty wonderful years and comparing with Great Chalfield the fanciful front of Paul Pindar's house, once huddled up in Bishopsgate Street, London, an indication will be given in the last of the consuming tragedy that had befallen domestic Gothic. In the later example we are able to note that the pointed window has entirely disappeared and a play of fancy, as opposite as the poles from the grave sincerity of the quiet walls of Great Chalfield, now essays with bold horizontals and serious classic. The leaded window, however, though busier and inclined to excess, still survives. As yet it has no compeer.

From these two widely selected instances, the evolution of the English window from youth to middle age may be realized—first, pointed like the vaulted windows of the churches, then, as the ceilings grew lower in pitch and new architectural character developed in the household, gradually sinking at the head until the cusps and tracery had gone their ways leaving a square lintel to welcome the strings and cornices. Beginning from the time when Henry VIII, after a savage onslaught on the monasteries, imported foreign artificers to strike down ecclesiastical influence in secular buildings, domestic Gothic suffered a gradual paralysis. With the coming of Elizabeth and James, a hybrid Gothic-cum-Classic spent itself in the building of large houses, some of which, with their fretful skylines and uncertain ornament, gave doubtful effect to Henry's judgment. But the humbler fry of this time, adhering more faithfully to older traditions, were consistently beautiful. We have but to recall the Cotswold stone types or the half-timbered examples such as the cottages at Chiddingstone, to catch a mood that will readily forgive any defects elsewhere.



BAY WINDOW, IPSWICH, DATE ABOUT 1620

So far, the leaded window with its iron casement messmate remained in general use and valiantly held the Gothic embers together. Indeed, Hardwick Hall and a few of its contemporaries were so prodigal in fenestration that the leaded window was carried to excess—suspiciously like a zenith that brooked the prospect of a sharp fall. Reaction was almost certain, and it came.

Followed the scholarly influences of William and Mary, Queen Anne and the Georges, and with them came the wooden sash window. The leaded window had now fallen from high grace and was relegated to second fiddle; but while it was permitted, it continued to play very sweetly in the secondary role. Undismayed by its new Renaissance

master, it was employed with beautiful effect under the great cornices and pediments of the colleges at Oxford and Cambridge, at Salisbury, Winchester and countless places. The examples given at King's Lynn and Ipswich will serve to show how very delightfully it sparkled life and animation into these changed windows.

For all this, the leaded window appeared to be on a sick bed with complications rapidly setting in. Woodworking shops were now numerous and machines were displacing handicraft. When the old leads called for repair or replacement they were cast aside for plain sheets of glass and clumsy wooden casements. By and by, the Victorian household arrived with its Venetian blinds and harsh areas of glass. The leaded window was perhaps allowed a solitary place of honor on the staircase and represented by an evil ghost of its former self in a motley of crude forms and colors. Who could now attempt to revive such an anachronism as a house fitted throughout with prehistoric glazing? Alas, an epitaph was surely needed!

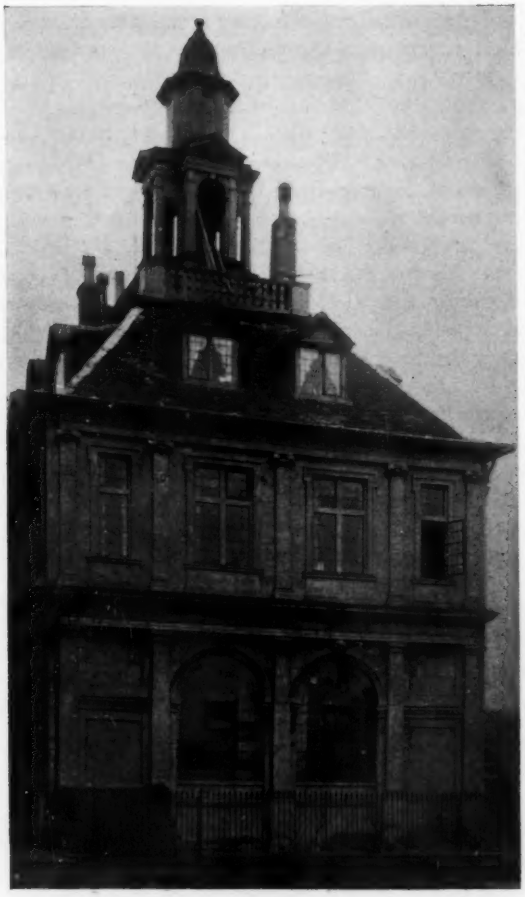
Then, lo and behold, instead of dying out with the roasting spits, leather bottles and warming pans, what should this die-hard window do but shake off the effects of hibernation and become busy again! And so it survives.

In the general advancement of our times, it would hardly be singular if examples of a window used five hundred years ago could be found only among the zealously preserved antiquities of the past, from which, if we are not attracted archæologically, we may, by comparison, find some satisfaction in our own times. Stephenson's "Rocket," made in 1829, demonstrates the enormous development a hundred years may bring to a railway engine, while to go back thirty years in the history of an automobile is nothing short of a peep at the ludicrous. It is not necessary to enlarge: the changes of the past fifty years alone speak for themselves. They would suggest that anyone employing a window five centuries old for a modern house would be almost as rare as anyone riding about the countryside in a suit of armor. But, for once, natural expectation breaks down; the pioneer English window survives and proves to be something with which we are loath to part notwithstanding that the glassmaking industry is no longer cramped and limited.

Your sceptic would merely associate this with people who are rather predisposed to enthuse foolishly about old things and, worse still, litter their houses with them. Often enough, however, it takes deep observation to distinguish between easy conclusion and actual fact. The "antique craze" is ephemeral, but there is nothing fickle or misleading in the history of the leaded window. English people, prone to be apathetic in regard to their traditions, would, generally speaking, no more continue to use a window on the score of sentiment than they would go their travelling ways by coach.

Whatever may be the secret of this survival, little doubt can exist that these windows are acceptable on their intrinsic merits. It is well enough to be suspicious of passing fashion, but it is only some-

WINDOW, PRIEST'S HOUSE, MUCHELNEY, 15TH CENTURY



CUSTOMS HOUSE OFFICES, KING'S LYNN, 1681

TOWN HALL, GUILDFORD, SURREY, 1683

AT PRESTON PLUCKNETT, SOMERSET

(From the original drawing by S. E. Castle)

XUM

FRONT OF PAUL PINDAR'S HOUSE

(Now preserved at South Kensington Museum)

XUM

thing insistently convincing that could go on living through two distinct phases of architecture.

Revive old problems and you revive old remedies. Thirty years ago, white stuccoed houses began to appear in England and, proving climatically effective, became more numerous. The blank walls, however, demanded relief and it was in the nature of things to seek animation for the dark window openings. If we call to mind the broad stone walls of ancient date, with which leaded glazing has such marked affinity, we will see that history was merely repeating itself.

Accepting it as ranking among the happy institutions that stand aloof from transient fashion, revival, or even radical change, we are constrained to wonder what will end the days of this latticed Methuselah. If time is to show, it will certainly not be the present time.

To those unfamiliar with the composition of the old English window, it is necessary to explain that, far from being the subject of involved detail, it was, in point of fact, the most artlessly simple contrivance imaginable.

Glassmaking, known to Egypt, appears to have waited an unconscionable time to pass into full effect. On the other hand, lead, equally ancient and produced in England during the Roman occupation, has a long record of wide range. The date of the first mating of the two is lost in the mists, but from the laborious divisions of the small stained glasses of the twelfth and thirteenth centuries preserved at Canterbury, it is established that the art of leading had advanced to ease and proficiency at that time. It would certainly have been an everyday matter to take the simple leads to the domestic windows and, with the years, develop from them the greater geometrical fancy which led to the reticulated patterns in the later glazing, not to mention a profusion of heraldic ornament, a superb example of which may still be found at Ockwells, Berkshire.

The original lead divisions rarely exceeded three-eighths of an inch in width and, yielding easily, sparkled pleasantly in the light. Pliancy in working is one of the friendly properties of lead, but under the stress of wind pressure this virtue becomes a defect. Thus we find staybars in plenty.

GREAT CHALFIELD MANOR HOUSE, WILTSHIRE, DATED 1460-70

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As a measure of precaution, stout guard bars were set in the mullions and jambs—at first outside the glass and crossed by horizontals as in the Priest's House at Muchelney, and later limited to plain uprights on the inside so that the opening window should be free to open outward and better resist the weather. These guard bars need no explanation—the times were lawless.

The metal opening casement consisted of a strip of iron an inch wide, hammer-welded at the angles into a square frame, pierced for the leading and fitted with looped sockets to be dropped loosely over pivot pins dowelled into the window jambs. At first the casements rarely exceeded twelve to fourteen inches wide and about twenty-four inches high, but by Elizabeth's time these dimensions had increased. Though there were larger fields of industry for the Nottingham smiths (of whom Starkie Gardner tells us), even within the somewhat confined limits of a casement fastening their skill and resource knew no bounds. The early spring catches recall the scrolls and lanceheads of the church grilles and tomb rails, but hard usage proved too stern a test for some of the delicate shapes and bunches of fine scrolling and they eventually gave way to sturdier forms. We reproduce a choice example of this type, and it will be noted how very delightfully these coils are managed and the significant meaning given to the plain iron frame by this deft touch. When we are captured by the beauty and grace of rich scrolling formations in eighteenth century wrought ironwork, when we see these flowing lines against the light, we should reserve a thought for the smith who foretold of such things in the tiny casement fittings. In Jacobean times came the turnbuckle loop with a balanced and more conventional backplate—the latter richly pierced and clearly defined in classic character. The smith appears to have seized his full opportunities in the casement fittings, for we can find the greatest pleasure in all of them until the dreaded replacements took place and gave us ugly cranks which the original smith would have despised. The seventeenth century brought sundry practical improvements, and by this time we find the casement riding on a choicely scrolled quadrant stay which bore its

CHIDDINGSTONE, KENT

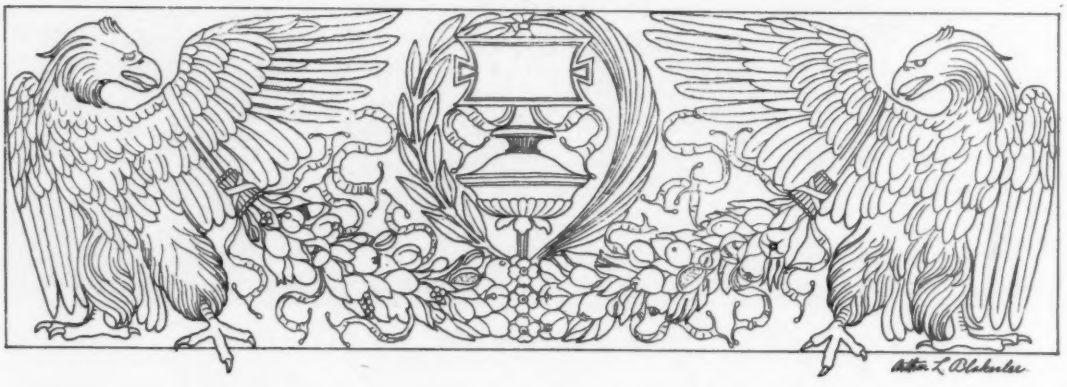
"LONG RECORD"

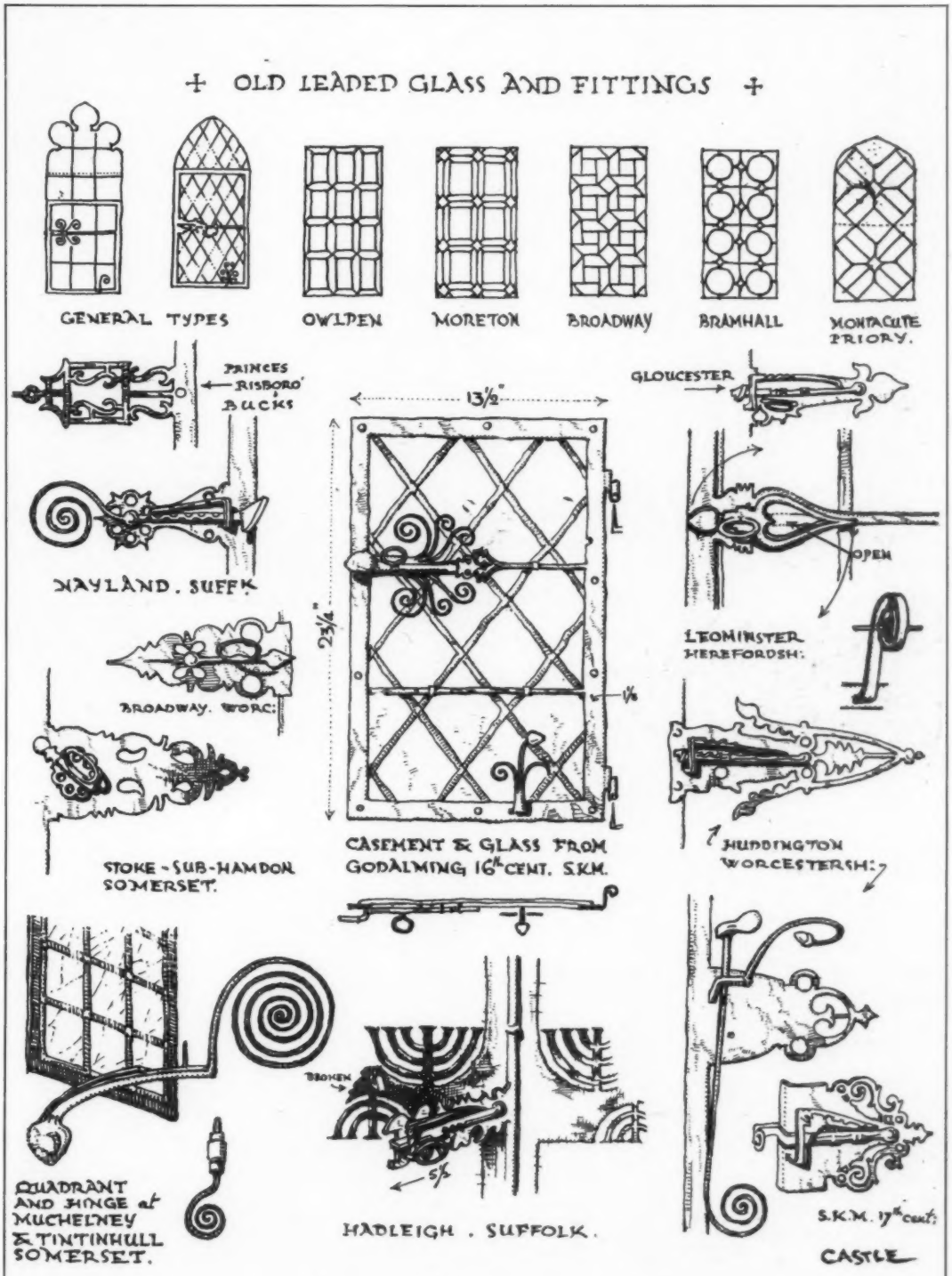
weight and rested it in any desired position—a feature characteristically alive to problem and decorative opportunity.

The fittings, of which we so incompletely speak, may only comprise miniature touches in a large world of antique metalcraft, but they are uniformly beautiful and not a little ingenious in their diverse forms.

. . . . . .

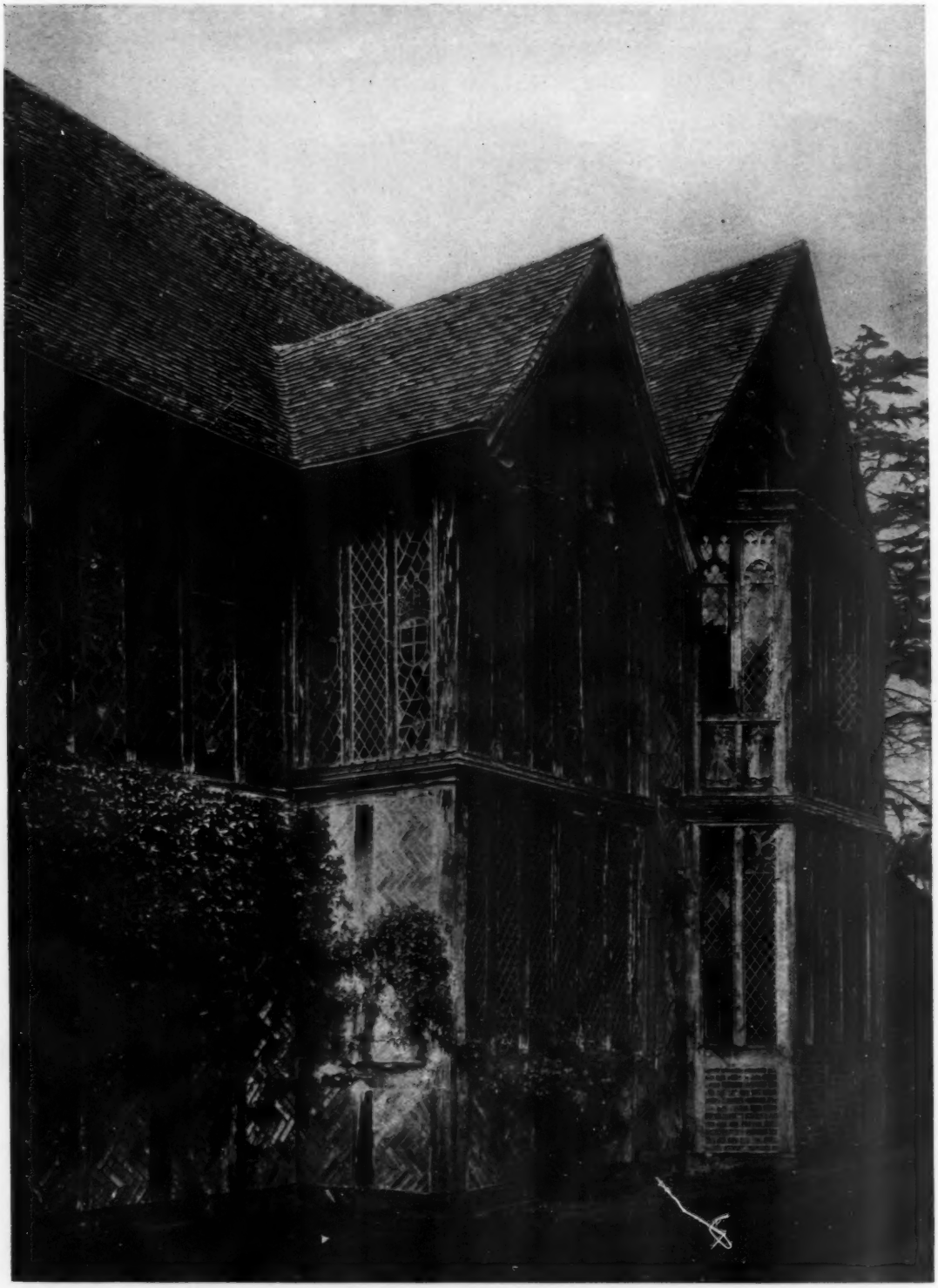
Reaction leading to change is aroused by one of those vital human impulses that finds a greater joy in the chase than the capture. Perfection may prove no more than exhausted motive—the shooting, not of a goal, but of a bolt. So, as the wither succeeds the bloom, things come and go in the recreation ground of fashion. But a few treasured things remain: they appeal to us quietly, yet so surely, that we are moved to condone their faults and go on living with them. From the long record of the leaded window springs an obvious conclusion.





OLD LEADED GLASS AND FITTINGS

ORIGINAL SKETCHES BY S. E. CASTLE



OCKWELLS MANOR HOUSE, BERKSHIRE, DATED 1450-67

THE HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.

▼ ▼ ▼

FREDERICK L. ACKERMAN, *Architect*

THIS house is located on the west bank of the Hudson River at Nyack, N. Y. The property runs about six hundred and fifty feet from the highway to the river and the river frontage is approximately five hundred feet. From both ends of the house, to the north and to the south, the property is quite heavily wooded, but it is practically open from the house to the river, affording an unusually attractive view. The slope of the property from the road to the river is about ninety feet.

The owner of the house, J. DuPratt White, has lived on this site for many years and his first proposal was to simply enlarge and alter the old house as its arrangement with respect to location, orientation and outlook had proved thoroughly satisfactory. It was decided later, however, after careful study, that this would be impractical as it would probably be impossible to attain a satisfactory arrangement, due to the larger accommodations required, while the amount of money saved would be very small on account of the necessary repairs to mechanical equipment, and so forth, which would have to be attended to. It was therefore decided to remove the old house, but in designing the new one to follow the same general plan of the old on a much more generous scale.

BAY IN WITHDRAWING ROOM

The architectural character of the house was derived from two outstanding facts: first, the owner definitely specified that a stone quarried at Ithaca, N. Y., of which he was particularly fond, be used for the greater part of the exterior walls. (This stone weathers in about two years from a fairly uniform grade to a considerable variation of warm colors.) Second, it was logical to appreciate that the plan requirements of the new house could best be satisfied by irregularity of mass.

There are certain features of the plan which are of peculiar interest. The retaining wall, for example, which describes a semi-circle in front of the entrance, with taxis and rhododendrons massed against it, lends interest to this part of the grounds on approaching the house. Then, by making the stairs quite inconspicuous, retirement was gained for the second floor, while at the same time the relation of rooms on the first floor was in no way interrupted. The plan, in its every detail, is thoroughly domestic.

The library may be noted as an unusual room. Opening off the main space there are three alcoves in which book shelves have been installed. The grade of the property at this point being high, the sills of the alcove windows are more than six feet above the floor. It is a pleasant experience to sit in one of these alcoves on a sunny afternoon, with the rays of the sun coming in overhead and falling on the collection of fine rugs which are scattered over the floor in the main space of the room. Fur-

XUM

thermore, from this point, through the windows in the opposite wall, one obtains a fine view across the Hudson, which is three miles wide at this point. It should here be remarked that both Mr. and Mrs. White have for many years been collecting fine paintings, tapestries, furniture and objets d'art and many of these pieces, which show clearly in certain of the photographs herewith, served as keynotes to the decorative schemes in which they play a part.

Much of the gardening on the property was begun many years ago and has arrived at a fine maturity. As the new house follows so closely the lines of the old, very little of the foliage was cut away or removed. Two old stone quarries, now overgrown, are recalled in the arrangement of walks, pools and other features of the landscape scheme.

GARDEN DETAIL, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.
FREDERICK L. ACKERMAN, ARCHITECT

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DETAIL, WEST ELEVATION, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.

FREDERICK L. ACKERMAN, ARCHITECT

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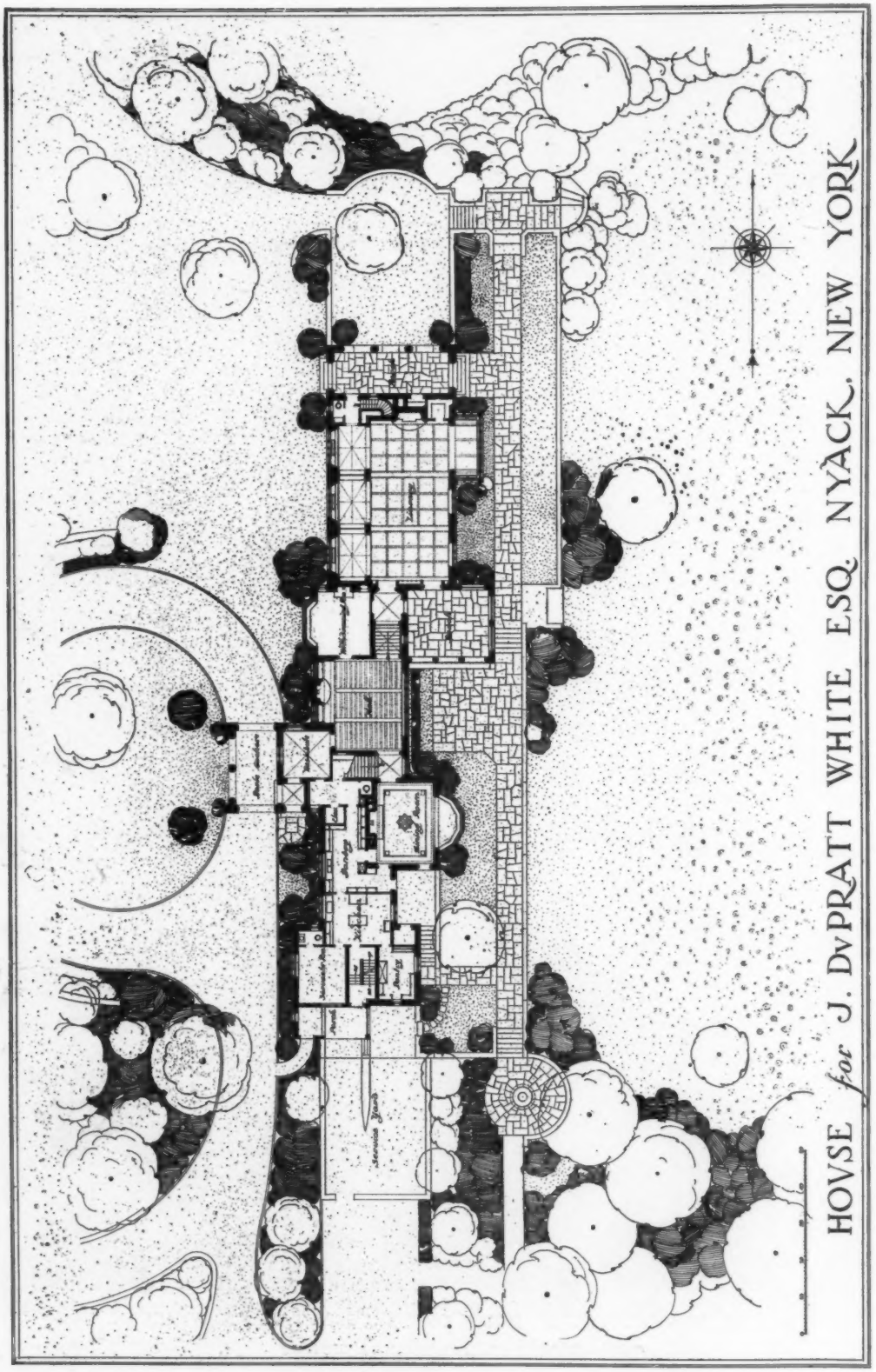
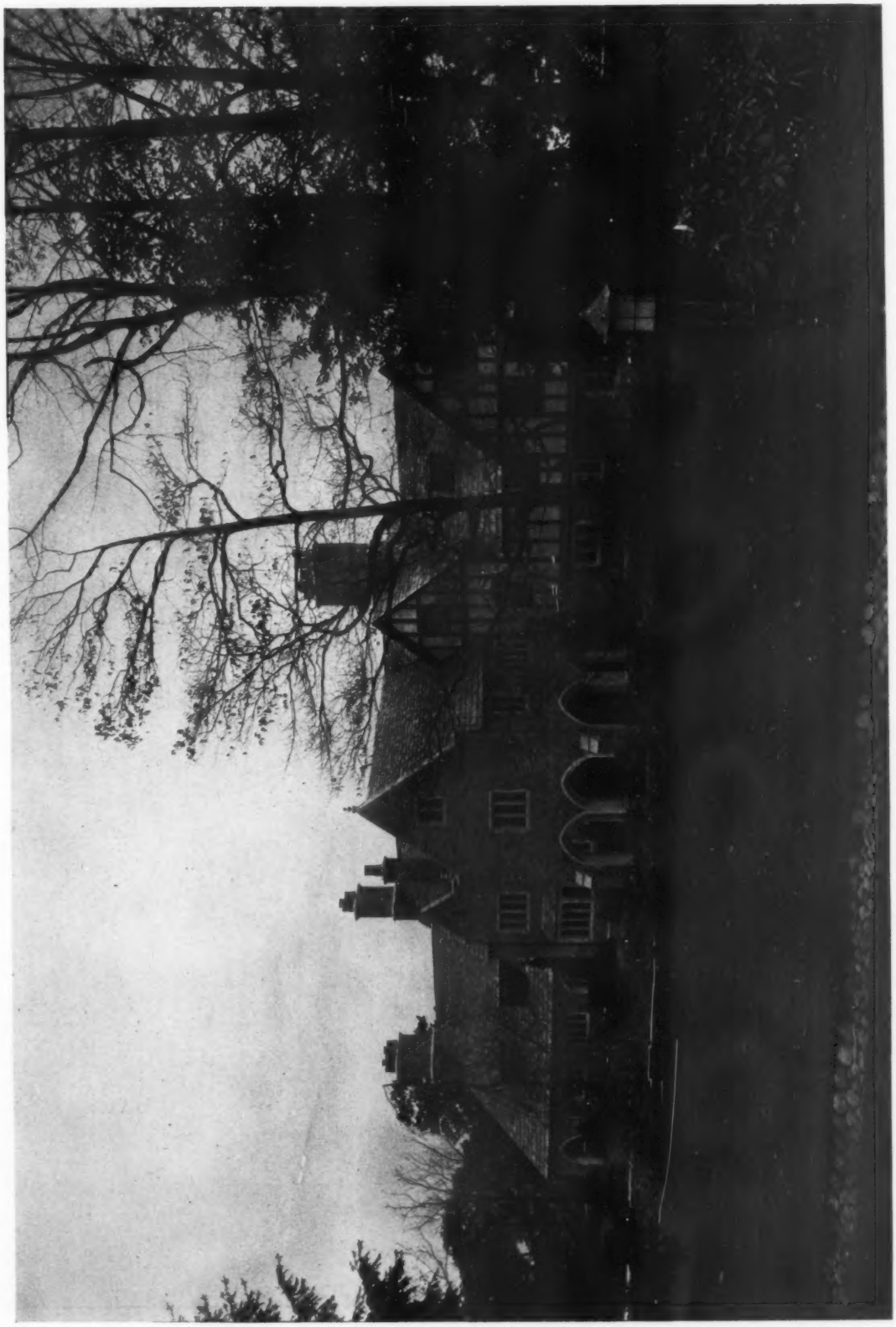


HOUSE for J. DuPRATT WHITE ESQ. NYACK, NEW YORK



ENTRANCE FRONT, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT

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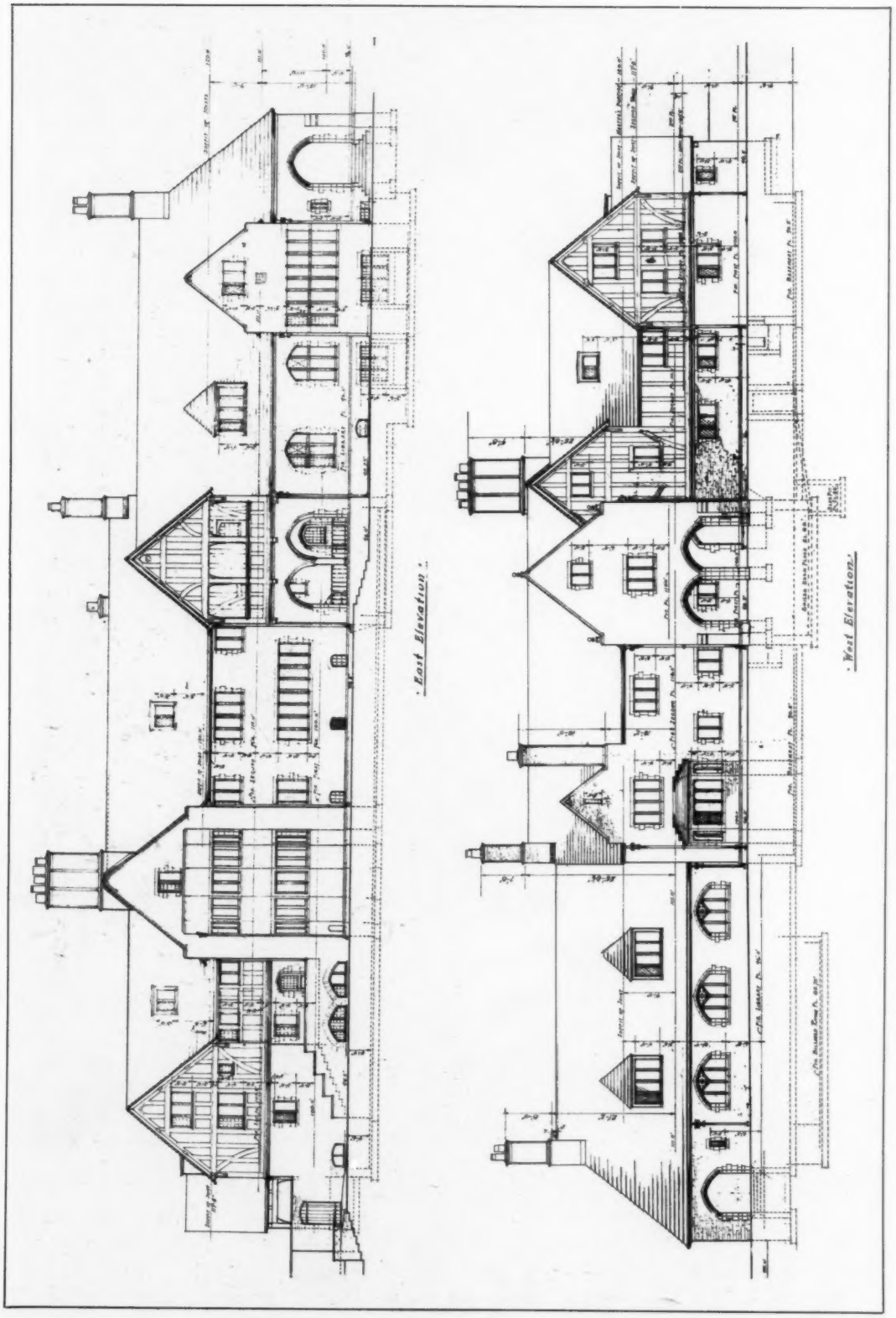
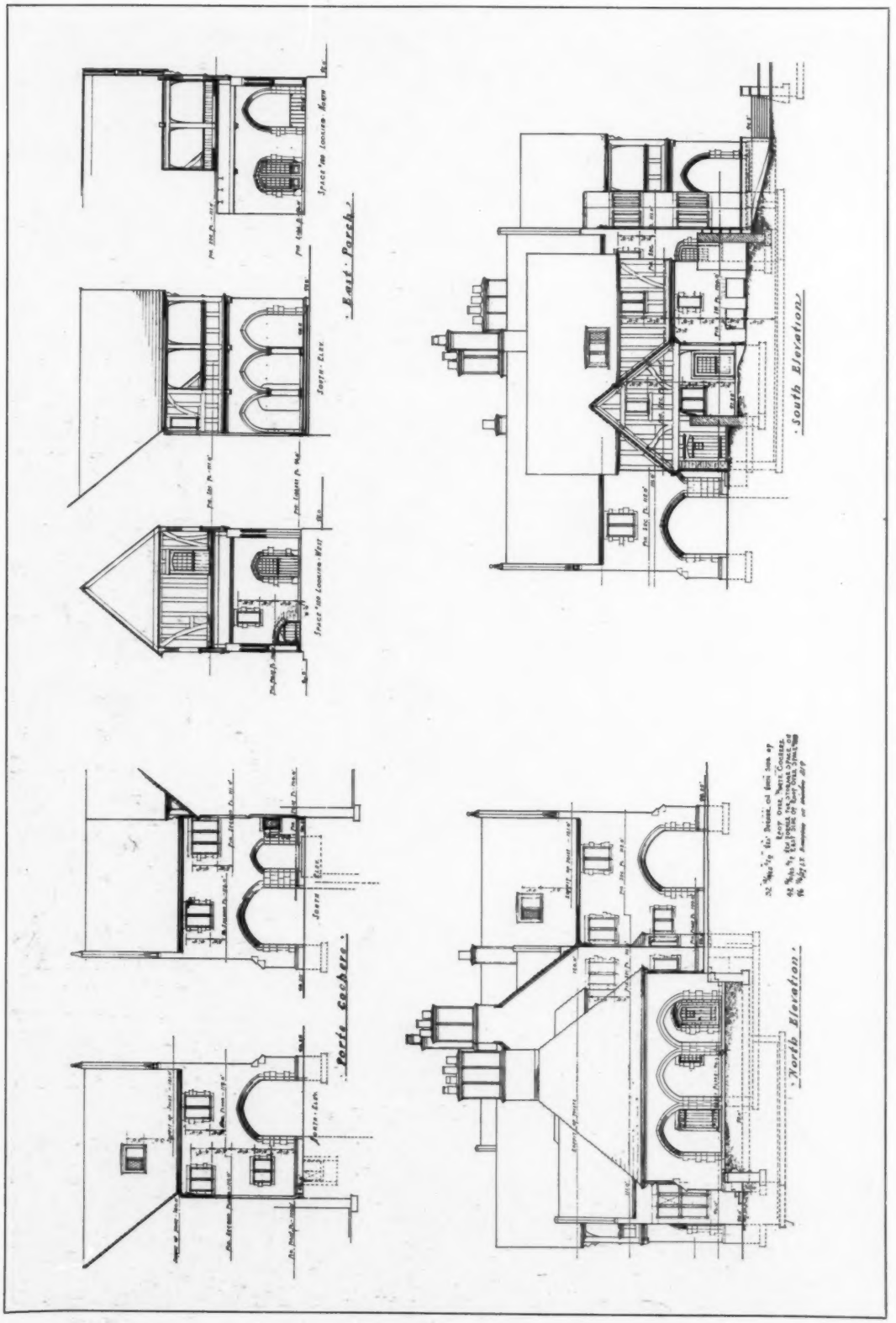


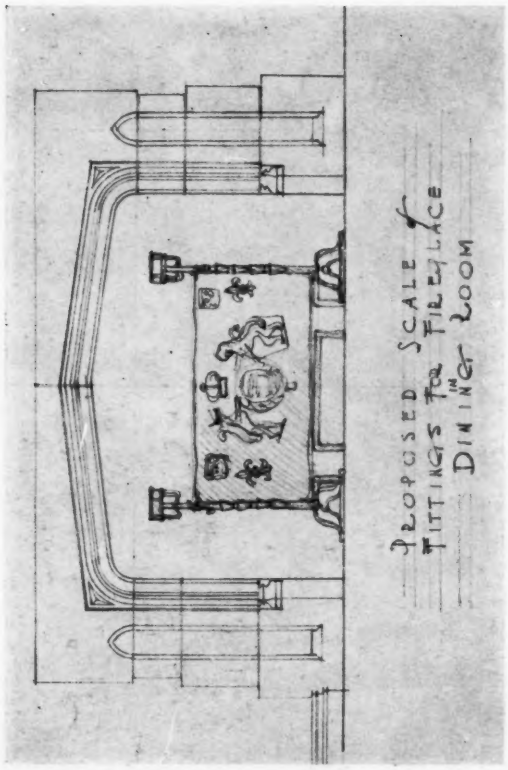
HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT

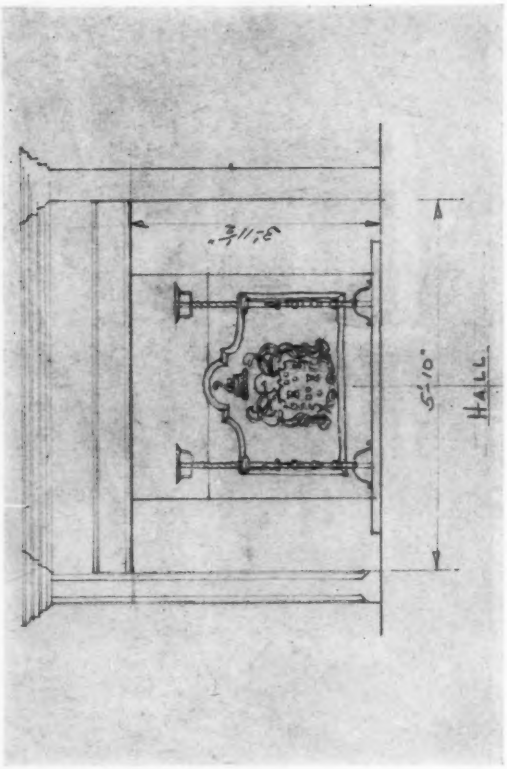
RIVER FRONT, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT

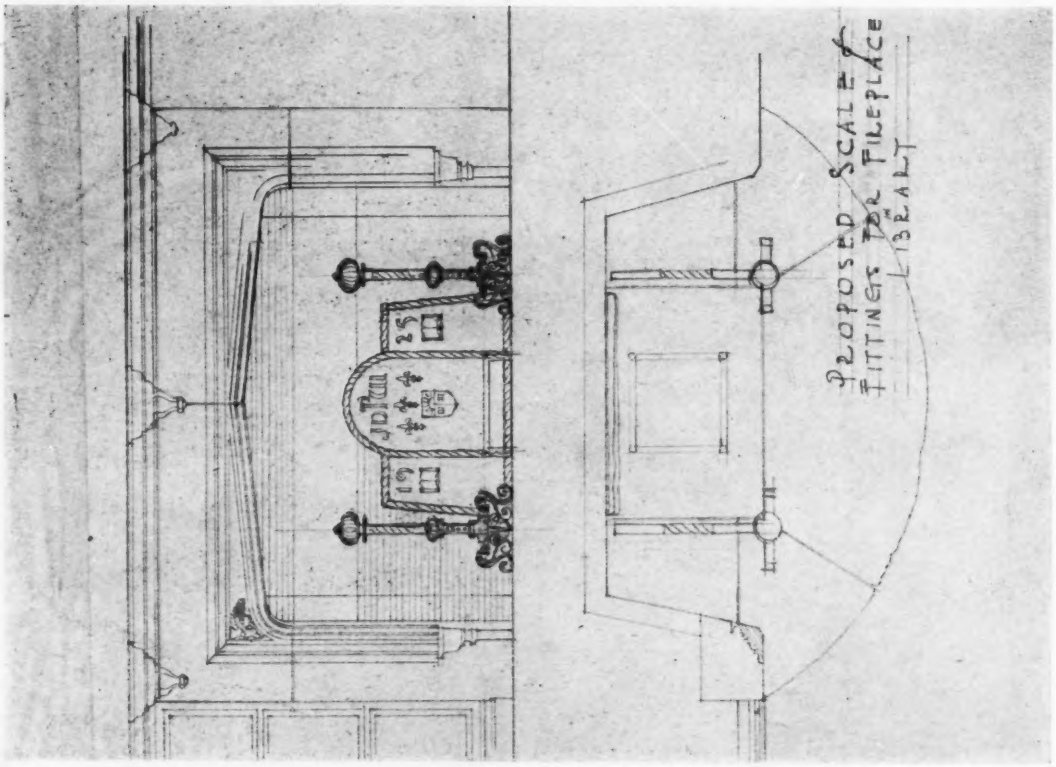


HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT

DETAIL SERVICE WING, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT







STUDIES FOR MANTELS, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT

(Drawings are reproduced here to scale ⅜"=one foot)

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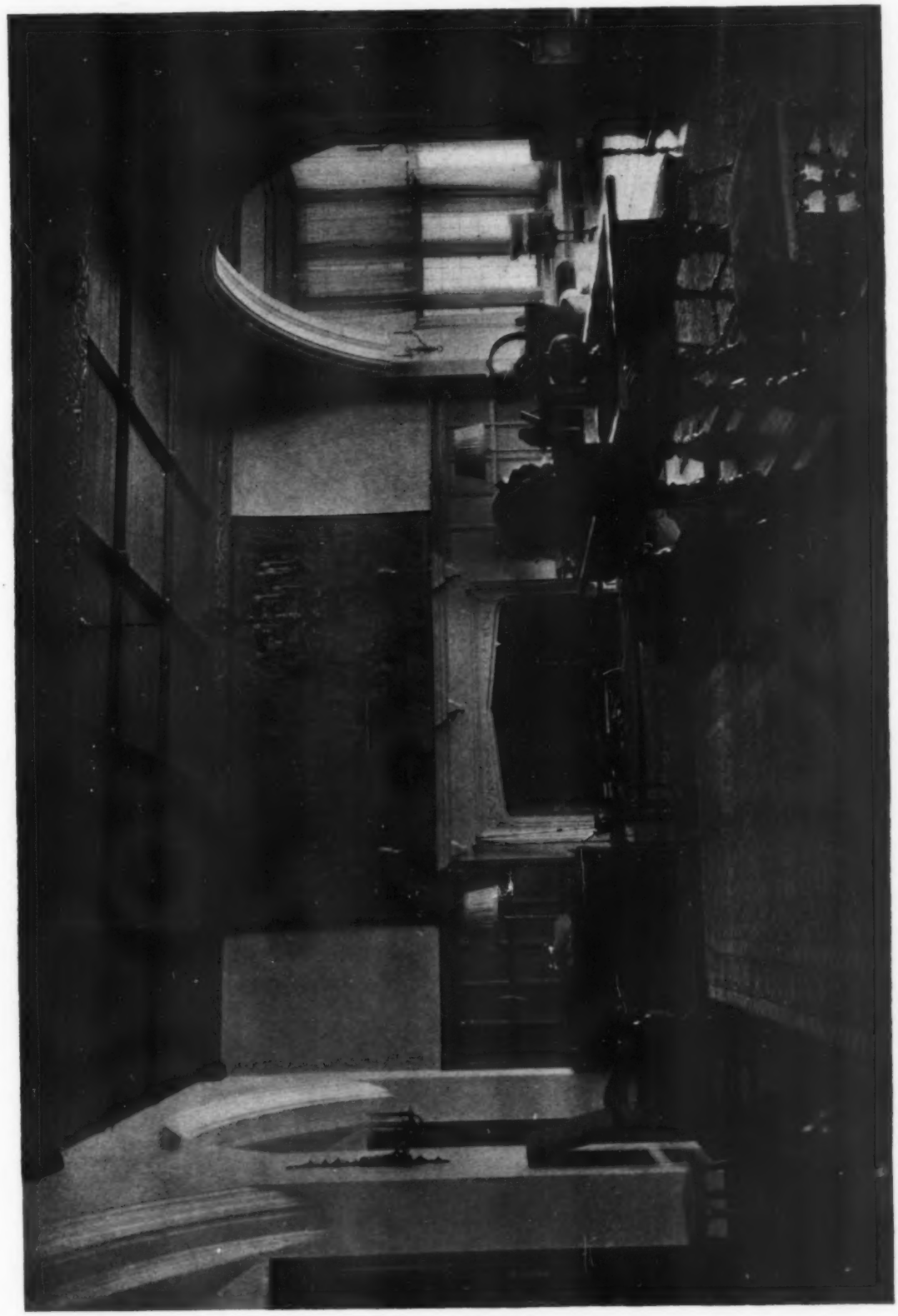
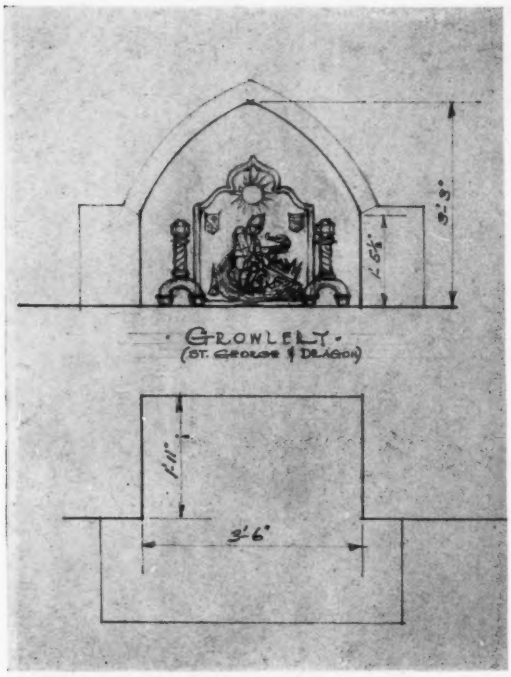
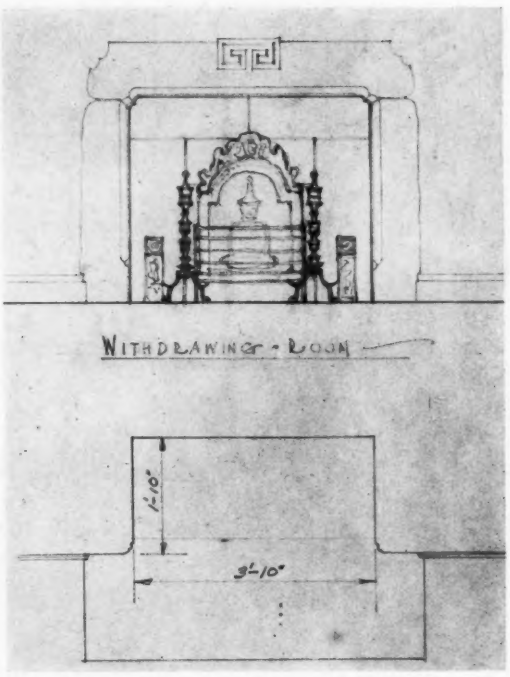
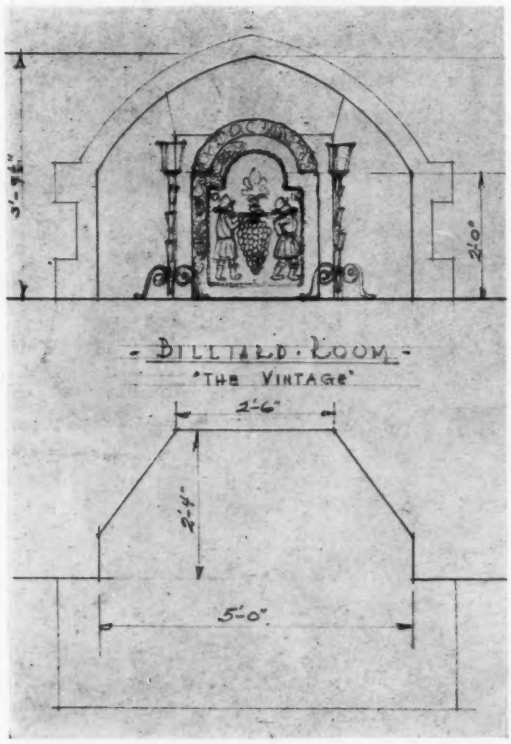
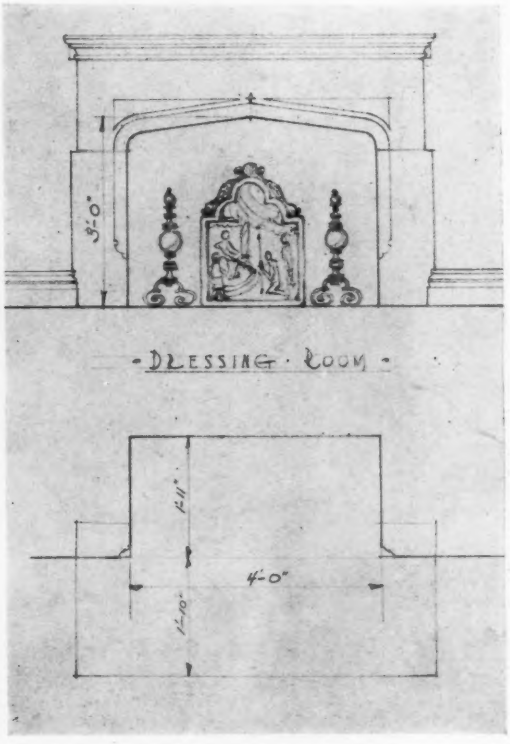


LIBRARY, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT; MARY LINTON ACKERMAN, DECORATOR





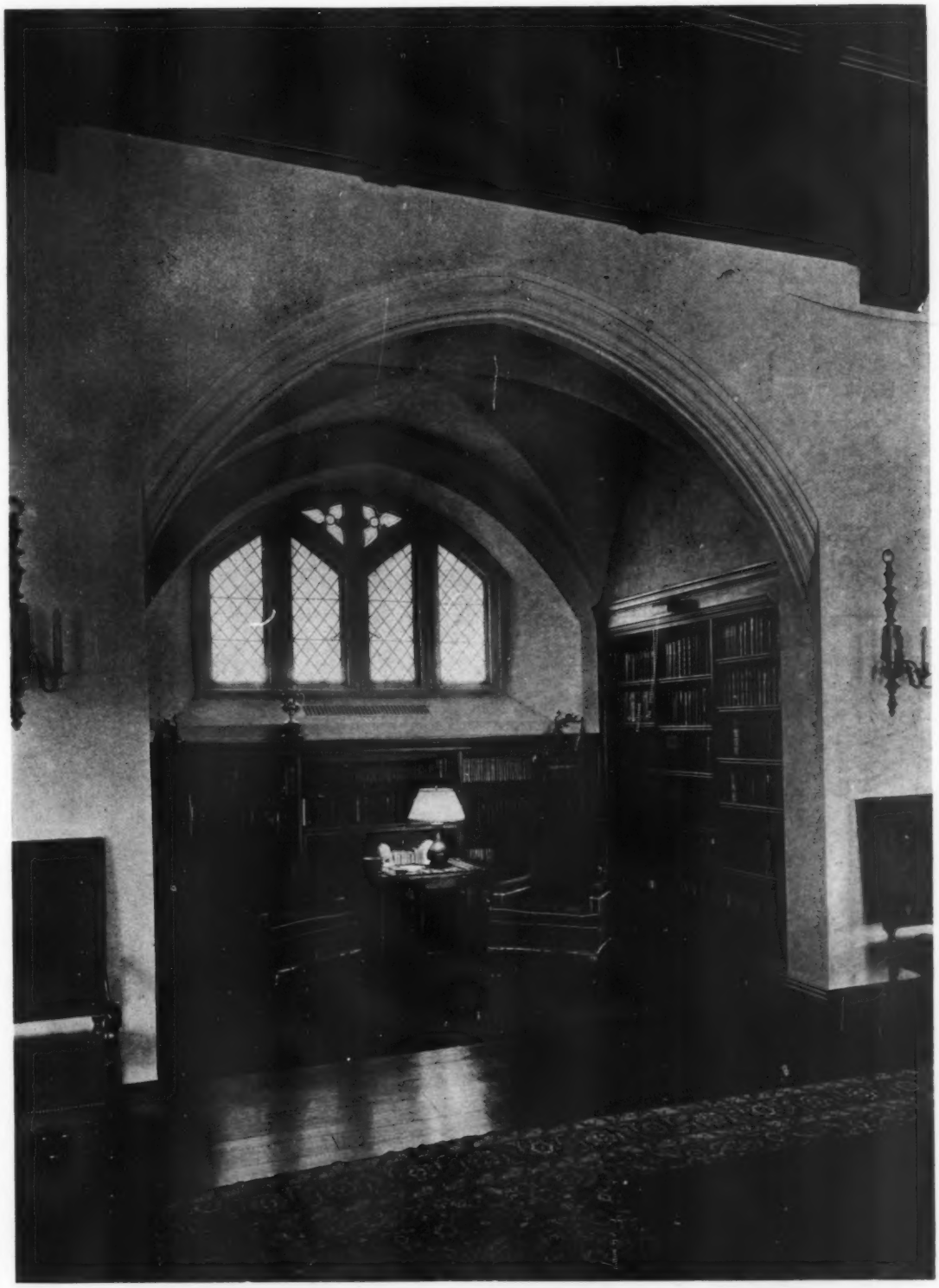




STUDIES FOR MANTELS, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.

FREDERICK L. ACKERMAN, ARCHITECT

(Drawings are reproduced here to scale ⅛"=one foot)



LIBRARY ALCOVE, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.

FREDERICK L. ACKERMAN, ARCHITECT; MARY LINTON ACKERMAN, DECORATOR

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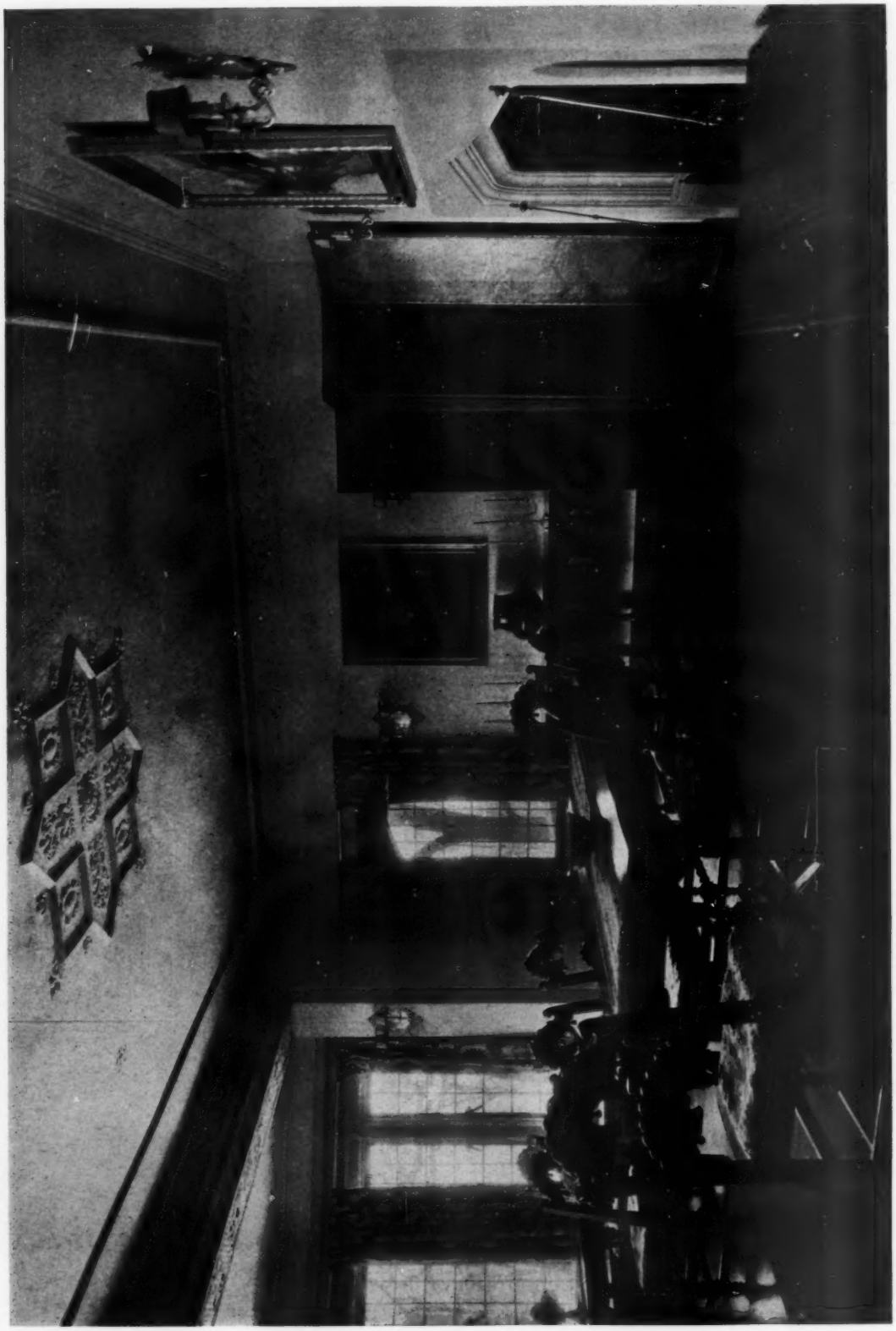

MAIN DINING ROOM, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.
FREDERICK L. ACKERMAN, ARCHITECT; MARY LINTON ACKERMAN, DECORATOR

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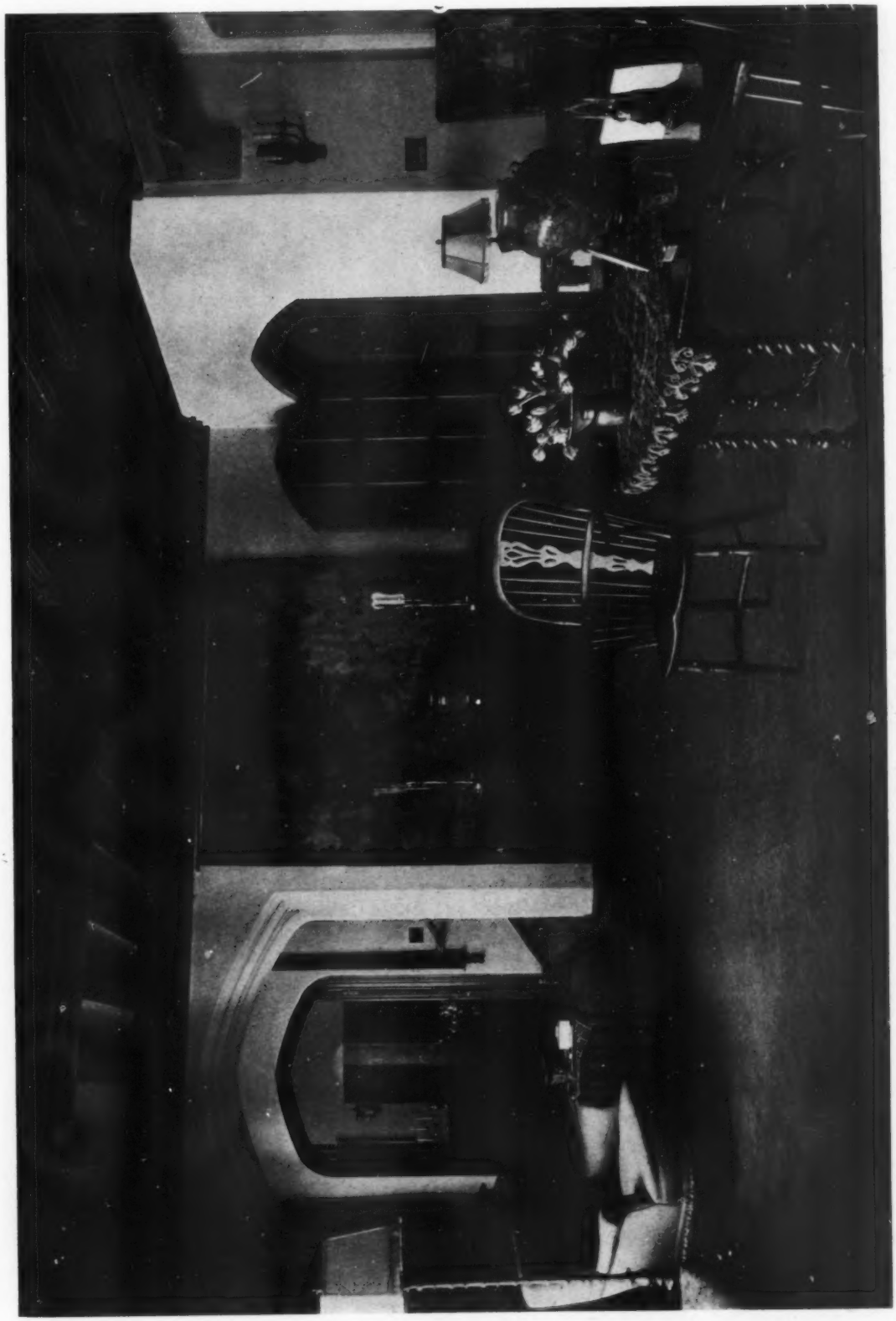

HALL, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.—FREDERICK L. ACKERMAN, ARCHITECT; MARY LINTON ACKERMAN, DECORATOR

WITHDRAWING ROOM, HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.
FREDERICK L. ACKERMAN, ARCHITECT; MARY LINTON ACKERMAN, DECORATOR
THE MANTEL HAS BEEN DESIGNED TO HARMONIZE WITH CERTAIN OBJETS D'ART USED IN THE ROOM

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INTERIOR ARCHITECTURE

PROGRESSIVE STEPS IN THE MAKING OF STAINED GLASS WINDOWS

By MAURICE HEATON

A DESCRIPTION of all of the steps that any one artist might follow in painting a picture would be interesting, but of little value in explaining how another artist worked. This is not true, however, of stained glass; glass itself imposes its own methods, and woe to the glass painter who does not love his material (medium), who gets his effects "in spite of" the glass rather than from its natural beauty. The following article, therefore, is not only an explanation of photographs as work proceeded on one particular series of windows; it is also an exposition of the method of work of all glass painters. That craftsmen differ slightly from each other in details is of course a truism, but as long as these variations suit the glass and the artist, the more the merrier. Certain practices, however, lead to good or bad work. In a few instances I will point these out as illustrations of the fact that stained glass is a consummate art in which restrictions imposed by the material should not merely be

Photo by Shobbrook Collins

SHOWING STAINED GLASS WINDOWS INSTALLED IN THE RECEPTION HALL OF THE HOUSE OF J. DU PRATT WHITE, NYACK, N. Y.

FREDERICK L. ACKERMAN, ARCHITECT; WINDOWS BY CLEMENT HEATON AND MAURICE HEATON

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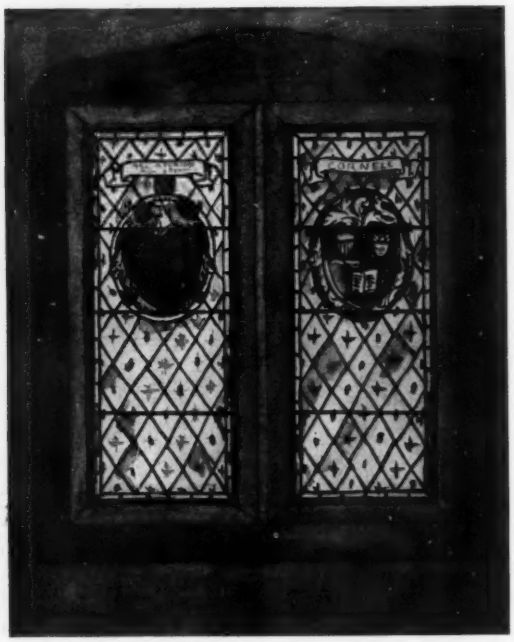


THE SKETCH, THE ORIGINAL OF WHICH IS IN COLOR

accepted, but should be conceived as the foundation and inspiration of the craft.

THE SKETCH

Before an idea for a window is brought into being at all, it is absolutely necessary to know the conditions that will affect the finished product. A window seen close to the eye, as in the case of the one taken to illustrate this article, demands a scale of detail and kind of workmanship far more delicate than does a rose window in a church, seen perhaps over a hundred feet away. It is necessary to make accurate note of the minimum, average and maximum distances, the height of the window from the floor, and the angles of view, vertical and lateral, from which the window will be viewed. Figures in very high windows look shorter by a tenth of their height at least; and the power of light to suppress details at a distance is, to one not experienced in the craft, simply incredible.

The most important elements affecting the design of a window are the style or character of the building, and the surrounding decoration. In the case of the window here to be described, the architecture of the house was suggestive of late English Gothic, and the reception room, formal and dignified, called for delicate treatment, severe in plan, varying in detail rather than arrangement of units of design.

Before proceeding it might be well to ask, why put any stained glass at all in such a room? Certainly not for the sake of decoration alone, nor for that of putting four family shields in glass. The real reason was that it was desirable to cut out or blur the view of a driveway passing a few yards from the house. To have put the same panels, for example, in the opposite wall from which a beautiful view of the Hudson River was afforded would have been a crime. These windows, therefore, were to act as a screen of glass whose texture was to diffuse objects seen through it. The painting, the color, the patina on the glass, the bars, the leads, all these are primarily instruments to achieve a beautiful decoration that fulfills a definite end.

The problem of light must be carefully analyzed. These windows on the driveway have a good north light but are seen against trees and a wall. A long row of windows opposite them carry a view of the Hudson below. Thus the room does not depend for its light on the stained glass, but the stained glass will seem darker, due to the contrast of the south windows and counter-reflection of the south light.

Obstructions outside the window also influence the light. Green trees outside in this example were counteracted by warm glass. Red brick walls are deadly, especially on blue windows, and should be whitewashed. Parts of a window blocked by a roof should be made lighter than parts seen against the sky. Obstructions in front affect the design; the central figure may be hidden by a chandelier.

Ventilation, ideally taken care of here by swinging casements, comes near to being a hopeless problem in larger windows. At best, the top of a ventilator is made to look like a heavy bar, at the logical division of the design; and the border in the glass is so adapted that the important element,—often a white-bordered band next to the mullions,—will not be completely eliminated by the sides of the ventilator projecting beyond the stonework. When ventilators are already provided for, the whole drawing must be planned around such divisions as are arbitrarily given.

The architect, first of all, decides to use stained glass, and then, talking over the problem with an artist in whom he has confidence, he works out a general description of what the window should be. The best way for him to do this is to refer to one already done somewhere else for suggestion of tone, style, treatment, etc. With all these ideas in mind, the artist is fitted to go ahead with the sketch. All the data concerning scale, subject, environment, melt into a mist and act unconsciously, with examples of modern and old stained glass constituting tradition. There should be at that time complete freedom; the materials, the wishes of the client, and the advice of the architect should act as stimulants rather than restrictions.

XUM

The reproduction of the sketch, the original of which is in color, shows the scheme finally adopted for the house. Note that the scrolls are white, and sink into the mass of the diamond background. Had they been colored, the window would have appeared top-heavy, and, I think, spoiled. This shows the importance of making colored sketches. The problem is *color design* and not *line design*, especially in the case of deep church windows. Figures, or parts of figures, are made, let us say, of yellow glass on a background of blue. Although the painting of the drapery folds on the yellow glass is absolutely needed, it is the significant mass of the yellow contrasted to some other color that makes the figures stand out and gives the window compelling power. Nor is it enough to oppose any two colors. A small piece of green set on blue will vanish twenty feet away. Purple has a way of borrowing the color of its surroundings, particularly yellow. Blue will spread tremendously: a window, one-third of whose glass is blue, looks blue. But within fairly well known optical principles of color, color is stronger than any detail painted on it. The first and most important reason for a sketch is to settle the color combination, and only to suggest the details.

THE CARTOON

The illustration herewith shows the cartoon for one of the four windows. After the accurate shape, full size, is drawn on paper, the outside border and quarries are put in very lightly. The medallion, scrolls and shield are outlined as they show in the sketch. Then begins the real work of designing scroll and medallion to fit the quarries, or vice-versa, and introducing the bars to support the glass. In large windows it is good practice to start with the bars placed at rhythmic intervals and then to design the details within. Note how distorted some of the quarries are, how, although some are small, some large, the total effect to the eye is homogeneous. The details in each unit can now be drawn separately.

This cartoon is a water color painting. The flow of the brush on paper is best adapted to represent glass painting, and the colors can be suggested with more or less success. Charcoal drawings are nevertheless in general use because they are easy to alter and work up. This method is dangerous because it tends to give glass painting the character of another medium, particularly in view of the fact that most modern glass is not executed by the cartoonist or designer. If the sketch has dealt carefully with the balance of color, it is perhaps not absolutely necessary that the cartoon be colored. However, the additional labor not only saves mistakes that must later be corrected on the glass, but keeps insisting on the real principle of the decoration instead of mere draughtsmanship. It is not obligatory that all details be completed, or indeed even drawn, for after all the technical reason of the cartoon is the making of a drawing from which the glass can be cut; and, if the artist who designs the cartoon is likewise to paint the glass, he can decide on the lead lines and compose the details later on the glass itself.

THE CARTOON

THE CUT LINE

This illustration of the cut line drawing shows how the panel is broken up by lines indicating separate pieces of glass, which operation is done by taking a tracing of the lead lines of the cartoon. This would be a mechanical performance except for the fact that after the tracing is done all kinds of inaccuracies are revealed. Here, for the first time, the web of the lead work is seen. Stripped of all its details, it alone can be beautiful or unsightly. Outlines having more character are drawn over the tracing; pieces that would be too difficult to cut are eased a bit; and, if from actual experience, the lead lines prove to be too mechanical, they are varied more than they were on the cartoon.

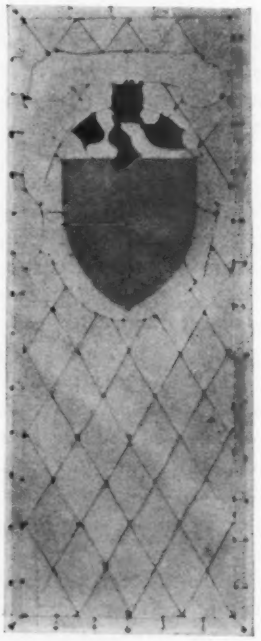
THE CUT LINE

After this has been finished, a second tracing of the cut line is taken again on thick paper, each division of which is numbered. The lead that comes around each piece of glass has still to be allowed for. A clever device, consisting of three-bladed scissors, has been evolved to solve the difficulty. The duplicate tracing is cut with these, each piece of paper, or "pattern," being the shape of the glass to be cut later. By means of the third blade, the lower one, about one-sixteenth of an inch in thickness, a thin strip of paper is cut out simultaneously with the cutting of the "pattern." In this way one-sixteenth of an inch is left between the pieces. The craftsman has now a complete and accurate outline which takes into account not only the essence of the design, but also the necessary form which his material dictates.

THE CUTTING OF THE GLASS

The illustration shows the panel made up of pieces of colored glass waxed together on a sheet of plate glass. Each piece was cut by laying the paper pattern, obtained previously, on a sheet of colored glass and following the outline, making a cut or mark with an ordinary glass cutter. The glass is then broken along the mark. Naturally, straight lines are easy to cut, curved lines harder, and often impossible. Convex contours can be cut by breaking the glass around it in several steps, but sharp concave lines must be "grozed in," that is, the glass must be crushed little by little with a pair of pliers until the proper shape is achieved. A bend at more than a right angle is next to impossible to cut.

The choice of glass is of course very important, both for color and texture. The quarries were taken from four tints of warm English antique glass, hand-blown, which is almost transparent. The scroll and mantle around the shields are "pure white" antique, the shield dark yellow, etc. No matter what glass is used, it must be beautiful not only in itself but in relation to all other colors. To make a palette of all the shades used for a series of windows is the practical thing to do unless one makes one's own glass and strives for harmony at the very root.



THE CUT GLASS

The only color added to glass after it is made is yellow, a veritable stain obtained by applying a silver salt on the glass and firing the same at a low red heat. All the flowers, or "flourishes," on the quarries are stained in this fashion. Another way of getting two colors on the same piece is by using flashed glass, made of white glass with a thin layer of red on top, or yellow with a layer of blue, etc., and then aciding away part of the top layer with hydrofluoric acid. This will give red on white, blue on yellow, and vice-versa. By staining the back of the glass yellow, still a third color can be had. The cord tying the mantle around the helmet was acided in this way, giving red on yellow.

The choice of the texture of glass is often difficult. Hand-blown, or "antique" glass, excellent for semi-transparent windows, requires, in the usual stained glass window, rather too much patina or paint because of its very transparency. Some types of double rolled or "cathedral" glass, have a much better texture, but, when made commercially, are so flat in color and so deadly even in texture, that their use is discouraged.

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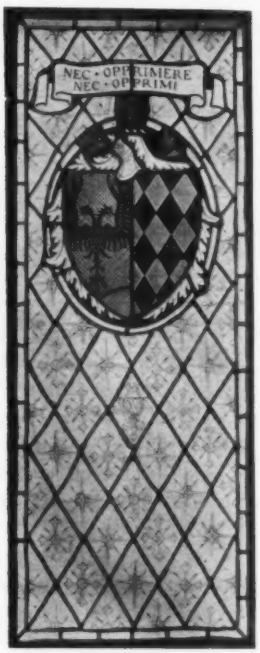
PAINTING THE GLASS

The accompanying illustration is that of the glass waxed to a piece of plate glass after all the details have been painted. On the back of the plate glass broad lines have been painted with lampblack to simulate the leads and hide the cracks that would show between the pieces of glass. The paint is a black or brown pigment (or glaze) mixed with water and gum or other cohering substance, and applied with a brush, either heavily so as to be opaque, or lightly like a wash so as to be almost transparent. The first process is called painting and the second matting, or shading, or giving a patina or texture. The glass is first laid on top of the cartoon, and very thin lines are traced to indicate the outlines or place of details. After this, the glass, laid flat on a sheet of white paper, is painted in bold outlines with a brush that leaves behind a thick coat of pigment. Sometimes the glass is painted directly on top of the cartoon, but this leads to mere copying and is, for a craftsman, very dull work. The more the painting is composed on the glass the better. That is why the cartoon is left unfinished in many places. Observe the difference between the eagle on the cartoon and that on the glass.



THE GLASS PAINTED

A second method of painting, much used in mediaeval times but generally neglected at present, probably because the technique cannot be easily indicated on cartoons, consists of covering the whole panel of glass with pigment, and removing parts of it, when dry, with a stick. The whole right hand side of the shield is decorated in that way.

Another combination is shown in the dots behind the eagle; first a mesh of criss-crossing lines were painted, and then criss-crossing lines in the opposite direction were struck out between the first series, leaving a network of small crosses. This is indicated in the cartoon by actually painting the crosses. Quite aside from being tedious work, the method would never have been invented at all, on paper, because it is not in the nature of that material.

As is shown above, then, paint can be applied, struck out, or corrected by scratching, and, with experience, a wash or several washes can be applied on top of paint previously applied. After the glass is fired, however, nothing can be changed except by aciding away, or by putting more paint on and firing again.

Note the use of black in the shield; how the mantle seems more brilliant than the scroll cut in the same shade of glass. Indeed, black is used not only to outline details, but by the actual painting of them in black, to make raw glass brilliant by contrast. That is one reason for putting the filigree on the diamond of the shield, the crosses behind the eagle, and flowers on the quarries. In the photograph, the black looks overdone; in the glass, one is not even conscious of the black. When the painting is finished, the glass is fired to make the color permanent.

THE GLASS WITH PATINA

FIRING THE GLASS

Fifteen to twenty minutes of red-hot firing is required to melt the vitreous paint or glaze on the glass. As the glass would crack if placed directly in the hot oven, it must be gradually heated before, and gradually cooled (or anealled) after the melting point of the glaze has been reached. It is usual to place the pieces to be fired on top of a tray, smoothed flat with plaster of paris. The pigment becomes glossy when fired, though of not more than egg-shell shine. Painting well fired into the glass can be scraped with a wire brush without damage, and will last as long as the glass.

THE PATINA

The illustration above shows the panel waxed on the same plate glass after the patina has been applied to the surfaces, which are now mellower and less transparent. Observe how the black lead lines in back of the plate glass are diffused; objects beyond the window itself will be even more blurred. The photograph, however, gives no idea of the actual

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Photo by Shobbrook Collins

APPLYING THE PATINA

change in appearance which results. The quality, too, of the patina or wash is all-important.

To understand what patina means, the best way is to analyse mediaeval glass. Flat washes and tones were used sparingly, not all over a piece, but to group and soften hard lines. It was not used to model surfaces. When toning down was required, the old masters painted all-over patterns or diapers, covered sections with cross-hatching. They developed series of delicate veins in foliated ornaments, and, on the whole, covered the glass with painted details too small to be seen at a distance, nevertheless producing an effect. The remaining surfaces were left clear. But this is not the glass as we see it now. During seven or eight centuries the glass has weathered, and the combined mellowness and brilliancy of glass as seen in Chartres is due to the corrosion or partial decay of the glass.

In a general way, it can be said that some stained glass which is as dull as linoleum suffers from too even a wash of pigment; other windows, over rich in color, vibrating intensely without being mellow, suffer from lack of patina. The main thing to remember is that glass in itself is not brilliant. A plate glass window is not brilliant. But a small piece of plate glass in a black wall will be startingly so. Brilliancy is obtained by contrasting a light color to black; once this is understood, the lead lines, painting, patina, even bars two inches thick, all tend to make a window brilliant.

To copy natural corrosion is out of the question: such imitation would not be right and would take too much time. But to control modern materials so as to create natural variations in the patina, somewhat like water-color on rough Whatman paper, is an essentially sound method of making use of the quality of the material.

THE RETOUCHING

After the patina has been fired, the pieces, waxed once more on the plate glass, are viewed again with as many other sections of the window as possible. The paint has become lighter and more translucent during the firing; even though this has been allowed for, the painting is sure to need strengthening or altering. Moreover, this is the first time the window, or series of windows, can be studied as a whole, and while the first steps were to make the panel homogeneous, the next procedure is to treat

the entirety of the decoration as a single unit, and to work on it until every subsidiary unit is in proper relationship to the whole. At this stage, changes are made if parts of the window are found to be unsuccessful, or, as is more often the case, if a happier solution of the decorative problem occurs to the craftsman while he works. The pieces altered are then fired again, and all, except for the staining, is ready for assembling.

THE STAINING

Yellow stain is applied on the back of the glass, in the form of silver chloride precipitated from the nitrate. It is fired at a lower temperature than the paint; if over-fired it becomes orange and opaque. Refiring pieces already stained deepens the yellow, consequently this process is done last after all retouches have been made.

THE LEADING

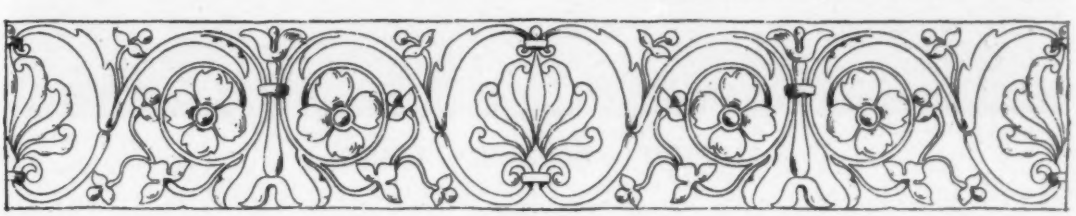
Assembling the glass is a mechanical process; the illustration shows the panel completely leaded. The strips of lead are in section the shape of an H, a piece of glass fitting in the upper groove, another in the lower. The lead, which is flexible, can be bent around the pieces and cut off with a knife. The glass is leaded directly over the cut-line drawing, and then held in place by nails. When the panel is completed, all the joints are soldered with tin solder. The panel is then strong enough for careful handling. The back must of course be soldered too, but as the practice is to assemble the window and examine it before doing so, this is kept for the final step, so that in case of alterations pieces can be corrected, taken out, fired, and replaced without injury to the lead.

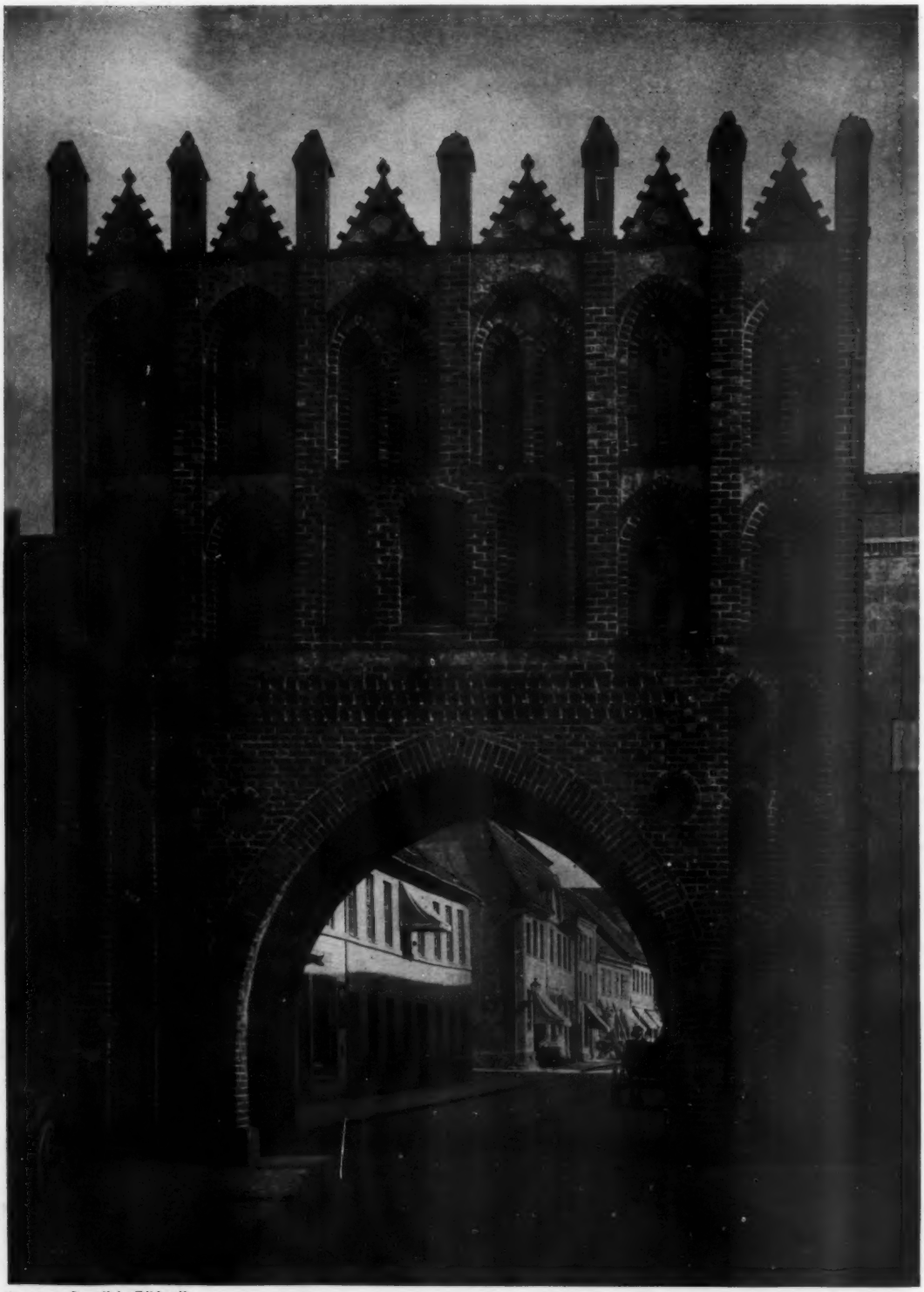
To finish, the panel is then waterproofed by rubbing putty or special cement between the lead and the glass. Copper wires are soldered to the leads wherever there is to be a bar in order to support the glass from the bulge of its own weight or wind-pressure. Panels as large as three by five feet can be made if properly supported by bars, although it is better to keep them smaller.

The sides are also provided with wide leads which are slipped into the grooves of the stone, and when cemented hold the panel firmly in its place.

Photo by Shobbrook Collins

THE COMPLETED WINDOW





Courtesy Staatliche-Bildstelle

KALINSCHE GATE, MALCHIN, GERMANY

EDITORIAL COMMENT

PROGRESS demands that we give consideration to the education of the rising generation in order that we may leave in capable hands the working out of those problems which are now perplexing us and which we are striving so hard to solve. The American Institute of Architects, at various conventions in the past, has given careful consideration to the educational problem and has frequently made recommendations which have proved valuable when acted upon. An architect of our acquaintance has his own peculiar ideas on architectural education, based somewhat on the old European idea of apprenticeship. He is, in fact, writing his method up for us now and we hope to present it to our readers in an early issue. Frederic Child Biggin, A.I.A., Dean of the School of Architecture of Alabama Polytechnic Institute, has come out in favor of the five year college course. His ideas are enlightening and worthy to be recorded. In his own words his statement reads:

"At an Annual Convention of the American Institute of Architects several years ago, the Committee on Education called attention in strong terms to the progressively narrower technical type of education that architectural students were getting in the customary four year college courses.

"It further laid down the fundamental proposition that an architect should be a well educated man or woman, in addition to a trained draftsman, designer, constructor, business expert and other things too numerous to mention. With all of which practicing architects will agree.

"The committee pointed out the fact that an education so comprehensive cannot be given in a four year course, and urged that all Schools of Architecture extend their courses to five years. This report was promptly adopted by the Convention.

"Later conventions of the Institute stressed the collaboration of architects and workers in the allied arts, and recommended that Schools of Architecture take under their direction the training of students in these arts.

"The Association of Collegiate Schools of Architecture, composed of some twenty-six schools throughout the country which are recognized by the Institute, endorsed both these movements, and in particular called on all its members to extend their courses to at least five years, and incorporate in them more general education and business training.

"Many of the schools have adopted the five year course and abandoned the old four year one. The practice is steadily spreading. In some cases an attempt was first made to offer the five year course as an alternate to that of four years, but for manifest reasons this proved impracticable.

"Wherever the extended course has been adopted, the result so far as known has given satisfaction. Graduates from these colleges have gone out more sure of themselves, and been chosen in preference by offices because of their better general education and knowledge of business methods.

"The movement from the unsatisfactory four year course to an extended five year one is clearly in the right direction. Whether it will eventually lead, as in Law and Medicine, to the requirement of a four year general education course as prerequisite for entrance to a graduate School of Architecture, remains to be seen. There is a tendency that way.

"Another resolution of the Institute passed years ago called for an organization of Schools of Architecture separate from the Schools of Engineering, of which many are still a part and most of them originally were. This movement, too, is spreading, and becomes doubly necessary with the extension of courses and the assumption by architectural schools of the direction of training in the Fine and Applied Arts.

"Schools of Architecture and Allied Arts, or of the Fine Arts, offering under related departments five year degree courses in Architecture and other Arts including Landscape, seem to be the logical outcome of these recommendations of the Institute. A number of the recognized schools now have such an organization, and the difference in nomenclature appears to mean little, since both groups evidently offer about the same type of courses.

"For the furtherance of the work already accomplished, it is suggested that the Committee on Education seriously consider recommending that the Institute take action toward making a separate organization for Schools of Architecture, and the extension of the course, both requisite to continued recognition. Many schools now forced to work under other conditions would welcome such action."

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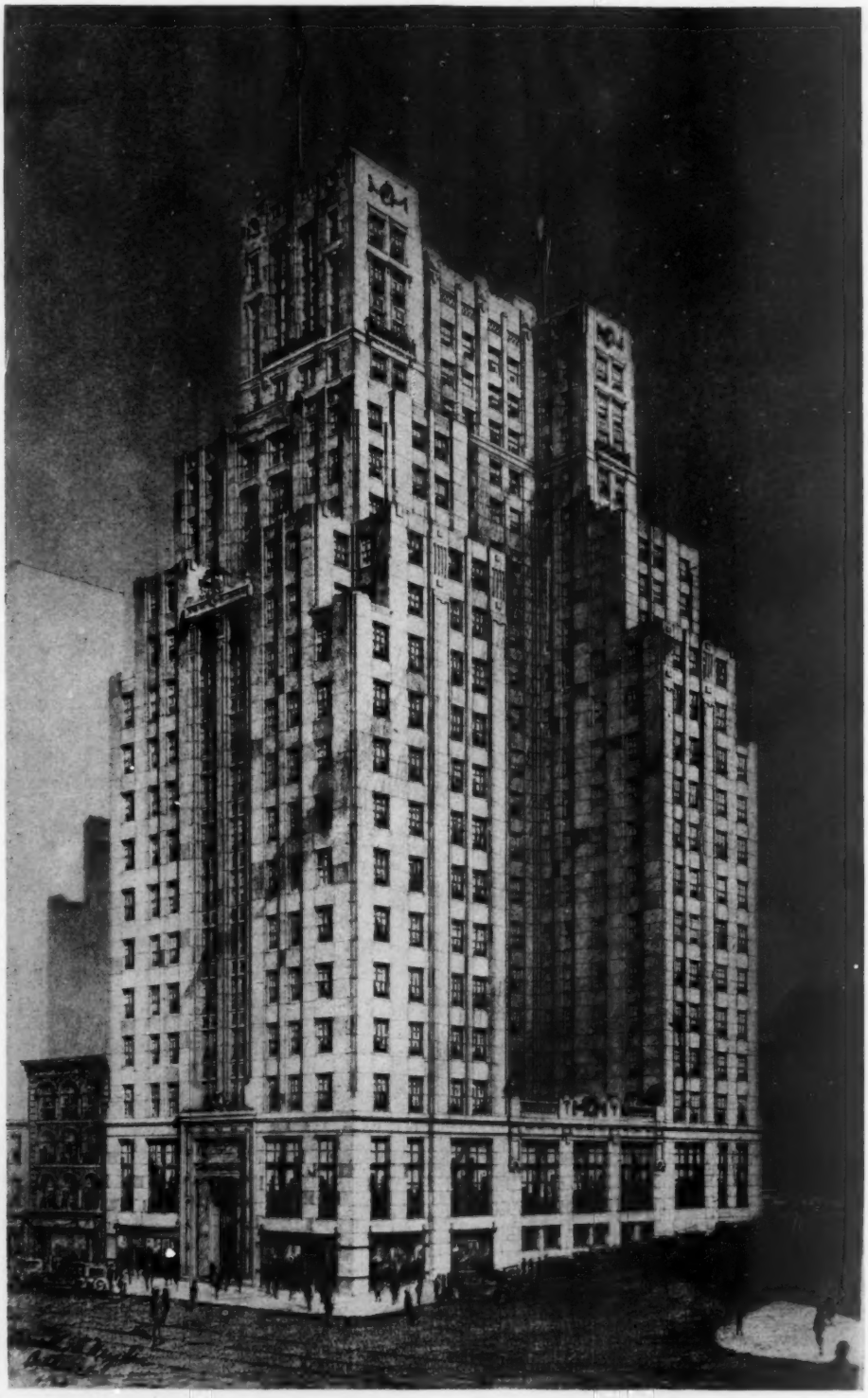


AMERICAN BANK AND TRUST COMPANY BUILDING, RICHMOND, VA.

MARCELLUS F. WRIGHT, ARCHITECT

LOW COST FIREPROOF SCHOOL CONSTRUCTION OF SAN FRANCISCO

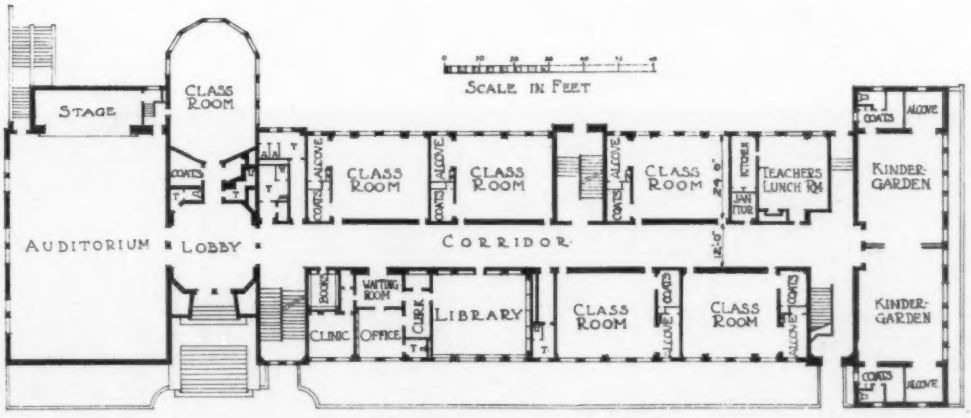
By WM. CLEMENT AMBROSE*

TO build well, to build economically and permanently, and at the same time to provide school buildings which are a credit to a community and in which children can be well educated, is a problem which the City of San Francisco, together with other cities throughout the United States, has faced in recent years. The completion of the buildings provided under the 1922 bond issue for the rehabilitation of San Francisco schools, and the starting of a policy of yearly budget building, afford an appropriate time for a review of recent school construction in San Francisco.

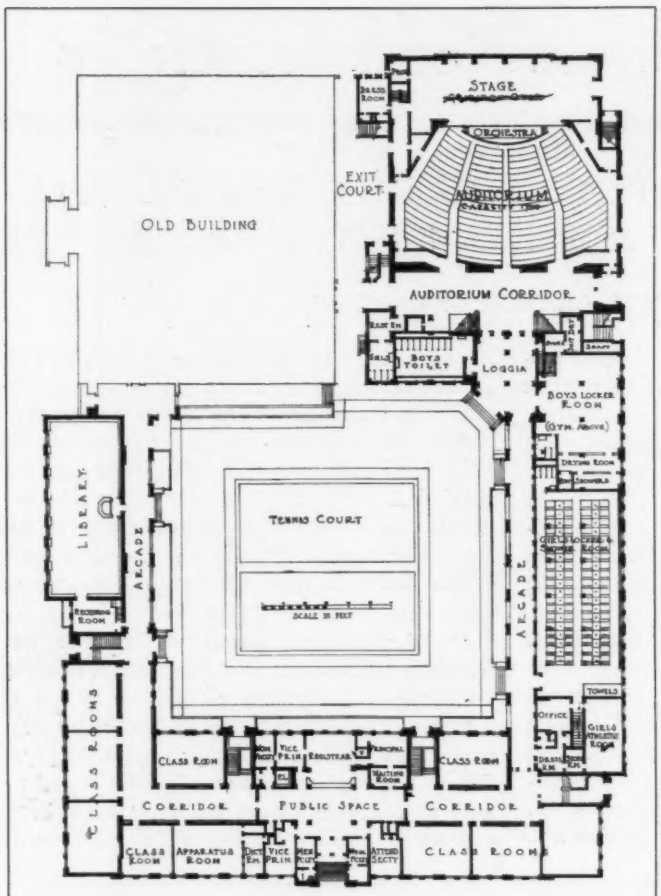
The buildings erected during the past several years have been designed by various San Francisco architects. None of the recent permanent structures has been designed by a city bureau. These architects, appointed by the Board of Public Works, have designed and supervised their work very much in the same manner as they would non-public projects. These architects have all worked under the general supervision of the City Architect, Mr. John Reid, Jr. It is believed that this system has enlisted the desired architectural talent, and has achieved an excellence and variety of design not possible under any other system. This system has also been so economical as to challenge comparison with cities using other methods of procedure.

In order that the architects may have a basis upon which to commence their studies, certain fundamental principles have been established by the City Architect, after consultation with the city officials having jurisdiction. These principles, briefly, are that all buildings must be made fire safe and panic safe; that all permanent buildings must be constructed with fireproof frames, floors and exterior

*Architect, San Francisco. Formerly associated with John Reid, Jr., City Architect, San Francisco.



JOHN MUIR ELEMENTARY SCHOOL, SAN FRANCISCO, CALIF.
JOHN REID, JR., ARCHITECT



FIRST FLOOR PLAN
HIGH SCHOOL OF COMMERCE

walls and with fire-resistant partitions; that particular attention must be given to earthquake hazard (a consideration which requires similar construction as do tornadoes or cyclones in other parts of the country); that useless space must be eliminated; that climatic and topographical conditions of the sites be carefully considered; and that restraint must be used in exterior and interior treatment, and in choice of materials, so as to obtain a dignified and appropriate character in the buildings without undue expense.

The unusual variation in climatic conditions between various parts of the city has made each project a separate study from all others. Further, the fact that most of the new buildings are either replacements of antiquated structures, or are built to meet needs already developed, rather than to anticipate future growth, has meant that the school buildings have been erected upon sites in built-up districts. The free hand in design that comes with a site on broad acres is not possible in San Francisco, surrounded, as it is, with water on three sides. The factors of the urban character of the sites, climatic variations within the city, and the fact that San Francisco is built upon hills so that no two sites have the same slope, have made it inadvisable to attempt standard plans, except for small units of each build-

Photo by Moulin

HIGH SCHOOL OF COMMERCE, SAN FRANCISCO, CALIF.—JOHN REID, JR., ARCHITECT

A HIGH SCHOOL CLOSE TO THE CENTRAL BUSINESS DISTRICT. CEMENT PLASTER WALLS AND TERRA COTTA TRIM

XUM

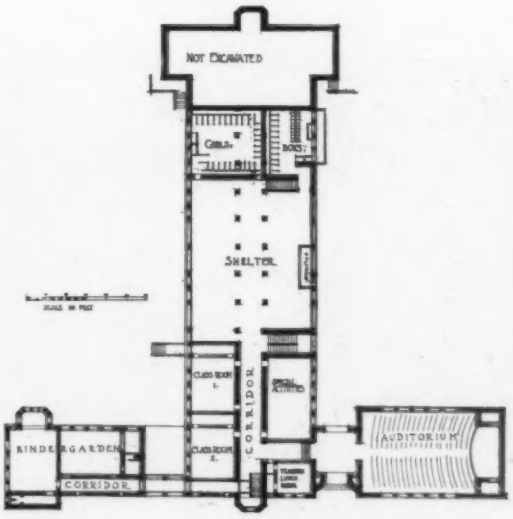
Photo by Moulin

SHERMAN ELEMENTARY SCHOOL, SAN FRANCISCO, CALIF.—JOHN REID, JR., ARCHITECT

MONOLITHIC CONCRETE WALLS, STUCCO COVERED. ORNAMENTAL FEATURES OF FRONT ENTRANCE OF CAST STONE AND FAIENCE TILE

ing. Educational ideas, too, are so rapidly changing that it is usually inadvisable to repeat, exactly, a building constructed previously. Furthermore, in the secondary schools, with compulsory attendance, the needs of the population in one section are not likely to coincide with the requirements in another section.

A type of structure, however, has been generally adhered to, with only such variations as the Board of Education consider necessary. After a careful balancing of the factors of stability, fire-resistance, initial cost, upkeep charges, permanence, and susceptibility of alteration to meet educational changes, a typical structural system was adopted. This included a concrete structural frame, concrete floors, concrete curtain walls, partitions of metal lath and plaster on



FIRST FLOOR PLAN, SHERMAN ELEMENTARY SCHOOL

Photos by Moulin

PLAYGROUND ENTRANCE

SIDE ENTRANCE

SHERMAN ELEMENTARY SCHOOL, SAN FRANCISCO, CALIF.—JOHN REID, JR., ARCHITECT

Photo by Moulin

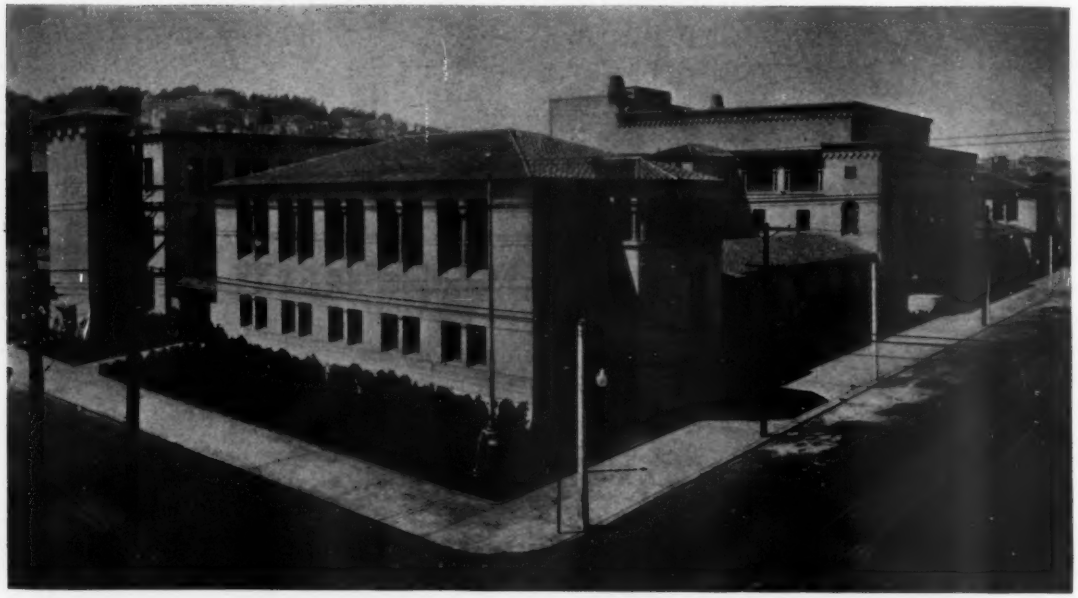
DUDLEY STONE SCHOOL, SAN FRANCISCO, CALIF.—JOHN REID, JR., ARCHITECT

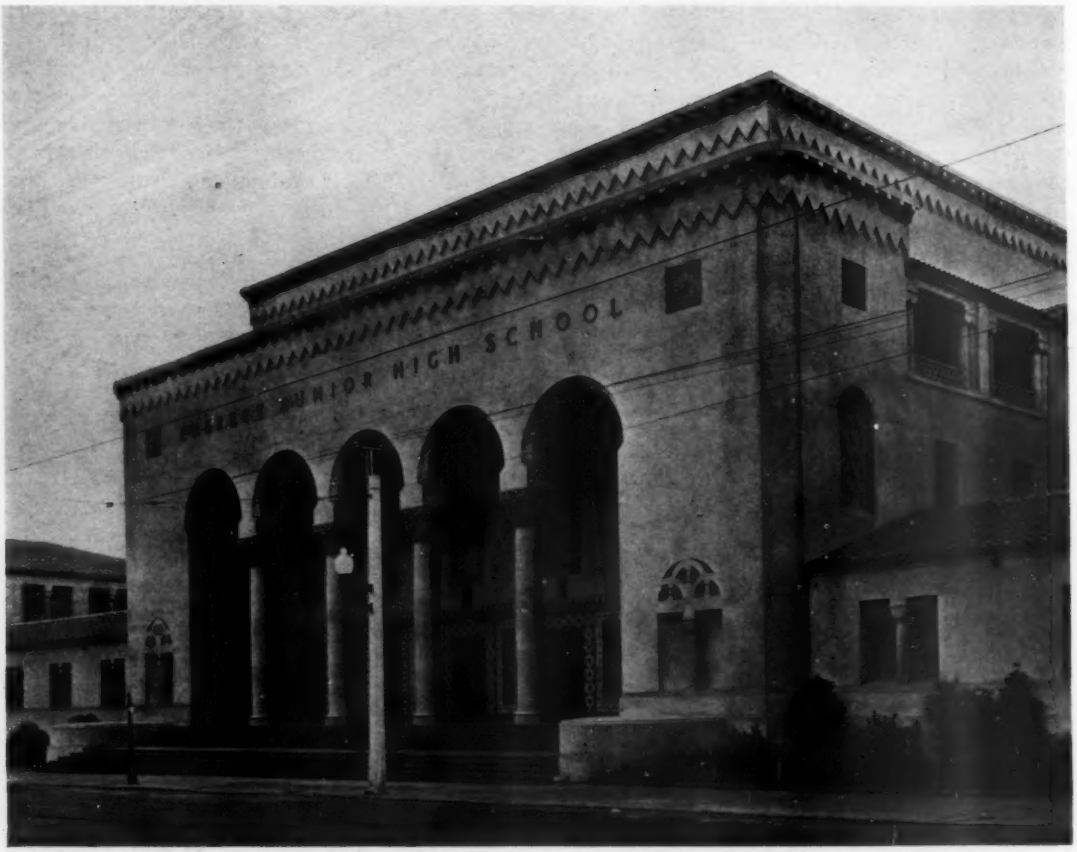
AN ELEMENTARY SCHOOL ON AN INTERIOR LOT HAVING A SLOPE OF MORE THAN FORTY FEET IN LENGTH OF LOT TO LOWER STREET. COST PER CUBIC FOOT 36.9 CENTS

wood studs, furred exterior walls, and metal furred plaster ceilings. This construction has been used for the class room and administrative sections of the schools. The larger auditoriums of the junior and senior high schools, seating up to 1,800 pupils, have been constructed with structural steel frames, fireproofed with concrete, with terra cotta tile and metal stud partitions in accordance with the city ordinances governing theatre construction.

The floors, except in special rooms such as gymnasiums, are provided with ¼" battleship linoleum, glued to the cement finished floor slab. In the elementary schools the auditoriums have flat floors of wood with movable seats. In the secondary

Name of School	Year Completed	Type of School	Architect	Total Cost of Building and Grounds	Number of Cu. Ft. in Building	Cost per Cu. Ft., incl. Arch. and Inspec. Fees	Cost per Cu. Ft. Construction Only	Remarks
Mission	1924	High	John Reid, Jr.	$388,430.46	1,228,285	31.6c.	29.4c.	
Emerson	1924	Elementary	G. Applegarth	184,590.65	715,844	26.0c.	24.2c.	
Pacific Heights	1924	"	John Reid, Jr.	284,116.46	792,580	36.0c.	33.5c.	
Lafayette	1926	"	Ward & Blohme	385,777.25	1,091,982	35.3c.	32.8c.	
Le Conte	1926	"	J. G. Howard	309,465.92	927,017	33.4c.	31.1c.	
Hawthorne	1926	"	Weeks & Day	277,729.96	813,675	34.1c.	31.7c.	
Alamo	1926	"	Miller & Pflueger	399,061.68	945,622	42.2c.	39.5c.	Exterior walls of brick and terra cotta. On level ground.
Sanchez	1926	"	Bakewell & Brown	308,551.46	1,071,717	28.8c.	26.8c.	
Alvarado	1926	"	G. A. Lansburgh	321,571.19	922,752	35.0c.	32.5c.	$4,460 included for yard grading.
Edison	1926	"	G. Applegarth	355,148.50	961,856	36.9c.	34.3c.	
Raphael Weil	1926	"	Meyer & Johnson	358,990.07	999,150	35.9c.	33.4c.	
Galileo	1927	High	John Reid, Jr.	1,328,447.33	3,337,253	39.8c.	37.0c.	
Dudley Stone	1927	Elementary	John Reid, Jr.	345,489.72	868,300	39.7c.	36.9c.	On very steep hill. $48,600 deducted for yard grading and retaining wall. Includes yard grading for future addition, $9,750.
West Portal	1927	Elementary	John Reid, Jr.	174,558.04	500,388	35.0c.	32.6c.	
Mission Add	1927	High	"	1,080,285.43	3,760,000	28.7c.	26.7c.	
Everett	1928	Jr. High	"	960,000.00	2,734,547	35.2c.	32.7c.	
Hearst Moulder	1928	Elementary	"	321,881.13	925,372	34.7c.	32.2c.	
Sherman	1928	"	"	373,500.00	951,525	34.0c.	31.6c.	
			Total	$8,107,595.25	23,550,865	Aver. 34.4c.	32.0c.	





EVERETT JUNIOR HIGH SCHOOL, SAN FRANCISCO, CALIF.—JOHN REID, JR., ARCHITECT
WAINSCOT IN LOGGIA OF POLYCHROME FAIENCE TILE. COLUMNS CAST WITH SPECIAL AGGREGATE AND POLISHED. CAPITALS CAST AND RE-CUT. COST PER CUBIC FOOT 32.7 CENTS

XUM

schools the seats of the auditoriums are fixed to wood floors on the lower floor and to cement finished floors in the balconies.

The exterior treatment usually consists of textured, light color cement stucco wall surfaces with ornamental features of cast stone, or terra cotta, and colored tile, and with run plaster mouldings. Concrete curtain walls, stuccoed, have been found to be economical, and to add a safety factor in resisting earthquake stresses. Roofs are flat composition roofs, or colorful clay tiles.

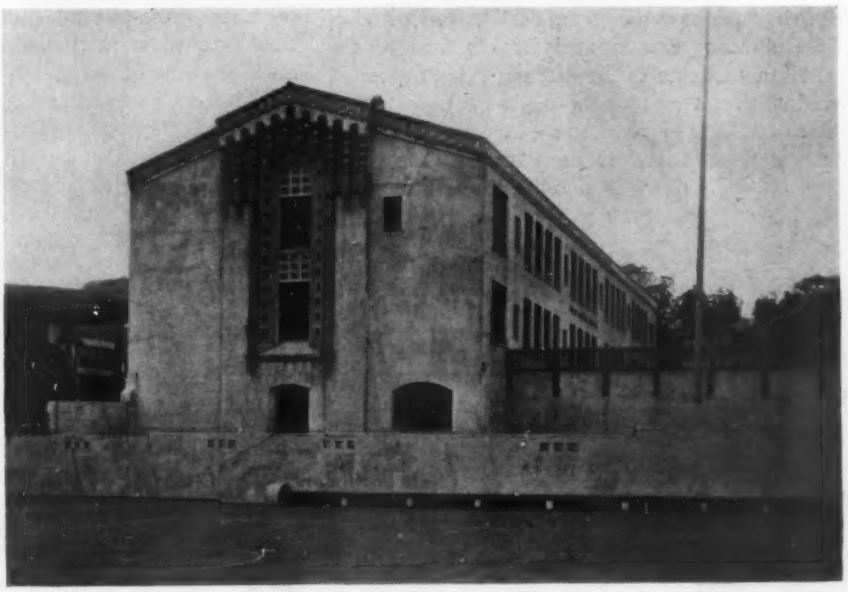
The interiors, designed with the ideas in mind of efficient instruction and administration, and economical maintenance, have been finished with varnished pine trim, though oak has been used at entrances, in auditoriums and in the administration sections of the larger schools. Wainscots of colored tile are used at places subject to hard wear. Wainscots, generally, in corridors and in rooms are of plaster covered with painted canvas or prepared burlap. The typical windows are provided with awning type reversible sash, and are glazed with "A" quality glass.

The mechanical features of the schools include direct radiation by steam heat in the class rooms, and circulated warmed supply and exhaust air systems in the auditoriums. All rooms are wired so that they may be used for night classes if desired, and the high school and junior high school auditoriums have complete theatrical lighting equipment, including dimmers.

As will be seen in the accompanying table, the costs of the buildings have been kept surprisingly low. Recent data of a city investigating committee have shown that in comparable types of structures in Eastern cities the costs have been from twenty to thirty per cent more per cubic foot than has been spent in San Francisco.

It is believed that the cubic foot cost of building is the only method by which inter-city cost comparisons can be justly made, and these costs can only be compared when they include similar items. Such items as excavation, fixed equipment, heating, lighting, and all overhead costs of inspection, supervision, and architectural service are real costs to the owners and should be included in any statement of unit costs. Due to different requirements of curriculum, methods of instruction and areas allowed for each pupil, pupil costs cannot be well compared in cities of different standards. For instance, the per pupil cost of rooms assumed to accommodate 36 pupils in one locality and of similar sized rooms elsewhere in which 45 pupils are accommodated, and counted, cannot be reasonably compared. Other factors which make per pupil costs not comparable are play space requirements in the buildings, amount of plumbing in each class room, alcove coat room requirements in elementary grades, and science, gymnasium, shop and auditorium provisions for secondary schools.

The cost data given herewith represent the complete cubic foot costs of the buildings as the buildings are delivered by the Board of Public Works to the Board of Education, ready for the installation of the movable furniture. The built-in furniture, such as in laboratories, the landscaping, and all yard work, terraces and retaining walls, are included in the building costs. In arriving at the cubes the usual method of figuring from the average first floor grade to one-half the height of the sloping roof times the outside dimensions of the building, plus the volume of all basements, has been followed, with the necessary deductions for courts.



WEST PORTAL SCHOOL, SAN FRANCISCO, CALIF.—JOHN REID, JR., ARCHITECT
THE FIRST UNIT OF AN ELEMENTARY SCHOOL. COST PER CUBIC FOOT 32.6 CENTS

EDWARD P. YORK, F.A.I.A.

WITH the death of Edward P. York on December 30, 1928, there passes another well known member of the architectural profession. Mr. York was the senior member of the firm of York and Sawyer, of New York City. His death followed an operation at the Presbyterian Hospital, Medical Center.

Mr. York was born in Wellsville, N. Y., the son of Hiram and Harriet Palmer York. After graduating from Cornell University in 1889 he entered the office of McKim, Mead and White. About eight years later he formed a partnership with Philip Sawyer.

Aside from his architectural affiliations, Mr. York was well known as an archaeologist and an authority on coins. The firm of York and Sawyer is nationally known, having designed numerous public and private buildings throughout the country. At the time of his death he was engaged in designing a new group of buildings for Cornell University and recently won the competition for the new Department of Commerce Building in Washington.

Mr. York became a member of the American Institute of Architects, New York Chapter, in 1902 and was elected a Fellow of the Institute in 1926.

SCHOLARSHIP FOR FRENCH STUDENTS OF ARCHITECTURE

AT the celebration of the twenty-fifth anniversary of the architectural firm of Delano and Aldrich, a gift of money from Mrs. Corinna Roosevelt Robinson was donated by the firm to the American Institute of Architects. The purpose of the donation was to establish a fund to enable French students of architecture to visit the United States to study the work done here. It is felt that this fund will repay in a small way the French government's generosity to the American students who have received their education free of charge at the Ecole des Beaux-Arts.

WILLIAM H. CROCKER

WILLIAM H. CROCKER was a student of the history of mankind as it has visible expression and record in the fine arts. He cultivated a keen interest in literature as well as in architecture and painting. The individual man appealed to him as an individual and also as a unit in world affairs. Life had a touch of romance in it for him when he circumnavigated the globe before the mast. His interest continued through his life as a painter and during a long career as editor of this architectural journal. He often expressed gratitude toward Mr. Rosencrans, who was during a long period the proprietor of THE AMERICAN ARCHITECT.

Mr. Crocker's appraisal of men and his ability to acquire news remained acute even after his loss of hearing. His judgments were shrewd and sometimes cutting. He admired ability and old-fashioned standards of character. Mr. Crocker's landscape painting and his long membership in the Salmagundi Club were dear to his heart. But his chief work was always in his editorial chair. His respect for the esthetic and ethical ideals of the architect was dominating. He was as loyal to our professional organization as any member. A great happiness to him it was when Honorary Membership was conferred upon him by the New York Chapter of the American Institute of Architects.

For many years Mr. Crocker was a modest, self-effacing but keenly interested attendant at Institute conventions. In his death the profession has lost a real friend.

D. EVERETT WAID.

METHODS AND PROBLEMS OF MEDICAL EDUCATION

THE Division of Medical Education of the Rockefeller Foundation in New York has recently published its eleventh series of articles on hospitals and clinics. It includes 259 pages of plans, illustrations, and articles. Most of the articles deal with descriptions of the work, equipment, and building of some particular hospital, clinic, or medical school. The text and illustrations are of interest chiefly to those interested in hospitals from the medical point of view; but much of the material included is of value to architects interested in hospital work. Separate reprints and a limited number of volumes may be secured free of charge on application to The Rockefeller Foundation, 61 Broadway, New York City.

NEW U. S. EMBASSY FOR PARIS

THE United States Embassy at Paris will soon be housed in a new building on the Place de la Concorde on the site of the Hôtel Grimod de la Reynière. As soon as the lease on the present building expires, in 1930, the work of demolition will be commenced. It is proposed, however, to keep the old style of architecture, in harmony with other structures on the square. If possible the garden frontage will be retained, and the work will be not only in the old spirit but actually from the original plans of Gabriel, rejected 150 years ago, if the city of Paris will be good enough to lend them.

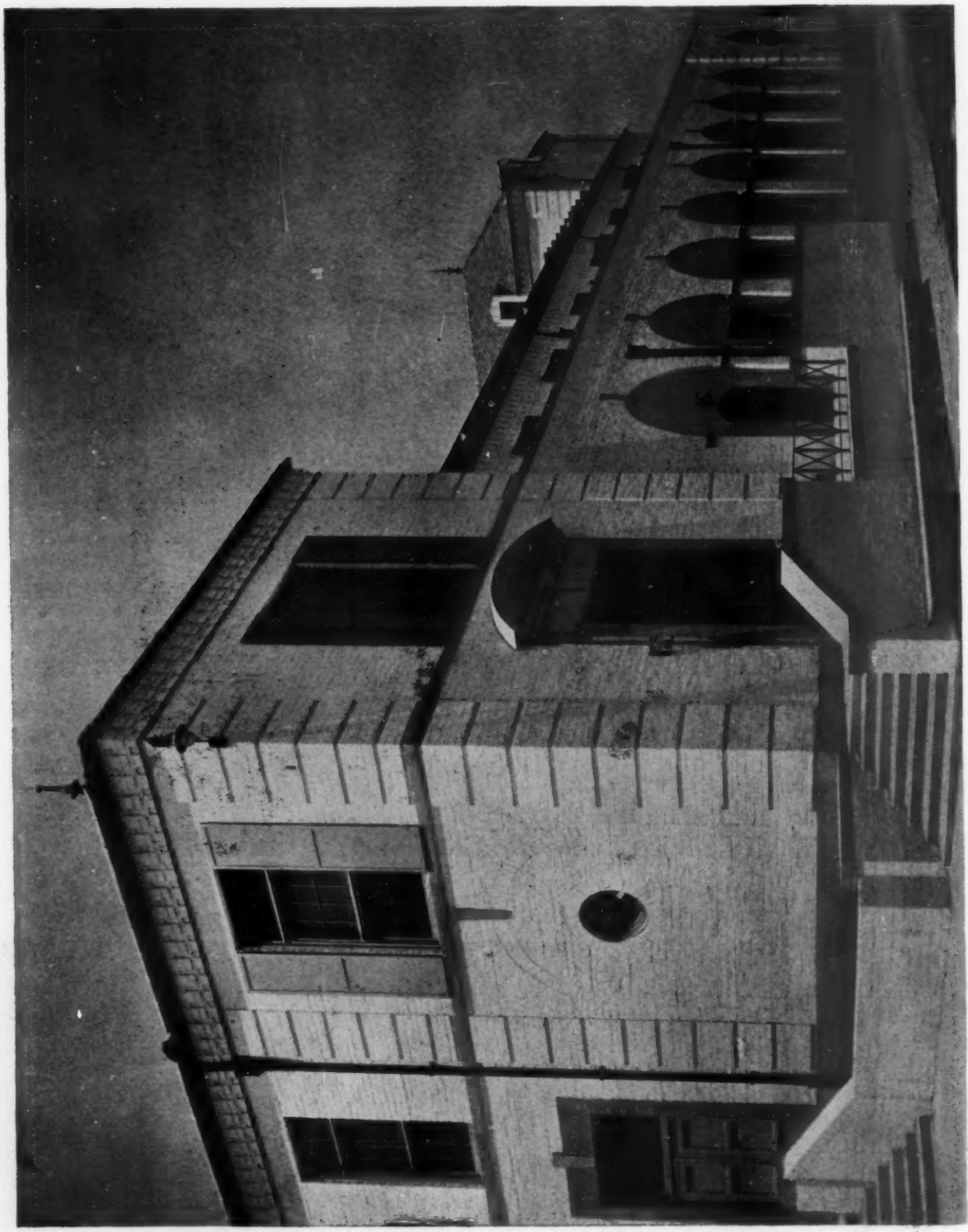
XUM

BEVERLY HILLS HIGH SCHOOL

BEVERLY HILLS, CALIFORNIA

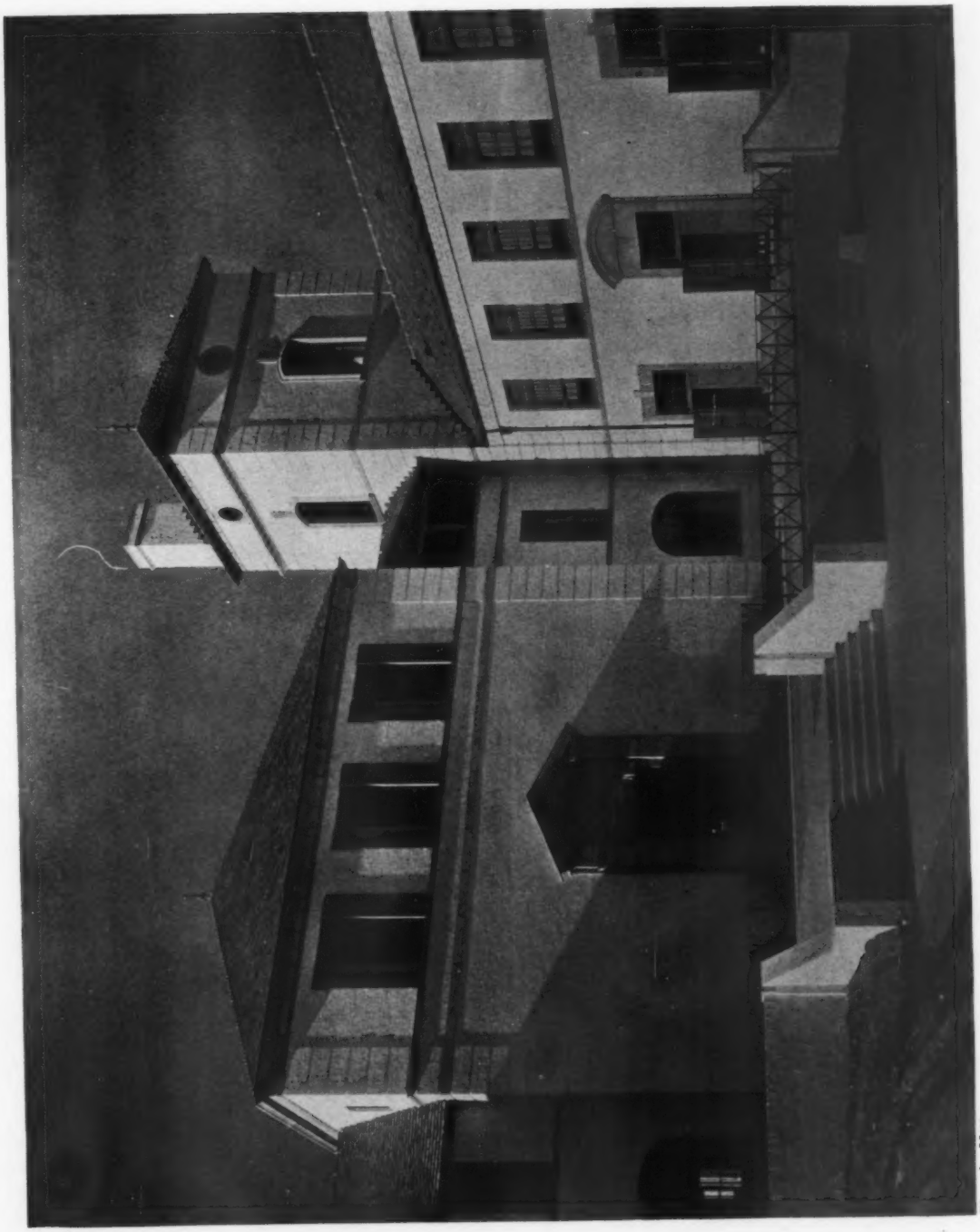
ROBERT D. FARQUHAR, *Architect*

Photos by Mott



BEVERLY HILLS HIGH SCHOOL, BEVERLY HILLS, CALIFORNIA
ROBERT D. FARQUHAR, ARCHITECT

Photo by Mott



BEVERLY HILLS HIGH SCHOOL, BEVERLY HILLS, CALIFORNIA
ROBERT D. FARQUHAR, ARCHITECT

Photo by Mott

ROBERT D. FARQUHAR, ARCHITECT

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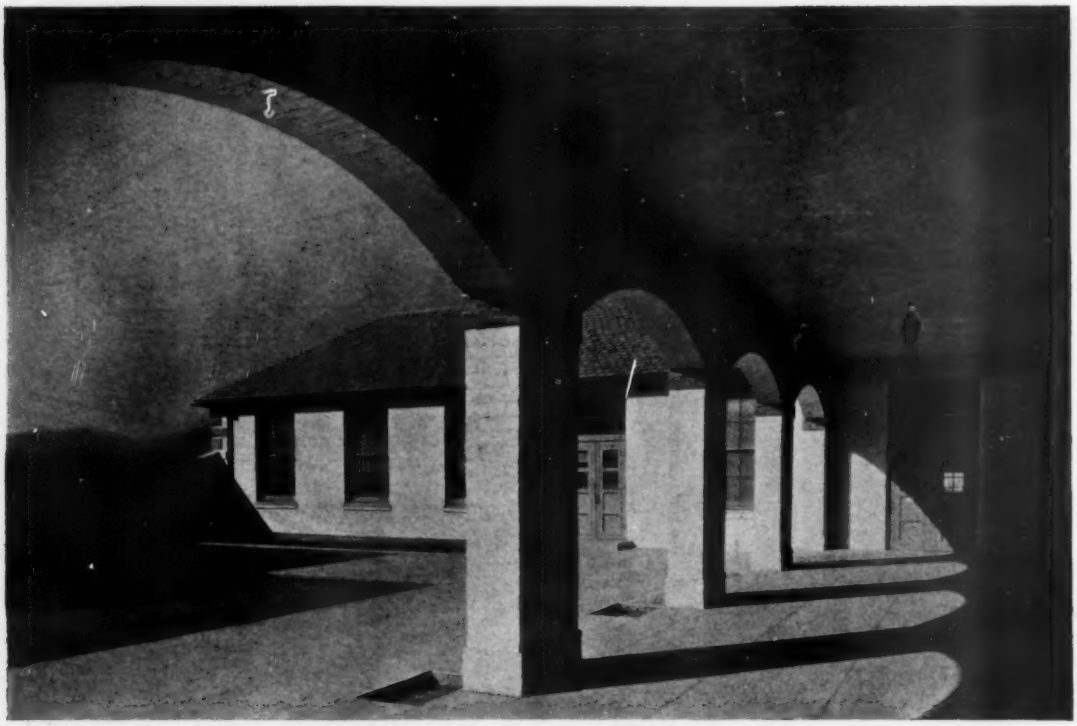

Photos by Mott

BEVERLY HILLS HIGH SCHOOL, BEVERLY HILLS, CALIFORNIA

ROBERT D. FARQUHAR, ARCHITECT

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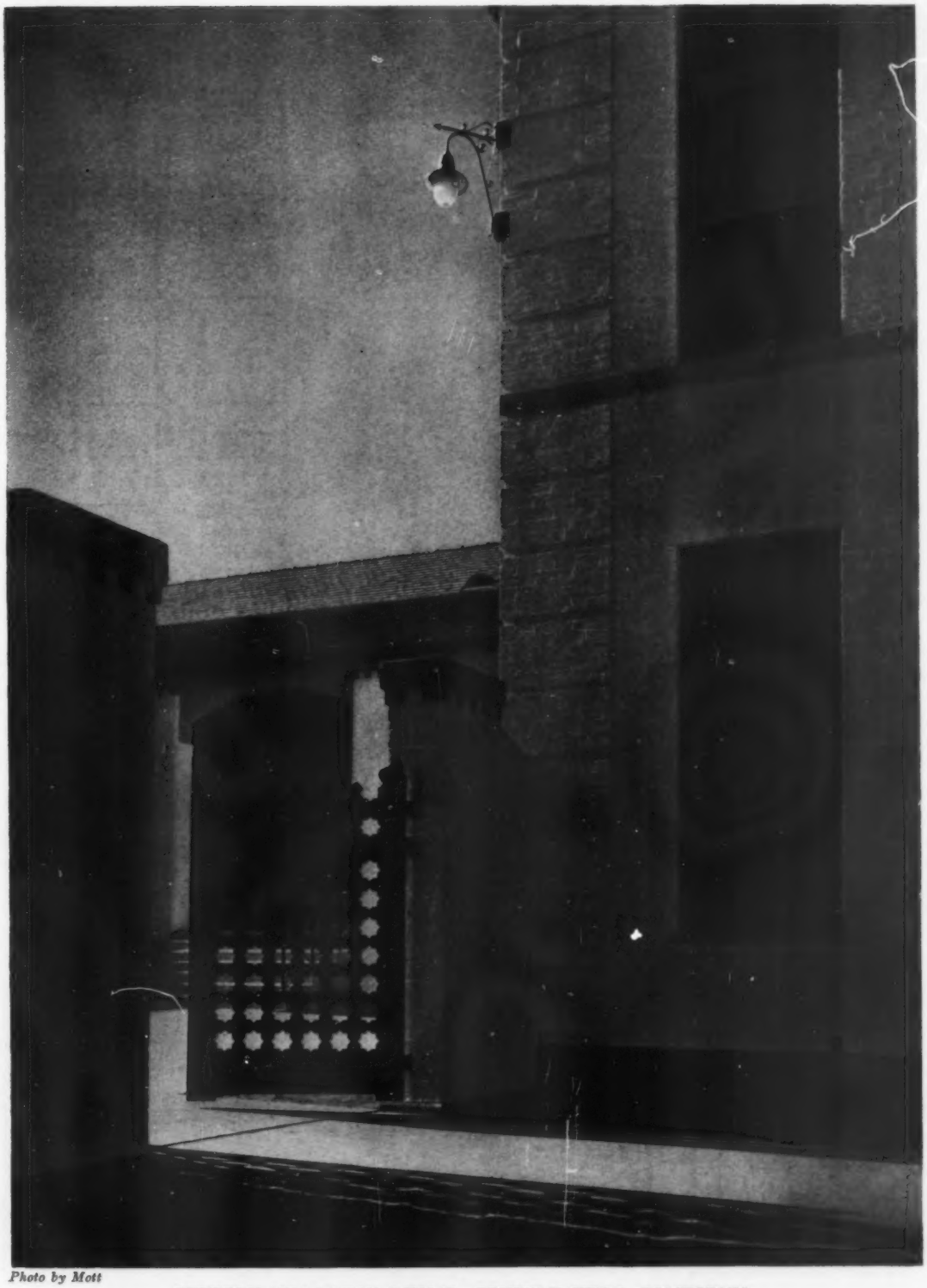

Photo by Mott

BEVERLY HILLS HIGH SCHOOL, BEVERLY HILLS, CALIFORNIA

ROBERT D. FARQUHAR, ARCHITECT

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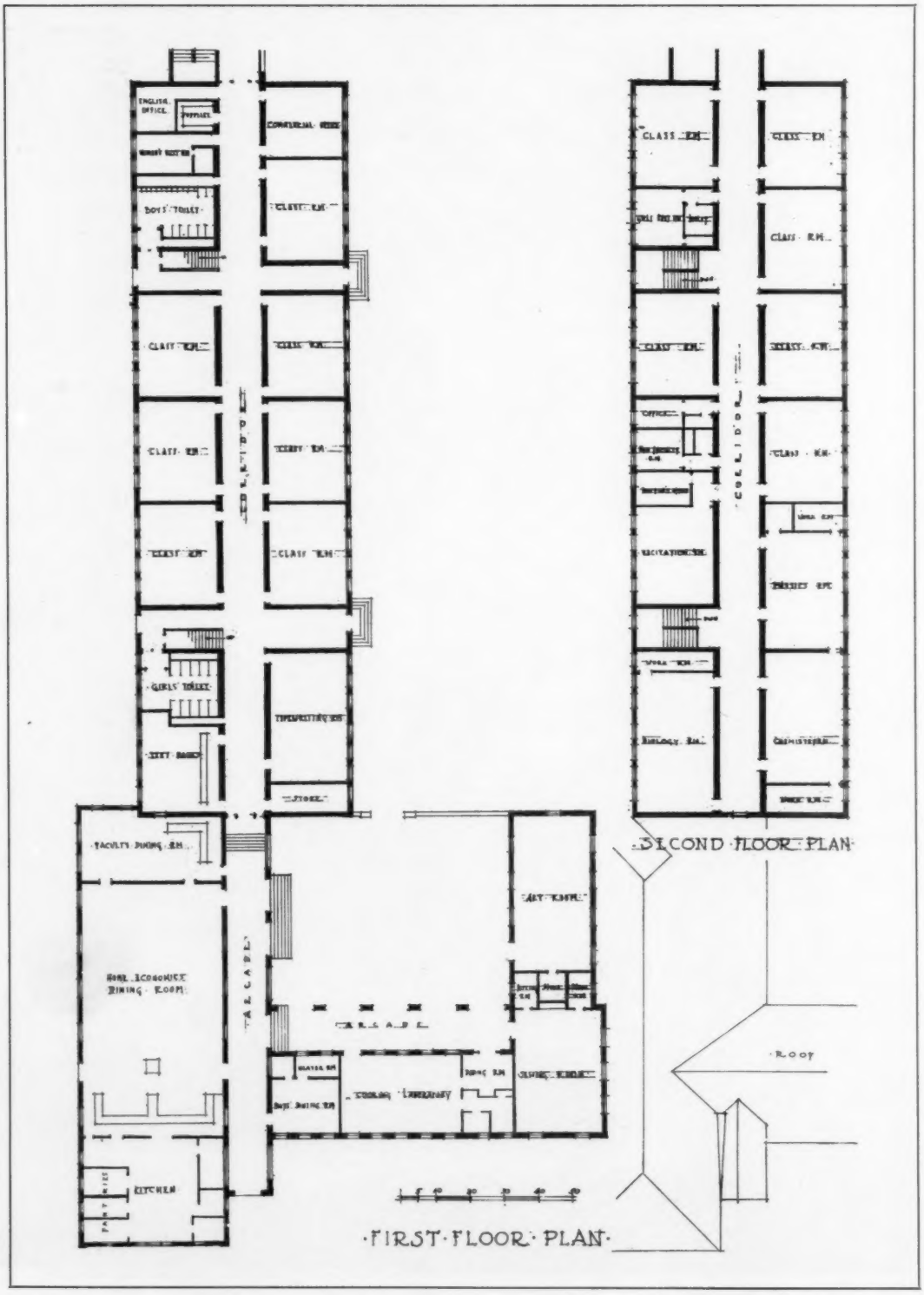

BEVERLY HILLS HIGH SCHOOL, BEVERLY HILLS, CALIFORNIA

ROBERT D. FARQUHAR, ARCHITECT

SPECIFICATIONS

Communications relative to specifications addressed to THE AMERICAN ARCHITECT *will be answered, in the pages of this department, by H. R. Dowswell, of the office of Shreve & Lamb, Architects.*

IN this issue are presented Part B, Specifications for Waterproofing by Bituminous Membrane, and Part B, Specifications for Waterproofing by Plastic Coatings.

The specifications for Bituminous Membrane and Plastic Coatings have been separated since the two methods are always applied by different groups of contractors. On the other hand, waterproofing by Cement Plaster Coating has been included in the same specification with "Iron" coating since the same contractors are frequently organized to execute both methods. Part A specifications must stipulate the method desired.

The writing of Part A for waterproofing should follow the general scheme suggested for Excavating outlined in the January 5th issue.

The specification writer of course must carefully check each paragraph in Part B and make sure that Part A supplies all the data peculiar to the work in hand. For instance, Part B Specifications for Waterproofing by Bituminous Membrane, under Paragraph 6, refers to Part A for the kind and weights of felt or fabric. If the product of a particular manufacturer is desired, this also should be stated. Paragraph 16 also leaves to Part A the number of moppings and plys of felt or fabric, and Paragraph 22, the period of the guarantee and time from which the guarantee shall date.

Part B Specifications for Waterproofing by Plastic Coatings should be checked for work to be executed by other contractors and the preparatory work noted under Paragraphs 5 (a), (b), (c), (d), (e), and (f), included in proper divisions.

Part A, for this division, should also mention any preferred contractors, if such are desired, as noted under Paragraphs 8 and 17.

Protection—Paragraph 24—should be carefully considered. If it is desired to provide protection under a separate division, Part A of this specification should so state, otherwise it will be automatically included in the work of this contractor.

Part A should also fix the limits of the guarantee (Paragraph 26) as previously noted for Bituminous Waterproofing.

A.I.A. Division 7a3. STANDARD FORM OF THE NEW YORK BUILDING CONGRESS, EDITION OF 1929

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New York Building Congress Standard Specifications for WATERPROOFING BY PLASTIC COATINGS

PART B

General Conditions:

1. GENERAL CONDITIONS OF THE CONTRACT of the American Institute of Architects, current edition, shall form a part of this division, together with the Special Conditions, to which this Contractor is referred. **General Conditions**

Arbitration Clause.

2. Any dispute or claim arising out of or relating to this Contract, or for the breach thereof, shall be settled by arbitration under the Rules of the Arbitration Court of the New York Building Congress or the American Arbitration Association and judgment upon an award may be entered in the court having jurisdiction. **Arbitration Clause**

Scope.

3. The following requirements in regard to materials and workmanship specify the required standards for the furnishing of all labor, materials and appliances necessary for the execution of all waterproofing by plastic coatings. **Scope**

4. These requirements, however, form a part of the Contract only insofar as they describe items mentioned in Part A of this specification or as indicated on the drawings.

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New York Building Congress Standard Specifications—

WATERPROOFING BY PLASTIC COATINGS—*Continued.*

Preparatory Work.

5. The following work will be executed under another division:— **Preparatory Work**

(a) Walls, floors, or roofs to be waterproofed will be constructed of sufficient strength to withstand the water "head," temperature, and any other stress to which they may be subjected.

(b) Floor slabs will be keyed into the walls or other vertical surfaces.

(c) All expansion joints and important construction joints will be protected by copper sheets cast into the wall and floor.

(d) All laitance will be removed from surfaces to be waterproofed, surfaces cleaned, scale pockets located and cut out, honey comb and surface voids cut back, and form wires or spreaders removed.

(e) All holes resulting from cutting back for scale pockets, honey comb, surface voids and the removal of form wires or spreaders will be filled under the direction of this, the waterproofing contractor.

(f) Where steam pipes subject to temperature changes pass through surfaces to be waterproofed, flanged sleeves will be provided and built in, and after installation of pipes, the space between sleeve and pipe caulked.

6. The following preparatory work shall form a part of the waterproofing contract:—

(a) The examination of all surfaces to be waterproofed and the reporting to the Architect and General Contractor of any work, executed under other divisions, which will prevent or endanger the satisfactory application of the waterproofing material. Failure to report unsatisfactory work or conditions will be construed as an acceptance of all surfaces as being satisfactory, and subsequent failure of the waterproofing, because of defective preparatory work, will not relieve this contractor from responsibility under his guarantee.

(b) Coating of cut back surfaces and instruction and supervision in the filling of all holes caused by cutting back for scale pockets, honey comb, surface voids, form wires or spreaders.

(c) Cutting back construction and expansion joints, the coating of such cut back surfaces with the waterproofing mixture and filling of same with cement mortar.

(d) The provision, where hydrostatic pressure exists, of a satisfactory means for reducing the pressure until the waterproofing has been completed and become effective. All openings used for this purpose shall be closed at completion of the work and left absolutely water-tight.

Plaster Coat Method.

7. Where "Plaster Coat" waterproofing is specified under Part A, the material shall consist of cement, waterproofing compound and sand. **Plaster Coat Method**

8. Cement waterproofing and sand, unless limited under Part A to the product of specific manufacturers, shall be subject to the Architect's approval.

Application.

9. Unless otherwise specified under Part A, the waterproofing shall be placed on the inner surfaces of walls and ceilings and top of floors. **Application**

10. All surfaces, before the application of the waterproofing, shall be thoroughly chipped and cleaned, using clear, clean water. This cleaning shall be done not more than twenty-four (24) hours before the application of the waterproofing.

Wall and Ceiling Coatings.

11. Shall be applied in two coats, scratch and finish, averaging (together) five-eighths of an inch in thickness, thoroughly floated with a wooden float and trowelled with a steel trowel to a smooth and even finish, free from pits, holes or other imperfections. **Wall and Ceiling Coatings**

XUM

New York Building Congress Standard Specifications—

WATERPROOFING BY PLASTIC COATINGS—*Continued.*

Floor Coatings.

12. Shall be laid in one operation, one inch in thickness, floated and trowelled as specified for walls. **Floor Coatings**
13. Where the waterproofing has set before being properly floated and trowelled, it shall be removed, the surface cleaned and freshly mixed material applied.
14. Where new work is joined to work previously applied, the existing work shall be cut to a straight edge, chipped and cleaned, just before new work is started.
15. Where waterproofing comes in contact with steel, all paint shall be removed and the steel surfaces thoroughly cleaned before the application of the waterproofing.

Iron Coating Method.

16. Where "Iron" waterproofing is specified under Part A, the material used shall consist of finely ground, pure iron mixed to form a mixture of brushing consistency. **Iron Coating Method**
17. The "iron" mixture used and the waterproofing company applying same, unless specifically named under Part A, shall be subject to the Architect's approval.

Application—Wall and Ceiling Coatings.

18. On concrete wall or ceiling surfaces, the iron mixture shall be brushed on to the surfaces to be waterproofed in as many applications as may be necessary to absolutely seal the wall, allowing sufficient time for complete oxidization. **Application—Wall and Ceiling Coatings**
19. When oxidization of the final application is complete, brush coatings of Portland Cement, sand and iron shall be applied until the resulting finish is similar in appearance to sand finished plaster.
20. Where a plaster finish is specified under Part A the final cement, sand and iron application shall be omitted and a coat of Portland Cement plaster applied, after complete oxidization of the final "iron" application. This plaster coat shall be floated, trowelled or otherwise finished as specified under Part A.

Floor Coatings.

21. Where concrete floors are to be waterproofed by the "iron" method, the concrete base slab shall be treated and finished as specified for concrete wall surfaces and left ready for the finished wearing surface which will be executed under another division. **Floor Coatings**

Waterproofing Around Pipes.

22. Where steam pipes or other pipes subject to temperature changes pass through surfaces to be waterproofed, by either plaster coat or "Iron" method, flanged sleeves will be provided and built in as stated under "Preparatory Work." This Contractor, however, shall carefully bond the waterproofing to the sleeves. He shall also carefully bond the waterproofing to all other pipes passing through waterproofed surfaces. **Waterproofing Around Pipes**

Priority of Work.

23. Where "plaster coat" or "iron" waterproofing is specified in rooms or spaces to be sub-divided with walls or partitions, the waterproofing shall be placed before walls or partitions are built and be continuous over the entire area. Where special foundations are required for elevator machines or other equipment, pits will be constructed, under another division, and shall be waterproofed by this Contractor before the installation of foundations. **Priority of Work**

Protection.

24. When "plaster coat" or "iron" waterproofing is applied during temperatures below 32 degrees Fahrenheit, this Contractor shall protect same against frost except where, under Part A, it is specifically stated that protection will be provided under a separate division or where protection from frost is specifically omitted from this division at time Contract is signed. **Protection**

XUM

New York Building Congress Standard Specifications—
WATERPROOFING BY PLASTIC COATINGS—*Continued.*

Guarantee.

25. The Contractor for waterproofing will be required to furnish, as a part of his Contract, a written guarantee warranting all work executed by him against leakage and agreeing to repair or replace, when directed by the Architect, all waterproofing which becomes in any way defective during the period of the guarantee, except where the failure of the waterproofing is due to defects in work executed by other Contractors which could not have been discovered by the examination called for under Paragraph 6 (a). **Guarantee**

26. The period of the guarantee, and the time from which it is to start, shall be as specified under Part A.

A.I.A. Division 7a1. Standard Form of the New York Building Congress, Edition of 1929
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New York Building Congress Standard Specifications for WATERPROOFING BY BITUMINOUS MEMBRANE

PART B

General Conditions:

1. General Conditions of the Contract of the American Institute of Architects, current edition, shall form a part of this division together with the Special Conditions, to which this Contractor is referred. **General Conditions**

Arbitration Clause.

2. Any dispute or claim arising out of or relating to this contract, or for the breach thereof, shall be settled by Arbitration under the Rules of the Arbitration Court of the New York Building Congress or the American Arbitration Association and judgment upon an award may be entered in the court having jurisdiction. **Arbitration Clause**

Scope.

3. The following requirements in regard to materials and workmanship specify the required standards for the furnishing of all labor, materials and appliances necessary for the execution of all waterproofing by Bituminous Membrane. **Scope**

4. These requirements, however, form a part of the Contract only insofar as they describe items mentioned in Part A or indicated on the drawings.

Preparatory Work.

5. This Contractor shall examine all surfaces to be waterproofed and shall assure himself that Conditions are satisfactory for the installation of his work. He shall immediately notify the Architect in writing of any imperfections in surfaces to be waterproofed which would in any way affect the satisfactory completion of his work. The absence of such notification will be construed as an acceptance, by this Contractor, of surfaces to be waterproofed. Later claims of defects in such work will not in any way affect the guarantee of this Contractor. **Preparatory Work**

Materials.

6. Materials for use on work in this division shall be of kinds and weights specified under Part A. Where products of specific manufacturers are not specified the materials shall conform to the following requirements. **Materials**

7. *Coal Tar Pitch* shall be straight run pitch which will soften at 100° and melt at 150°.

XUM

New York Building Congress Standard Specifications—

WATERPROOFING BY BITUMINOUS MEMBRANE—*Continued.*

Materials—*Continued*

8. *Asphalt* shall be a petroleum or natural asphalt or a mixture of petroleum and natural asphalts and shall contain, in the refined state, not less than 95% of natural bitumen soluble in rectified carbon bisulphide or in chloroform, with not less than two-thirds (2/3) the total bitumen soluble in petroleum naphtha of 70 Baume. Asphalt shall have a melting point between 140° and 150°.
9. The asphalt shall be entirely free from injurious substances and shall not lose more than four (4%) per cent of its weight at a temperature of 300° F. maintained for a period of ten (10) hours.
10. *Felts,* before saturation, shall weigh at least five (5) pounds per one hundred (100) square feet and shall contain not less than twenty-five (25%) per cent, by weight, of wool. The ash from unsaturated felt shall not exceed five (5%) per cent by weight.
11. The saturation shall be complete, the saturated felt weighing not less than 13 pounds nor more than 15 pounds per one hundred (100) square feet.
12. The saturating and coating materials shall not crack when the saturated and coated felt is bent double at ordinary temperatures, when asphalt is used, or, at 100° and above when coal tar pitch is used.
13. *Fabrics* shall be square woven, made of long staple cotton, and shall be completely saturated before delivery. The untreated fabric shall weigh not less than four and one-half (4½) ounces per square yard and not less than thirteen (13) ounces per square yard after saturation.

Preparation of Surfaces.

14. All surfaces to be waterproofed shall be free from visible moisture, dirt, and foreign matter before waterproofing is started. Where necessary to secure dryness an adequate drainage system shall be installed and maintained. All projections, which might puncture the membrane, shall be removed and large voids or cavities filled. Concrete, in all cases, must be thoroughly set before waterproofing. **Preparation of Surfaces**

Application.

15. Each layer of pitch or asphalt shall completely cover surface on which it is spread without cracks, blowholes, or other imperfections. **Application**
16. The number of moppings and plys of felt, or fabric, shall be as stated under Part A.
17. The felt, or fabric, shall be pressed smoothly into the pitch, or asphalt, and be lapped at least twelve (12) inches on longitudinal joints and not less than four (4) inches at cross joints.
18. Where sidewalls join floor, or roof waterproofing, provision shall be made for at least twelve (12) inch laps.
19. The finish of each piece of work shall be arranged for laps, with succeeding work, of not less than twelve (12) inches. Before new work is added the old surfaces shall be cleaned of all foreign material and be freshly mopped over the entire joint area.

Protection.

20. All membrane waterproofing shall be protected, by this Contractor, against injury by the application of a ¾″ coat of cement mortar or a covering of brickwork as specified under Part A. **Protection**

Guarantee.

21. The Contractor for waterproofing will be required to furnish, as a part of this Contract, a written guarantee warranting all work executed by him against leakage and agreeing to repair or replace without additional compensation, when directed by the Architect, all waterproofing which becomes in any way defective during the period of the guarantee, except where the failure of the waterproofing is due to defects in work executed by other contractors which could not have been discovered by the examination called for under Paragraph 5. **Guarantee**
22. The period of the guarantee, and the time from which it is to start, shall be as specified under Part A.

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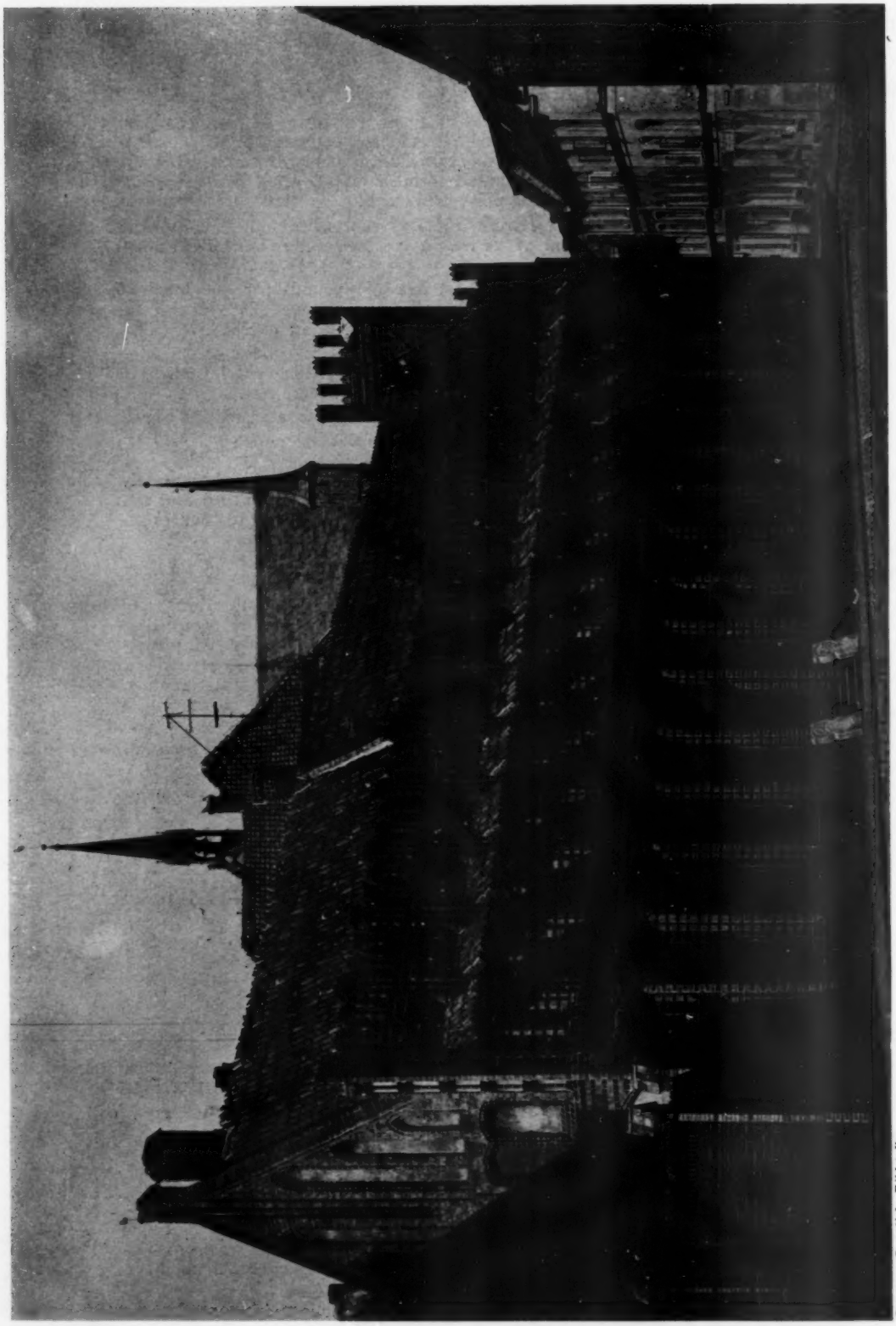


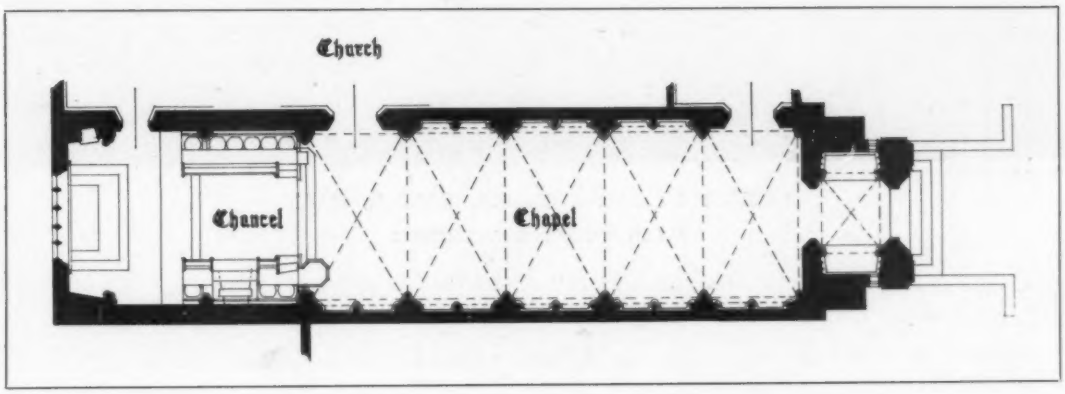
OLD SCHOOL AT WISMAR, GERMANY

Courtesy Staatliche-Bildstelle

LINDSEY MEMORIAL CHAPEL

BOSTON, MASS.

ALLEN & COLLENS, *Architects*



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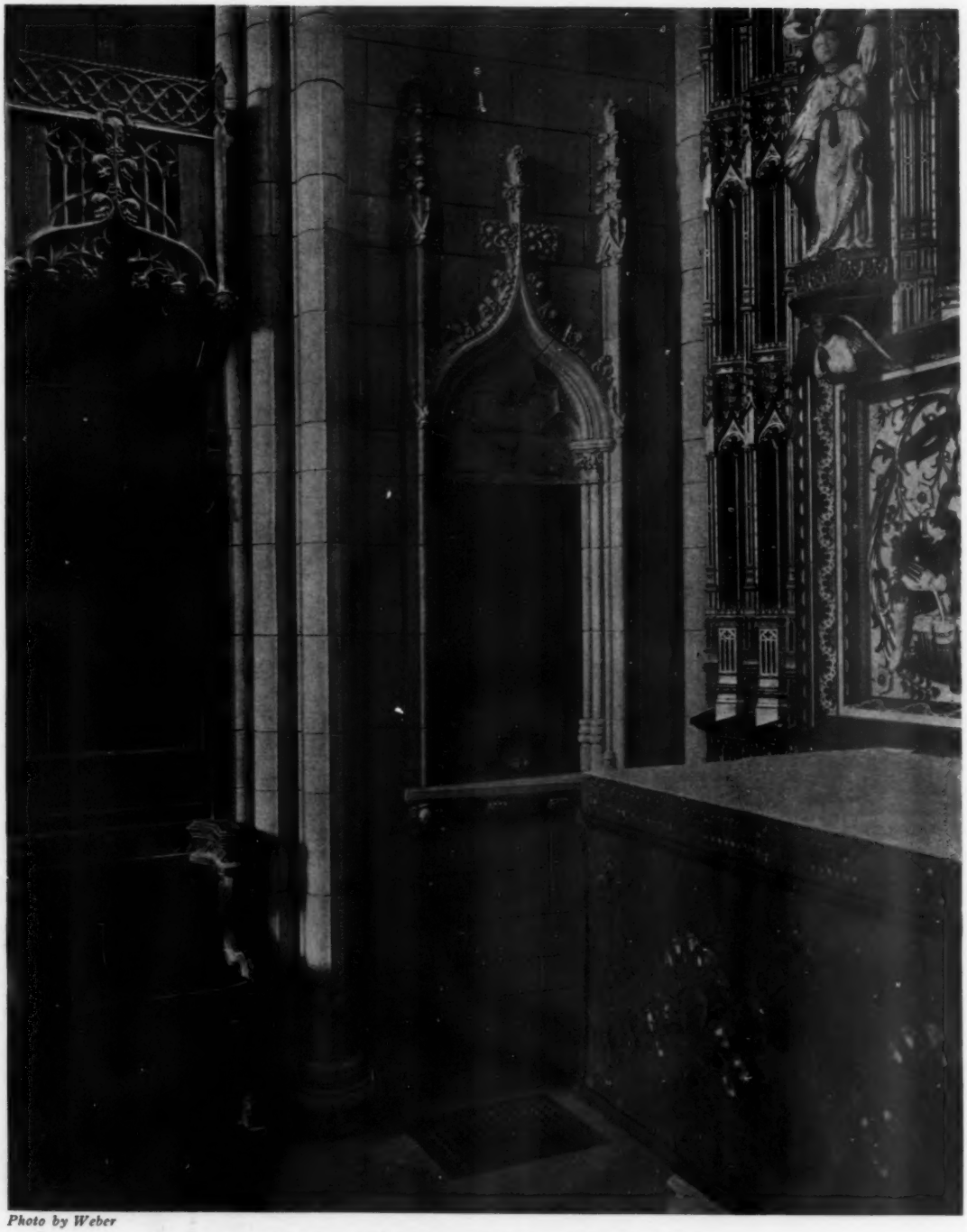

Photo by Weber

LINDSEY MEMORIAL CHAPEL, BOSTON, MASS.

ALLEN & COLLENS, ARCHITECTS

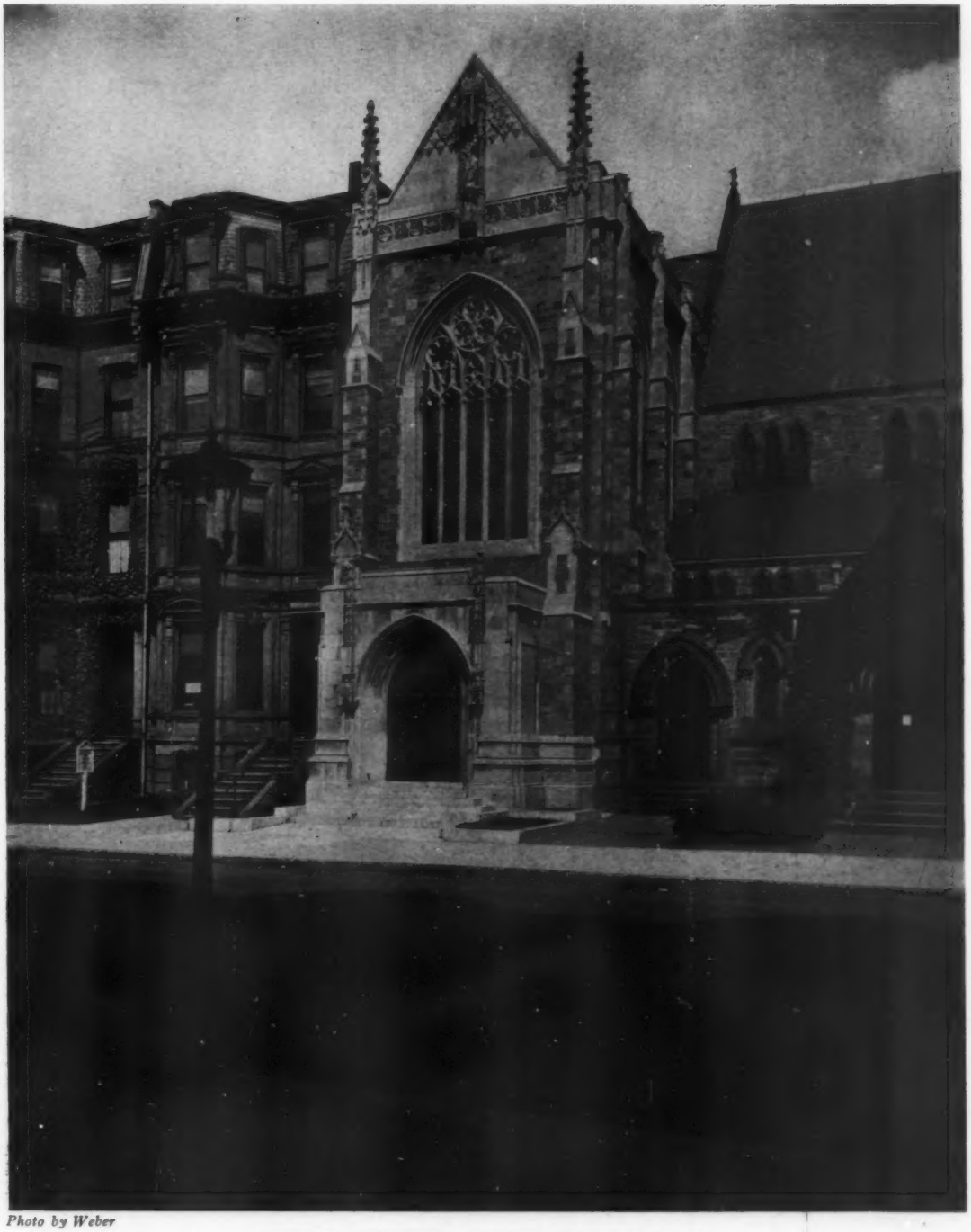

Photo by Weber

LINDSEY MEMORIAL CHAPEL, BOSTON, MASS.

ALLEN & COLLENS, ARCHITECTS

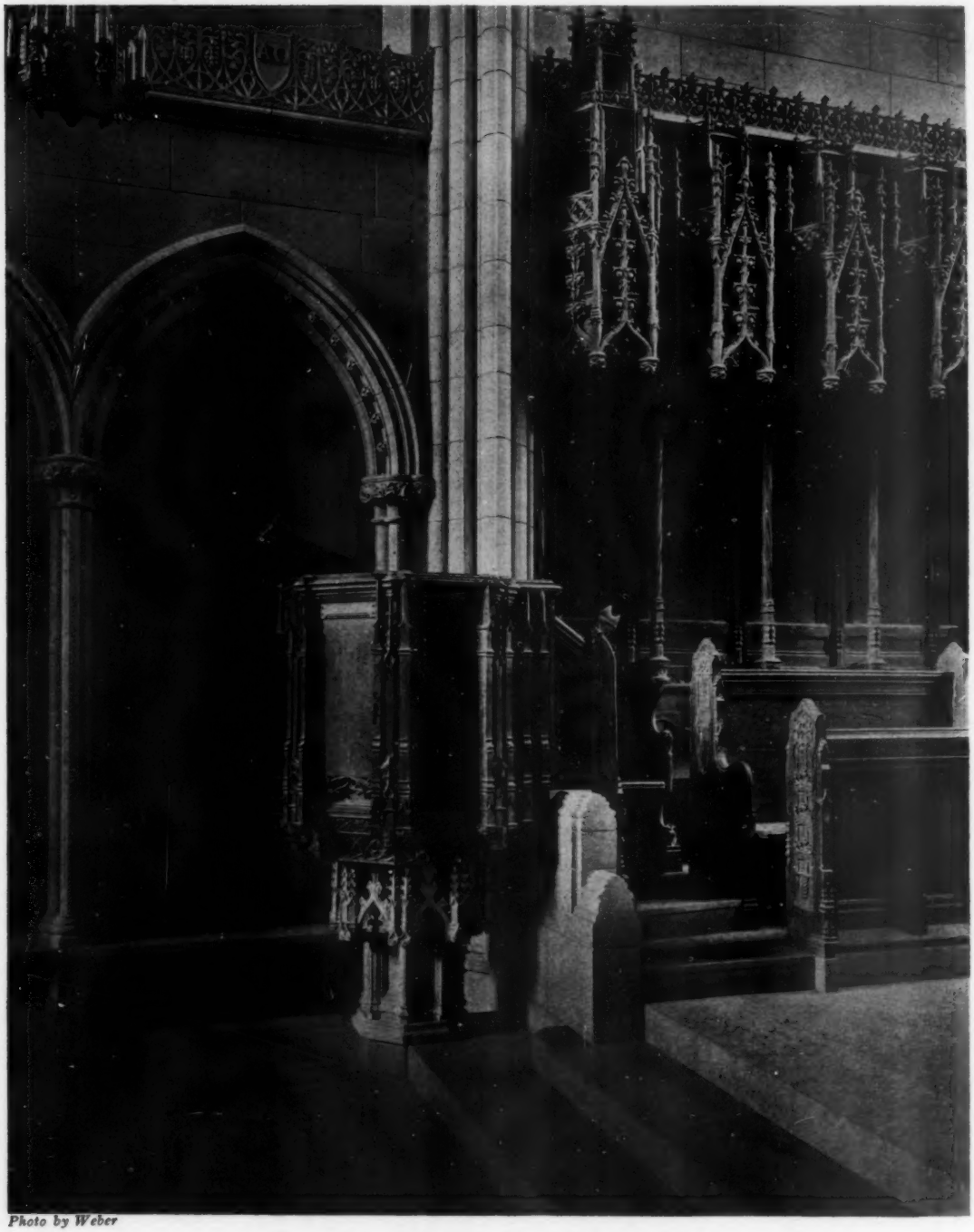

Photo by Weber

LINDSEY MEMORIAL CHAPEL, BOSTON, MASS.

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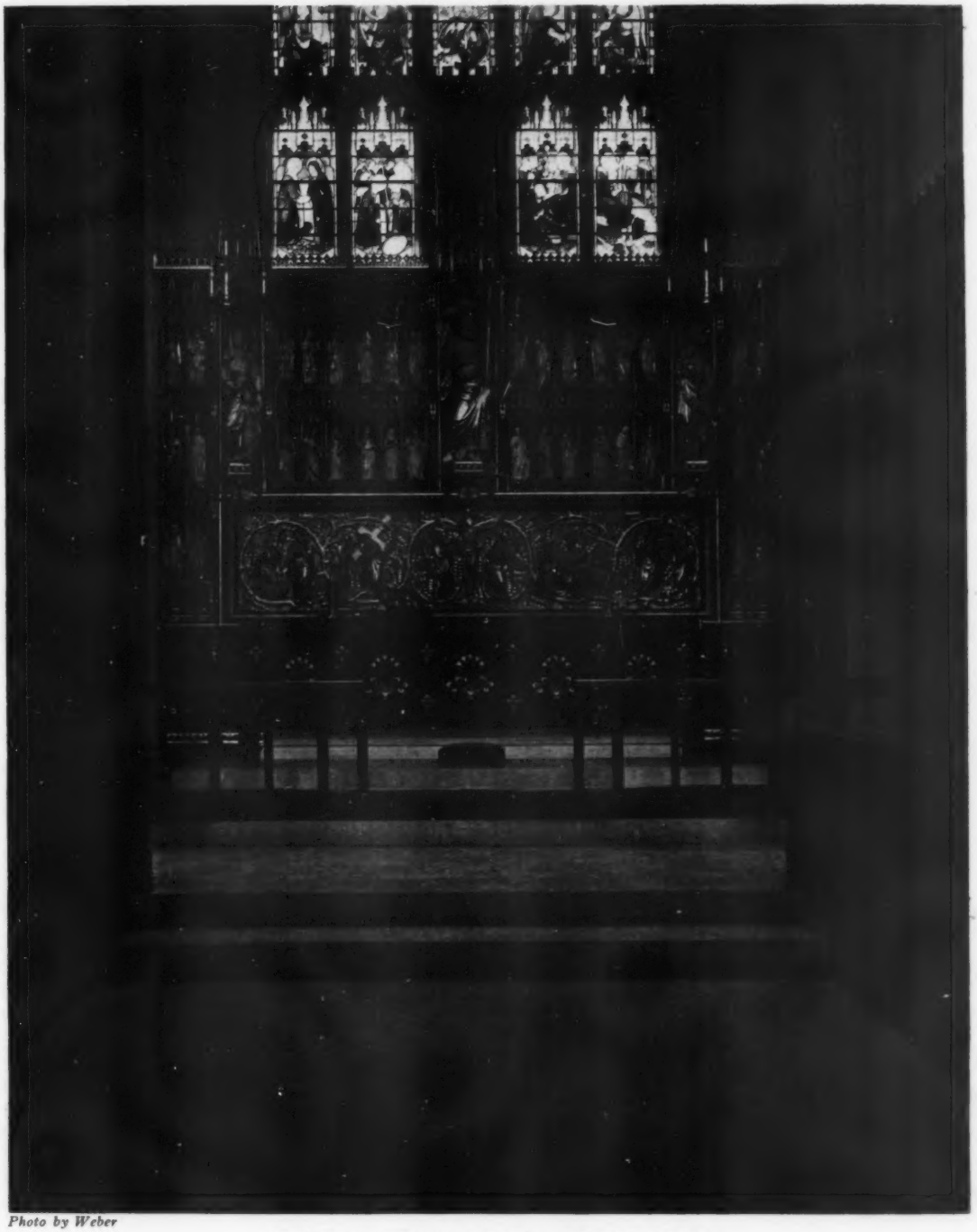


Photo by Weber

LINDSEY MEMORIAL CHAPEL, BOSTON, MASS.

ALLEN & COLLENS, ARCHITECTS

XUM

Photo by Weber

LINDSEY MEMORIAL CHAPEL, BOSTON, MASS.

ALLEN & COLLENS, ARCHITECTS

OLD SPANISH IDEAS

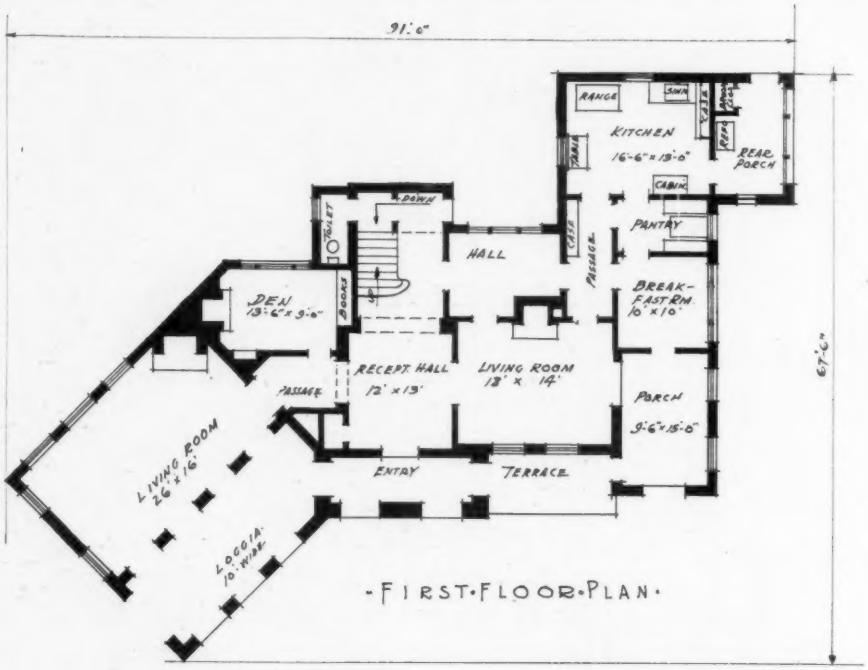
ADAPTED TO THE DESIGN OF

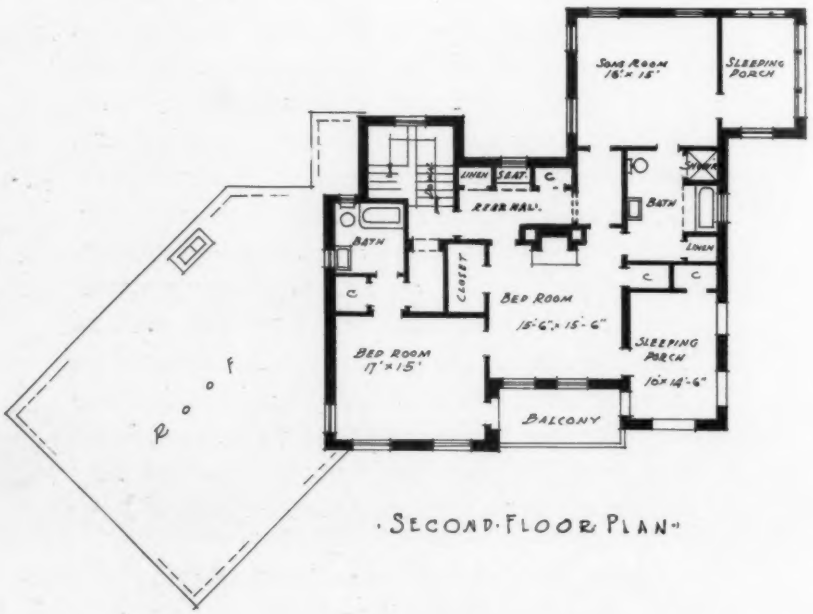
A HOUSE IN SAN ANTONIO, TEXAS

ATLEE B. and ROBERT M. AYRES, *Architects*

MUCH of the architecture in this country today, as during the last 25 or 50 years, is designated as an adaptation of one or other of the old periods or styles. This is particularly true of the architecture of the West and South, where the influence of the Spanish style is so pronounced, due to the fact that these sections of the country are definitely associated in traditions with the history of Spain. Furthermore, somewhat similar climatic conditions prevail, which logically creates a certain similarity in architectural design. In many cases, it cannot truthfully be said that these buildings are adaptations as so often they are accurate—or as accurate as possible—reproductions of certain old forms and are lacking almost entirely in evidence of creative ability. The house of P. L. Mannen in San Antonio, which is illustrated on the pages immediately following, has been designed to be appropriate to the climate of Texas, and, while it bears marked evidence of Spanish influence, may be said to be truly a modern American house.

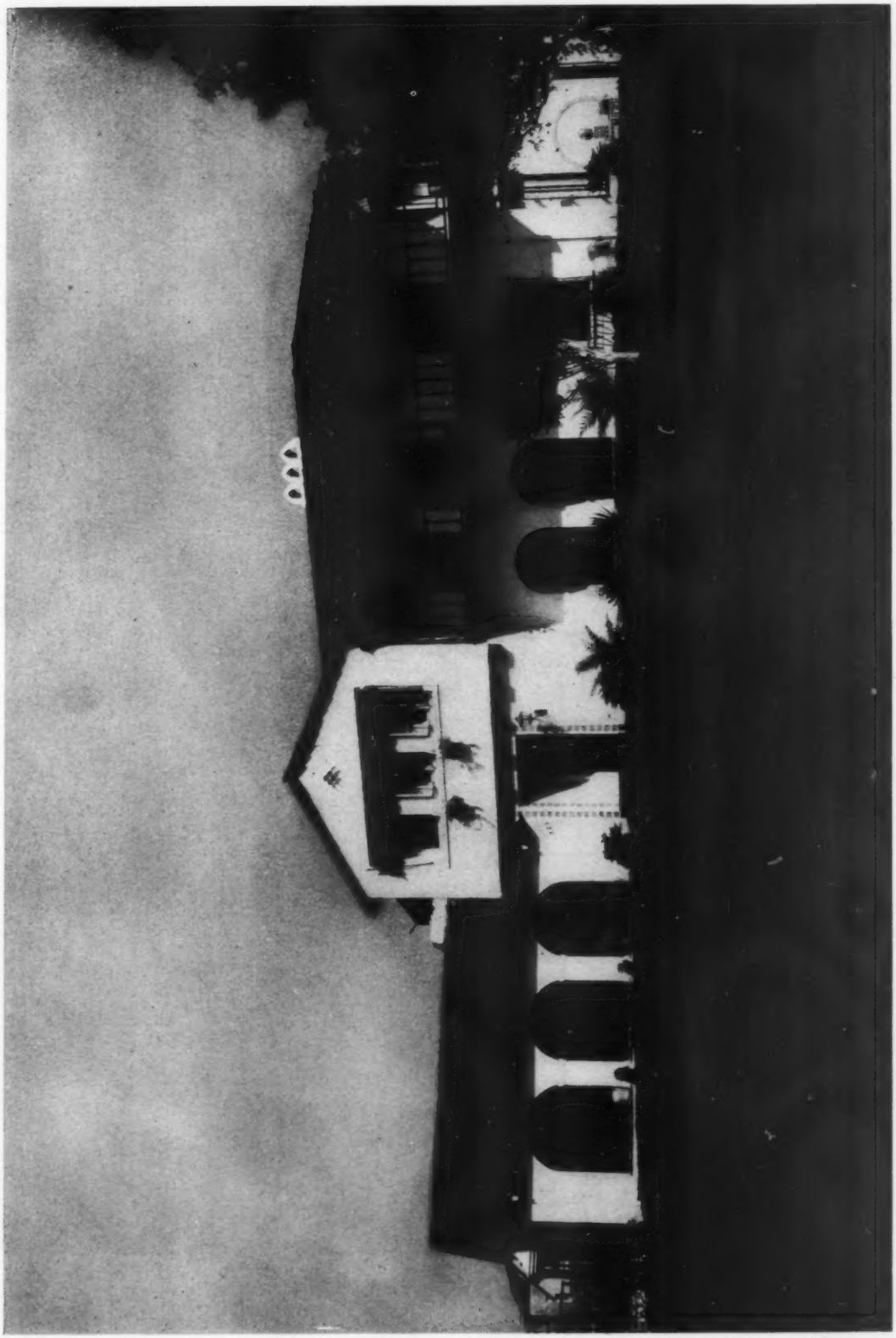
XUM





PLANS, HOUSE OF P. L. MANNEN, SAN ANTONIO, TEXAS

ATLEE B. & ROBERT M. AYRES, ARCHITECTS



HOUSE OF P. L. MANNEN, SAN ANTONIO, TEXAS—ATLEE B. & ROBERT M. AYRES, ARCHITECTS

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HOUSE OF P. L. MANNEN, SAN ANTONIO, TEXAS

ATLEE B. & ROBERT M. AYRES, ARCHITECTS

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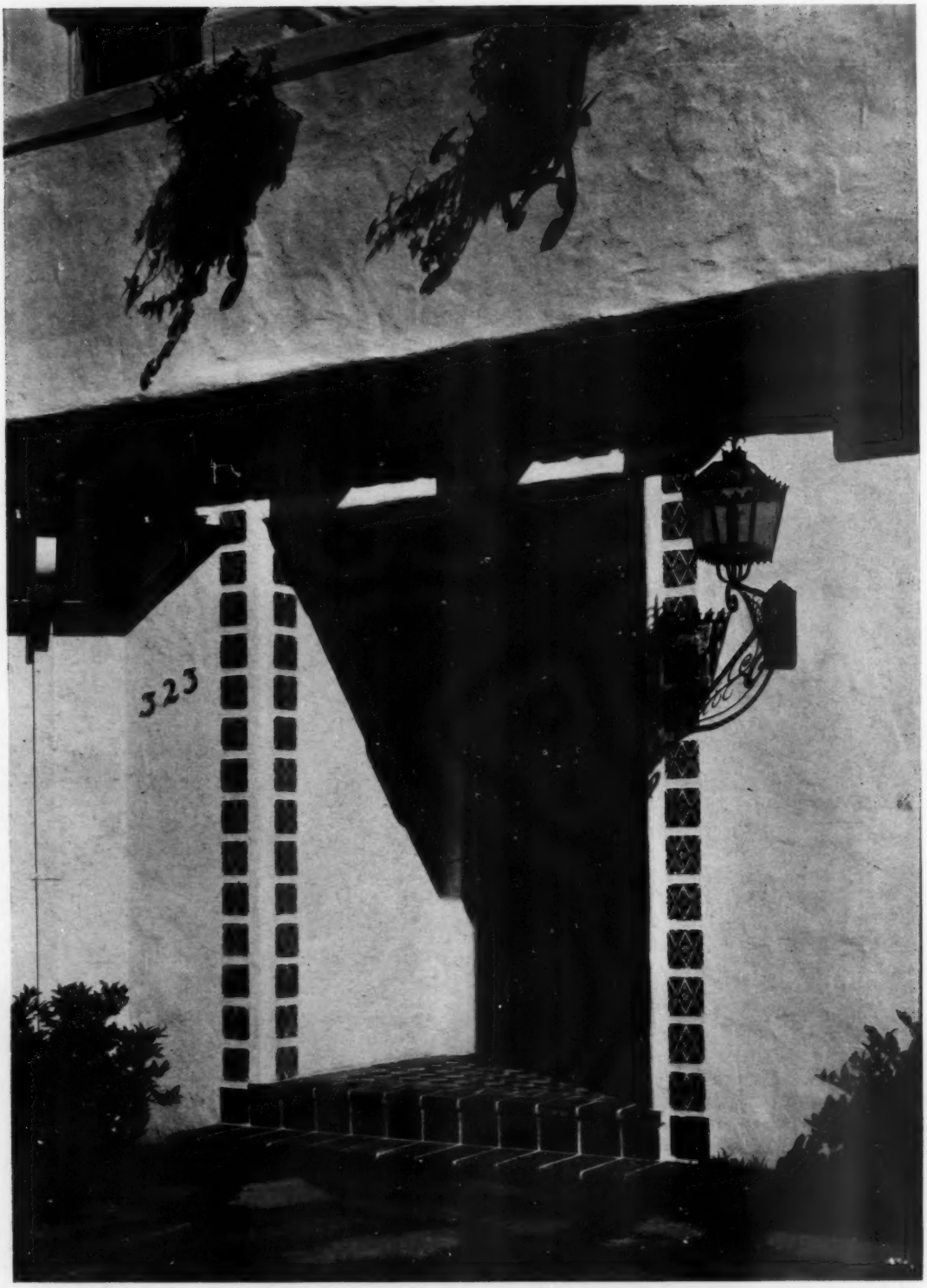
HOUSE OF P. L. MANNEN, SAN ANTONIO, TEXAS

ATLEE B. & ROBERT M. AYRES, ARCHITECTS



HOUSE OF P. L. MANNEN, SAN ANTONIO, TEXAS

ATLEE B. & ROBERT M. AYRES, ARCHITECTS

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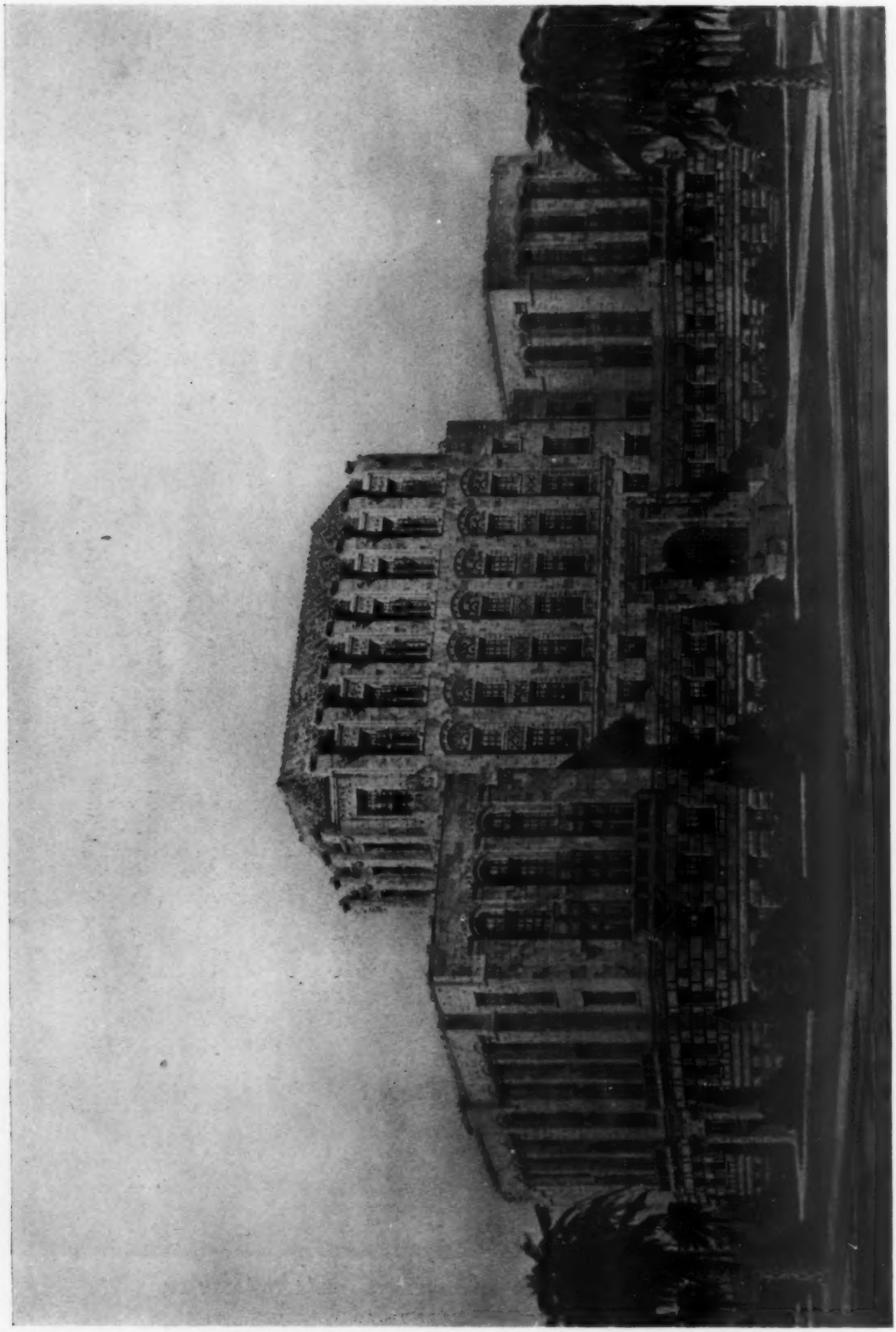
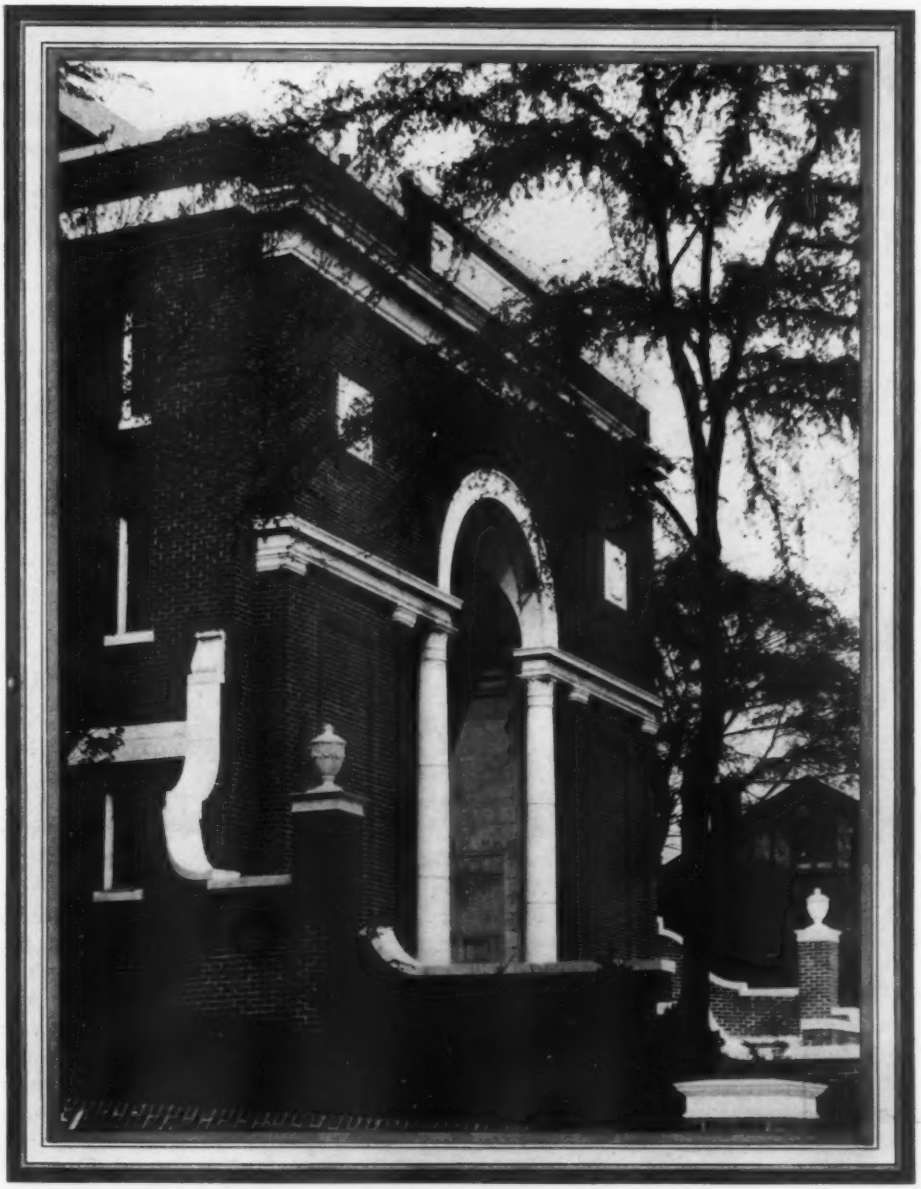
BUILDING FOR T. EATON COMPANY, LTD., TORONTO, CANADA

ROSS & MACDONALD, ARCHITECTS; SPROATT & ROLPH, ASSOCIATE ARCHITECTS



MARICOPA COUNTY COURT HOUSE, PHOENIX, ARIZ.—EDWARD F. NEILD, ARCHITECT

GEORGIA MARBLE



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BOOK NOTES

EARLY AMERICAN MANOR HOUSES

THOSE interested in early American architecture, —and who of us is not?—will find a new book, "Manor Houses and Historic Homes of Long Island and Staten Island," greatly to their liking. The author is Harold Donaldson Eberlein, whose familiarity with this period of architecture is well known and whose books on subjects of a similar character have stamped him as an authority. The reading matter is presented in the author's familiar intimate style which is easily read and always instructive. The illustrations, which are freely interspersed, are beautifully reproduced and the typography is in perfect keeping with the subject matter. The text deals with the development of domestic architecture on Long Island and Staten Island and is closely aligned with the history of this locality. We heartily recommend a reading of the book.

Manor Houses and Historic Homes of Long Island and Staten Island, by Harold Donaldson Eberlein. J. B. Lippincott Company, Philadelphia, publishers. Over three hundred pages and index, illustrated with full page plates. Size 9½ x 6½ inches. Board covers. Price $12.50.

DRAWING WITH PEN AND INK

LIKE its companion book, "Sketching and Rendering in Pencil," "Drawing with Pen and Ink," by Arthur Guptill, is based partly on lectures given by the author in his classes at Pratt Institute, Brooklyn, N. Y., and partly on his experience as a professional illustrator and as an architectural renderer.

The volume offers much of value to everyone, whether novice or adept, who is interested in the art of drawing with pen and ink. The chapters treat the subject comprehensively from instructions and suggestions about drawing materials to the vagaries of technique. The unity of each chapter has been preserved, so that if read by itself it has a complete meaning.

The illustrations show various subjects handled in a wide variety of ways. The elementary illustrations, reproduced at the approximate size of the original drawings so that each individual pen stroke appears, in size and character, much as it was drawn, are invaluable. The illustrations drawn by the author simplify and clarify the points brought out by the text. The supplementary illustrations have been selected and arranged so that every drawing, aside from being an example of pen work done by an expert, visualizes the point discussed in the text. Marginal sketches, which have been used to illustrate the text, serve also as a pictorial index.

In addition to an exhaustive text and hundreds of illustrations by the author, the book is embellished by examples of the work of leading illustrators and architectural renderers, such as Charles Dana Gibson, Aubrey Beardsley, A. B. LeBoutillier, Rockwell Kent, Franklin Booth, Gerald K. Geerlings, Willy Pogany, Bertram Grosvenor Goodhue, F. L. Griggs, Samuel V. Chamberlain, Louis C. Rosenberg, John Richard Rowe, Hubert G. Ripley and many others.

The book offers practical instruction in the art of pen drawing, rather than a statement of facts concerning its history or a discussion of the relative merits of the work of its followers. Students and draftsmen will find it a sound and complete guide for the study of pen and ink and its various techniques.

Drawing with Pen and Ink. By Arthur L. Guptill. 444 pages, 9 x 12. Illustrated. Bound in Silk Pattern Cloth. Price $8.50. *The Pencil Points Press, Inc., New York City.*

A HISTORY OF ARCHITECTURE

A REVISED edition of "A History of Architecture," by the late Professor A. D. F. Hamlin of Columbia University, has recently been completed. The revision, by Talbot Faulkner Hamlin, consists chiefly of the rewriting of paragraphs on the Far East, in the light of discoveries made within the six years since Professor Hamlin's last revision, and the chapter on "Contemporary Architecture." Otherwise the work remains as the author left it. "Even where my own personal judgment might differ from his," states T. F. Hamlin in the preface,"—as, notably, in his destructive criticism of the Italian Baroque style and its artists (a view from which most modern critics must energetically dissent)—I have nevertheless left the original text." The chapter on "Contemporary Architecture" is a concise and thoughtful discussion of the modern movement, citing only a few well chosen examples. The new style is analyzed to show its source and its potentialities, and its treatment in the United States and in several European countries is briefly indicated. This revision brings Professor Hamlin's work up to date, and by continuing his careful and sound analysis assures the book its old place as a standard history of architecture.

A History of Architecture. By A. D. F. Hamlin, A.M., L.H.D., F.A.I.A., late Professor of the History of Architecture in Columbia University. Revised Edition. Longmans, Green & Company, New York, London, and Toronto. Price $2.50.

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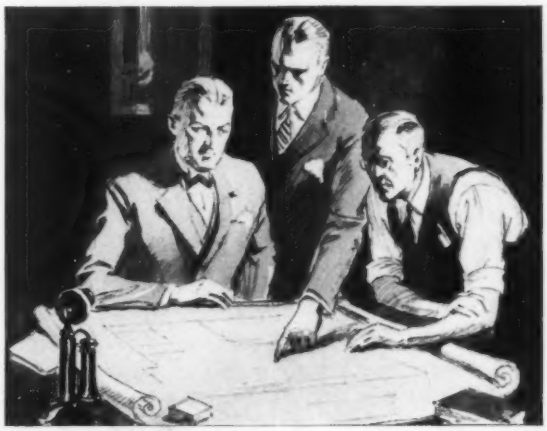

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AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS TO MEET IN CHICAGO

THE thirty-fifth annual meeting of the American Society of Heating and Ventilating Engineers will be held at the Edgewater Beach Hotel, Chicago, Ill., January 28, 29, 30 and 31, 1929. A. C. Willard, A. P. Kratz, M. K. Fahnestock and S. Konzo will speak on "Heating Rooms with Direct Steam Radiators Equipped with Enclosures and Shields." J. H. Milliken and H. C. Murphy will discuss "The Architectural Aspect of Concealed Heaters." The program of the meeting indicates several addresses that should be interesting to architects as well as heating and ventilating engineers. The general chairman of the meeting is H. G. Thomas.

THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA MEETS AT MONTREAL AND TORONTO

THE twenty-second general annual meeting of The Royal Architectural Institute of Canada will open in Montreal, Quebec, on Thursday, February 21st, 1929. The meeting will be adjourned to resume its business in Toronto, Ontario, on Friday and Saturday, February 22nd and 23rd, 1929.

The program of this meeting will be as follows: (1) meeting of the (1928) Council; (2) sessions of the general annual meeting—routine business, reports and miscellaneous matters; (3) meeting of the (1929) Council for the election of officers and other matters; and (4) annual dinner. Requests for further particulars should be addressed to Alcide Chausse, Honorary Secretary of The Royal Architectural Institute of Canada, at 2020, Union Avenue, Montreal, Canada.

ABSTRACTS OF M. I. T. PUBLICATIONS

WE have recently received copies of two booklets: Numbers One and Two of the Abstracts of Scientific and Technical Publications from the Massachusetts Institute of Technology, dated January, 1928, and June, 1928, respectively. The former covers the year from January 1 to December 31, 1927; the latter, the period from January 1 to June 30, 1928. As the titles imply, these booklets contain abstracts of the periodical publications, books and reviews of all departments at Technology, as well as abstracts of theses presented for doctor's degrees. They serve as a record of the major work done at M.I.T. during the eighteen months which they cover.

WASHINGTON STATE SOCIETY ELECTS OFFICERS

THE annual meeting and banquet of the Washington State Society of Architects was held December 6 at the Hotel Gowman. The regular election of officers resulted in the election of President William J. Jones to succeed himself for the ensuing year.

Other officers elected are: 1st vice-president, R. C. Stanley, Seattle; 2nd vice-president, Julius A. Zittel, Spokane; 3rd vice-president, Stanley A. Smith, Pullman; 4th vice-president, Martin Klein, Centralia; secretary, O. F. Nelson, Seattle; treasurer, H. G. Hammond, Seattle; trustee '32, Harry H. James, Seattle.

A. S. T. M. INDEX

THE American Society for Testing Materials has issued an index to A. S. T. M. standards and tentative standards, complete to September 1, 1928. This index was deemed desirable by the Society since its standards and tentative standards now number 548. Producers of materials and others will find this index of value in ascertaining whether the A. S. T. M. has prepared a specification or test covering a given material, and, if so, its title and serial designation and where it is published in its latest form. This index will be published annually by the Society and may be obtained without charge by addressing the American Society for Testing Materials, 1315 Spruce Street, Philadelphia, Pa.

INTERNATIONAL TEMPERATURE SCALE

RESEARCH Paper No. 22, a reprint from the Bureau of Standards Journal of Research for October, 1928, has just come to our desk. It contains the results of the combined research of the Bureau of Standards of the United States Department of Commerce, the National Physical Laboratory of Great Britain, and the Physicalisch-Technische Reichanstalt of Germany. The purpose of the research was to obtain a scale which might be universally used for practical and industrial work, instead of the absolute Centigrade scale which is more difficult to reproduce. Copies of the paper may be secured for five cents on application to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

Horace Ginsberg, architect, has announced the opening of his new offices at 205 East 42nd Street, New York City.

XUM

These advantages of Carney Cement mortar are worthy of every architect's consideration

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Cincinnati, Ohio
Architect—J. G. Steinkamp
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THE PROGRESS OF THE QUANTITY SYSTEM

AT a recent convention of the American Institute of Quantity Surveyors an interesting account was given of the progress that has been made toward the adoption of a Quantity System in the United States.

It seems that from about 1890 to 1925, Mr. G. Alexander Wright, a San Francisco architect, worked diligently though almost alone to introduce the system as he had known it in England and Australia. About 1915 it was seriously considered by the American Institute of Architects and, largely through the efforts of Sullivan W. Jones of New York, there was a report made in 1922 by a Joint Committee consisting of representatives of The American Institute of Architects, the Associated General Contractors of America and the Federated Engineering Societies. This report and certain specific recommendations of this Joint Committee were formally approved by The American Institute of Architects. The next important development was the recommendation of the A. G. C. of A., that Quantity Survey Bureaus be established by all A. G. C. chapters, and later a similar recommendation was made by The National Association of Builders' Exchanges. As a result, many such bureaus have been established and most of them are now in successful operation. There are also Quantity Survey Bureaus conducted by several Trade Associations of Sub-Contractors, some of which have been more successful than others. In the meantime, it was brought out at the convention, there were also established individual or private Quantity Survey Bureaus; and in 1926 there was organized the American Institute of Quantity Surveyors, which disclosed the interesting fact that its charter membership contains names of persons or firms engaged in the professional practice of Quantity Surveying in 21 cities extending from coast to coast.

It is understood that the Quantity System has made rapid strides in the past few years, and that its general use in the construction industry is confidently expected in the near future by those who are most familiar with the work being done by the American Institute of Quantity Surveyors.

BUILDING CONGRESS FORMED AT INDIANAPOLIS

BUILDING construction industries in Indianapolis, Ind., have organized a Building Congress to promote the general welfare of the industry locally. Robert Frost Daggett, architect, has been elected as the first president of the organization.

HOUSING CONFERENCE AT PHILADELPHIA

ON January 28-30, Philadelphia will be the scene of a National Housing Conference called by the National Housing Association. Many housing problems will be discussed from many angles. Among the subjects planned for discussion are slum clearance, kitchen planning, sub-division control, the cost of working men's homes, and the certification of buildings as Grade A, B, or C, for the purpose of safeguarding building buyers just as milk buyers are now protected. On the final evening of the conference, there will be a banquet at which talks and discussion will center around the subject, "The Monster City."

A SOCIETY OF MEDALISTS

THE American Federation of Arts has undertaken the project of forming into a society a sufficient number of persons to pay the costs incidental to the designing of two medals each year by well known sculptors, for reproduction of these medals in bronze and for their distribution to the entire membership of the society. The ideas back of this work are the stimulation of appreciation of medallic art in America and the creation of a medium through which a demand for the production of beautiful examples of this art would be developed. It is proposed to call this organization the Society of Medalists. A letter of announcement and invitation has been distributed. It could be started with a minimum of 1,000 members with dues of $8.00 a year. Further information can be obtained by addressing the Society at the Barr Building, Washington, D. C.

MANUFACTURE OF CLAY ROOFING TILES IN EUROPE

BUILDING Research Bulletin No. 4 of the Department of Scientific and Industrial Research has recently been published. It is entitled "The Manufacture of Roofing Tiles in France, Belgium and Holland," and is devoted to the manufacture of tiles in most common use in Great Britain, that is, those of Courtrai in Belgium; Nord, Beauvais, Marseilles and Paris in France; and the province of Limburg in Holland. The first section takes up the process of manufacture, and the second descriptions of the various plants. Copies of the bulletin may be obtained for 6d. from H. M. Stationery Office, or in the United States from The British Library of Information, French Building, 5 East 45th Street, New York City.

XUM

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PRODUCERS' COUNCIL MEETING

THE fifth annual meeting of the Producers' Council was held in New Orleans, La., on November 13, 14 and 15, 1928. Among the features of the meeting were three speeches. The first, by Charles A. Favrot, F.A.I.A., pointed out that much of the trade literature sent to architects in the past had missed its mark because it had tried to influence the architects into using the material without investigation. Mr. Favrot suggested that producers give more attention to the manner of presentation of material both by literature and through their salesmen. Second, in connection with the fact that the Mississippi Valley Flood Control Bill will improve conditions in the lower end of the valley and release for industrial activities much money which has heretofore been needed for river control purposes, Major John C. H. Lee, of the Engineers Corps, U. S. A., explained how the ten-year program of the Army Engineers will eliminate any danger of such disastrous floods as there have been in the past. The third talk, by General Allison Owen, A.I.A., Past President of the Association of Commerce, was devoted to the early history of New Orleans. Discussion brought out that effort should be made in the offices of architects to save the time of material men, for example by listing the names of persons responsible for specifications on various buildings, with the times at which they may be seen, and that architects should provide in their specifications for some method of protecting, during the completion of a building, work done in the early stages. The Regional Meetings Committee reported that as the Regional Meetings held in Detroit, Pittsburgh and Cincinnati had been successful in promoting contact between the local offices of members and the architects, arrangements were being made for additional meetings in Chicago, Philadelphia and Boston, that in Chicago to be held February 12, 1929, in connection with a "City Planning" movement.

BUREAU OF STANDARDS RESEARCH PAPER

THE Bureau of Standards of the Department of Commerce has recently issued Research Paper 6, entitled "Some Measurements of the Transmission of Ultra-violet Radiation Through Various Kinds of Fabrics." It contains a description of the experimental procedure and a discussion of the transmission data on various fabrics and of feathers and animal tissue. Copies may be obtained for five cents on application to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

REVISION OF SIMPLIFIED PRACTICE RECOMMENDATION NO. 61

THE Division of Simplified Practice is circularizing the mosaic and tile industries to ascertain the need for a revision of Simplified Practice Recommendation No. 61, White Glazed Tile and Unglazed Ceramic Mosaic, before the standing committee of the industry meets. The purpose of this circularizing is to put before the committee data upon which to base an intelligent review of the existing standards.

ENGINEERING EXPERIMENT STATION BULLETINS

FOUR bulletins issued by the Engineering Experiment Station of the University of Illinois have recently come to our desk. Bulletin No. 180, on "The Classification of Coal," includes a number of tables in which the coals of the world are classified, and a presentation of the formula used as the basis of this classification. Bulletin No. 181, "The Thermal Expansion of Fireclay Bricks," is the report of an investigation to determine the thermal expansion of twenty brands of fireclay bricks for the temperature range from 25 degrees to approximately 900 degrees Centigrade, along with other properties that would be of interest in connection with these data. Bulletin No. 182, "Flow of Brine in Pipes," is the result of investigation on the relation among the factors of frictional resistance, dimensions of the pipe, and average velocity, viscosity and density of the fluid, these factors being considered under the conditions encountered in refrigeration practice. Circular No. 17, entitled "A Laboratory Furnace for Testing Resistance of Firebrick to Slag Erosion," contains a description of the experiment and results obtained with synthetic slag and with coal-ash slag. Copies of any of these publications may be obtained without charge by addressing the Engineering Experiment Station, Urbana, Illinois.

RESEARCH BULLETIN NO. 5

THE Producers' Council, affiliated with the American Institute of Architects, has recently issued Research Bulletin No. 5. These bulletins consist of sheets prepared for filing and indexed with the A.I.A. file number. Each sheet contains data furnished by the individual members of the Producers' Council to the Structural Service Department of the American Institute of Architects. The sheets are informative only, and contain no advertising.

XUM

THE plan and design of the modern apartment house offers to the profession a most pressing problem. In this issue we publish an article on "Apartment House Architecture" which, while critical in one sense, makes certain suggestions that if rightfully considered might result in a more happy solution of this perplexing problem. The article is followed by a group of photographs and plans of some of the most recent work of this type in various parts of the country. ☙ ☙ ☙ We are now free to announce definitely that the Fisher Building is to be presented in detail in the issue of February 20th. This building is one of the most successful of its type of the year and we feel it is a privilege that we are allowed to present it completely in the pages of THE AMERICAN ARCHITECT. ☙ ☙ ☙ About eight years ago, an experimental broadcasting studio was opened at Newark, New Jersey. This was a room about fifteen by thirty, with curtained walls to subdue noise, furnished with a few uncomfortable chairs, a phonograph and a rented piano. In contrast with this studio, we invite our readers to view a "modern" broadcasting studio and become familiar with its practical features. The design of the National Broadcasting Company illustrated in this issue will no doubt have a bearing on the design of other studios erected in the future. ☙ ☙ The page size of THE AMERICAN ARCHITECT has been reduced one-eighth inch in width and the same amount in height. This minor but important change was inaugurated with the first issue of 1929. This change will in no way affect the size of illustrations and will permit the magazine to be conveniently filed in a standard letter file by those who desire to preserve their architectural magazines in this manner. We believe that this slight reduction in size will meet with the approval of our subscribers.

February 5, 1929 *The Publishers*

XUM

ST. PAUL'S SCHOOL
CONCORD, N. H.

THE AMERICAN ARCHITECT
February 5, 1929

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